

# **Treasury Management: Theory and Practice**



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## **Chapter I**

# **Scope and Functions of Treasury Management**

**After reading this chapter, you will be conversant with:**

- What is Treasury Management?
- Structure and Organization of Treasury Management
- Role of Chief Financial Officer
- Functions of Treasurer and Controller
- Responsibilities of Treasurer

Traditionally, treasury managers have been focusing on cash management and investment decisions. For a treasurer, management of cash and other liquid assets like T-bills, CPs, etc. continues to be a key function in many organizations. In fact, treasury is a profit center in many banks and companies. Effective management of cash adds significantly to the liquidity and profitability of an organization.

The dynamics of financial markets the world over are undergoing a transformation as businesses are increasingly getting globalized and more and more economies are becoming market driven. As a result of this changing scenario, one of the major consequences is the increasing volatility in the level of market (interest) rates, exchange rates, money supply and general level of prices.

In fact, the specialist treasury function is a recent development in many organizations but has grown dramatically since the early 1970s.

## **Definition**

Many prominent financial practitioners and professionals – not surprising when the functions and operations of treasury differ widely from organization to organization, have defined treasury management differently. Depending on the size of the organization and nature of the business, the role of treasury can vary from simple cash management to all financial affairs excluding financial accounting, internal audit and other functions of a controller. For example, the functions of a treasury in a large textile unit are very different to a treasurer in a commercial bank. However, the fundamental elements of strategy, funds and risk management, tax planning, insurance, liquidity, internal controls and systems remain the same for all treasury departments. Treasury management can be defined as follows:

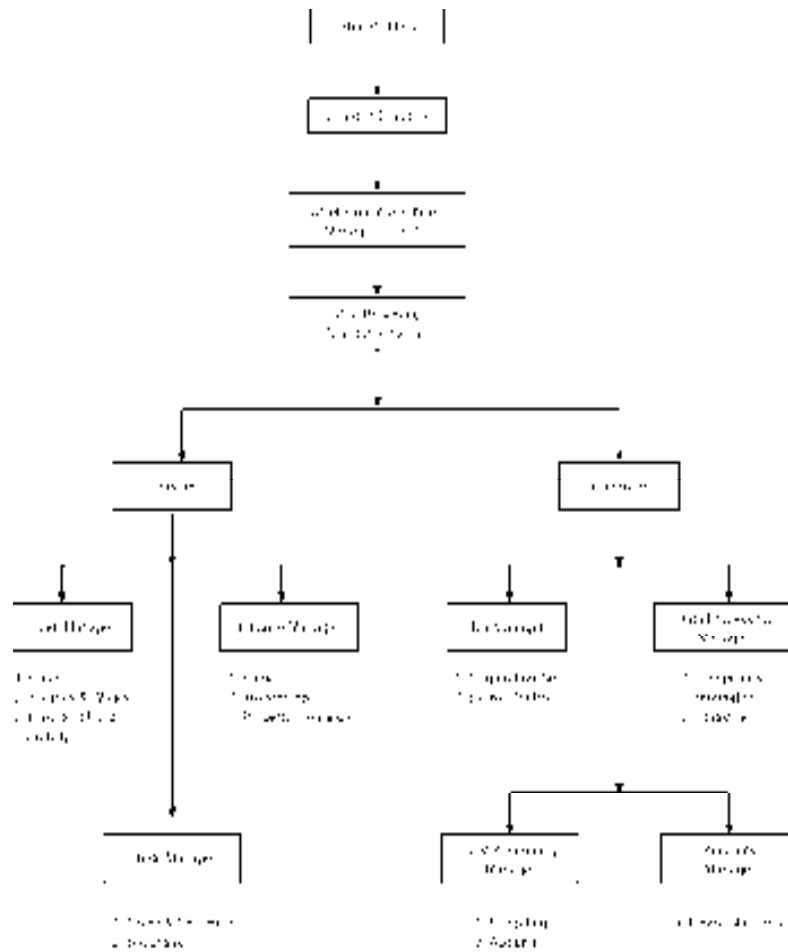
“Treasury management is the management of an organization’s liquidity to ensure that the right amount of cash resources are available in the right place in the right currency and at the right time in such a way as to maximize the return on surplus funds, minimize the financing costs of the business, and control interest rate risk and currency exposure to an acceptable level.”

In brief, treasury management is the efficient management of the financial risk and liquidity of the business.

The organization of finance department differs from organization to organization. There is no statutory pattern. Legally and theoretically, the right of managing a company vests in its shareholders, but their numbers being large and scattered, this task is entrusted to the Board of Directors. The main representative of the Board of Directors is the Chief Executive Officer/Managing Director. He is the competent authority to take decisions on matters relating to the overall policy formulations and execution. To learn about the constitution of the treasury, a study can be made about the constitution of the Finance department. The Vice-President (Finance) is the chief (head) of the Finance department, to whom the Treasurer and the Controller are responsible.

The size of the treasury depends on the size of the organization. Big companies, usually the public limited companies and large private sector giants like Reliance Industries Ltd., ITC, VST, etc. may have the structures as mentioned above or similar to it. However, small fledgling organizations usually have the Director (Finance) to take major policy decisions and fulfill the role of both the treasurer and the controller. He will have the finance manager, accounts officer and the cashier to look into the aspects of the implementation and thus assist him, or even in some cases some of the officials are responsible for more than one of the above listed functions. Once the rules and regulations are framed in respect to various functions of the treasury, it is important that these standards of accounting and control are properly implemented and strictly adhered to.

Figure 1: Structure and Organization of Treasury Management



## ROLE OF CHIEF FINANCIAL OFFICER

The Chief Financial Officer is responsible for all crucial financial decisions in the organization. Depending on the size of the organization, nature of its business, type of financing, etc., the CFO is given the designation of Vice-President (Finance) or Director (Finance) or General Manager (Finance) or Chief Manager (Finance).

The CFO is a member of the top management and is involved in the formulation of policies and decision-making, apart from the routine aspects of finance and accounting. The functions of the CFO are broadly categorized as that of a Controller and a Treasurer.

## FUNCTIONS OF A CONTROLLER

Just as the treasurer deals with liquid assets, the controller of the organization has to record the transactions of these liquid assets. It is the combined and effective working of both the departments that gives rise to an effective system of internal controls.

Some of the important functions of the Controller are:

- i. Records all transactions in the general ledger, the accounts receivables and the accounts payables sub ledger, transactions with respect to fixed assets such as depreciation, inventory control, etc.
- ii. Keeps track of the company's short-term investments by recording and reconciling the transactions with those of the brokerage firms.



- iii. Looks into the regulatory aspects and implementation of the company's policy on trade discounts and receivables ageing.
- iv. Acts as a planning director.
- v. Keeping a record of the attendance of the employees, their work timings so as to facilitate preparing payroll.
- vi. Reporting information to the management.

Those who assist the controller in accomplishing the above are the tax manager, data processing manager, cost accounting manager and accounting manager. Thus, the functions of financial accounting, internal audit, taxation, management accounting and control, budgeting – planning and control are accomplished.

## **FUNCTIONS OF A TREASURER**

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The treasury in the finance department deals with liquid assets; since the treasurer is the head of the treasury, he has a major responsibility of being a custodian of cash and other liquid assets. The other functions of the treasurer are:

- a. **Funding:** The treasurer has the responsibility of exploring and selecting best source of finance for funding long- and short-term cash requirements of the business. While determining the best source of finance, the treasurer must take various matters into consideration like debt structure of the organization, structure of the debt portfolio, and advantages and shortcoming of short- and long-term financing, etc.
- b. **Working Capital Management:** The goal of the working capital management is to maintain good balance between current assets and liabilities as per the requirements of the business. Since cash surplus as well as cash deficit is not recommendable for an organization, the treasurer has the responsibility to maintain an optimum cash level. A good working capital management maximizes the liquidity and profitability of the organization.
- c. **Better Investor Relations:** This involves establishing, strengthening and maintaining better interacting with interested members of the financing and investing community such as:
  - Individual Investors,
  - Institutional Investors,
  - Professional Fund Managers, and
  - Foreign Investors etc.
- d. **Good Banking Relationships:** In general, selection of appropriate, desirable and suitable banking services is the responsibility of the individuals responsible for cash management, who fall under the treasury belt. This includes cash transmission and bank account and bank relationship management.
- e. **Short-term Investments:** Idle cash incurs opportunity costs as time passes. The excessive surplus cash in the business may arise due to various factors such as cyclical, seasonal or temporary business trends. The treasurer has the authority to utilize surplus cash of the organization in short-term beneficial investments.
- f. **Risk (Hedging) and Forex Management:** Due to increasing globalization of business, the importance of risk and forex management has been spurring. The international treasurer has to ensure liquidity in foreign exchange funds without compromising profitability. On the other hand, risk management (hedging) involves the utilization of financial instruments to cushion the company against interest rate, commodity and currency exposures. (A more extensive discussion is provided later in this section.)

- g. **Establishing the Company Policy:** Functions of the treasurer, further includes establishing of company policy with respect to decision on trade discounts and vendor payment ageing.
- h. **Capital Structure Formulation:** The treasurer must formulate the capital structure for the organization in accordance to business goals and implement the same. He has the responsibility of taking appropriate debt vs. equity financing decisions. A wrong or inappropriate capital structure decision may through the business into irrecoverable losses.
- i. **Insurance and Tax Planning:** A sound tax planning involves utilization of various provisions of the statute that enables the organization to reduce the tax liability without violating the latter and spirit of the law. The treasurer must identify and undertake such transactions that will result in reduction/elimination of tax liabilities of the business.
- j. **Internal Treasury Controls:** The treasurer acts as a cashier; undertakes the role of an authorized signatory on payment cheques including the authority to approve such cheques. Even reconciliation of relevant accounts is an important function of the treasurer.

The treasury with the co-operation of the cash manager, finance manager and the credit manager implements all the above mentioned functions.

At the core of all the functions, he has to make two key decisions – the financing decision and the investment decision.

## **Financing Decision**

The financing decision relates to mobilization of funds to ensure smooth business activity and healthy growth of an organization.

The financing aspect involves decision-making about the following:

*How much to mobilize:* The treasurer has to estimate the amount of funds that will be required in future, and what part of this can be met by funds generated internally and how much will have to be mobilized from external sources.

*From where/whom to mobilize:* A firm has access to different sources of finance, both long-term and short-term. The treasurer has to decide which will be the most appropriate source of finance for his firm.

*At what costs:* All funds have a cost associated with them (e.g., interest on loans, debentures, etc. dividend on equity). The average cost of all the funds mobilized should be kept as low as possible.

*When to mobilize:* The treasurer has to estimate when a shortfall of funds will occur and raise funds accordingly.

## **Investment Decisions**

The funds generated in the course of business need to be put to further use. The investment decision relates to the selection of assets in which funds will be invested by the firm. The assets, which can be acquired fall into two categories – (i) long-term assets (ii) short-term or current assets – defined as those convertibles into cash usually within a year.

Accordingly, asset selection decision is also of two types: (i) the first involving long-term assets is popularly called capital budgeting, and (ii) the second involving short-term assets or current assets is popularly called working capital management.

A proper balance should be achieved between fixed and current assets. The money manager has to decide which kind of funds (long-term or short-term) should be used for financing either of the two kinds of (fixed or current) assets.

## **RESPONSIBILITIES OF A TREASURER**

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A treasurer has three responsibilities (i) funds management (ii) forex management and (iii) risk management. All the functions listed above fall under one or other of these broad categories.

*Funds Management:* It is the responsibility of the treasurer to ensure that the adequate funds are available for meeting the day-to-day requirements of the firm's operations, as also for its long-term needs and that no resources of the firm are kept idle.

Ideally the treasurer would like to fund the cash outflows from the cash inflows. However, in practice, this may not be possible due to various reasons such as: (i) Timing mismatch: Funds generated internally from sales may not be available when the payment becomes due because sales often do not translate into cash instantly. (ii) Mismatch of amount. The funds available on hand may not be sufficient to meet the obligations at a given point of time.

*Forex Management:* Whenever a business sources its inputs or produces and/or distributes its products in more than one country, it will have an income or expenditure, or an asset or liability, denominated in more than one currency. Due to increased internationalization of business, forex management has become one of the important responsibilities for a treasurer. The international treasurer has to ensure liquidity in foreign exchange funds without compromising profitability. Foreign exchange management is much more complicated than domestic funds management because of fluctuating exchange rates, international taxation problems, interdependencies of international markets, etc.

*Risk Management:* It has been stated that the primary task of the treasurer is to mobilize the right amount of funds from the right source at the right time at the lowest possible cost and put them to the right use. In this process, the firm is exposed to a variety of risks such as default risk, credit risk, country risk, political risk, exchange rate risk, liquidity risk, etc.

The treasurer needs to identify the financial risks to which the firm is exposed and also the level of risks acceptable to the firm. It is also important to know the extent to which the corporation is exposed in terms of transaction, translation and economic exposure. A treasurer should have a clear understanding of various operations of its subsidiaries abroad, before taking any risk management strategy as simple adjustments sometimes clears the firms with exposures and avoids the costs and time involved in taking a risk management strategy. Since every attempt to improve profitability has an attendant risk, he has to maximize returns and minimize costs at the level of risk acceptable to the firm.

Not only does the treasurer identify and gauge the risks, but he has to actively engage in minimizing the risks by using various hedging techniques such as options, futures, swaps, collars, floors and caps, etc.

## **SUMMARY**

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- Treasury management is the management of an organization's liquidity to ensure that the right amount of cash resources are available in the right place in the right currency and at the right time in such a way to maximize the return on surplus funds, minimize the financial costs of the business, and control interest rate risk and currency exposure to an acceptable level.
- The Chief Financial officer is responsible for all crucial financial decision in the organization.

### **Scope and Functions of Treasury Management**

- The Controller of the organization has to record the transactions of the liquid assets.
- Treasurer in the finance department deals with liquid assets. He has a responsibility of being a custodian of cash and other liquid assets. Other functions of treasurer includes Funding, Better Investor Relation, Working Capital Management, Good Banking Relationship, Short-Term Investments, Risk (Hedging) and Forex Management, Establishing the Company Policy, Capital Structure Formulation, Insurance and Tax Planning and Internal Treasury control.

## **Chapter II**

# **Time Value of Money**

**After reading this chapter, you will be conversant with:**

- The Concept of Time Value
- Process of Compounding
- Process of Discounting
- Future Value of a Single Flow
- Future Value of Multiple Flows
- Future Value of Annuity
- Present Value of a Single Flow
- Present Value of Uneven Multiple Flows
- Present Value of Annuity

## THE CONCEPT OF TIME VALUE

To keep pace with the increasing competition, companies have to go in for new ideas implemented through new projects be it for expansion, diversification or modernization. A project is an activity that involves investing a sum of money now in anticipation of benefits spread over a period of time in the future. How do we determine whether the project is financially viable or not? Our immediate response to this question will be to sum up the benefits accruing over the future period and compare the total value of the benefits with the initial investment. If the aggregate value of the benefits exceeds the initial investment, the project is considered to be financially viable.

While this approach *prima facie* appears to be satisfactory, we must be aware of an important assumption that underlies. We have assumed that irrespective of the time when money is invested or received, the value of money remains the same.

Put differently, we have assumed that:

value of one rupee now = value of one rupee at the end of year 1

= value of one rupee at the end of year 2 and so on.

We know intuitively that this assumption is incorrect because money has time value. How do we define this time value of money and build it into the cash flows of a project? The answer to this question forms the subject matter of this chapter.

We intuitively know that Rs.1,000 in hand now is more valuable than Rs.1,000 receivable after a year. In other words, we will not part with Rs.1,000 now in return for a firm assurance that the same sum will be repaid after a year. But we might part with Rs.1,000 now if we are assured that something more than Rs.1,000 will be paid at the end of the first year. This additional compensation required for parting with Rs.1,000 now is called 'interest' or the time value of money. Normally, interest is expressed in terms of percentage per annum for example, 12 percent p.a. or 18 percent p.a. and so on.

Why should money have time value? Here are some important reasons for this phenomenon:

Money can be employed productively to generate real returns. For instance, if a sum of Rs.100 invested in raw material and labor results in finished goods worth Rs.105, we can say that the investment of Rs.100 has earned a rate of return of 5 percent.

In an inflationary period, a rupee today has a higher purchasing power than a rupee in the future.

Since future is characterized by uncertainty, individuals prefer current consumption to future consumption.

The manner in which these three determinants combine to determine the rate of interest can be symbolically represented as follows:

Nominal or market interest rate = Real rate of interest or return

+ Expected rate of inflation

+ Risk premiums to compensate for uncertainty

There are two methods by which the time value of money can be taken care of – compounding and discounting. To understand the basic ideas underlying these two methods, let us consider a project which involves an immediate outflow of say Rs.1,000 and the following pattern of inflows:

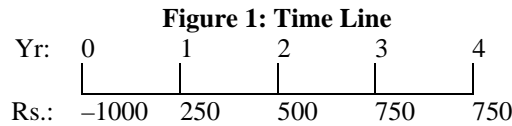
Year 1: Rs.250

Year 2: Rs.500

Year 3: Rs.750

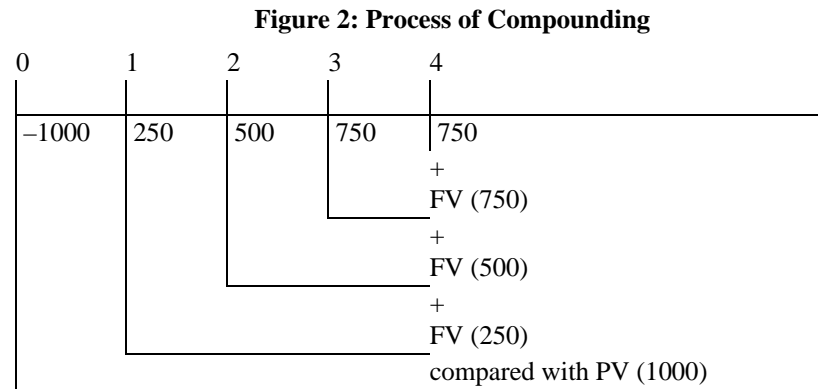
Year 4: Rs.750

The initial outflow and the subsequent inflows can be represented on a time line as given below:



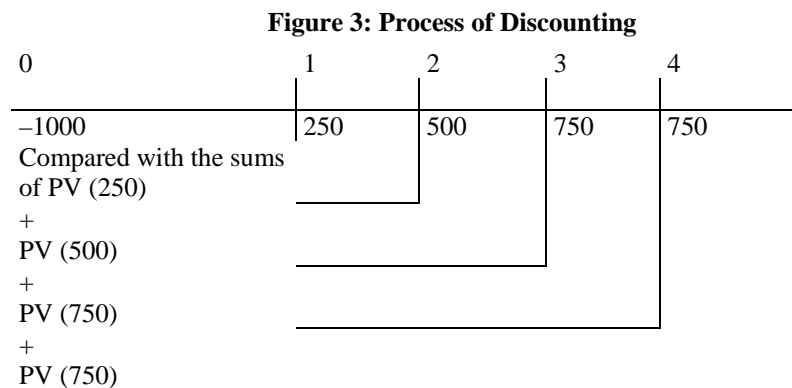
**PROCESS OF COMPOUNDING**

Under the method of compounding, we find the Future Values (FV) of all the cash flows at the end of the time horizon at a particular rate of interest. Therefore, in this case we will be comparing the future value of the initial outflow of Rs.1,000 as at the end of year 4 with the sum of the future values of the yearly cash inflows at the end of year 4. This process can be schematically represented as follows:



**PROCESS OF DISCOUNTING**

Under the method of discounting, we reckon the time value of money now i.e., at time 0 on the time line. So, we will be comparing the initial outflow with the sum of the Present Values (PV) of the future inflows at a given rate of interest. This process can be diagrammatically represented as follows:



How do we compute the future values and the present values? This question is answered in the latter part of the chapter. But before that, we must draw the distinction between the concepts of compound interest and simple interest. We shall illustrate this distinction through the following illustration.

**Illustration 1**

If X has a sum of Rs.1,000 to be invested, and there are two schemes, one offering a rate of interest of 10 percent, compounded annually, and other offering a simple rate of interest of 10 percent, which one should he opt for assuming that he will withdraw the amount at the end of (a) one year (b) two years, and (c) five years?

**Solution**

Given the initial investment of Rs.1,000, the accumulations under the two schemes will be as follows:

End of year	Compounded Interest Scheme	Simple Interest Scheme
1	$1000 + (1000 \times 0.10) = 1100$	$1000 + (1000 \times 0.10) = 1100$
2	$1100 + (1100 \times 0.10) = 1210$	$1100 + (1000 \times 0.10) = 1200$
3	$1210 + (1210 \times 0.10) = 1331$	$1200 + (1000 \times 0.10) = 1300$
4	$1331 + (1331 \times 0.10) = 1464$	$1300 + (1000 \times 0.10) = 1400$
5	$1464 + (1464 \times 0.10) = 1610$	$1400 + (1000 \times 0.10) = 1500$

From this table, it is clear that under the compound interest scheme interest earns interest, whereas interest does not earn any additional interest under the simple interest scheme. Obviously, an investor seeking to maximize returns will opt for the compound interest scheme if his holding period is more than a year. We have drawn the distinction between compound interest and simple interest here to emphasize that in financial analysis we always assume interest to be compounded.

**FUTURE VALUE OF A SINGLE FLOW (LUMP SUM)**

The above table illustrates the process of determining the future value of a lump sum amount invested at one point of time. But the way it has gone about calculating the future value will prove to be cumbersome if the future value over long maturity periods of 20 years or 30 years is to be calculated. A generalized procedure for calculating the future value of a single cash flow compounded annually is as follows:

$$FV_n = PV(1 + k)^n$$

Where,  $FV_n$  = Future value of the initial flow n years hence

$PV$  = Initial cash flow

$k$  = Annual rate of interest

$n$  = Life of investment

In the above formula, the expression  $(1 + k)^n$  represents the future value of an initial investment of Re.1 (one rupee invested today) at the end of n years at a rate of interest k referred to as Future Value Interest Factor (FVIF, hereafter). To simplify calculations, this expression has been evaluated for various combinations of k and n and these values are presented in Table 1 at the end of this book. To calculate the future value of any investment for a given value of 'k' and 'n', the corresponding value of  $(1 + k)^n$  from the table has to be multiplied with the initial investment.

**Illustration 2**

The fixed deposit scheme of Andhra Bank offers the following interest rates.

Period of Deposit	Rate per Annum
46 days to 179 days	10.0%
180 days to < 1 year	10.5%
1 year and above	11.0%

An amount of Rs.10,000 invested today will grow in 3 years to

$$\begin{aligned} FV_n &= PV(1 + k)^n \\ &= PV \times FVIF_{(11,3)} \\ &= 10,000 (1.368) \\ &= \text{Rs.13,680} \end{aligned}$$

**Doubling Period**

A frequent question posed by the investor is, "How long will it take for the amount invested to be doubled for a given rate of interest". This question can be answered by a rule known as 'rule of 72'. Though it is a crude way of calculating, this rule says that the period within which the amount will be doubled is obtained by dividing 72 by the rate of interest.



For instance, if the given rate of interest is 6 percent, then doubling period is  $72/6 = 12$  yrs.

However, an accurate way of calculating doubling period is the 'rule of 69', according to which, doubling period =  $0.35 + (69/\text{interest rate})$

**Illustration 3**

The following is the calculation of doubling period for two rates of interest i.e., 6 percent and 12 percent.

Rate of interest	Doubling Period
6%	$0.35 + 69/6 = 0.35 + 11.5 = 11.85$ yrs.
12%	$0.35 + 69/12 = 0.35 + 5.75 = 6.1$ yrs.

**Growth Rate**

The compound rate of growth for a given series after a period of time can be calculated by employing the Future Value Interest Factor Table (FVIF).

**Illustration 4**

Years	1	2	3	4	5	6
Profits (in lakh)	95	105	140	160	165	170

How is the compound rate of growth for the above series determined? This can be done in two steps:

- The ratio of profits for year 6 to year 1 is to be determined i.e.,  $170/95 = 1.79$ .
- The FVIF<sub>K (n-1)</sub> table is to be looked at. Look at a value which is close to 1.79 for the row for 5 years.

The value close to 1.79 is 1.762 and the interest rate corresponding to this is 12 percent. Therefore, the compound rate of growth is 12 percent.

**Increased Frequency of Compounding**

In the above illustration, the compounding has been done annually. Suppose we are offered a scheme where compounding is done more frequently. For example, assume you have deposited Rs.10,000 in a bank which offers 10 percent interest per annum compounded semi-annually which means that interest is paid every six months.

		Rs.
Now, amount in the beginning	=	10,000
Interest @ 10 percent p.a. for first six months		
$\left(10,000 \times \frac{0.1}{2}\right)$	=	500
Amount at the end of six months	=	10,500
Interest for second 6 months $\left(10,500 \times \frac{0.1}{2}\right)$	=	525
Amount at the end of the year	=	11,025

Instead, if the compounding is done annually, the amount at the end of the year will be  $10,000 (1 + 0.1) = \text{Rs.}11,000$ . This difference of Rs.25 is because under semi-annual compounding, the interest for first 6 months earns interest in the second 6 months.

The generalized formula for these shorter compounding periods is

$$FV_n = PV \left( 1 + \frac{k}{m} \right)^{m \times n}$$

- Where,  $FV_n$  = Future value after 'n' years  
 $PV$  = Cash flow today  
 $k$  = Nominal interest rate per annum  
 $m$  = Number of times compounding is done during a year  
 $n$  = Number of years for which compounding is done.

**Illustration 5**

Under the Vijaya Cash Certificate scheme of Vijaya Bank, deposits can be made for periods ranging from 6 months to 10 years. Every quarter, interest will be added on to the principal. The rate of interest applied is 9 percent p.a. for periods from 12 to 23 months and 10 percent p.a. for periods from 24 to 120 months.

An amount of Rs.1,000 invested for 2 years will grow to

$$FV_n = PV \left( 1 + \frac{k}{m} \right)^{m \times n}$$

- Where,  $m$  = frequency of compounding during a year  
 $= 1,000 \left( 1 + \frac{0.10}{4} \right)^8$   
 $= 1,000(1.025)^8 = 1,000 \times 1.2184 = \text{Rs.}1,218$

**Effective vs. Nominal Rate of Interest**

We have seen above that the accumulation under the semi-annual compounding scheme exceeds the accumulation under the annual compounding scheme by Rs.25. This means that while under annual compounding scheme, the nominal rate of interest is 10 percent per annum, under the scheme where compounding is done semi-annually, the principal amount grows at the rate of 10.25 percent per annum. This 10.25 percent is called the effective rate of interest which is the rate of interest per annum under annual compounding that produces the same effect as that produced by an interest rate of 10 percent under semi-annual compounding.

The general relationship between the effective and nominal rates of interest is as follows:

$$r = \left( 1 + \frac{k}{m} \right)^m - 1$$

- Where,  $r$  = Effective rate of interest  
 $k$  = Nominal rate of interest  
 $m$  = Frequency of compounding per year

**Illustration 6**

Find out the effective rate of interest, if the nominal rate of interest is 12 percent and interest is quarterly compounded.

Effective rate of interest

$$r = \left( 1 + \frac{k}{m} \right)^m - 1$$

$$r = \left( 1 + \frac{0.12}{4} \right)^4 - 1$$

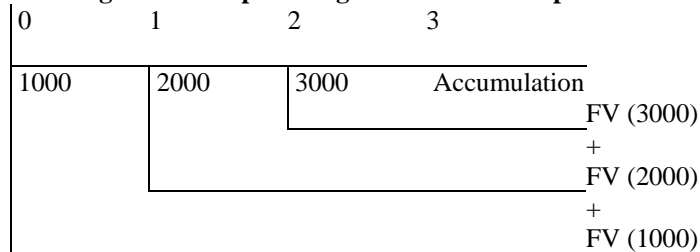
$$= (1 + 0.03)^4 - 1 = 1.126 - 1$$

$$= 0.126 = 12.6\% \text{ p.a.}$$

## FUTURE VALUE OF MULTIPLE FLOWS

Suppose we invest Rs.1,000 now (beginning of year 1), Rs.2,000 at the beginning of year 2 and Rs.3,000 at the beginning of year 3, how much will these flows accumulate to at the end of year 3 at a rate of interest of 12 percent per annum? This problem can be represented on the time line as follows:

Figure 4: Compounding Process for Multiple Flows



To determine the accumulated sum at the end of year 3, we have to just add the future compounded values of Rs.1,000, Rs.2,000 and Rs.3,000 respectively<sup>1</sup>

$$FV(\text{Rs.1,000}) + FV(\text{Rs.2,000}) + FV(\text{Rs.3,000})$$

$$\begin{aligned} \text{At } k &= 0.12, \text{ the above sum is equal to} \\ &= \text{Rs.1,000} \times FVIF_{(12,3)} + 2,000 \times FVIF_{(12,2)} + 3,000 \times FVIF_{(12,1)} \\ &= \text{Rs.}[(1,000 \times 1.405) + (2,000 \times 1.254) + (3,000 \times 1.120)] = \text{Rs.7,273} \end{aligned}$$

Therefore, to determine the accumulation of multiple flows as at the end of a specified time horizon, we have to find out the accumulations of each of these flows using the appropriate FVIF and sum up these accumulations. This process can get tedious if we have to determine the accumulation of multiple flows over a long period of time, for example, the accumulation of a recurring deposit of Rs.100 per month for 60 months at a rate of 1 percent per month. In such cases a short cut method can be employed provided the flows are of equal amounts. This method is discussed in the following section.

## FUTURE VALUE OF ANNUITY

Annuity is the term used to describe a series of periodic flows of equal amounts. These flows can be either receipts or payments. For example, if you are required to pay Rs.200 per annum as life insurance premium for the next 20 years, you can classify this stream of payments as an annuity. If the equal amounts of cash flow occur at the end of each period over the specified time horizon, then this stream of cash flows is defined as a regular annuity or deferred annuity. When cash flows occur at the beginning of each period the annuity is known as an annuity due.

The future value of a regular annuity for a period of n years at a rate of interest 'k' is given by the formula:

$$FVA_n = A(1+k)^{n-1} + A(1+k)^{n-2} + A(1+k)^{n-3} + \dots + A$$

which reduces to

$$FVA_n = A \left[ \frac{(1+k)^n - 1}{k} \right]$$

Where, A = Amount deposited/invested at the end of every year for n years

k = Rate of interest (expressed in decimals)

n = Time horizon

FVA<sub>n</sub> = Accumulation at the end of n years.

<sup>1</sup> Candidates who would like to know whether there is any short cut for evaluating  $(1+k)^n$  for values of 'k' not found in the table, are informed that there is no short cut method except using logarithms or the  $X^Y$  function found in scientific calculators.

The expression  $[(1+K)^n - 1]/k$  is called the Future Value Interest Factor for Annuity (FVIFA, hereafter) and it represents the accumulation of Re.1 invested or paid at the end of every year for a period of n years at the rate of interest 'k'. As in the case of the future value of a single flow, this expression has also been evaluated for different combinations of 'k' and 'n' and tabulated in Table 2 at the end of this book. So, given the annuity payment, we have to just multiply it with the appropriate FVIFA value and determine the accumulation.

**Illustration 7**

Under the recurring deposit scheme of the Vijaya Bank, a fixed sum is deposited every month on or before the due date opted for 12 to 120 months according to the convenience and needs of the investor. The period of deposit, however, should be in multiples of 3 months only. The rate of interest applied is 9 percent p.a. for periods from 12 to 24 months and 10 percent p.a. for periods from 24 to 120 months and is compounded at quarterly intervals.

Based on the above information the maturity value of a monthly installment of Rs.5 for 12 months can be calculated as below:

Amount of deposit = Rs.5 per month

Rate of interest = 9 percent p.a. compounded quarterly

$$\text{Effective rate of interest per annum} = \left(1 + \frac{0.09}{4}\right)^4 - 1 = 0.0931$$

$$\begin{aligned} \text{Rate of interest per month} &= (r + 1)^{1/m} - 1 = (1 + 0.0931)^{1/12} - 1 \\ &= 1.0074 - 1 = 0.0074 = 0.74\% \end{aligned}$$

Maturity value can be calculated using the formula

$$\begin{aligned} FVA_n &= A \left\{ \frac{(1 + k)^n - 1}{k} \right\} \\ &= 5 \left\{ \frac{(1 + 0.0074)^{12} - 1}{0.0074} \right\} = 5 \times 12.50 = \text{Rs.62.50} \end{aligned}$$

If the payments are made at the beginning of every year, then the value of such an annuity called annuity due is found by modifying the formula for annuity regular as follows:

$$FVA_n(\text{due}) = A (1 + k) FVIFA_{k,n}$$

**Illustration 8**

Under the Jeevan Mitra Plan offered by Life Insurance Corporation of India, if a person is insured for Rs.10,000 and if he survives the full term, then the maturity benefits will be the basic sum of Rs.10,000 assured plus bonus which accrues on the basic sum assured. The minimum and maximum age to propose for a policy is 18 and 50 years respectively.

Let us take two examples, one of a person aged 20 and another of 40 years old to illustrate this scheme.

The person aged 20, enters the plan for a policy of Rs.10,000. The term of policy is 25 years and the annual premium is Rs.41.65. The person aged 40, also proposes for the policy of Rs.10,000 and for 25 years and the annual premium he has to pay comes to Rs.57. What are the rates of return enjoyed by these two persons?

Rate of return enjoyed by the person of 20 years of age

Premium = Rs.41.65 per annum

Term of Policy = 25 years

Maturity Value = Rs.10,000 + bonus which can be overlooked as it is a fixed amount and does not vary with the term of policy.

We know that the premium amount when multiplied by FVIFA factor will give us the value at maturity.

$$\text{i.e. } P \times (1 + k) \text{ FVIFA}_{(k, n)} = MV$$

Where, P = Annual premium

n = Term of policy in years

k = Rate of return

MV = Maturity value

$$\text{Therefore, } 41.65 \times (1 + k) \text{ FVIFA}_{(k, 25)} = 10,000$$

$$(1 + k) \text{ FVIFA}_{(k, 25)} = 240.1$$

From table 2 at the end of the book, we can find that

$$(1 + 0.14) \text{ FVIFA}_{(14, 25)} = 207.33$$

$$\text{i.e. } (1.14) \text{ FVIFA}_{(14, 25)} = 1.14 \times 181.871 = 207.33$$

and

$$(1 + 0.15) \text{ FVIFA}_{(15, 25)} = 244.71$$

$$\text{i.e. } (1.15) \text{ FVIFA}_{(15, 25)} = 1.15 \times 212.793 = 244.71$$

By interpolation

$$k = 14\% + (15\% - 14\%) \times \frac{240.1 - 207.33}{244.71 - 207.33}$$

$$= 14\% + 1 \times \frac{32.77}{37.38} = 14\% + 0.87\% = 14.87\%$$

Rate of return enjoyed by the person aged 40

Premium = Rs.57 per annum

Term of Policy = 25 years

Maturity Value = Rs.10,000

$$\text{Therefore, } 57 \times (1 + k) \text{ FVIFA}_{(k, 25)} = 10,000$$

$$(1 + k) \text{ FVIFA}_{(k, 25)} = 175.44$$

From table 2 at the end of the book, we can find that

$$(1 + k) \text{ FVIFA}_{(13\%, 25)} = 175.85$$

$$\text{i.e., } (1.13) (155.62) = 175.85$$

$$\text{i.e., } k = 13\% \text{ (appr.)}$$

Here we find that the rate of return enjoyed by the 20-year old person is greater than that of the 40-year old person by about 2 percent in spite of the latter paying a higher amount of annual premium for the same period of 25 years and for the same maturity value of Rs.10,000. This is due to the coverage for the greater risk in the case of the 40-year old person.

Now that we are familiar with the computation of future value, we will get into the mechanics of computation of present value.

Sinking Fund Factor

We have the equation

$$FVA = A \left[ \frac{(1+k)^n - 1}{k} \right]$$

We can rewrite it as

$$A = FVA \left[ \frac{k}{(1+k)^n - 1} \right]$$

The expression  $\left[ \frac{k}{(1+k)^n - 1} \right]$  is called the Sinking Fund Factor. It represents the

amount that has to be invested at the end of every year for a period of “n” years at the rate of interest “k”, in order to accumulate Re.1 at the end of the period.

## PRESENT VALUE OF A SINGLE FLOW

Discounting as explained earlier is an alternative approach for reckoning the time value of money. Using this approach, we can determine the present value of a future cash flow or a stream of future cash flows. The present value approach is the commonly followed approach for evaluating the financial viability of projects.

If we invest Rs.1,000 today at 10 percent rate of interest for a period of 5 years, we know that we will get Rs.1,000 x FVIF<sub>(10,5)</sub> = Rs.1,000 x 1.611 = Rs.1,611 at the end of 5 years. The sum of Rs.1,611 is called the accumulation of Rs.1,000 for the given values of ‘k’ and ‘n’. Conversely, the sum of Rs.1,000 invested today to get Rs.1,611 at the end of 5 years is called the present value of Rs.1,611 for the given values of ‘k’ and ‘n’. It, therefore, follows that to determine the present value of a future sum we have to divide the future sum by the FVIF value corresponding to the given values of ‘k’ and ‘n’ i.e., present value of Rs.1,611 receivable at the end of 5 years at 10 percent rate of interest.

$$= \text{Rs.} \frac{1611}{\text{FVIF}_{(10,5)}} = \text{Rs.} \frac{1611}{1.611} = \text{Rs.}1,000$$

In general the present value (PV) of a sum (FV<sub>n</sub>) receivable after n years at a rate of interest (k) is given by the expression.

$$\text{PV} = \frac{\text{FV}_n}{\text{FVIF}_{(k,n)}} = \frac{\text{FV}_n}{(1+k)^n}$$

The inverse of FVIF<sub>(k,n)</sub> is defined as PVIF<sub>(k,n)</sub> (Present Value Interest Factor for k, n). Therefore, the above equation can be written as

$$\text{PV} = \text{FV}_n \times \text{PVIF}_{(k,n)}$$

Therefore to determine the present value of a future sum, we have to just locate the PVIF factor for the given values of k and n and multiply this factor value with the given sum. Since PVIF<sub>(k,n)</sub> represents the present value of Re.1 receivable after n years at a rate of interest k, it is obvious that PVIF values cannot be greater than one. The PVIF values for different combinations of k and n are given in table 3 at the end of this book.

### Illustration 9

The cash certificates of Andhra Bank is a term deposit scheme under reinvestment plan. Interest on deposit money earns interest as it is reinvested at quarterly rests. These deposits suit depositors from lower and middle income groups, since the small odd sums invested grow into large amounts over a period of time.

Given an interest rate of 12 percent p.a. on a certificate having a value of Rs.100 after 1 year, the issue price of the cash certificate can be calculated as below.

The effective rate of interest has to be calculated first.

$$r = \left(1 + \frac{k}{m}\right)^m - 1$$
$$r = \left(1 + \frac{0.12}{4}\right)^4 - 1 = 12.55\%$$

The issue price of the cash certificate is

$$PV = \frac{FV_n}{(1+k)^n} = \frac{100}{(1+0.1255)^1} = \text{Rs.}88.85$$

### Illustration 10

Pragati cash certificate scheme of Syndicate Bank is an ideal scheme for all classes of people under different income groups. A small odd sum can be invested for a period ranging from 1 to 10 years. The certificates are issued in convenient denominations of Rs.25, Rs.100, Rs.1,000, and Rs.1,00,000. The rate of interest is 12 percent p.a. compounded quarterly.

To calculate the issue price of a certificate of Rs.1,00,000 to be received after 10 years, the following formula can be used

$$PV = \frac{FV_n}{(1+k)^n}$$

Firstly, the effective rate of interest has to be calculated.

$$r = \left(1 + \frac{0.12}{4}\right)^4 - 1 = 12.55\%$$

The issue price of the cash certificate can now be calculated as:

$$PV = \frac{FV_n}{(1+k)^n}$$
$$= \frac{1,00,000}{(1+0.1255)^{10}} = \text{Rs.}30,658$$

## **PRESENT VALUE OF UNEVEN MULTIPLE FLOWS**

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Suppose a project involves an initial investment of Rs.10 lakh and generates net inflows as follows:

- End of Year → 1 Rs.2 lakh
- 2 Rs.4 lakh
- 3 Rs.6 lakh

What is the present value of the future cash inflows? To determine it, we have to first define the relevant rate of interest. The relevant rate of interest as we shall see later, will be the cost of the funds invested.

Suppose, we assume that this cost is 12 percent p.a. then we can determine the present value of the cash flows using the following two-step procedure:

**Step 1**

Evaluate the present value of cash inflow independently. In this case, the present values will be as follows:

Year	Cash Flow (Rs. In lakh)	Present Value (Rs. in lakh)
1	2	$2 \times PVIF_{(12,1)} = 2 \times 0.893 = 1.79$
2	4	$4 \times PVIF_{(12,2)} = 4 \times 0.797 = 3.19$
3	6	$6 \times PVIF_{(12,3)} = 6 \times 0.712 = 4.27$

**Step 2**

Aggregate the present values obtained in Step 1 to determine the present value of the cash flow stream. In this case the present value of the cash inflows associated with the project will be Rs.(1.79 + 3.19 + 4.27) lakh = Rs.9.25 lakh.

A project is said to be financially viable if the present value of the cash inflows exceeds the present value of the cash outflow. In this case, the project is not financially viable because the present value of the net cash inflows (Rs.9.25 lakh) is less than the initial investment of Rs.10 lakh. The difference of Rs.0.75 lakh is called the net present value.

Like the procedure followed to obtain the future value of multiple cash flows, the procedure adopted to determine the present value of a series of future cash flows can prove to be cumbersome, if the time horizon to be considered is quite long. These calculations can, however, be simplified if the cash flows occurring at the end of the time periods are equal. In other words, if the stream of cash flows can be regarded as a regular annuity or annuity due, then the present value of this annuity can be determined using an expression similar to the FVIFA expression.

**PRESENT VALUE OF AN ANNUITY**

The present value of an annuity ‘A’ receivable at the end of every year for a period of n years at a rate of interest k is equal to

$$PVA_n = \frac{A}{(1+k)} + \frac{A}{(1+k)^2} + \frac{A}{(1+k)^3} + \dots + \frac{A}{(1+k)^n};$$

which reduces to

$$PVA_n = A \times \left[ \frac{(1+k)^n - 1}{k(1+k)^n} \right]$$

The expression

$$\left( \frac{(1+k)^n - 1}{k(1+k)^n} \right)$$

is called the PVIFA (Present Value Interest Factor Annuity) and it represents the present value of a regular annuity of Re.1 for the given values of k and n. The values of PVIFA<sub>(k, n)</sub> for different combinations of ‘k’ and ‘n’ are given in Table 4 given at the end of the book. It must be noted that these values can be used in any present value problem only if the following conditions are satisfied: (a) the cash flows are equal; and (b) the cash flows occur at the end of every year. It must also be noted that PVIFA<sub>(k, n)</sub> is not the inverse of FVIFA<sub>(k, n)</sub> although PVIF<sub>(k, n)</sub> is the inverse of FVIF<sub>(k, n)</sub>. The following illustration illustrates the use of PVIFA tables for determining the present value.

**Illustration 11**

The Swarna Kalash Yojana at rural and semi-urban branches of SBI is a scheme open to all individuals/firms. A lump sum deposit is remitted and the principal is received with interest at the rate of 12 percent p.a. in 12 or 24 monthly installments. The interest is compounded at quarterly intervals.



The amount of initial deposit to receive a monthly installment of Rs.100 for 12 months can be calculated as below:

Firstly, the effective rate of interest per annum has to be calculated.

$$r = \left(1 + \frac{k}{m}\right)^m - 1 = \left(1 + \frac{0.12}{4}\right)^4 - 1 = 12.55\%$$

After calculating the effective rate of interest per annum, the effective rate of interest per month has to be calculated which is nothing but

$$(1.1255)^{1/12} - 1 = 0.00990$$

The initial deposit can now be calculated as below:

$$\begin{aligned} PVA_n &= A \left[ \frac{(1+k)^n - 1}{k(1+k)^n} \right] = 100 \left[ \frac{(1 + 0.00990)^{12} - 1}{0.00990 (1 + 0.00990)^{12}} \right] \\ &= 100 \left[ \frac{0.1255}{0.01114} \right] = 100 \times 11.26 = \text{Rs.1,126.} \end{aligned}$$

### Illustration 12

The annuity deposit scheme of SBI provides for fixed monthly income for suitable periods of the depositor's choice. An initial deposit has to be made for a minimum period of 36 months. After the first month of the deposit, the depositor receives monthly installments depending on the number of months he has chosen as annuity period. The rate of interest is 11 percent p.a. which is compounded at quarterly intervals.

If an initial deposit of Rs.4,610 is made for an annuity period of 60 months, the value of the monthly annuity can be calculated as below.

Firstly, the effective rate of interest per annum has to be calculated

$$r = \left(1 + \frac{k}{m}\right)^m - 1 = \left(1 + \frac{0.11}{4}\right)^4 - 1 = 11.46\%$$

After calculating the effective rate of interest per annum, the effective rate of interest per month has to be calculated which is nothing but

$$(1.1146)^{1/12} - 1 = 0.00908$$

The monthly annuity can now be calculated as

$$\begin{aligned} PVA_n &= A \left[ \frac{(1+k)^n - 1}{k(1+k)^n} \right] \\ 4,610 &= A \left[ \frac{(1 + 0.00908)^{60} - 1}{0.00908 (1.00908)^{60}} \right] \\ 4,610 &= A \times \frac{0.7200}{0.0156} = 99.88333 \\ \Rightarrow A &= 99.8833 \\ A &= \text{Rs.100} \end{aligned}$$

### Capital Recovery Factor

Manipulating the relationship between  $PVA_n$ ,  $A$ ,  $k$  and  $n$  we get an equation:

$$A = PVA_n \left[ \frac{k(1+k)^n}{(1+k)^n - 1} \right]$$

$\left[ \frac{k(1+k)^n}{(1+k)^n - 1} \right]$  is known as the capital recovery factor.

#### Illustration 13

A loan of Rs.1,00,000 is to be repaid in five equal annual installments. If the loan carries a rate of interest of 14 percent p.a. the amount of each installment can be calculated as below.

If  $R$  is defined as the equated annual installment, we are given that

$$R \times PVIFA_{(14\%, 5)} = \text{Rs.1,00,000}$$

$$\text{Therefore, } R = \frac{\text{Rs.1,00,000}}{PVIFA_{(14\%, 5)}} = \frac{\text{Rs.1,00,000}}{3.433} = \text{Rs.29,129}$$

#### Notes:

- We have introduced in this example the application of the inverse of the PVIFA factor which is called the capital recovery factor. The application of the capital recovery factor helps in answering questions like:
  - What should be the amount paid annually to liquidate a loan over a specified period at a given rate of interest?
  - How much can be withdrawn periodically for a certain length of time, if a given amount is invested today?
- In this example, the amount of Rs.29,129 represents the sum of the principal and interest components. To get an idea of the break-up of each installment between the principal and interest components, the loan repayment schedule is given below:

Year	Equated annual installment	Interest content of (B)	Capital content of (B)	Loan outstanding after payment
(A)	(B)	(C)	[(D) = (B - C)]	(E)
	(Rs.)	(Rs.)	(Rs.)	(Rs.)
0	–	–	–	1,00,000
1	29,129	14,000	15,129	84,871
2	29,129	11,882	17,247	67,624
3	29,129	9,467	19,662	47,962
4	29,129	6,715	22,414	25,548
5	29,129	3,577	25,552	–

The interest content of each installment is obtained by multiplying interest rate with the loan outstanding at the end of the immediately preceding year.

As can be observed from this schedule, the interest component declines over a period of time whereas the capital component increases. The loan outstanding at the end of the penultimate year must be equal to the capital content of the last installment but in practice there will be a marginal difference on account of rounding-off errors.

3. The equated annual installment method is usually adopted for fixing the loan repayment schedule in a hire purchase transaction. But the financial institutions in India like IDBI, IFCI and ICICI do not follow this scheme of equal periodic amortization. Instead, they stipulate that the loan must be repaid in equal installments. According to this scheme, the principal component of each payment remains constant and the total debt-servicing burden (consisting of principal repayment and interest payment) declines over time.

### **Present Value of Perpetuity**

An annuity of an infinite duration is known as perpetuity. The present value of such perpetuity can be expressed as follows:

$$P_{\infty} = A \times PVIFA_{k,\infty}$$

Where,  $P_{\infty}$  = Present value of a perpetuity

$A$  = Constant annual payment

$PVIFA_{k,\infty}$  = Present value interest factor for a perpetuity

∴ The value of  $PVIFA_{k,\infty}$  is

$$\sum_{t=1}^{\infty} \frac{1}{(1+k)^t} = \frac{1}{k}$$

We can say that PV interest factor of a perpetuity is simply one divided by interest rate expressed in decimal form. Hence, PV of a perpetuity is simply equal to the constant annual payment divided by the interest rate.

Students who are interested in knowing the derivation of the formulae for PVIFA and FVIFA may refer the Appendix to this chapter.

### **SUMMARY**

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- Inflation, uncertainty and opportunity cost – whatever the reason, money has time value. A rupee today is certainly more valuable than a rupee a year hence, the difference usually represented by ‘interest’. Therefore, two cash flows occurring at different points of time are not comparable. Compounding and discounting are two methods used to take care of time value of money. Discounting involves determining the present values of all the future cash flows so that they are comparable to the initial outflow. The rate of interest usually employed is the cost of capital of the firm.

## Appendix

Formulae for future value and present value of Annuity.

The derivation of the formulae for the future value and present value of an annuity makes use of the following symbols.

### Symbols used in FVIFA and PVIFA Formulae

A	=	constant periodic flow
K	=	interest rate per period
n	=	duration of the annuity
FVA <sub>n</sub>	=	future value of a regular annuity with a duration of n time periods
PVA <sub>n</sub>	=	present value of a regular annuity with a duration of n time periods.

### FUTURE VALUE OF AN ANNUITY

In terms of the symbols defined above, the future value of a regular annuity can be expressed as follows:

$$FVA_n = A(1+k)^{n-1} + A(1+k)^{n-2} + \dots + A \quad \dots(1)$$

Multiplying equation (1) by (1 + k) on both sides,

we get  $FVA_n(1+k) = A(1+k)^n +$

$$A(1+k)^{n-1} + \dots + A(1+k) \quad \dots(2)$$

Subtracting equation (1) from equation (2), we get

$$FVA_n k = A(1+k)^n - A$$

or  $FVA_n k = A[(1+k)^n - 1]$

$$\text{i.e. } FVA_n = A \left[ \frac{(1+k)^n - 1}{k} \right]$$

If the annuity is not a regular annuity but is an annuity due – annuity where cash flows occur at the beginning of each period – the future value can be obtained as follows:

$$FVA_n = A(1+k)^n + A(1+k)^{n-1} + \dots + A(1+k) \quad \dots(3)$$

Dividing equation (3) by (1 + k) on both sides, we get

$$\frac{FVA_n}{(1+k)} = A(1+k)^{n-1} + A(1+k)^{n-2} + \dots + A \quad \dots(4)$$

Subtracting equation (4) from equation (3) we get

$$\left[ 1 - \frac{1}{1+k} \right] FVA_n = A(1+k)^n - A$$

$$\text{i.e. } \frac{k}{1+k} FVA_n = A[(1+k)^n - 1]$$

$$FVA_n = A \left[ \frac{(1+k)^n - 1}{k} \right] (1+k)$$

Therefore, the future value of an annuity due can be expressed as the product of the future value of a regular annuity and the factor (1 + k).

**PRESENT VALUE OF AN ANNUITY**

The present value of a regular annuity can be represented in terms of the symbols defined in the table as follows:

$$PVA_n = \frac{A}{(1+k)} + \frac{A}{(1+k)^2} + \dots + \frac{A}{(1+k)^n} \quad \dots(5)$$

Multiplying equation (5) by  $(1+k)$  on both sides, we get

$$PVA_n(1+k) = A + \frac{A}{(1+k)} + \dots + \frac{A}{(1+k)^{n-1}} \quad \dots(6)$$

Subtracting equation (5) from equation (6), we get

$$\begin{aligned} PVA_{n,k} &= A - \frac{A}{(1+k)^n} = A \left[ 1 - \frac{1}{(1+k)^n} \right] = A \left[ \frac{(1+k)^n - 1}{(1+k)^n} \right] \\ PVA_n &= A \left[ \frac{(1+k)^n - 1}{k(1+k)^n} \right] \end{aligned}$$

The Present Value of an Annuity due can be expressed as follows:

$$PVA_n = A + \frac{A}{(1+k)} + \frac{A}{(1+k)^2} + \dots + \frac{A}{(1+k)^{n-1}} \quad \dots(7)$$

Multiplying equation (7) by  $\frac{1}{(1+k)}$  on both sides, we get

$$\frac{PVA_n}{(1+k)} = \frac{A}{(1+k)} + \frac{A}{(1+k)^2} + \dots + \frac{A}{(1+k)^n} \quad \dots(8)$$

Subtracting equation (8) from equation (7), we get

$$PVA_n = \left[ 1 - \frac{1}{1+k} \right] = A - \frac{A}{(1+k)^n}$$

$$\text{i.e. } PVA_n = \left[ \frac{k}{1+k} \right] = A \left[ \frac{(1+k)^n - 1}{(1+k)^n} \right]$$

$$\text{i.e. } PVA_n = A \left[ \frac{(1+k)^n - 1}{k(1+k)^n} \right] (1+k)$$

Thus, we find that the present value of an annuity due is equal to the product of the present value of a regular annuity and the factor  $(1+k)$ .

## **Chapter III**

# **Valuation of Securities**

**After reading this chapter, you will be conversant with:**

Valuation of Bond

Bond Price Movements

Equity Valuation: Dividend Capitalization Approach

Equity Valuation: Ratio Approach

The ultimate goal of any individual investor or corporates is maximization of profits or rate of return. Investment management is an on-going process which needs to be constantly monitored by way of information as this may affect the value of securities or rate of return of such securities. Therefore, a finance manager needs to have basic knowledge and understanding of the framework of security valuation which is essentially based on conceptual understanding of time value of money and risk-return relationship. While making valuation judgments about securities, the analyst constantly applies a process which may achieve the following.

- a. A true picture of a company over a representative time span.
- b. An estimation of current normal earning power and dividend pay-out.
- c. Estimate of future profitability and growth and the reliability of such expectations.
- d. Translation of all these estimates into valuation of the company and its securities.

The concepts of time value of money provide a fundamental background for the valuation of bonds and stocks. This chapter is divided into the following sections.

- Concept of valuation
- Valuation of Bond
- Valuation of Equity: Dividend Capitalization Approach
- Valuation of Equity: Ratio Approach.

## **CONCEPT OF VALUATION**

A security can be regarded simply as a series of dividends or interest payments receivable over a period of time. Therefore, value of any security can be defined as the present value of these future cash streams i.e., the intrinsic value of an asset is equal to the present value of the benefits associated with it. Mathematically, it can be represented as

$$\begin{aligned}
 V_0 \text{ (or } P_0) &= \frac{C_1}{(1+k)^1} + \frac{C_2}{(1+k)^2} + \dots + \frac{C_n}{(1+k)^n} \\
 &= \sum_{t=1}^n \frac{C_t}{(1+k)^t} \quad \dots(1)
 \end{aligned}$$

- where,
- $V_0$  = Value of the asset at time zero
  - $P_0$  = Present value of the asset
  - $C_t$  = Expected cash flow at the end of period t
  - $k$  = Discount rate or required rate of return on the cash flows
  - $n$  = Expected life of an asset.

### **Illustration 1**

Calculate the value of an asset if the annual cash inflow is Rs.2,000 per year for the next 7 years and the discount rate is 18%.

### **Solution**

The value of an asset can be calculated as:

$$\begin{aligned}
 V_0 &= \sum_{t=1}^n \frac{C_t}{(1+k)^t} = \sum_{t=1}^7 \frac{2,000}{(1+0.18)^t} \\
 &= \sum_{t=1}^7 \frac{2,000}{(1+0.18)^t} = 2,000(\text{PVIFA}_{(18\%, 7\text{yrs.})}) \\
 &= 2,000 \times 3.812 = \text{Rs.}7,624.
 \end{aligned}$$

## Concepts of Value

- **Book value** is an accounting concept. Assets are recorded at historical costs and they are depreciated over years. Book value may include intangible assets at acquisition cost minus amortized value. The book value of debt is stated at the outstanding amount. The difference between the book value of assets and liabilities is equal to shareholder's funds or net worth (which is equal to paid-up equity capital plus reserves and surplus).

**Replacement value** is the amount that a company would be required to spend if it were to replace its existing assets in the current condition.

**Liquidation value** is the amount that a company can realize if it sells its assets after having terminated its business. It is generally a minimum value which a company may accept if it sells its business.

**Going concern value** is the amount that a company can realize if it sells its business as an operating one. Its value would always be higher than the liquidation value, the difference accounting for the usefulness of assets and value of intangibles.

**Market value** of an asset or security is the current price at which the asset or the security is being sold or bought in the market.

## VALUATION OF BOND

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Bonds are negotiable promissory notes that can be used by individuals, business firms, governments or government agencies. Bonds issued by the government or public sector companies in India are generally secured. Private sector companies may issue secured or unsecured bonds. In case of bond, the rate of interest is fixed and known to investors. A bond is redeemable after a specific period. The expected cash flows consist of annual interest payments plus repayment of principal. Before going into the valuation of bonds, it is necessary to familiarize with certain bond-related terminology.

### Face Value

This is the value stated on the face of the bond and is also known as par value. It represents the amount of borrowing by the firm which it specifies to repay after a specific period of time i.e., the time of maturity. A bond is generally issued at face value or par value which is usually Rs.100 and may sometimes be Rs.1,000.

### Coupon Rate or Interest

A bond carries a specific rate of interest which is also called the coupon rate. The interest rate payable is simply the product of the par value of the bond and coupon rate.

### Maturity

A bond is issued for a specific period of time. It is repaid on maturity. Typically corporate bonds have a maturity period of 7-10 years whereas government bonds have maturity period up to 20-25 years.

### Redemption Value

The value which a bondholder gets on maturity is called redemption value. A bond may be redeemed at par, at premium (more than par) or at discount (less than par value).

### Market Value

A bond may be traded in a stock exchange. Market value is the price at which the bond is usually bought or sold. Market value may be different from par value or redemption value.



### Basic Bond Valuation Model

With the above background it is quite clear that the holder of a bond receives a fixed annual interest payment for a certain number of years and a fixed principal repayment (equal to par value) at the time of maturity. Therefore, the intrinsic value or the present value of bond can now be written as:

$$V_0 \text{ (or } P_0) = \sum_{t=1}^n \frac{C_t}{(I + k_d)^t} + \frac{F}{(I + k_d)^n}$$

$$V_0 = I(\text{PVIFA}_{(k_d, n)}) + F(\text{PVIF}_{(k_d, n)}) \quad \dots(2)$$

- where,
- $V_0$  = Intrinsic value of the bond
  - $P_0$  = Present value of the bond
  - $I$  = Annual interest payable on the bond
  - $F$  = Principal amount (par value) repayable at the maturity time
  - $n$  = Maturity period of the bond
  - $k_d$  = Required rate of return.

#### Illustration 2

A bond whose par value is Rs.1,000 bears a coupon rate of 12% and has a maturity period of 3 years. The required rate of return on the bond is 10%. What is the value of this bond?

#### Solution

Annual interest payable = 1000 x 12% = Rs.120,

Principal repayment at the end of 3 years = Rs.1,000

∴ The value of the bond

$$\begin{aligned} V_0 &= \text{Rs.120 (PVIFA}_{(10\%, 3 \text{ yrs.})}) + \text{Rs.1,000 (PVIF}_{(10\%, 3 \text{ yrs.})}) \\ &= \text{Rs.120 x (2.487) + 1,000(0.751)} \\ &= \text{Rs.298.44 + Rs.751} \\ &= \text{Rs.1,049.44.} \end{aligned}$$

#### Illustration 3

Consider the case where an investor purchases a bond whose face value is Rs.1,000, maturity period is 5 years and the nominal (coupon) rate of interest is 7%. The required rate of return is 8%. What should he be willing to pay now to purchase the bond if it matures at par?

#### Solution

Annual interest payable for 5 years = Rs.70

Principal repayable amount at the end of 5 years = Rs.1,000

∴ The intrinsic value or the present value of the bond

$$\begin{aligned} &= \text{Rs.70(PVIFA}_{(8\%, 5 \text{ yrs.})}) + \text{Rs.1,000(PVIF}_{(8\%, 5 \text{ yrs.})}) \\ &= \text{Rs.70 x 3.993 + Rs.1,000 x 0.681} \\ &= \text{279.51 + 681 = Rs.960.51} \end{aligned}$$

The above implies that the bond of Rs.1,000 is worth Rs.960.51 today if the required rate of return is 8%. The investor would not be willing to pay more than Rs.960.51 for the bond today.

## Bond Values with Semi-Annual Interest

Some of the bonds carry interest payment semi-annually. As half-yearly interest amounts can be reinvested the value of such bonds would be more than the value of the bonds with annual interest payments. Hence, the bond valuation equation can be modified as:

Annual interest payment i.e., I, must be divided by two to obtain interest payment semi-annually.

Number of years to maturity will have to be multiplied by two to get the number of half-yearly periods.

Discount rate has to be divided by two to get the discount rate for half-yearly period.

Thus with the above modifications, the bond valuation equation becomes:

$$\begin{aligned} V_0 &= \sum_{t=1}^{2n} \frac{I/2}{(1+k_d/2)^t} + \frac{F}{(1+K_d/2)^{2n}} \\ &= I/2 (PVIFA_{(k_d/2, 2n)}) + F(PVIF_{(k_d/2, 2n)}) \end{aligned} \quad \text{.....(3)}$$

where, V = value of the bond

I/2 = semi-annual interest payment

F = par value of the bond payable at maturity

$k_d/2$  = required rate of return for the half-year period

2n = maturity period expressed in half-yearly periods

### Illustration 4

A bond of Rs.1,000 value carries a coupon rate of 10% and a maturity period of 6 years. Interest is payable semi-annually. If the required rate of return is 12%, calculate the value of the bond.

### Solution

$$\begin{aligned} V_0 &= \sum_{t=1}^{12} \frac{100/2}{(1+0.12/2)^t} + \frac{1,000}{(1+0.12/2)^{12}} \\ &= \text{Rs.}50(PVIFA_{(6\%, 12 \text{ yrs.})}) + 1,000(PVIF_{(6\%, 12 \text{ yrs.})}) \\ &= \text{Rs.}50(8.384) + 1,000 (0.497) \\ &= \text{Rs.}419.2 + 497 \\ &= \text{Rs.}916.20 \end{aligned}$$

## Bond-Yield Measures

### ONE PERIOD RATE OF RETURN

If a bond is purchased and then sold one year later, its rate of return over this single holding period can be defined as one period rate of return.

$$= \frac{\left( \begin{array}{c} \text{Price gain or loss} \\ \text{during holding period} \end{array} \right) + \left( \begin{array}{c} \text{Coupon interest} \\ \text{if paid} \end{array} \right)}{\left( \begin{array}{c} \text{Purchase price at the beginning of} \\ \text{the holding period} \end{array} \right)} \quad \text{.....(4)}$$

The holding period can be calculated on a daily, monthly or annual basis. If the bond price falls by an amount that exceeds coupon interest, the rate of return assumes negative values.

**Illustration 5**

X purchased Rs.1,000 par value bond for Rs.900. The coupon payment on this bond is Rs.80 i.e., 8%. One year later he sells the bond for Rs.800. The rate of return of Mr. X for this one year period is

$$\begin{aligned} \text{Holding period return} &= \frac{(800 - 900) + 80}{900} = \frac{-100 + 80}{900} \\ &= \frac{-20}{900} = -0.0222 \text{ or } 2.22\% \end{aligned}$$

**Current Yield**

Current yield measures the rate of return earned on a bond if it is purchased at its current market price and if the coupon interest is received.

$$\therefore \text{Current Yield} = \frac{\text{Coupon Interest}}{\text{Current Market Price}} \quad \dots\dots(5)$$

In the example cited above, if the current market price of the bond is also Rs.800, then the

$$\text{Current Yield} = \frac{80}{800} = 0.10, \text{ which can also be expressed as } 10\%$$

Coupon rate and current yield are two different measures. Coupon rate and current yield will be equal if the bond's market price equals its face value.

**Yield to Maturity (YTM)**

It is the rate of return earned by an investor who purchases a bond and holds it till maturity. The YTM is the discount rate which equals the present value of promised cash flows to the current market price/purchase price.

**Illustration 6**

Consider a Rs.1,000 par value bond whose current market price is Rs.850. The bond carries a coupon rate of 8% and has a maturity period of 9 years. What would be the rate of return that an investor earns if he purchases the bond and holds till maturity?

**Solution**

The rate of return earned also referred to as yield to maturity, is the value of  $k_d$  in the following equation.

$$\begin{aligned} P_0 &= \sum_{t=1}^n \frac{I}{(1 + k_d)^t} + \frac{F}{(1 + k_d)^n} \\ \text{Rs.850} &= \sum_{t=1}^9 \frac{80}{(1 + k_d)^t} + \frac{F}{(1 + k_d)^9} \\ &= \text{Rs.80 (PVIFA}_{(k_d\%, 9 \text{ yrs.})}) + \text{Rs.1,000 (PVIF}_{(k_d\%, 9 \text{ yrs.})}) \end{aligned}$$

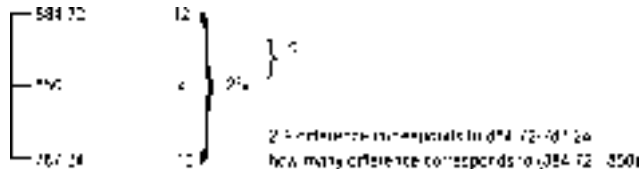
To find out the value of  $k_d$  in the above equation, several values of  $k_d$  will have to be tried out in order to reach the input value. Therefore, to start, consider a discount rate of 12% for  $k_d$  for which the expression becomes equal to

$$\begin{aligned} &\text{Rs.80(PVIFA}_{(12\%, 9 \text{ yrs.})}) + \text{Rs.1,000(PVIF}_{(12\%, 9 \text{ yrs.})}) \\ &= \text{Rs.80 x } 5.328 + \text{Rs.1,000(0.361)} \\ &= \text{Rs.426.24} + 361 = \text{Rs.787.24} \end{aligned}$$

Since, the above value is less than Rs.850, market price, we have to try with a less discounting rate ( $k_d$ ). So, let  $k_d = 10\%$ , then the equation becomes:

$$\begin{aligned} & \text{Rs.}80(\text{PVIFA}_{(10\%, 9 \text{ yrs.})}) + \text{Rs.}1,000 (\text{PVIF}_{(10\%, 9 \text{ yrs.})}) \\ & = \text{Rs.}80 \times 5.759 + \text{Rs.}1,000 \times 0.424 \\ & = \text{Rs.}460.24 + 424 = \text{Rs.}884.72 \end{aligned}$$

From the above it is clear that  $k_d$  lies between 10% and 12%. Now we have to use linear interpolation in the range of 10% and 12%. We find that  $k_d$  is equal to the following:



$$\begin{aligned} & 10\% + (12 - 10\%) \times \frac{884.72 - 850}{884.72 - 787.24} \\ & = 10\% + 2\% \times \frac{34.72}{97.48} \\ & = 10\% + 2\% \times 0.356 \\ & = 10\% + 0.71 \\ & = 10.71\% \end{aligned}$$

∴ The yield to maturity is 10.71%

**An Approximation:** As trial and error method calculations are tedious the following approximation formula can be employed to find out the approximate YTM on a bond.

$$\text{YTM} \approx \frac{I + (F - P)/n}{0.4F + 0.6P} \quad \text{or} \quad \frac{I + (F - P)/n}{(F + P)/2} \quad \dots(6)$$

- where, YTM = yield to maturity  
 I = annual interest payment  
 F = par value or redemption value of the bond  
 P = current market price of the bond  
 N = years to maturity.

**Illustration 7**

The bond of Zeta Industries Ltd. with a par value of Rs.500 is currently traded at Rs.435. The coupon rate is 12% and it has a maturity period of 7 years. What is the yield to maturity.

**Solution**

$$\begin{aligned} \text{YTM} & \approx \frac{I + (F - P)/n}{0.4F + 0.6P} \\ & = \frac{60 + (500 - 435)/7}{0.4 \times 500 + 0.6 \times 435} \\ & = \frac{60 + 9.285}{200 + 261} = \frac{69.285}{461} = .15029 \approx \text{or } 15.03\% \end{aligned}$$

## BOND VALUE THEOREMS

Based on the bond valuation model, several bond value theorems have been derived which state the effect of the following factors on bond values:

- I. Relationship between the required rate of return and the coupon rate.
  - II. Number of years to maturity.
  - III. Yield to maturity.
- I. The following are the theorems which show the effect on the bond values influenced by the relationship between the required rate of return and the coupon rate.
- i. When the required rate of return is equal to the coupon rate, the value of the bond is equal to its par value.  
i.e., If  $k_d = \text{Coupon rate}$ ;  
then, Value of a Bond = Par value

### Illustration 8

- a. Consider a bond of KenStar Intermediaries Ltd. with the following features:  
Par value : Rs.100  
Coupon rate : 12%  
Years to maturity : 5 years.  
Find out the value of KenStar's bond if the required rate of return is 12%.

### Solution

If the required rate of return is 12% (same as the coupon rate) the value of the bond is

$$\begin{aligned} V &= I(PVIFA_{(k_d, n)}) + F(PVIF_{(k_d, n)}) \\ &= 12(PVIFA_{(12\%, 5)}) + 100(PVIF_{(12\%, 5)}) \\ &= 12(3.605) + 100(0.567) \\ &= 43.26 + 56.7 = 99.96 \approx 100. \end{aligned}$$

- ii. When the required rate of return ( $k_d$ ) is greater than the coupon rate, the value of the bond is less than its par value.  
If  $k_d > \text{coupon rate}$ ;  
then, Value of bond < Par value.

### Illustration 9

- b. Consider the same bond as above except that its required rate of return is 14%. Find out the value of the bond.

### Solution

If the required rate of return is 14% (greater than the coupon rate), then the value of the bond is

$$\begin{aligned} V_0 &= I(PVIFA_{(k_d, n)}) + F(PVIF_{(k_d, n)}) \\ &= 12(3.433) + 100(0.519) \\ &= 41.196 + 51.9 \\ &= 93.1 \end{aligned}$$

- iii. When the required rate of return is less than the coupon rate, the value of the bond is greater than its par value.  
i.e, if  $k_d < \text{coupon rate}$ ;  
then, Value of bond > Par value.

## Illustration 10

- c. Consider the same bond as above except that its required rate of return is 10%. Find out the value of the bond.

## Solution

If the required rate of return is 10% (less than the coupon rate), then the value of the above bond is

$$\begin{aligned}
 V_0 &= I(PVIFA_{(k_d, n)}) + F(PVIF_{(k_d, n)}) \\
 &= 12(PVIFA_{(10\%, 5)}) + 100(PVIF_{(10\%, 5)}) \\
 &= 12(3.791) + 100(0.621) \\
 &= 45.492 + 62.1 \\
 &= 107.59.
 \end{aligned}$$

- II. The following theorems show the effect of the number of years to maturity on bond values.

- i. When the required rate of return ( $k_d$ ) is greater than the coupon rate, the discount on the bond declines as maturity approaches.

To illustrate the above, consider a bond of Enucon Ltd. with the following features:

Par value : Rs.1,000  
 Coupon rate : 11%  
 Years to maturity : 7

If the required rate of return is 13%, then the value of the bond is

$$\begin{aligned}
 V &= I(PVIFA_{(k_d, n)}) + F(PVIF_{(k_d, n)}) \\
 &= 110(PVIFA_{(13\%, 7)}) + 1,000(PVIF_{(13\%, 7)}) \\
 &= 110(4.423) + 1,000(0.425) \\
 &= 486.53 + 425 = 911.53.
 \end{aligned}$$

One year from now, when the maturity period will be 6 years, the value of the bond will be:

$$\begin{aligned}
 V &= 110(PVIFA_{(13\%, 6)}) + 1,000(PVIF_{(13\%, 6)}) \\
 &= \text{Rs.}110(3.998) + 1,000(0.480) \\
 &= 439.78 + 480 = 919.78
 \end{aligned}$$

For a required rate of return of 13%, the value of the bond will increase with the passage of time, i.e., until its maturity.

Years to maturity	Bond value
5	929.87
4	940.14
3	952.71
2	966.48
1	982.35
0	1,000.00

- ii. When the required rate of return ( $k_d$ ) is less than the coupon rate, the premium on the bond declines as maturity approaches.

If the required rate of return on the bond of Enucon Limited is 9%, it will have a value of

$$\begin{aligned} V &= \text{Rs.}110(\text{PVIFA}_{9\%,7}) + 1,000(\text{PVIF}_{9\%,7}) \\ &= \text{Rs.}110(5.033) + 1,000(0.547) \\ &= \text{Rs.}553.63 + 547 = 1,100.63 \end{aligned}$$

One year hence, when the maturity period will be 6 years the value of the bond will be

$$\begin{aligned} V &= \text{Rs.}110(\text{PVIFA}_{9\%,6}) + 1,000(\text{PVIF}_{9\%,6}) \\ &= \text{Rs.}110(4.486) + 1,000(0.596) \\ &= \text{Rs.}493.46 + 596 = 1,089.46. \end{aligned}$$

For a required rate of return of 9% the value of the bond decreases with the passage of time, i.e., until maturity, as can be observed from the following table.

Years to maturity	Bond value
5	1077.90
4	1064.40
3	1050.41
2	1035.49
1	1017.87
0	1000.00

- III. As YTM determines a bond's market price and vice-versa, we can say that the bond's price will fluctuate in response to the change in market interest rates in the following ways:

- i. A bond's price moves inversely proportional to its yield to maturity.

The present value principle states that the present value of a cash flow varies in inverse proportion to the interest rate used as a discount rate. As such if the YTM of the bond rises, the bond's market price drops and if the YTM falls, the bond's market price rises.

### Illustration 11

The YTM of a Rs.1,000 par value bond bearing a coupon rate of 10% and maturing in 10 years is 12%. Thus, the market value of the bond is

$$\begin{aligned} &100 (\text{PVIFA}_{12\%,10}) + 1000 (\text{PVIF}_{12\%,10}) \\ &= 100 \times 5.650 + 1000 \times 0.322 \\ &= \text{Rs.}887 \end{aligned}$$

If the YTM increases to 14%, the market value of the bond will drop to Rs.791.60, as calculated below

$$\begin{aligned} &100 (\text{PVIFA}_{14\%,10}) + 1000 (\text{PVIF}_{14\%,10}) \\ &= 100 \times 5.216 + 1,000 \times 0.270 \\ &= \text{Rs.}791.60. \end{aligned}$$

If the YTM of the same bond comes down to 8%, then the market value of the bond rises to Rs.1,134.

- ii. For a given difference between YTM and coupon rate of the bonds, the longer the term to maturity, the greater will be the change in price with change in YTM. It is so because, in case of long maturity bonds, a change in YTM is cumulatively applied to the entire series of the coupon payments and the principal payment is discounted at the new rate for the entire number of years to maturity; whereas in case of short-term maturity bonds, the new YTM is applied to comparatively few coupon payments; and also, principal payment is discounted for only a short period of time. Thus, long-term bonds are more variable to changes in interest rates than short-term bonds.

**Illustration12**

Let us take two hypothetical bonds differing only in term to maturity.

	A	B
Face Value	Rs.1000	1000
Coupon Rate	10%	10%
YTM	11%	11%
Years to Maturity	3	6
Market Value at YTM of 10%	Rs.1000	1000
Market Value at YTM of 11%	100 PVIFA <sub>11%,3</sub> + 1,000 PVIF <sub>11%,3</sub> = Rs.975	100 PVIFA <sub>11%,6</sub> + 1000 PVIF <sub>11%,6</sub> = Rs.958
Change in Price	2.5%	4.2%

The market value of the bonds when the YTM was equal to coupon rate was equal to the face value of the bonds i.e., Rs.1,000. When, however the YTM increased to 11%, the market value of the bond with shorter maturity period dropped by only 2.5% to Rs.975 whereas the market value of the bond with longer maturity period of 6 years has dropped by 4.2% to Rs.958. Thus, the long-term bonds are characteristically more sensitive to interest rate changes than short-term bonds.

- iii. Given the maturity, the change in bond price will be greater with a decrease in the bond's YTM than the change in bond price with an equal increase in the bond's YTM. That is, for equal sized increases and decreases in the YTM, price movements are not symmetrical.

**Illustration 13**

Take Rs.1,000 par value bond with a coupon rate of 10% and maturity period of 5 years. Let the YTM be 10%. Market price of the bond will be equal to Rs.1,000. A 1% increase in YTM to 11% changes price to Rs.962.6 (100 PVIFA<sub>11%,5</sub> + 1,000 PVIF<sub>11%,5</sub>), a decrease of 3.74%. A decrease of 1% YTM to 9% changes the price to Rs.1,039 (100 PVIFA<sub>9%,5</sub> + 1,000 PVIF<sub>9%,5</sub>) an increase of 3.9%.

Thus, an increase in bond's yield caused a price decrease that is smaller than the price increase caused by an equal-size decrease in yield.

- iv. For any given change in YTM, the percentage price change in case of bonds of high coupon rate will be smaller than in the case of bonds of low coupon rate, other things remaining the same.

Consider two bonds A and B with the par value of Rs.1,000, maturing in 4 years and YTM of 10%. Bond A bears coupon rate of 10% whereas bond B bears coupon rate of 12%.



	Bond A	Bond B
Market price at YTM of 10%	(Rs.) 1,000.0	1,063.40
Market price at the changed YTM of 12%	(Rs.) 939.7	1,000.44
Change in price	6.03%	5.92%

Change in the price with the change in YTM in case of bond B carrying a higher coupon rate of 12% is only 5.92%, whereas in case of bond A with a coupon rate of 10% the change in the price is 6.03%.

- v. A change in the YTM affects the bonds with a higher YTM more than it does bonds with a lower YTM.

Consider a Rs.1,000 par value ABC bond with a coupon rate of 12%, maturity period of 6 years and YTM of 10%. The market value of the bond will be Rs.1,087.

Consider another identical bond XYZ but with differing YTM of 20%. The market value of this bond will be Rs.734.

Suppose there is an increase in YTM by 20% i.e., YTM of bond ABC rises to 12% (10 x 1.2) and bond XYZ rises to 24% (i.e., 20 x 1.2). Then the market value of both bonds will change to –

$$\text{Bond ABC : } 120 \text{ PVIFA}_{12\%,6} + 1,000 \text{ PVIF}_{12\%,6} = \text{Rs.1,000}$$

$$\text{Bond XYZ : } 120 \text{ PVIFA}_{24\%,6} + 1,000 \text{ PVIF}_{24\%,6} = \text{Rs.637.4}$$

Market value of ABC bond with a lower YTM decreased by 8% [(1087 – 1,000)/1087] whereas in case of XYZ bond with an higher YTM the decrease is 13.16% {734 – 637.4/734}

## Valuation of Warrants and Convertibles

The valuation of bond is comparatively simpler than that of an equity, as the investor is certain about the expected cash flows. Hence, different models have been formulated for assessing the expected return of equity investors based on certain assumptions.

### Warrants and Convertibles

Warrants and convertible debentures are commonly used instruments of financing, all over the world and they are also gaining popularity in India. The wide usage of these instruments are explained with different concepts focusing on cheaper debt, matching cash flows, financial synergy and low agency costs, etc.

#### DEFINITION

A warrant is a call option to buy a stated number of shares. They are like calls to the extent that they entitle the holder to buy a fixed number of shares at a predetermined price during some specified period of time. It gives the holder the right to subscribe to the equity shares of a company. Like call options, warrants may expire at a certain date. They may also be perpetual warrants, which never expire. Most warrants are detachable from the bond or preferred stock to which they were attached at the time of issue. If detached, warrants can be traded as independent securities, like call options.

Warrants are distributed to stock holders in lieu of a stock or cash dividend or sold directly as a new security issue. Sometimes, the companies issue preference shares or debentures with less favorable terms (than those investors would get otherwise). Hence, to compensate, it issues warrants to “sweeten” the offering. For example, a debenture or a bond may be sold by the company along with warrants.

## WARRANT PRICE

The exercise price of a warrant is what the holder must pay to purchase the stated number of shares.

A warrant holder (investor) has no rights unlike a shareholder. A warrant holder neither receives dividends nor holds voting rights. The terms are specified for number of shares that can be purchased for each warrant, based on the exercise (purchase) price per share, and the expiry date of warrant. Usually, the ratio is 1:1, i.e., one share for each warrant.

When a warrant is issued, the exercise price is always greater than the current market price. This price may be fixed for the entire life of warrant or increased periodically.

The existence of the positive premium on a warrant means that it will be more beneficial for the warrant holder to sell his warrant, thus realizing its theoretical value plus premium, when he exercises it. The premium associated with a warrant will shrink as the expiry date approaches. The actual value of warrant will be equal to theoretical value on the expiry date.

## Convertible Debentures

A financial instrument that can be converted into a different security of the same company under specific conditions is referred to as convertible security.

A convertible debenture, as the name suggests, is a debenture which is convertible partly or fully, into equity shares. If it is partially converted, it is referred to as 'partly convertible debenture' and if the debentures are converted fully into equity shares at the end of maturity, it is referred to as 'fully convertible debentures'. The option of conversion is either at the discretion of investor i.e., optional or compulsory (if it is specified).

Convertible bond or a preferred stock is converted into specified number of shares. Usually, in this conversion, no cash is involved; simply, the old security is traded and appropriate number of new securities are issued in turn.

## Conversion Ratio and Conversion Value

As said above, the conversion ratio gives the number of shares of stock received for each convertible security. If only the conversion ratio is given, the par conversion price can be obtained by dividing the conversion ratio multiplied by the face or par value of the convertible security.

The conversion value represents the market value of the convertible if it were converted into stock; this is the minimum value of the convertible based on the current price of the issuer's stock.

Conversion value is obtained by multiplying the conversion ratio by the stock's current market price. For example, consider a convertible bond with Rs.1,000 (par value) converted into 20 equity shares. If the market price of the share is, say, Rs.55, then the conversion value of the bond is Rs.1,100 (20 x 55). If the conversion price of the bond is, say, Rs.1,200, then conversion premium of the bond is Rs.1,200 – 1,100, i.e., 100.

As the converted stock is effected by tax, corporate investors are less keen to invest, whereas the individual investors are attracted towards convertible securities as they need not have to pay tax.

Convertible securities have great complexity in their maturities. Some may be converted only after an initial period. Some may be converted on the bond's maturity date; others only for a stated, shorter periods. Some securities may have different conversion ratios for different years.

Let us consider an illustration, where M/s. AMA Ltd. has issued fully convertible debentures at a face value of Rs.200 with coupon rate of 15% p.a. which is converted into 4 equity shares (at a price of Rs.50 each) at the end of 3 years.

An investor, Vinay, wanted to buy debentures in the secondary market after a year of issue. Let us find out the value of the convertible, if his required rate of return is 18% and price of share is expected to be Rs.60 at the end of 3 years.

The value of convertible is determined as:

$$\sum_{t=1}^n \frac{C}{(1+r)^t} + \frac{P_n \times \text{Conversion Ratio}}{(1+r)^n}$$

Where,

- C = coupon rate
- r = required rate of return
- P<sub>n</sub> = expected price of equity share on conversion
- n = no. of years to maturity

$$\begin{aligned} &= \frac{30}{(1.18)^1} + \frac{30}{(1.18)^2} + \frac{60 \times 4}{(1.18)^2} \\ &= 25.42 + 21.54 + \frac{240}{(1.18)^2} \\ &= 25.42 + 21.54 + 172.36 \\ &= 219.32 \end{aligned}$$

Thus value of the convertible is approximately Rs.220.

#### **Illustration 14**

The investors preferring to minimize the risk can opt for warrants, as they act like a call option and convertible preferred stocks or bonds for they combine the benefits of fixed income by investing with the option of sharing the price appreciation benefits normally reserved for the common stockholders.

### **EQUITY VALUATION: DIVIDEND CAPITALIZATION APPROACH**

People hold common stocks in their portfolios for two reasons; (i) A representative group of common stocks (like growth stocks and blue chips) bought at a reasonable price level can be counted to provide a higher total return than bonds; (ii) Common stocks can be held as a protective measure during inflation because unlike equity, a bond's value declines as inflation rises. However, the safety and attractiveness of common stock investment would be jeopardized if stocks were bought at an excessively high general market value or too much was paid for the promising prospects of favored issues. Thus, there should be a standard value for judging whether a stock is underpriced or overpriced in the market place. We call this standard value the intrinsic value.

Intrinsic value is the value of a stock which is justified by assets, earnings, dividends, definite prospects and the factor of the management of the issuing company.

The major components of intrinsic value are:

- a. earning power and profitability of the management in the employment of assets;
- b. dividends paid and the ability to pay such dividends in the future;
- c. estimates of the growth of earnings;
- d. stability and predictability of these quantitative and qualitative projections.

Thus, in essence, the intrinsic value of a firm's shares is its economic value as a going concern, taking account of its characteristics, the nature of its business and the investment environment.

According to the dividend capitalization approach, which is a conceptually sound approach, the value of an equity share is the discounted present value of dividends received plus the present value of the resale price expected when the equity share is sold. Therefore, to apply this approach for the valuation of equity stock the following assumptions are to be made:

- i. Dividends are paid annually which is a common practice for business firms in India, and
- ii. The 1st payment of dividend is to be made one year after the equity share is bought.

### Single Period Valuation Model

This model is for an equity share wherein an investor holds it for one year. The price of such equity share will be:

$$P_0 = \frac{D_1}{(1+k_e)} + \frac{P_1}{(1+k_e)} \quad \dots (7)$$

where,

- $P_0$  = current market price of the share  
 $D_1$  = expected dividend a year hence  
 $P_1$  = expected price of the share a year hence  
 $k_e$  = required rate of return on the equity share.

### Illustration 15

Mercury India Ltd. is expected to declare a dividend of Rs.2.50 and reach a price of Rs.35.00 a year hence. What is the price at which the share would be sold to the investors now if the required rate of return is 13 percent?

### Solution

$$\begin{aligned} \text{The current price } P_0 &= \frac{D_1}{(1+k_e)} + \frac{P_1}{(1+k_e)} \\ &= \frac{2.50}{(1+0.13)} + \frac{35.00}{(1+0.13)} \\ &= \frac{2.50}{1.13} + \frac{35.00}{1.13} \\ &= 2.21 + 31.00 \\ &= \text{Rs.33.21} \end{aligned}$$

### Multi-Period Valuation Model

Since there is no maturity period for equity share, the value of an equity share of infinite duration is equal to the discounted value of the stream of dividends of infinite duration.

Thus,

$$\begin{aligned} P_0 &= \frac{D_1}{(1+k_e)^1} + \frac{D_2}{(1+k_e)^2} + \dots + \frac{D_\infty}{(1+k_e)^\infty} \\ &= \sum_{t=1}^{\infty} \frac{D_t}{(1+k_e)^t} \quad \dots (8) \end{aligned}$$

where,

- $P_0$  = current market price of the equity share
- $D_1$  = expected dividend a year hence
- $D_2$  = expected dividend two years hence
- $D_\infty$  = expected dividend at infinite duration
- $k_e$  = expected rate of return or required rate of return.

The above equation is the valuation for an equity share of infinite duration. The same can be applicable to the valuation of an equity share with a finite duration provided the investor holds the same for  $n$  years and then sells it at a price  $P_n$ . The value of an equity share of finite duration would thus be:

$$\begin{aligned}
 P_0 &= \frac{D_1}{(1+k_e)^1} + \frac{D_2}{(1+k_e)^2} + \dots + \frac{D_n}{(1+k_e)^n} + \frac{P_n}{(1+k_e)^n} \\
 &= \sum_{t=1}^n \frac{D_t}{(1+k_e)^t} + \frac{P_n}{(1+k_e)^n} \quad \dots(9)
 \end{aligned}$$

Using the dividend capitalization principle, the value of  $P_n$  in the above equation (9) would be the present value of the stream of dividend beyond the  $n$ th period which is evaluated at the end of  $n$ th year. Therefore

$$P_n = \frac{D_{n+1}}{(1+k_e)} + \frac{D_{n+2}}{(1+k_e)^2} + \dots + \frac{D_\infty}{(1+k_e)^{\infty-n}} \quad \dots(10)$$

Substituting the value of  $P_n$  in the above equation (9) and simplifying it we get,

$$P_0 = \sum_{t=1}^{\infty} \frac{D_t}{(1+k_e)^t} \quad \dots(11)$$

The above is the same as equation (8) which is regarded as a generalized multi-period formula used for raising, declining, constant or randomly fluctuating dividend stream. Three such instances are discussed below:

- i. Constant dividends
  - ii. Constant growth of dividends
  - iii. Changing growth rates of dividends.
- i. **Valuation with Constant Dividends:** Assume that the dividend per share is constant year after year, whose value is  $D$ , then eqn. (4) becomes

$$P_0 = \frac{D}{(1+k_e)^1} + \frac{D}{(1+k_e)^2} + \dots + \frac{D}{(1+k_e)^\infty}$$

On simplification the above equation becomes

$$P = \frac{D}{k_e} \quad \dots(12)$$

- ii. **Valuation with Constant Growth of Dividends:** It is assumed that dividends tend to increase over time because business firms usually grow over time.

Therefore, if the growth of the dividends is at a constant compound rate then:

$$D_t = D_0(1+g)^t$$

where,

- $D_t$  = dividend for year t
- $D_0$  = dividend for year 0
- $g$  = constant compound growth rate

The valuation of the share where dividend increases at a constant, compound rate is given as

$$P_0 = \frac{D_1}{(1+k_e)} + \frac{D_1(1+g)}{(1+k_e)^2} + \frac{D_1(1+g)^2}{(1+k_e)^3} + \dots$$

On simplification

$$P_0 = \frac{D_1}{k_e - g} \quad \dots(13)$$

**Illustration16**

Shetkani Solvents Ltd. is expected to grow at the rate of 7% per annum and dividend expected a year hence is Rs.5.00. If the rate of return is 12%, what is the price of the share today?

**Solution**

The price would be  $P_0 = \frac{5.00}{0.12 - 0.07} = \frac{5.00}{0.05} = \text{Rs.100}$

- iii. **Valuation with Variable Growth of Dividends:** Some firms have a super normal growth rate followed by a normal growth rate. If the dividends move in line with the growth rate, the price of the equity share of such firm would be

$$P_0 = \frac{D_1}{(1+k_e)} + \frac{D_1(1+g_a)}{(1+k_e)^2} + \dots + \frac{D_1(1+g_a)^{n-1}}{(1+k_e)^n} + \frac{D_n(1+g_n)}{(1+k_e)^{n+1}} + \frac{D_n(1+g_n)^2}{(1+k_e)^{n+2}} + \dots$$

Where

- $P_0$  = price of the equity share
- $D_n$  =  $D_1(1+g_e)^{n-1}$
- $D_1$  = expected dividend a year hence
- $g_a$  = super normal growth rate of dividends
- $g_n$  = normal growth rate of dividends

For computation of  $P_0$  in the above equation, the following procedure may be adopted.

- 1. Expected dividend stream during the supernormal period of the super normal growth is to be specified and the present value of this dividend stream is to be computed for which the equation to be used in

$$= \sum_{t=1}^n \frac{D_t}{(1+k_e)^t}$$

2. The value of the share at the end of the initial growth period is to be calculated

$$P_n = \frac{D_{n+1}}{k_e - g_n} \text{ (as per the constant growth model)}$$

which is then discounted to the present value. The discounted value therefore is

$$\frac{D_{n+1}}{k_e - g_n} \times \frac{1}{(1+k_e)^n}$$

3. Then add both the present value composites to find the value ( $P_0$ ) of the share which is

$$P_0 = \sum_{t=1}^n \frac{D_t}{(1+k_e)^t} + \frac{D_{n+1}}{k_e - g_n} \times \frac{1}{(1+k_e)^n} \quad \dots(14)$$

**Illustration 17**

Consider the equity share of Venus Lab Limited.

- $D_0$  = current dividend per share = Rs.3.00
- $n$  = duration of the period of super normal growth = 5 years
- $g_a$  = growth rate during the period of super normal growth = 25%
- $g_n$  = normal growth rate after super normal growth period is over = 7%
- $k_e$  = investor's required rate of return = 14%

The following are the steps involved.

1. Dividend stream during super normal growth period:

- $D_1$  = Rs.3.00 (1.25)
- $D_2$  = Rs.3.00 (1.25)<sup>2</sup>
- $D_3$  = Rs.3.00 (1.25)<sup>3</sup>
- $D_4$  = Rs.3.00 (1.25)<sup>4</sup>
- $D_5$  = Rs.3.00 (1.25)<sup>5</sup>

The present value of the above stream of dividends is

$$\begin{aligned} &= \frac{3.00 (1.25)}{(1.14)} + \frac{3.00 (1.25)^2}{(1.14)^2} + \frac{3.00 (1.25)^3}{(1.14)^3} + \frac{3.00 (1.25)^4}{(1.14)^4} + \frac{3.00 (1.25)^5}{(1.14)^5} \\ &= \text{Rs.}3.29 + 3.61 + 3.96 + \text{Rs.}4.34 + \text{Rs.}4.76 \\ &= \text{Rs.}19.96. \end{aligned}$$

2. The price of the share at the end of 5 years, applying the constant growth model at that point of time will be:

$$\begin{aligned} P_5 &= \frac{D_6}{k_e - g_n} = \frac{D_5(1+g_n)}{k_e - g_n} \\ &= \frac{3.00(1.25)^5 (1.07)}{0.14 - 0.07} = \frac{9.8}{0.07} = \text{Rs.}140 \end{aligned}$$

The discounted value of this price is =  $\frac{140.00}{(1.14)^5} = \text{Rs.}72.71$

3. The sum of the above components is:  
 $P_0 = \text{Rs.}19.96 + \text{Rs.}72.71 = \text{Rs.}92.67$   
 $\therefore$  The value of the share  $P_0 = \text{Rs.}92.67$ .

## Impact of Growth on Price, Returns P/E Ratio

Different companies have varied expected growth rates. While some companies remain stagnant other companies show normal growth and still others grow at a super normal growth rate. Assuming a constant required rate of return, varying growth rates mean difference in stock prices, dividend yields, capital gain yield and price earning ratio.

To illustrate the above, three cases can be considered.

	Growth rate (%)
Firm with no growth	0
Firm with normal growth rate	6
Firm with super normal growth rate	10

The expected earning per share and dividend per share of each of the above firms are Rs.5.00 and Rs.4.00 respectively. The required rate of return from equity investments is 16%.

We can calculate the stock price, dividend yield, capital gain yield and price-earning ratio for all the above cases with the given information.

Price, Dividend yield, Capital gains yield, and Price-earnings ratio under differing growth assumption for 16% required rate of return.

Price	Dividend Yield	Capital Gain Yield	P/E Ratio (P/E)
	$\left(\frac{D_1}{P_0}\right)$	$\left(\frac{P_1 - P_0}{P_0}\right)$	
No growth firm $P_0 = \frac{D_1}{K}$ Rs. $\frac{Rs.4.00}{0.16} = Rs.25$	16%	0%	5
Normal growth firm $P_0 = \frac{D_1}{K - g}$ $\frac{Rs.4.00}{0.16 - 0.06} = Rs.40$	10%	6%	8
Super normal growth $P_0 = \frac{D_1}{K - g}$ $= \frac{Rs.4.00}{0.16 - 0.10} = Rs.67$	6%	10%	13.4

Looking at the table, we can say that:

1. Other things being equal, as the expected growth in dividend increases, the expected return i.e., (the total return = dividend yield + capital gain yield) depends more on the capital gain yields, less on the dividend yield.
2. Other things being equal, the price-earning ratio increases as the expected growth rate in dividend increases.
3. High dividend yield and low price earning ratio imply limited growth prospects.
4. Low dividend yield and high price earnings ratio imply considerable growth prospects.



## EQUITY VALUATION: RATIO APPROACH

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The ratio approach which is rather simpler to use is followed by most practitioners. Some of the ratios employed in the context of valuation are discussed hereunder.

- a. Book value
- b. Liquidation value
- c. Price/Earnings ratio.

### Book Value

The book value per share is the net worth of the company (paid-up equity capital plus reserves and surplus) divided by the number of outstanding equity shares.

$$\text{Book Value} = \frac{\text{Net worth (Paid equity capital + reserves + surplus)}}{\text{Number of outstanding equity shares.}}$$

### Liquidation Value

Liquidation value per share is equal to:

$$\frac{\text{Value realized from liquidating all the assets of the firm} - \text{Amount to be paid to all the creditors and preference shareholders}}{\text{No. of outstanding equity shares}}$$

This is more realistic than the book value. However, it has two obstacles (1) It would be difficult to estimate the amount realized from liquidation of various assets (2) Liquidation value does not reflect earning capacity.

### Price-Earning Ratio

Financial analysts have used this P/E model more frequently than other models. According to this, the intrinsic value of the share is:

Expected earning per share x Appropriate price – Earning ratio.

The expected earning per share is:

$$\frac{\text{Expected PAT} - \text{Preference dividend}}{\text{Number of outstanding equity shares}}$$

Preference dividends and the number of outstanding equity shares can be defined but the expected PAT is quite difficult to estimate. Therefore, factors like sales, gross profit margin, depreciation, interest burden and tax rate will have to be considered to arrive at an appropriate figure for PAT.

To establish an appropriate price-earnings ratio for a given share, to start with, the price-earnings ratio for the market as a whole and also for the industry will have to be considered. Then the P/E ratio applicable to the particular share under consideration should be judged for which the following factors are to be considered.

1. Growth rate
2. Stability of earnings
3. Size of the company
4. Quality of management
5. Dividend pay-out ratio.

The impact of the above factors in P/E ratio is rather difficult to quantify. However, qualitative observation can be made.

The higher the growth rate, the higher the P/E ratio; the greater the stability of earnings, the higher the P/E ratio; the larger the size of the company, the higher the P/E ratio; the higher the dividend pay-out ratio, the higher the P/E ratio.

### E(P/E) Ratio

The E(P/E) ratio is formed by dividing the present value of the share by the expected earnings per share denoted by E(EPS).

$$\therefore E(P/E) = \frac{\text{PV per share}}{E(\text{EPS})}$$

Substituting the present value per share by the present value formula as per dividend discount model get

$$E(P/E) = \frac{D}{k-g} \times \frac{1}{E(\text{EPS})} \text{ or } \frac{D/E(\text{EPS})}{(k-g)}$$

where the numerator is nothing but the expected dividend pay-out ratio.

### Comparing Expected and Actual P/E Ratios

#### Step 1

Estimate the stock's expected price-earning ratio, E(P/E), by studying fundamental facts about the firm.

#### Step 2

Observe the stock's current P/E by checking price and earnings data in newspapers or investment periodicals.

#### Step 3

Compare the stock's actual P/E with its E(P/E) and then consult the investment decision rules below:

- If the E(P/E) exceeds the actual P/E, the stock is currently underpriced and this is the time to buy.
- If the E(P/E) is less than the actual P/E, the stock is currently overpriced and this is the time to sell (or sell short).
- If the E(P/E) equals the actual P/E, the stock is correctly priced – neither buying nor selling is desirable.

### SUMMARY

The concept of time value of money provides a fundamental background for the valuation of bonds and stocks. Value of any security can be defined as the present value of its future cash streams i.e.,

$$V_0 = \frac{C_1}{(1+k)^1} + \frac{C_2}{(1+k)^2} + \dots + \frac{C_n}{(1+k)^n} = \sum_{t=1}^n \frac{C_t}{(1+k)^t}$$

Where

- $V_0$  = Value of the asset at time zero,
- $P_0$  = Present value of assets,
- $C_t$  = Expected cash flow at the end of period t,
- $k$  = Discounted rate of required rate of return on the cash flow,
- $n$  = Expected life of an asset.

Face value of a bond is the value stated on the bond. A bond carries a rate of interest, which is called coupon rate. Bond is issued for a specific period, which is called maturity of the bond. The value that a bondholder gets on maturity is called redemption value.

Yield of a bond can be measured using several methods viz. single period rate of return, current yield and yield to maturity.

When the required rate of return is equal to the coupon rate, the value of bond is equal to its par value.

When the required rate of return is greater than the coupon rate, the value of bond is less than its par value.

When the required rate of return is less than the coupon rate, the value of bond is greater than its par value.

When the required rate of return is greater than the coupon rate, the discount on the bond declines as maturity approaches.

When the required rate of return is less than the coupon rate, the premium on the bond declines as maturity approaches.

A bond's price moves inversely to its yield to maturity.

For a given difference between YTM and coupon rate of the bonds, the longer the term to maturity, the longer will be the change in price with change in YTM.

Given the maturity, the change in bond price will be greater with a decrease in the bond's YTM than the change greater price with an equal increase in the bond's YTM.

For any given change in YTM, the percentage price change in case of bonds of high coupon rate will be smaller than in the case of bonds of low coupon rate, other things remaining the same.

A change in the YTM affects the bonds with a higher YTM more than it does bonds with lower YTM.

The value of a convertible is determined as:

$$V_0 = \sum_{t=1}^n \frac{C}{(1+r)^t} + \frac{(P_n) \times \text{Conversion ratio}}{(1+r)^n}$$

## **Chapter IV**

# **Financial Forecasting**

## **Lesson 1**

# **Financial Planning, Forecasting and Budgeting**

**After reading this lesson, you will be conversant with**

- Need for Forecasting
- Preparation of the Sales Forecast
- Proforma Analysis
- Computation of External Fund Requirement and Sustainable Growth Rate

## **NEED FOR FORECASTING**

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Financial forecasting is a planning process with which the company's management positions the firm's future activities relative to the expected economic, technical, competitive and social environment. Business plans normally show strategies and actions for achieving desired short-term, intermediate, and long-term results. These are quantified in financial terms, in the form of projected financial statements (proforma statements) and a variety of operational budgets.

There are three main techniques of financial projections. They are proforma financial statements, cash budgets, and operating budgets. Proforma statements are projected financial statements embodying a set of assumptions about a company's future performance and funding requirements. Cash budgets are detailed projections of the specific incidence of cash moving in and out of the business. Operating budgets are detailed projections of departmental revenue and/or expense patterns, and they are subsidiary to both proforma statements and cash flow statements.

By developing proforma statements, a comprehensive look at the likely future financial performance of a company can be obtained. These statements comprising of P&L statement and a balance sheet are extended into the future. The proforma operating statement (P&L) statement represents an "operational plan" for the business as a whole, while the proforma balance sheet reflects the anticipated cumulative impact of assumed future decisions on the financial condition of the business at a selected point of time. Both statements are prepared by taking the most readily available estimates of future activity and projecting, account by account, the assumed results and conditions. A third statement, a proforma funds flow statement, adds further insight by displaying the various funds movements expected during the forecast period.

### **Proforma Financial Statement**

The preparation of proforma statements is explained with an example of an hypothetical manufacturing company called Genius Corporation. The company selling two kinds of winter care products which have seasonal pattern has a low point of sale occurring in May. The most recent results are available for first quarter of the year 1. These statements give the initial set of data to project the future statements. The proforma projection is to be made for the second quarter of the year 1, and the objective is to determine both the level of profit and the amount of additional funds required at the end of the second quarter.

### **Proforma Income Statement**

The operating statement is usually prepared first because the amount of after-tax profit must be reflected in the balance sheet as a change in retained earnings. The starting point in the preparation of proforma operating statement, as shown on the first line of the Table 1 is a projection of the unit and rupee volume of sales. These can be estimated in a variety of ways like trend-line projection to detailed departmental sales forecasts by individual product.

In table 1, the actual operating statement for the first quarter ended March 31, is shown as a base for the analysis. Company statistics from past years show that during the second quarter a decrease of 29 to 31 percent from first quarter is normal. By taking the mid-point of 30 percent as mid-point the unit sales figure is obtained by decreasing the first quarter unit sales by 30 percent. After calculating a 30 percent decrease in unit volume further assumption is that both prices and product mix will remain unchanged. The assumption can be relaxed to have more insights or to test the impact of "what if so and so is changed by some percentage" type of questions.

Table 1

	Actual quarter ended March 31, Year 1	Proforma Quarter ended June 30, Year 1	Assumptions
Units sold	14,000	9,800	Second quarter has seasonally low sales; past data show 30% decline from first quarter.
Net sales	1,40,000 100.0%	98,000 100.0%	No change in product mix and price.
Cost of goods sold	22,960	16,366	20% of cost of goods sold as before.
Labor			
Materials	25,256	18,002.6	22% of cost of goods sold as before.
Distribution	4,592	44,188.2	54% of cost of goods sold as before.
Overhead	61,992	3,273.2	4% of cost of goods sold as before.
Total	1,14,800 82.0%	81,830 83.5%	Increase by 1.5 percentage points simulate operating inefficiencies.
Gross profit margin	25,200 18.0%	16,170 16.5%	
Expenses	8,250	7,500	Assuming a drop of Rs.750 due to lower activity
Selling expenses			
Gen & Admn.	4,450	3,600	Assuming a drop of Rs.850
Total	12,700	11,100	
Operating profit	12,500	5,070	
Interest	2,500	2,000	Based on outstanding debt
Depreciation	2,000	2,000	
PBT	7,000	1,070	
Tax @30%	2,100	321	
Net income	4,900	749	
Dividends	900	-0-	No payment of dividends
Retained earnings	4,000	749	Carried to balance sheet
Cash flow after dividends	6,000	2,749	Retained earnings + depreciation

Next is the estimation of cost of goods sold. For this, **percent of sales method** is used. An assumption is made that the future relationship between various elements of costs to sales will be similar to their historical relationship. The actual first-quarter operating statement provides details on the main components (labor, materials, overheads and distribution) in cost of goods sold. As the second quarter is the company's seasonal low point, it is assumed that some inefficiencies are likely to raise the overall cost of goods sold as operations slow. Cost of goods sold and gross margin can be calculated directly without the detailed cost breakdown. Selling expense is shown as Rs.8,250. Given that the second quarter has lower sales activity, a small decrease of Rs.750 can be assumed. A reduction fully proportional to the 20 percent drop in volume would not be possible as some of the expenses are fixed in nature. Similar is the case with the general and administrative expenses. This method of estimating the value of various items on the basis of expected developments in the future period is called the **budgeted expense method**.

As a result of the assumptions, the second quarter operating profit falls by over Rs.5,000 and the profit after-tax drops to less than one by five times of its former level. This is mostly due to the 30 percent drop in sales volume and the associated profit contribution loss. Interest is charged according to the provisions of the outstanding debt, and this information can be obtained from company's annual reports.

The operating statement will be completed after we calculate the tax rates (assumed here at the rate of 30%). It can be observed that there is a significant decrease in the amount of net profits because of slowdown in operations. One more assumption needs to be made about the dividends to arrive at the retained earnings for the period which have to be reflected in the proforma balance sheet. In Genius Corp's case, it is assumed that no dividends will be declared because of low earnings.

**Table 2: Proforma Balance Sheet**

	Actual March 31	Proforma June 30	Change	Assumptions
<b>LIABILITIES</b>				
A.Share Capital	6,500	7,000	+500	Sale of stock under option
B. Reserves and Surplus Total (C + D)	4,500	5,250	+750	
C.Reserves	500	4,500	-0-	From P&L
D.P&L balance carried forward	4,000	750	+750	
E. Total Shareholders Funds (A + B)	11,000	12,250	+1,250	
F. Total Debt	7,500	7,500	-0-	
G.Total Liabilities (E + F)	18,500	19,750	+1,250	
<b>ASSETS:</b>				
H.Gross Block [I + J]	24,000	23,000	-1,000	No change
I. Land	3,000	3,000	-0-	
J. Plant & Machinery	21,000	20,000	-1,000	Sale
K.Less: Accum. Depreciation	10,000	9,500	- 500	
L. Net Block (H – K)	11,000	10,500	- 500	Accumulated
M.Current Assets, Loans and Advances (N + O)	14,500	16,000	+1,500	
N.Inventories	10,500	12,500	+2,000	Cash set at estimated Min. Balance
O.Cash	4,000	3,500	- 500	
Less: Current Liab. & Prov.				
P. Current Liabilities	5,000	4,000	-1,000	
Q.Provisions	2,000	2,000	-0-	
R. Net Current Assets (M – P – Q)	7,500	10,000	+2,500	
S. Total Assets (L + R)	18,500	20,500	+2,000	
Additional funds required (Total assets – Total liabilities)			+750	

Preparation of proforma balance sheet is illustrated in the Table 2. Again specific assumptions have to be made about each item in the statement, working from the actual balance sheet and additional information we can obtain from the management. All the assumptions made are given in the table. The first account (share capital) is expected to increase by 500 as stock options are exercised. The retained earnings will increase by the net income of 750 as calculated in the proforma income statement. Totally the amount of shareholder funds has increased by 1250. Long-term debt is assumed to remain unchanged.

On the assets side, first fixed assets are considered. In the present case, two types of fixed assets are taken. They are land, plant and machinery. Land remains unchanged and there is a reduction of Rs.1,000 in the plant and machinery account because of sale of machines. Next is net current assets. Net current assets is obtained by deducting total current liabilities from total current assets. It is assumed that the demand for the products is going to increase from third quarter onwards. So, to meet the excess demand in the next quarter, products are already manufactured and kept in the inventory, though the sales in the present quarter are reduced. Regarding cash, the assumption is that three months hence the company would need to keep only the minimum working balance in its bank accounts. An amount of Rs.500 was the minimum balance it has kept over the periods. The assumption regarding current liabilities is that most of the current liabilities are accounts payable and are assumed to decline in response to lower activity in the second quarter.

Finally, when the results are added up, there would be a difference between assets and liabilities amounts. So, assets and liabilities are made equal with a balancing figure, which represents either funds needed or the excess funds of the company on the proforma balance sheet date. In the case of Genius Corp., the amount came out to as Rs.750. This figure is called plug figure and serves as a quick estimate of what amount of additional funds the company requires or the additional funds at company's disposal.

## **Cash Budget**

Cash budgets (or cash flow estimates), are very specific planning tools that are prepared every month or even every week. They give the specific details about the incidence of cash receipts and cash payments. The financial manager who uses the cash budget after observing the changing levels of cash flows, decides the minimum amount of cash that should be kept to allow timely payments of obligations. Cash budgets on the total, show the cash needs or excesses. The level at the end of the period will match if the cash budget was prepared using the same assumptions employed in generating the proforma statements.

## **Operating Budget**

The proforma statements and cash budget provide an overall view of the company's future performance. In big organizations, normally specific operating budgets are prepared for different divisions (sales, production etc.,) in the organizational hierarchy. These form a back ground for the preparation of proforma statements and cash flow projections when a higher degree of detail and accuracy is required. There are many types of profit and expense budgets like sales budget which gives the details of profit contribution and, factory budget which involves only costs or expenses. For the present discussion, the sales budget is illustrated.

## **Sales Budget**

Sales forecast provides the basis around which the firm's planning process is centered. Important areas of decision making such as production and inventory scheduling, investment in machinery and other fixed assets, manpower requirements, raw material purchases, cash flow requirements are all dependent on the sales forecast. It, therefore, follows that any significant error in the forecast will have far-reaching and serious consequences.



A sales forecast for the coming year would reflect:

- Any past trend in sales that is expected to be continued in the coming year.
- The influence of any events which might naturally effect that trend.

Sales forecasting is a complex subject which uses a variety of concepts and techniques. These can be broadly classified as being either subjective or objective.

## **Subjective Methods**

The word “Subjective” is used here, because these methods use the judgments or opinions of knowledgeable individuals within the company, ranging from sales representatives to executives.

Let us take a very brief look at some of the subjective measures commonly applied.

### **JURY OF EXECUTIVE OPINION**

In this method, each of a member of executives makes an independent forecast of sales for the next period, usually a year, based on factual data at their disposal and using their mature judgmental abilities. Once these independent forecasts are made, the chief executive has to reconcile the differences after a joint discussion with all the executives. While the jury method is simple and represents a number of viewpoints, its chief disadvantage is that it is based on opinions.

### **SALES FORCE ESTIMATES**

For short-term forecasts, it is likely that sales representatives can do a better job than can be done using more sophisticated objective methods. This is because they have the direct “feel” about the market. Sales representatives’ knowledge of the probable demand of major accounts for the product (especially industrial products) over the coming months is about the only reliable basis on which a firm can adjust its plans to the dynamics of the market plan. The major disadvantage of using this method is that sales representatives may set targets which are too easily attainable so as to reduce their workload.

### **OBJECTIVE METHODS**

These are statistical methods which range in sophistication from relatively simple trend extrapolations to the use of complicated mathematical models. More and more companies are relying on computers to predict causal relationships.

#### **Trend Analysis via Extrapolation**

A simple objective method of forecasting is the extrapolation of past sales trends. The major assumption is that sales for the coming period will change to the same degree as sales changed from the prior period to the current period. Thus, in this method, the past trend in sales is identified and this trend is projected into the future. While doing trend analysis, the analyst must keep in mind that the time series of a product’s past sales is made up of four major factors:

- **The first factor, long-term trend,** is the result of basic developments in population, capital formation and technology. This is found by fitting a straight or curved line through past sales.
- **The second factor, cycle,** captures the wave-like movement of sales as a result of swings in general economic activity, which tends to be somewhat periodic. This cyclical component can be useful in intermediate range forecasting.
- **The third factor, seasonal variations,** refers to a consistent pattern of sales movements within the year which may be related to climatic factors, holidays, customs etc. The seasonal pattern provides a basis for forecasting short-range sales.

- **The fourth factor, erratic events**, includes strikes, riots, earthquakes and other unpredictable disturbances. These erratic factors should be removed from past data to see the more normal behavior of sales. While analyzing, the original sales series should be broken up into these components and recombined to produce the sales forecast. Let us take a look at how this is done.

An automobile company sold 60,000 cars during the last year ended 31st December. The company would like to predict sales for the current year ending 31st December. The long-term trend of sales shows a 5 percent growth rate per year. This factor, taken by itself, suggests that sales for next year will amount to 63,000 cars. However, economists predict a recession next year, and will probably result in the company achieving only 80 percent of the expected trend – adjusted sales. This means that sales next year are more likely to be 50,400 cars.

Assuming that sales follow a uniform pattern throughout the year (i.e., there is not much seasonal fluctuations), monthly sales would amount to 4,200 cars. However, December seems to be an above-average month for car sales with a seasonal index standing at 1.20. Therefore, in comparison with the other months, December sales will be 5040 cars. Since erratic events cannot be reasonably predicted anyway, the best estimate of car sales for next December is 5040 cars.

**REGRESSION ANALYSIS**

Regression analysis can be used in sales forecasting to measure the relationship between a company’s sales (dependent variable) and other independent variables like income, population etc. For example, automobile manufacturers may find that their sales are related to personal income – when income goes up, sales go up and vice-versa. To use this relationship in forecasting car sales, the company must determine the degree of relationship. In other words, this leads to the question, if income rises, by say, 10 percent, will car sales rise by 10 percent, 30 percent, 15percent, or what? Using regression analysis, sales (Q), a dependent variable is expressed as a function of a number of independent variables,  $X_1, X_2, …, X_n$ , i.e.,

$$Q = f (X_1, X_2, …, X_n)$$

Various equation forms can be statistically fitted to the data in the search for the best predicting factors and equation. The coefficients of the equation are estimated according to the criterion of least squares. According to this criterion, the best equation is one that minimizes the sum of the squared deviations of the actual from the predicted observations. The equation can be derived using standard formulae.

Regression analysis has the advantage of being more objective than the methods discussed so far.

Next, the price levels for each product are estimated by taking three factors into consideration. They are industry pricing practices, competitive environment, cost effectiveness of company’s manufacturing operations. Once price is projected, sales revenue can be calculated. Next cost of goods sold is estimated. After projecting selling and administrative expenses gross profit margin is obtained. This way, the sales budget for different short-term periods are estimated.

**Growth and External Financing Requirement**

Financial plans force managers to be consistent in their goals for growth, investments, and financing. In the long-term planning the relationship between firm’s growth objectives and its external financing requirements are very useful. For example, ABC company started with Rs. 10 lakh of fixed assets and working capital and forecasts a growth of 10 percent. This higher sales volume required a 10 percent addition to its assets. Thus

$$\begin{aligned} \text{New investment} &= \text{Growth rate} \times \text{Initial assets} \\ &= 0.1 \times 10,00,000 \\ &= \text{Rs.}1,00,000 \end{aligned}$$

Part of the funds to pay for new assets is provided by retained earnings. The remainder must come from external financing.

The External Financing Requirement can be found out with the help of the following equation:

$$EFR = \frac{A}{S}(\Delta S) - \frac{L}{S}(\Delta S) - mS_1(1-d)$$

Where

- EFR = external financing requirement
- A/S = current assets and fixed assets as a proportion of sales
- $\Delta S$  = expected increase in sales
- L/S = spontaneous liabilities as a proportion of sales
- m = net profit margin
- $S_1$  = projected sales for next year
- d = dividend pay-out ratio.

Changing the equation a bit, we get:

$$\frac{EFR}{\Delta S} = \frac{A}{S} - \frac{L}{S} - \frac{m(1+g)(1-d)}{g}$$

where g is the growth rate in sales.

### Illustration 1

XYZ Co. has the following ratios:

$$A/S = 0.8, \Delta S = \text{Rs.5 lakh}, L/S = 0.3,$$

$$m = 0.05, S_1 = \text{Rs.50 lakh}, \text{ and } d = 0.4.$$

$$EFR = (0.8)(5) - (0.3)(5) - (0.05)(50)(0.6) = \text{Rs.1 lakh}.$$

This equation highlights that the amount of external financing depends on the firm's projected growth in sales. The faster the firm grows, the more it needs to invest and therefore the more it needs to raise new capital.

At low growth rates, the firm generates more funds than necessary for expansion. In this sense, its requirement for further external funds is negative. It may choose to use its surplus to pay off some of its debt. When growth is zero, no funds are needed for expansion, so all the retained earnings are surplus funds with the firm.

As the firm's projected growth rate increases, more funds are needed to pay for the necessary investments. For high rates of growth the firm must issue new securities to pay for new investments.

A firm with a high volume of retained earnings relative to its assets can generate a higher growth rate without needing to raise more capital.

Without resorting to external financing, maximum sales growth rate (g) that can be financed is given by equating EFR to zero

$$\text{(i.e.) } 0 = \frac{A}{S} - \frac{L}{S} - \frac{m(1+g)(1-d)}{g}$$

### SUSTAINABLE GROWTH RATE

A firm, though having a desire to grow, may not like to raise external equity due to various reasons like high cost of issue, large degree of underpricing required, or unacceptable dilution of control. In such a case, the company would like to know the rate of growth which it can achieve without resorting to issue of external equity.

The following assumptions have to be made in order to find out this rate:

- The assets of the firm will increase proportionally to sales.
- Net profit margin is constant.
- Dividend pay-out ratio and debt-equity ratio will remain constant.
- External issue of equity will not be resorted to.

Now, let

$$A = E + D$$

i.e., Total Assets = Equity + Total Debt

$$E = \text{equity employed by the firm}$$

$$D = \text{debt employed by the firm}$$

$$D/E = \text{debt-equity ratio and let the other symbols have the same meaning as stated earlier.}$$

Using the above assumptions and symbols, we get:

$$\text{Next period's income: } mS_1 = mS_0(1 + g)$$

$$\text{Increase in retained earnings: } mS_0(1 + g)(1 - d)$$

$$\text{Increase in borrowings: } mS_0(1 + g)(1 - d) D/E$$

$$\text{Increase in assets: } \Delta A = Ag$$

Since increase in assets is equal to increase in retained earnings plus increase in borrowings,

$$Ag = mS_0(1 + g)(1 - d) + mS_0(1 + g)(1 - d) D/E$$

Rearranging the equation, we get:

$$g = \frac{m(1-d) A/E}{A/S_0 - m(1-d) A/E}$$

**Illustration 2**

$$m = 0.05, d = 0.4, A/E = 1.5, A/S_0 = 0.8$$

The rate of growth sustainable with internal equity will be:

$$g = \frac{0.05(1-0.4) \times 1.5}{0.8 - 0.05(1-0.4) \times 1.5} = 5.96\%$$

**COMPUTERIZED FINANCIAL PLANNING SYSTEMS**

From the 1980s, the use of planning models and computer-generated spreadsheets has grown enormously, as most of the available financial software packages are offering financial simulation and projection capabilities. Though these commercial packages differ in their specific orientation and degree of sophistication, at the conceptual level they help the analyst in projections. Computer speed and multiple tracking facilities have reduced much of the hardwork involved in tracing investment, operational, and financing assumptions through the financial framework of a business.

The main usefulness of computerized financial planning systems can be seen in expanded ability of financial analyst to explore the consequences of different assumptions, conditions and plans. In preparing various statements like proforma statements, cash flow statements and budgets, different aspects like company's accounting procedures, depreciation schedules, tax calculations, debt service schedules, inventory policies have to be taken into consideration. When the company's systems are computerized, it becomes easy for the analyst to study various assumptions and their outcomes with the given set of accounting, tax and other policy constraints.

## **SUMMARY**

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- Financial forecasting is the process where a company's management positions the firm's future activities based upon the expected external environment – economic, technical, and social. The strategies and actions that a firm wants to pursue are quantified in financial terms in the form of projected financial statements and different types of operating budgets.
- The three main techniques of financial projections are proforma financial statements, cash budgets and operating budgets. Proforma financial statements are projected future statements of a company based upon a set of assumptions about future performance relative to the market conditions. Cash budgets are specific planning tools prepared periodically (usually a month) that give the details of expected cash receipts and cash payments. By observing the changing level of cash flows, a finance manager can decide upon the minimum balance that should be kept for timely payment of obligations.
- While proforma statements and cash budget give an overall picture of a company's future performance, operating budgets are prepared for specific divisions such as sales, production, etc., and provide a micro-level view of the company's future operations.
- Sales forecasting can be done using subjective and objective methods. Subjective methods include Jury of Executive Opinion and Sales Force Estimates while Trend Analysis via Extrapolation and Regression Analysis are the objective methods.

## **Lesson 2**

# **Financial Statement Analysis**

**After reading this lesson, you will be conversant with:**

- The Principal Tools of Analysis
- Ratio Analysis
- Different Types of Ratios and their Significance
- Problems Encountered in Financial Statement Analysis

## Financial Statements

A financial statement is a compilation of data, which is logically and consistently organized according to the accounting principles. Its purpose is to convey an understanding of some financial aspects of a business firm. It may show a position at a moment in time, as in the case of a balance sheet, or may reveal a series of activities over a given period of time, as in the case of an income statement. Financial statements are the major means through which firms present their financial situation to stockholders, creditors, and the general public. The majority of firms include extensive financial statements in their annual reports, which are distributed widely.

## The Nature of Financial Statement Analysis

A financial statement analysis consists of the application of analytical tools and techniques to the data in financial statements in order to derive from them measurements and relationships that are significant and useful for decision making.

The process of financial analysis can be described in various ways, depending on the objectives to be obtained. Financial analysis can be used as a preliminary screening tool in the selection of stocks in the secondary market. It can be used as a forecasting tool of future financial conditions and results. It may be used as a process of evaluation and diagnosis of managerial, operating, or other problem areas. Above all, financial analysis reduces reliance on intuition, guesses and thus narrows the areas of uncertainty that is present in all decision making processes. Financial analysis does not lessen the need for judgment but rather establishes a sound and systematic basis for its rational application.

## Sources of Financial Information

The financial data needed in the financial analysis come from many sources. The primary source is the data provided by the firm itself in its annual report and required disclosures. The annual report comprises of the income statement, the balance sheet, and the statement of cash flows, as well as footnotes to these statements. Besides this, information such as the market prices of securities of publicly traded corporations can be found in the financial press and the electronic media daily. The financial press also provides information on stock price indices for industries and for the market as a whole.

The development of this chapter on financial statement analysis is carried out with the help of balance sheets and profit and loss accounts of Rainbow-chem Industries for the last five years given in Table 1 and Table 2.

**Table 1: Balance Sheet of Rainbow-chem Industries for the years 1 to 5**

(Rs. crore)

	Year 5	Year 4	Year 3	Year 2	Year 1
<b>SOURCES OF FUNDS</b>					
A. Share Capital	11.65	11.65	9.63	7.94	7.94
B. Reserves Total	71.36	59.50	37.05	20.14	16.89
C. Total Shareholders Funds (A + B)	83.01	71.15	46.68	28.08	24.83
D. Secured Loans	48.62	41.25	60.45	53.43	30.58
E. Unsecured Loans	25.70	19.34	10.51	11.50	14.50
F. Total Debt (D + E)	74.32	60.59	70.96	64.93	45.08
G. Total Liabilities (C + F)	157.33	131.74	117.64	93.01	69.91

	Year 5	Year 4	Year 3	Year 2	Year 1
<b>APPLICATION OF FUNDS</b>					
H. Gross Block	110.05	103.89	90.90	75.27	56.81
I. Less: Accum. Depreciation	52.02	50.02	44.46	40.26	36.88
J. Net Block (H – I)	58.03	53.87	46.44	35.01	19.93
K. Capital Work-in-Progress	6.88	5.51	4.77	3.76	8.00
L. Investments	6.63	3.03	2.89	2.89	2.65
M. Current Assets, Loans and Advances (N + O + P + Q)					
N. Inventories	46.30	40.48	34.87	35.53	41.20
O. Sundry Debtors	49.85	37.30	37.75	30.53	31.86
P. Cash and Bank Balances	1.85	1.62	1.10	1.62	1.26
Q. Loans and Advances	23.10	14.88	11.16	10.23	6.90
R. Less: Current Liab. and Prov. (S + T)					
S. Current Liabilities	32.36	21.53	19.17	24.63	39.99
T. Provision	4.24	3.42	2.17	1.93	1.90
U. Net Current Assets (M - R)	84.50	69.33	63.54	51.35	39.33
V. Misc. Expenses not w/o	1.29	0.00	0.00	0.00	0.00
X. Total Assets (J + K + L + U + V)	157.33	131.74	117.64	93.01	69.91

**Table 2: Profit & Loss Accounts for the years 1 to 5**

(Rs. crore)

	Year 5	Year 4	Year 3	Year 2	Year 1
<b>INCOME</b>					
A. Sales Turnover	261.00	214.41	181.29	155.58	131.94
B. Other Income	9.81	11.21	8.71	9.50	6.14
C. Stock Adjustments*	4.10	2.99	0.97	-3.11	6.67
D. Total Income (A + B + C)	274.91	228.61	190.97	161.97	144.75
<b>EXPENDITURE</b>					
E. Raw Materials	122.42	97.04	75.05	66.67	66.46
F. Power & Fuel Cost	16.72	14.26	13.41	9.96	8.98
G. Employee Cost	26.12	21.21	19.49	16.02	13.50
H. Other Manufacturing Expenses	16.84	14.64	13.52	11.60	10.94
I. Excise Duty	30.74	26.47	24.36	22.22	18.10
J. Selling and Administration Expenses	15.98	10.15	9.23	7.09	5.85
K. Miscellaneous Expenses	8.78	7.83	5.33	5.11	4.00
L. Less: Preoperative Expenses Capitalized	0.00	0.00	0.00	0.00	0.00
M. Operating Profit (D – E – F – G – H – I – K + L)	37.31	37.01	30.58	23.30	16.92



	Year 5	Year 4	Year 3	Year 2	Year 1
N. Interest	9.58	10.71	13.57	11.42	7.65
O. PBDT (M – N)	27.73	26.30	17.01	11.88	9.27
P. Depreciation	6.49	6.37	4.76	3.56	2.41
Q. Profit Before Tax (O – P)	21.24	19.93	12.25	8.32	6.86
R. Tax	5.30	5.00	3.60	3.00	2.70
S. Net Profit (Q – R)	15.94	14.93	8.65	5.32	4.16
T. Adjustments for Net Profit**	0.00	0.71	0.23	–0.15	0.32
U. P & L Balance brought forward	6.55	2.50	1.65	1.50	1.01
V. Appropriations ***	14.48	11.59	8.03	5.02	3.99
W. P & L Balance carried down (S + T + U – V)	8.01	6.55	2.50	1.65	1.50

\* Stock Adjustments

Stock adjustment can be achieved in the following ways:

Closing stock of finished goods + Closing stock of work-in-progress + Closing stock of other material – Opening stock of work-in-progress – Opening stock of finished goods – Opening stock of other material.

$$= 17.89 + 14.42 + 0.00 - 14.88 - 13.33 - 0.00 = 4.10.$$

\*\* Adjustments for Net Profit

In this category, extraordinary incomes like sales of assets, income accrued because of changes in accounting policies, etc. are adjusted from net profit.

\*\* Appropriations

\*

Appropriated to General Reserve	=	9.87
Provision for Equity Dividend	=	4.08
Debenture Redemption Reserve	=	<u>0.53</u>
TOTAL		<u>14.48</u>

## **THE PRINCIPAL TOOLS OF ANALYSIS**

In the analysis of financial statements, the analyst has a variety of tools available to choose the best that suits his specific purpose. The following are the important tools of analysis.

1. Ratio analysis
  - Comparative analysis
  - Du Pont analysis
2. Funds flow analysis.

## **RATIO ANALYSIS**

Ratios are well-known and most widely used tools of financial analysis. A ratio gives the mathematical relationship between one variable and another. Though computation of a ratio involves only a simple arithmetic operation, its interpretation is a difficult exercise. The analysis of a ratio can disclose relationships as well as basis of comparison that reveal conditions and trends that cannot be detected by going through the individual components of the ratio. The usefulness of ratios ultimately depends on their intelligent and skillful interpretation.

Ratios are used by different people for various purposes. Ratio analysis mainly helps in valuing the firm in quantitative terms, Two groups of people who are interested in them are creditors and shareholders; creditors are further divided into short-term creditors and long-term creditors.

Short-term creditors hold obligations that will soon mature and they are concerned with the firm's ability to pay its bills promptly. In the short run, the amount of liquid assets determines the ability to clear off current liabilities. These persons are interested in liquidity. Long-term creditors hold bonds or mortgages against the firm and are interested in current payments of interest and eventual repayment of principal. The firm must be sufficiently liquid in the short-term and have adequate profits for the long-term. These persons examine liquidity and profitability.

In addition to liquidity and profitability, the owners of the firm (shareholders) are concerned about the policies of the firm that affect the market price of the firm's stock. Without liquidity, the firm cannot pay cash dividends. Without profits, the firm would not be able to declare dividends. With poor policies, the common stock would trade at low prices in the market.

Considering the needs of users, financial ratios can be grouped as:

- Liquidity ratios
- Profitability or efficiency ratios
- Ownership ratios
  - Earnings ratio
  - Leverage ratios
- Capital structure ratios
- Coverage ratios
- Dividend ratios

## **Liquidity Ratios**

Liquidity implies a firm's ability to pay its debts in the short run. This ability can be measured by the use of liquidity ratios. Short-term liquidity involves the relationship between current assets and current liabilities. If a firm has sufficient net working capital (excess of current assets over current liabilities) it is assumed to have enough liquidity. The current ratio and the quick ratio are the two ratios, which directly measure liquidity. The ratios like receivables turnover ratios and inventory turnover ratios indirectly measure the liquidity.

### **CURRENT RATIO**

The liquidity ratio is defined as: 
$$\frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Current assets include cash, marketable securities, debtors, inventories, loans and advances, and pre-paid expenses. Current liabilities include loans and advances taken, trade creditors, accrued expenses, and provisions.

From the balance sheet data given in table 6.1 for the year 5, the current ratio for the year can be calculated as:

$$\text{Current ratio} = \frac{46.30+49.85+1.85+23.10}{32.36+4.24} = \frac{121.1}{36.6} = 3.31$$

As the current ratio measures the ability of the enterprise to meet its current obligations, a current ratio of 3.31: 1 implies that the firm has current assets which are 3.31 times the current liabilities. A current ratio of 3.31 is considered to be very healthy. The ideal current ratio is 2:1.

In the operating cycle of the firm current assets are converted into cash to provide funds for the payment of current liabilities. So higher the current ratio, higher the short-term liquidity. But in interpreting the current ratio care should be taken in looking into the composition of current assets. A firm which has a large amount of cash and accounts receivable is more liquid than a firm with a high amount of inventories in its current assets, though both the firms may have the same current ratio. To overcome this a more stringent form of liquidity ratio referred to as quick ratio can be calculated.

### **QUICK RATIO**

Quick-test (also known as **acid-test ratio**) is defined as:

$$\begin{aligned} &= \frac{\text{Quick Assets}}{\text{Current Liabilities}} \\ &= \frac{\text{Current Assets} - \text{Inventories}}{\text{Current Liabilities}} \end{aligned}$$

The quick ratio is a more stringent measure of liquidity because inventories, which are least liquid of current assets, are excluded from the ratio. Inventories have to go through a two-step process of first being sold and converted into receivables and secondly collected. The quick test is so named because it gives the abilities of the firm to pay its liabilities without relying on the sale and recovery of its inventories. Another variant of Quick ratio is :  $\frac{\text{Quick assets (QA)}}{\text{Quick liabilities (QL)}}$ .

Where,  $QL = CL - \text{Bank over draft} - \text{income received in advance}$

Quick ratio of Rainbow-chem Industries for the year 5 is calculated as:

$$\text{Quick ratio} = \frac{121.1 - 46.30}{36.6} = 2.04$$

From the above figures, we can infer that as the proportion of inventories in total current assets is 38.23%, and the liquidity ratio of the firm decreased from 3.31 to 2.04. Though there is no standard with which the ratio can be compared, normally ratios are compared with the industry figures in the absence of predetermined standards. In the above case, the quick ratio for the industry (dyes and pigments) is 2.26. As the quick ratio is below the industry average, we can conclude that the liquidity position is below average though the current ratio gives a different picture.

### **Limitations of the Current and Quick Ratios**

The current ratio is a static or stock concept of what resources are available at a given moment in time to meet the obligations at that moment. The ratio has limitations in the following aspects:

1. Measuring and predicting the future fund flows.
2. Measuring the adequacy of future fund inflows in relation to outflows.

The existing pool of net funds does not have a logical or causative relationship to the future funds that will flow through it. Yet it is the future flows that are the subject of our greatest interest in the assessment of liquidity. These flows depend importantly on elements not included in the ratio, such as sales, cash costs and expenses, profits, and changes in business conditions. This concept will be clear, when we study of funds flow analysis.

### **BANK FINANCE TO WORKING CAPITAL GAP RATIO**

$$= \frac{\text{Short-term bank borrowings}}{\text{Working capital gap}}$$

Where working capital gap is equal to current assets less current liabilities other than bank borrowings.

This ratio shows us the degree of the firm’s reliance on short-term bank finance for financing the working capital gap.

**Turnover Ratios**

Receivables turnover ratios and inventory turnover ratios measure the liquidity of a firm in an indirect way. Here the measure of liquidity is concerned with the speed with which inventory is converted into sales and accounts receivables converted into cash. The turnover ratios give the speed of conversion of current assets (liquidity) into cash.

Two ratios are used to measure the liquidity of a firm’s account receivables. They are:

- a. Accounts receivable turnover ratio
- b. Average collection period

$$\text{Accounts Receivable Turnover Ratio} = \frac{\text{Net credit sales}}{\text{Average accounts receivable}}$$

The average accounts receivable is obtained by adding the beginning receivables of the period and the ending receivable, and dividing the sum by two. The sales figure in the numerator is only credit sales, because firm cash sales don’t give any receivables. As the publicly available information on the firm may not disclose the credit sales details, the analyst has to assume that cash sales are insignificant. Normally the receivables ratios are useful for internal analysis.

Higher the receivables turnover ratio, greater the liquidity of the firm. However, care should be taken to see that to project higher receivables turnover ratio, the firm does follow a strict credit policy.

The accounts receivables position of the Rainbow-chem Industries for two years is as follows:

	Year 5	Year 4
Sundry debtors more than 6 months	04.19	01.31
Other debtors	45.66	35.99
Prov. for doubtful debts.	00.00	00.00
<b>Total Debtors</b>	<b>49.85</b>	<b>37.30</b>

$$\text{Average accounts receivables} = (49.85 + 37.30)/2 = 43.58$$

$$\text{Average receivables turnover} = 261/43.58 = 5.99 \text{ (6 Approx.)}$$

Turnover ratio gives, how many times on an average the receivables are generated and collected during the year. In our case, the average receivables turnover ratios of 6 indicates that on an average receivables are revolved 6 times during the year. When we compare this with the industry norm of 5.16 times, we can say that the firm’s liquidity of accounts receivables is on average 16.28% more than that of the industry.

**Average Collection Period**

One can get a sense of the speed of collections from receivables turnover ratio and it is valuable for comparison purposes, but we cannot directly compare it with the terms of trade usually given by the firm. For example, the firm may be having a policy of giving certain percent of discount if the debtor pays in certain period of time. Such comparison is best made by converting the turnover into days of sales tied up in receivables.

The ratio that gives the above comparison is average collection period, which is defined as the number of days it takes to collect accounts receivable. It can be obtained by dividing 360 by the average receivables turnover ratio calculated above.

That is,

$$\begin{aligned} \text{Average collection period} &= \frac{360}{\text{Average accounts receivables turnover}} \\ &= \frac{\text{Average accounts receivable}}{\text{Average daily sales}} \end{aligned}$$

For Rainbow-chem Industries, assuming that there is only one sundry debtor the average collection period is equal to 60 days (360/6). If the firm is having a credit policy of giving substantial discounts if the receivables are collected within 30 days, the debtor will not be able to avail the discounts. If we compare the above with the industry figure (i.e. 360/5.16 = 69.76 days), the firm is having better collection period.

## Evaluation

Accounts receivable turnover ratios or collection periods can be compared to industry averages or to the credit terms granted by the firm to find out whether customers are paying on time. If the terms, for example say the average collection period is 30 days and the realized average collection period is 60 days, it could reflect the following:

1. Collection job is poor.
2. In spite of careful collection efforts, the firm has difficulty in obtaining prompt payments.
3. Customers face financial problems.

The first conclusion requires remedial managerial action, while the second and third conclusions convey the quality and liquidity of the accounts receivables.

## Inventory Turnover

The liquidity of a firm's inventory may be calculated by dividing the cost of goods sold by the firm's inventory. The inventory turnover, or stock turnover, measures how fast the inventory is moving through the firm and generating sales. Inventory turnover can be defined as:

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

Higher the ratio, greater the efficiency of inventory management. The importance of inventory turnover can also be looked from a different point of view i.e. it helps the analyst measure the adequacy of goods available to sell in comparison to the actual sales orders.

In this regard, the presence of inventory involves two risks:

1. Running out of stock due to low inventory (high turnover) which may indicate future shortages.
2. Excessive carrying charges because of high inventory (low turnover).

One has to manage carefully between running out of goods to sell and investing in excessive inventory otherwise it will result in either a high or low ratio, which may be an indication of poor management. The analyst should keep in mind that high and low turnovers are relative in nature. The current turnover must be compared to previous periods or to some industry norms before it is branded as high, low, or normal. The nature of the business should also be considered in analyzing the appropriateness of the size and turnover of the inventory. For example, a manufacturing firm which has to import its key raw materials is justified in keeping high inventory of raw materials if it finds out that its base currency has been depreciating against the exporting country's currency consistently. In this case, high inventory is kept if the cost of imported raw materials on account of depreciation is more than the cost of storage.

In the case of Rainbow-chem Industries the inventory turnover could be calculated as follows. First, for calculating the cost of goods sold, we have to add all the expenses in the profit and loss account including depreciation charges and excluding interest expenses. Average inventory can be obtained by adding the closing inventory (Year 5) and the opening inventory (Year 4) and dividing them by two. If the figures of inventory are available for each quarter/month, we can get a better average figure of inventory.

$$\text{Inventory turnover} = \frac{244.09}{(46.30 + 40.48)/2} = 5.63$$

The average industry inventory turnover is 4.3. A meaningful conclusion about the inventory turnover can be arrived after studying its composition, its change over the years and comparing the turnover trends with the industry.

**Table 3: Trend Analysis of Inventory Composition**

Inventory composition	Year 5	Year 4	Year 3	Year 2	Year 1
Raw materials	13.99 (30.22)	12.28 (30.34)	6.18 (17.73)	11.28 (31.75)	13.83 (33.57)
Work-in-progress	14.42 (31.14)	14.87 (36.73)	12.37 (35.47)	12.22 (34.39)	12.79 (31.04)
Finished goods	17.89 (38.64)	13.33 (32.93)	16.32 (46.80)	12.03 (33.86)	14.58 (35.39)
Total	46.30 (100)	40.48 (100)	34.87 (100)	35.53 (100)	41.2 (100)

**Table 4**

Inventory turnover ratio	Year 5	Year 4	Year 3	Year 2
Rainbow-chem Industries Ltd.	5.63	5.25	4.69	3.10
Dyes & Pgm. Industry	4.31	4.40	4.28	3.87

**Table 5: Growth Rates**

Items	Year 5	Year 4	Year 3
Sales (Rainbow-chem)	21.72	18.26	16.52
Inventory (Rainbow-chem)	14.37	16.08	-9.80
Sales (Industry)	21.42	12.63	17.42
Inventory (Industry)	23.65	7.67	6.14

**Table 6: Overall Liquidity Position**

Ratios	Definition	Rainbow-chem Ltd.	Dyes & Pigm Ind.
Liquidity or Current Ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	3.31	3.53
Quick Ratio	$\frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$	2.04	2.26
Accounts Receivable Turnover Ratio	$\frac{\text{Net Credit Sales}}{\text{Average Accounts Receivable}}$	5.99	5.16
Average Collection Period	$\frac{360}{\text{Accounts Receivables/Turnover}}$	60	70
Inventory Turnover	$\frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$	5.63	4.31

From the above table, it can be noticed that the Rainbow-chem's current and quick ratios are just below the average industry figures, and receivables turnover ratios are above the industry averages to an extent. Inventory turnover is in a better position compared to the industry which is concluded in the overall analysis of inventory turnover in the respective section.

In conclusion, the liquidity position of the Rainbow-chem Industries Ltd. can be said to be above average.

### **Profitability or Efficiency Ratios**

These ratios measure the efficiency of the firm's activities and its ability to generate profits. There are two types of profitability ratios.

*1. Profits in Relation to Sales:*

It is important from the profit standpoint that the firm be able to generate adequate profit on each unit of sales. If sales lack a sufficient margin of profit, it is difficult for the firm to cover its fixed charges on debt and to earn a profit for shareholders. Two popular ratios in this category are gross profit margin ratio, and net profit margin ratio.

*2. Profits in Relation to Assets:*

It is also important that profit be compared to the capital invested by owners and creditors. If the firm cannot produce a satisfactory profit on its asset base, it might be misusing its assets. They are also referred to as rate of return ratios are discussed in this chapter. Ratios like asset turnover ratio, earning power and return on equity.

### **GROSS PROFIT MARGIN RATIO**

The Gross Profit Margin ratio (GPM) is defined as:

$$= \frac{\text{Gross Profit}}{\text{Net Sales}}$$

where net sales = Sales – Excise duty

This ratio shows the profits relative to sales after the direct production costs are deducted. It may be used as an indicator of the efficiency of the production operation and the relation between production costs and selling price. GPM for Rainbow-chem Industries is calculated as:

$$= \frac{52.26}{230.26} = 22.69\%$$

The gross profit margin of Rainbow-chem Industries at 22.69% is much higher than the industry norm of 10.6%.

### **NET PROFIT MARGIN RATIO**

The net profit margin ratio is defined as:

$$= \frac{\text{Net Profit}}{\text{Net Sales}}$$

This ratio shows the earnings left for shareholders (both equity and preference) as a percentage of net sales. It measures the overall efficiency of production, administration, selling, financing, pricing, and tax management. Jointly considered, the gross and net profit margin ratios provide the analyst available tool to identify the sources of business efficiency/inefficiency.

$$\text{NPM for Rainbow-chem} = \frac{15.94}{230.26} = 6.92\%$$

$$\text{NPM for industry} = 6.39\%$$

In comparison with the industry, net profit margin ratio is just above the average percentage figure. Had this been below the industry average, it would have indicated some mismanagement in the areas excluding production (as GPM is in line with the industry).

**ASSET TURNOVER**

It highlights the amount of assets that the firm used to generate its total sales. The ability to generate a large volume of sales on a small asset base is an important part of the firm’s profit picture. Idle or improperly used assets increase the firm’s need for costly financing and the expenses for maintenance and upkeep. By achieving a high asset turnover, a firm reduces costs and increases the eventual profit to its owners.

Asset turnover ratio is defined as:

$$= \frac{\text{Sales}}{\text{Average assets}}$$

Average assets is calculated by adding the opening stock of assets (previous year’s closing stock of assets) and closing stock of assets of the present year and dividing by two. If quarterly figures of assets are available, we can compute a better ‘average assets’ value.

Asset turnover for Rainbow-chem:

$$= \frac{261.00}{(193.93 + 156.59)/2} = 1.49$$

Industry asset turnover is 1.15. An asset turnover ratio of 1.49 indicates that the firm with an asset base of 1 unit could produce 1.49 units of sales. This is healthy sign both in absolute terms and also in comparison with the industry average as the turnover of the industry is only 1.15.

**EARNING POWER**

Earning power is a measure of operating profitability and it is defined as:

$$= \frac{\text{Earnings before interest and taxes}}{\text{Average total assets}}$$

The earning power is a measure of the operating business performance which is not effected by interest charges and tax payments. As it does not consider the effects of financial structure and tax rate it is well suited for inter-firm comparisons.

$$\text{Rainbow-chem’s earning power} = \frac{30.82}{175.26} = 0.1758$$

or = 17.58 %

Inter-firm comparisons of earning power percentages

Company	Year 5 Earning power
Rainbow-chem Industries	17.58%
Atul Products	13.76%
Indian Dyestuff	16.18%
Mardia Chem	17.34%
Sudarshan Chem	13.33%
Industry (dyes & pigm (large))	16.29%

From the table, we can conclude that Rainbow-chem tops the industry with a percentage of 17.58%, whereas the average is only 16.29%. Rainbow-chem is operationally very efficient in comparison with all the players in the industry.



**RETURN ON EQUITY**

The Return on Equity (ROE) is an important profit indicator to shareholders of the firm. It is calculated by the formula:

$$\frac{\text{Net income}}{\text{Average equity}}$$

Net income denotes Profit After Tax (PAT) and average equity is obtained by taking the average equities of year 5 and year 4. The return on equity measures the profitability of equity funds invested in the firm. It is regarded as a very important measure because it reflects the productivity of capital employed in the firm. It is influenced by several factors: earning power, debt-equity ratio, average cost of debt funds, and tax rate.

$$\text{ROE for Rainbow-chem} = \frac{15.94}{77.08} = 20.68\%$$

Return on equity for the industry is 13.18%. The firm’s healthiness in this respect also can be easily seen from the differences in returns of equity. Rainbow-chem is giving 20.68% return to the equity holders, whereas the industry is giving only 13.18%. Thus, we can conclude that Rainbow-chem has employed its resources productively.

**Overall Profitability (Efficiency) Analysis**

Rainbow-chem’s profitability ratios are summarized in the following table against the industry.

Ratios	Rainbow-chem Ltd.	Dyes & Pigm Ind.
Gross Profit Margin	22.69%	10.60%
Net Profit Margin	6.92%	6.39%
Asset Turnover	1.49%	1.25%
Return on Equity	20.68%	13.80%
Earning Power	17.58%	14.12%

As mentioned in the beginning of this section, profitability is analyzed in two respects, viz. in relation to sales and assets. The above table conveys that, Rainbow-chem Industries is able to generate profits in relation to sales on an average scale, but in respect of efficient application of assets it performs well above the average. This indicates that some remedial measures have to be taken from the sales point of view.

**Ownership Ratios**

Ownership ratios will help the stockholder to analyze their present and future investment in a firm. Stockholders (owners) are interested to know how the value of their holdings is affected by certain variables. Ownership ratios compare the investment value with factors such as debt, earnings, dividends and the stock’s market price. By understanding the liquidity and profitability ratios, one can gain insights into the soundness of the firm’s business activities, whereas by analyzing the ownership ratios, the analyst can assess the likely future value of the market.

Ownership ratios are divided into three main groups. They are:

1. Earnings Ratios
2. Leverage Ratios
  - Capital Structure Ratios
  - Coverage Ratios
3. Dividend Ratios.

**EARNINGS RATIOS**

The earnings ratios are Earnings Per Share (EPS), price-earnings ratio (P/E ratio), and capitalization ratio. From earnings ratios we can get information on earnings of the firm and their effect on price of common stock. In the following paragraphs we will discuss the above ratios in detail.

**Earnings Per Share (EPS)**

Shareholders are concerned with the earnings of the firm in two ways. One is availability of funds to pay their dividends and the other to expand their interest in the firm with the retained earnings. These earnings are expressed on a per share basis which is in short called EPS. EPS is calculated by dividing the net income by the number of shares outstanding. Mathematically, it is calculated as follows:

$$\text{Earning Per Share (EPS)} = \frac{\text{Net income (PAT)}}{\text{Number of outstanding shares}}$$

A cross-sectional and year-to-year analysis (will be discussed in later sections in detail) can be very informative to the analyst. As an example let us take two firms Atul Products and Rainbow-chem Industries in the Dyes & Pigm. (large) industries. Assuming the market price of each stock as Rs.50 per share, the earnings trend for the two firms is as follows:

Firm	Year 5	Year 4	Year 3	Year 2	Year 1
Atul Products (EPS)	5.97	8.18	5.15	7.96	12.16
Rainbow-chem (EPS)	13.68	12.81	8.98	6.70	5.24

From the above table, it can be easily understood that the Rainbow-chem Industries began at a low EPS of Rs.5.24 per share but steadily progressed and nearly tripled its EPS in 5 years. Whereas, Atul Products started at a high EPS of Rs.12.16 per share but in 5 years declined up to Rs.5.97 per share. The trends of the two earnings streams appear to forecast a brighter future for Rainbow-chem Industries than for Atul Products. If we go further into the reasons behind this performance of Atul Products, we can find that over the years, the share capital of Atul products has increased without proportionate increase in the net income. We will get an even more clear picture if we compare all the players in the industry.

**Price-Earnings Ratio**

The price-earnings ratio (also P/E multiple) is calculated by taking the market price of the stock and dividing it by earnings per share.

$$\text{Price-earnings multiple} = \frac{\text{Market price of the share}}{\text{Earnings per share}}$$

This ratio gives the relationship between the market price of the stock and its earnings by revealing how earnings affect the market price of the firm’s stock. If a stock has a low P/E multiple, for example 3/1, it may be considered as an undervalued stock. If the ratio is 80/1, it may be viewed as overvalued. It is the most popular financial ratio in the stock market for secondary market investors. The P/E ratio method is useful as long as the firm is a viable business entity, and its real value is reflected in its profits.

The P/E multiples for Rainbow-chem Industries is calculated as follows:

**Table 7**

	Year 5	Year 4	Year 3	Year 2	Year 1
Share price	425	450	130	240	80
EPS	13.68	12.81	8.98	6.70	5.24
P/E	31.06	35.12	14.47	35.82	15.26

The main use of P/E ratio is it helps to determine the expected market value of a stock. For example, one firm A may be having a P/E of 5/1 and another firm B of 9/1. If we assume the average industry P/E and EPS as 7/1, Rs.3 respectively and earning per shares of both the firms as Rs.3, we will get the following results.

Market value of industry =  $7 \times 3 = 21$   
 Market value of firm A =  $5 \times 3 = 15$   
 Market value of firm B =  $9 \times 3 = 27$

**The Capitalization Rate**

$$\text{Capitalization rate} = \frac{\text{Earning per share}}{\text{Market price of the share}}$$

The P/E ratio also may be used to calculate the rate of return investors expect before they purchase a stock. The reciprocal of the P/E ratio, i.e. (market price/EPS) gives this return. For example, if a stock has Rs.12 EPS and sells for Rs.100, the marketplace expects a return of 12/100, i.e. 12 percent. This is called the stock’s **capitalization rate**. A 12 percent capitalization implies that the firm is required to earn 12 percent on the common stock value. If the investors require less than 12% return they will pay more for the stock and capitalization rate would drop.

	Year 5	Year 4	Year 3	Year 2	Year 1
Capitalization rate	0.032	0.028	0.069	0.0279	0.0655

For Rainbow-chem Industries, rates are very low because of very high prices in comparison to earning per share.

**LEVERAGE RATIOS**

When we extend the analysis to the long-term solvency of a firm we have two types of leverage ratios. They are structural ratios and coverage ratios. Structural ratios are based on the proportions of debt and equity in the capital structure of the firm, whereas coverage ratios are derived from the relationships between debt servicing commitments and sources of funds for meeting these obligations.

**CAPITAL STRUCTURE RATIOS**

Various capital structure ratios are:

- Debt-equity ratio.
- Debt-assets ratio.

**Debt-equity Ratio**

The debt-equity ratio which indicates the relative contributions of creditors and owners can be defined as:

$$\frac{\text{Debt}}{\text{Equity}}$$

Depending on the type of the business and the patterns of cash flows the components in debt to equity ratio will vary. Normally the debt component includes all liabilities including current. The equity component consists of net worth and preference capital. It includes only the preference shares not redeemable in one year. The ratio of long-term debt (total debt-current liabilities) to equity could also be used, but what is important is that consistency is followed when comparisons are made.

For Rainbow-chem Industries the debt-equity ratio is

$$= \frac{110.92}{83.01} = 1.33$$

In the above case the debt-equity ratio stood as 1.33, which implies that the debt portion is more than equity. The debt-equity ratio of the dyes & pigments industry on average is 1.424. In the manufacturing industry a debt-equity ratio of 1.5:1 is considered to be healthy. By normal standards and the industry's standards, by the debt-equity ratio is within the limits. In the heavy engineering industries, petroleum industries, infrastructure industries like railways, airways the ratio may even go more than 3:1 as the capital outlays required are in very huge sums.

In general, the lower the debt-equity ratio, the higher the degree of protection felt by the lenders. One of the limitations of the above ratio is that the computation of the ratios is based on book value. It is sometimes useful to calculate these ratios using market values. At the time of mergers and acquisitions or rehabilitation operations the valuation of the equity and debt will be affected by the basis of computation. For example, a sick company whose equity is initially valued at book values may be a healthy one if its assets are valued at market prices if it has large land property in its books.

The debt-equity ratio indicates the relative proportions of capital contribution by creditors and shareholders. It is used as a screening device in the financial analysis. While analyzing the financial condition of a firm, with a debt-equity ratio of less than 0.50, the analyst can go to other critical areas of analysis. However, if an analysis reveals that debt is a significant amount in the total capitalization further investigation has to be undertaken which will throw light on firm's financial condition, results of operations and future prospects. Thus, analysis of debt-equity ratio has assumed importance in the financial analysis of any firm.

**Debt-Asset Ratio**

The Debt-Asset ratio measures the extent to which borrowed funds support the firm's assets. It is defined as:

$$\frac{\text{Debt}}{\text{Asset}}$$

The composition of debt portion is same as in the debt-equity ratio.

The denominator in the ratio is total of all assets as indicated in the balance sheet. The type of assets an organization employs in its operations should determine to some extent the sources of funds used to finance them. It is usually held that fixed and other long-term assets should not be financed by means of short-term loans. In fact, the most appropriate source of funds for investment in such kind of assets is equity capital, though financially very sound organization may go for debt finance.

Rainbow-chem's debt-asset ratio for the year 5 is:

$$= \frac{110.92}{193.93} = 0.57$$

A debt-asset ratio of 0.57 implies that 57% of the total assets are financed from debt sources. When we compare this with the industry average debt-asset ratio of (0.69), we find that the firm is having a lower leverage compared to the industry.

There are two major uses of capital structure ratios:

1. To Measure Financial Risk

One measure of the degree of risk resulting from debt financing is provided by these ratios. If the firm has been increasing the percentage of debt in its capital structure over a period of time, this may indicate an increase in risk for its long-term finance providers. As the debt content increases most of firm's income will go for servicing the debt and net income will be reduced. This will affect the long-term earnings prospects of the company as less funds are reemployed because of increased debt servicing burden.

2. To Identify Sources of Funds

The firm finances all its requirements either from debt or equity sources. Depending on the risk of different types the amount of requirements from each source is shown by these ratios.

3. To Forecast Borrowing Prospects

If the firm is considering expansion and needs to raise additional money, the capital structure ratios offer an indication of whether debt funds could be used. If the ratios are too high, the firm may not be able to borrow.

**Coverage Ratios**

Coverage ratios give the relationship between the financial charges of a firm and its ability to service them. Important coverage ratios are interest coverage ratio, fixed charges coverage ratio and debt-service coverage ratio.

$$\frac{\text{Funds available to meet an obligation}}{\text{Amount of that obligation}}$$

**Interest Coverage Ratio**

One measure of a firm's ability to handle financial burdens is the interest coverage ratio, also referred to as the times interest-coverage ratio. This ratio tells us how many times the firm can cover or meet the interest payments associated with debt.

$$\text{Interest coverage ratio} = \frac{\text{EBIT}}{\text{Interest expense}}$$

$$\text{For Rainbow-chem Industries it is equal to} = \frac{30.82}{9.58} = 3.22$$

The greater the interest coverage ratio, the higher the ability of the firm to pay its interest expense. An interest coverage ratio of 4 means that the firm's earnings before interest and taxes are four times greater than its interest payments.

**Fixed Charges Coverage Ratio**

Interest coverage ratio considers the coverage of interest of pure debt only. Fixed charges coverage ratio measures debt servicing ability comprehensively because it considers all the interest, principal repayment obligations, lease payments and preference dividends. This ratio shows how many times the pre-tax operating income covers all fixed financing charges.

It is defined as:

$$\frac{\text{Earnings before depreciation, debt interest and lease rentals and taxes}}{\text{Debt interest} + \text{Lease rentals} + \frac{\text{Loan repayment installment}}{(1 - \text{tax rate})} + \frac{\text{Preference dividends}}{(1 - \text{tax rate})}}$$

Fixed charges that are not tax deductible must be tax adjusted. This is done by increasing them by an amount equivalent to the sum that would be required to obtain an after-tax income sufficient to cover such fixed charges. In the above ratio, preference-stock dividend requirement is one example of such non-tax deductible fixed charges. To get the gross amount of preference dividends, it has to be divided by the factor (1 – tax rate). For Rainbow-chem Industries the fixed charges coverage ratio is calculated for the year 5 as follows:

$$= \frac{37.31}{9.58 + \frac{7.37}{0.75}} = 1.92$$

For Rainbow-chem there are no lease rental payments and preference dividend payments. The loan repayment has been assumed to be Rs.7.37 crore. The fixed charges coverage ratio of 1.92 indicates that its pre-tax operating income is 1.92 times all fixed financial obligations.

### Debt Service Coverage Ratio

Normally used by term-lending financial institutions in India, the debt service coverage ratio, which is a post-tax coverage is defined as:

$$\frac{\text{PAT} + \text{Depreciation} + \text{Other non-cash charges} + \text{Interest on term loan}}{\text{Interest on term loan} + \text{Repayment of the term loan}}$$

For Rainbow-chem Industries the Debt Service Coverage Ratio for the year 5 is:

$$= \frac{(15.94 + 6.49 + 0 + 9.58)}{(9.58 + 7.37)} = 1.89$$

A DSCR of 1.89 indicates the firm has post-tax earnings which are 1.89 times the total obligations (interest and loan repayment) in the particular year to the financial institution.

### DIVIDEND RATIOS

The common stockholder is very much concerned about the firm's policy regarding the payment of cash dividends. If the firm is not paying enough dividends the stock may not be attractive to those who are interested in current income from their investment in the company. If the firm is paying excessive dividends, it may not be retaining adequate funds to finance future growth. So depending on the shareholder's aspirations a firm must formulate its dividend policy in a balanced way.

The firm must be liquid and profitable to pay consistent and adequate dividends. Without profits, the firm will not have sufficient resources to give dividends, without liquidity the firm cannot get cash to pay the dividends. In the above respects, two dividend ratios are important. They are dividend pay-out ratio and dividend yield ratio.

#### Dividend Pay-Out Ratio

This is the ratio of Dividend Per Share (DPS) to Earnings Per Share (EPS). It indicates what percentage of total earnings are paid to shareholders. The percentage of the earnings that is not paid out (1 – dividend pay-out) is retained for the firm's future needs. There is no guideline as to what percentage of earnings should be declared as dividends and it varies according to firm's fund requirements to support its operations. If the firm is in need of funds, then it may cut the dividends in relation to earnings and on the other hand if the firm finds that it lacks opportunities to use the profits generated, it might increase the dividends. But in both the cases, consistency of dividend payment is important to the shareholders. A detailed discussion on dividend is given in chapter no.12.

### DIVIDEND YIELD

This is the ratio of Dividends Per Share (DPS) to market price of the share.

$$\text{Dividend yield} = \frac{\text{Dividend per share}}{\text{Market price of the share}}$$

This ratio gives current return on one's investment. This is mainly of interest to the investors who are desirous of getting income in the form of dividends. No dividend yield exists for firms which do not declare dividends.

Dividend pay-out and yield for Rainbow-chem Industries are summarized in table 8.

**Table 8**

Ratio	Year 5	Year 4	Year 3	Year 2	Year 1
DPS	3.50	2.84	2.18	2.40	2.20
EPS	13.68	12.81	8.98	6.70	5.24
Mkt.price	425	450	130	240	80
Div.pay-out	0.26	0.22	0.24	0.36	0.42
Div. yield	0.008	0.006	0.017	0.010	0.0275
P/E	31.06	35.12	14.47	35.82	15.26

**Table 9: Overall Ownership Analysis**

Ratios	Rainbow-chem Ltd.	Dyes & Pigm Ind.
Earnings per share	13.68	
Price-earning multiple	31.06	
Capitalization rate	0.032	
Debt-equity	01.33	1.424
Debt-asset ratio	00.57	00.69
Interest coverage ratio	03.22	02.00
Dividend pay-out	00.26	
Dividend yield	0.008	

Rainbow-chem's EPS has increased from 5.24 in year 1 to 13.68 in year 5 which is reflected in the market prices (from Rs.80 in year 1 to Rs.425 in year 5). Though the dividend yield is very low, the shareholder has gained a lot because of enormous capital appreciation. The debt-equity ratio is below industry average, which highlights low risk nature of the firm. It is also having healthy interest coverage ratios of 3.22 against the industry's ratio of 2.00 which shows its ability in repaying debt obligations. For the owners the leverage ratios indicate below average risk in comparison to the industry. Dividend pay-out ratios have declined from 0.42 in year 1 to 0.26 in year 5, because of expansion projects it has undertaken in year 4. But it is paying dividends consistently over the years, which is very important to some shareholders who expect a regular income. Through capital appreciation it is giving benefits to other shareholders also. In total ownership ratios give a positive picture of the organization.

## **COMPARATIVE ANALYSIS**

In the preceding sections, to find out whether ratios are within the limits or not they were compared across the industry or in few cases against predetermined standards. To get a more meaningful picture of the position of the firm sometimes it is useful to compare its financial information across many players in the industry (cross-sectional analysis) or to compare over a period of time (time series analysis).

The comparison of financial statements is accomplished by taking the individual items of different financial statements and reviewing the changes that have occurred from year-to-year and over the years. The most important factor revealed by comparative financial statements is trend. The comparison of financial statements over a number of years will also reveal the direction, velocity, and the amplitude of trend. Further analysis can be undertaken to compare the trends in related items. Different types of comparative analysis are:

1. Cross-sectional analysis
2. Time-series analysis
  - a. Year-to-Year change
  - b. Index analysis
3. Common-size analysis.

## Cross-Sectional Analysis

To assess whether the financial ratios are within the limits, they are compared with the industry averages or with a good player in normal business conditions if an organized industry is absent. This is called cross-sectional analysis in which industry averages or standard players averages are used as benchmarks.

Table 10 gives the cross-sectional analysis of Rainbow-chem Industries against the industry and Atul Products, a good competitor in the Dyes & Pigments Industry for Rainbow-chem Industries.

In the earlier sections, it was found that the Rainbow-chem Industries Ltd., is having an edge in all aspects of financial analysis against the industry. On comparison with Atul Products, it can be found that Atul Products is having better liquidity as per current and quick ratios. Though Atul has low debt-equity and debt-asset ratio, it has low coverage because of low EBIT. In profitability ratios, there is not much difference in GPM and NPM ratios, but in returns ratios Rainbow-chem Industries is far ahead of Atul Products.

**Table 10**

Ratios	Definition	Rainbow-chem Ltd.	Atul Prod.	Dyes & Pigm Ind.
<b>LIQUIDITY</b>				
Current Ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	3.31	3.63	3.53
Quick Ratio	$\frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$	2.04	2.18	2.26
Inventory Turnover	$\frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$	5.63	3.95	4.61
<b>LEVERAGE</b>				
Debt-equity Ratio	$\frac{\text{Total Debt}}{\text{Net Worth}}$	1.33	0.71	1.424
Debt-asset Ratio	$\frac{\text{Total Debt}}{\text{Total Assets}}$	0.57	0.42	0.69
<b>Interest</b>				
Coverage Ratio	$\frac{\text{EBIT}}{\text{Interest}}$	3.22	1.81	2.00
<b>PROFITABILITY</b>				
Gross Profit Margin	$\frac{\text{Gross Profit}}{\text{Total Sales}}$	22.69%	10.15%	10.60%
Net Profit Margin	$\frac{\text{Net Profit}}{\text{Total Sales}}$	6.92%	6.14%	6.39%
Return on Equity	$\frac{\text{Net Income}}{\text{Average Equity}}$	20.68%	10.21%	13.18%
Earning Power	$\frac{\text{EBIT}}{\text{Average Total Assets}}$	17.58%	13.87%	14.12%
Assets Turnover	$\frac{\text{Sales}}{\text{Average Assets}}$	1.49	0.71	1.25



**Time-Series Analysis**  
**YEAR-TO-YEAR CHANGE**

A comparison of financial statements over two to three years can be undertaken by computing the year-to-year change in absolute amounts and in terms of percentage changes. Longer term comparisons are best illustrated by means of index-number trend series. When a two or three-year comparison is attempted, the presentations are manageable and can be understood by the reader. Comparative financial statements can also be presented in such a way that the cumulative totals for the period for each item under study and the average for that period are shown.

Trends of liquidity and leverage ratios of Rainbow-chem Industries can be illustrated as follows:

**Table 11**

Year	Year 5	Year 4	Year 3	Year 2	Year 1
Current Ratio	3.31	3.78	3.98	2.93	1.94
Quick Ratio	2.04	2.16	2.34	1.60	0.96
Debt to Equity Ratio	1.33	1.20	1.98	3.26	3.50
Interest Coverage Ratio	3.22	2.86	1.90	1.73	1.90

In the above table, we have given two liquidity ratios, and two leverage ratios. Current ratio increased over a period of time. Quick ratio also increased steadily up to year 3 but slightly decreased in the next two years. That is because of initial decrease in the inventory levels up to year 3, and again increase in the inventory levels up to year 5 (can be observed from the balance sheet given in the beginning). One has to look into the causes of increase in the inventory levels which made the quick ratio decrease. Apart from that the overall liquidity has improved. Debt-equity ratio has declined over a period of time and interest coverage ratio also increased which are positive signs. Thus, we can come to conclusions by observing the trends of certain important variables in the financial analysis.

**INDEX ANALYSIS**

When a comparison of financial statements covering more than three years is undertaken, the year-to-year method of comparison may become too cumbersome. The best way to understand such longer term trend comparisons is by means of index numbers. The computation of a series of index numbers requires the choice of a base year that will, for all items, have an index amount of 100. Since such a base year represents a frame of reference for all comparisons, it is advisable to choose a year that, is as typical or normal as possible in a business conditions sense.

An important use of this method is that one can see how all the variables of a particular statement are changing over a longer period of time. For example, the index-number trend series for Rainbow-chem Industries over last five years given in the above table reflects the over-all picture of change at a glance. In summary, an important value of trend analysis is that it can convey to the analyst a better understanding of management’s philosophies, policies, and motivations, conscious or otherwise, that have brought about the changes revealed over the years. The more diverse the economic environments covering the periods comparison are, the better a picture can be obtained by the analyst of the ways in which the enterprise has come out of its adversities and taken advantage of its opportunities.

Table 12

	Year 1	Year 2	Year 3	Year 4	Year 5
<b>SOURCES OF FUNDS</b>					
A. Share Capital	100	100.00	121.28	146.72	146.72
B. Reserves Total	100	119.24	219.36	352.28	422.49
C. Total Shareholders Funds (A + B)	100	113.08	188.00	286.54	344.31
D. Secured Loans	100	174.72	197.67	134.89	158.99
E. Unsecured Loans	100	79.31	72.48	133.37	177.24
F. Total Debt (D + E)	100	142.03	157.40	134.40	164.86
G. Total Liabilities (C + F)	100	133.04	168.27	188.44	225.05
<b>APPLICATION OF FUND</b>					
H. Gross Block	100	132.49	160.00	182.87	193.71
I. Less: Accum. Depreciation	100	109.16	120.55	135.62	141.05
J. Net Block (H – I)	100	175.66	233.01	270.29	291.16
K. Capital Work-in-Progress	100	47.00	59.63	68.80	86.00
L. Investments	100	109.05	109.05	114.33	250.18
M. Current Assets, Loans & Advances (N + O + P + Q)					
N. Inventories	100	85.75	84.64	98.25	112.37
O. Sundry Debtors	100	95.82	118.48	117.07	156.47
P. Cash and Bank Balances	100	128.57	87.30	128.57	146.82
Q. Loans and Advances	100	148.26	161.73	215.65	334.78
<b>TOTAL CURRENT ASSETS (N + O + P + Q)</b>					
R. Less: Current Liab. & Prov. (S + T)					
S. Current Liabilities	100	61.59	47.93	53.83	80.92
T. Provisions	100	101.57	114.21	180.00	223.15
U. Net Current Assets (M – R)	100	130.56	161.55	176.27	214.85
V. Total Assets (J + K + L + U)	100	133.04	168.27	188.44	225.05

### Common-size Analysis

In the analysis of financial statements, it is often instructive to find out the proportion that a single item represents of a total group or subgroup. In a balance sheet, the assets as well as the liabilities and capital are each expressed as 100 percent, and each item in these categories is expressed as a percentage of the respective totals. Similarly, in the income statement, net sales are set at 100 percent and every other item in the statement is expressed as a percentage of net sales.

Common-size statements are very well suited to inter company comparison because the financial statements of a variety of companies can be recast into the uniform common-size format regardless of the size of individual accounts. Comparison of the common-size statements of companies within an industry or with common-size composite statistics of that industry can alert the analyst's attention to variations in account structure or distribution.

From the table 13 we can find that Rainbow-chem has employed more loan funds than Atul Products which implies higher debt-equity ratio. Keeping all the other factors constant, in a tight credit market, Atul Products will be able to get more loans than Rainbow-chem's because of lower debt-equity ratio. Rainbow-chem also has higher proportion of working capital compared to Atul Products. In busy periods this may be useful but in slack period it works against the company. Thus, each and every variable is compared depending on the analyst's motives.

**Table 13**

	Year 5	Year 5
	Rainbow-chem	Atul Products
<b>Liabilities:</b>		
Equity Capital	7.40	9.69
Preference Capital	0.00	0.00
Reserves (Excl. Revaluation Reserves)	45.36	49.90
Revaluation Reserves	0.00	0.00
Shareholders' Funds	52.76	59.59
Secured Loans	30.90	35.18
Unsecured Loans	16.34	523
Loan Funds	47.24	40.41
Total Funds Employed	100.0	100.00
<b>Assets:</b>		
Gross Block	69.95	83.03
Accumulated Depreciation	33.06	34.53
Net Block	36.88	48.50
CWIP	4.37	3.27
Investments	4.21	3.89
Inventory (Total)	29.43	23.85
Sundry Debtors	31.68	17.96
Cash & Bank Balances	1.18	0.77
Loans, Advances & Deposits	14.68	17.44
Total Current Assets	76.97	59.92
Sundry Creditors	20.57	13.68
Other Curr. Liab. & Provisions	2.69	2.87
Total Current Liab	23.26	16.55
Net Current Assets (Cu. Assets – Liab.)	53.71	43.37
Misc. Exp. not w/o	0.82	0.88
<b>Total Assets</b>	<b>100.00</b>	<b>100.00</b>

The common-size analysis can be carried out further and extended to an examination of what proportion of a subgroup, rather than the total, an item is. Thus, in assessing the liquidity of current assets, it may be of interest to know not only what proportion of total assets is invested in inventories but also what proportion of current assets is represented by this asset.

## DU PONT ANALYSIS

The Du Pont Company of the US developed a system of financial analysis which has got good recognition and acceptance. Analyzing return ratios in terms of profit margin and turnover ratios, it is referred to as the Du Pont System. The usefulness of the above system can be better understood with the help of an illustration. Let's consider the return on assets ratio. The definition of the return on assets is

$$\text{Return on assets} = \frac{\text{Net Profit}}{\text{Average Assets}}$$

Suppose the return on assets changes from 30 percent to 15 percent. We may conclude either this decreased return is due to a less efficient application of the firm's assets, that is, lower activity or to lower profit margins. As we are interested in assessing the operating performance of the firm to judge about management abilities and future performance, knowing the sources of return is a valuable information.

When both the numerator and the denominator of the return on assets is divided by sales:

$$\begin{aligned} \text{Return on assets} &= \frac{\text{Net profit/sales}}{\text{Average assets/sales}} \\ &= \text{Net profit margin} \times \text{Average asset turnover} \end{aligned}$$

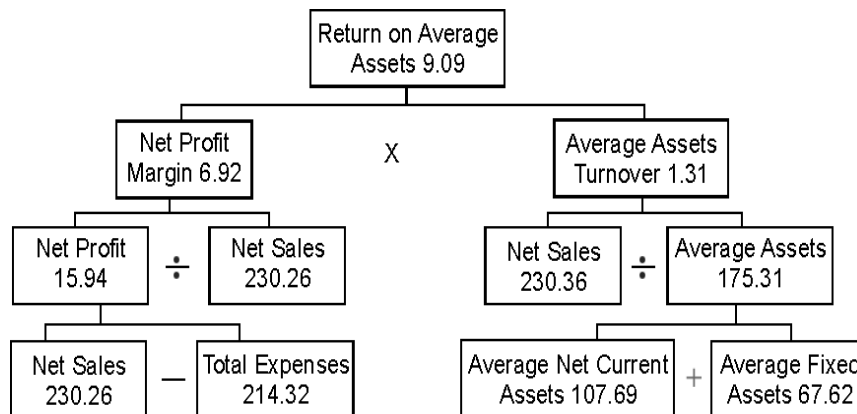
When analyzing a change in return on assets, the analyst could look into the above equation to see changes in its components: net profit margin and total assets turnover.

The ratios of return on assets and margins for Rainbow-chem Industries for the years 5 and 4 are as follows:

Year	Return on assets	Net profit margin	Average asset turnover
5	9.09%	6.92%	1.49
4	10.09%	7.94%	1.27

Net profit margin declined from year 4 to year 5, yet asset turnover improved slightly: from 1.27 to 1.49. Therefore, the decrease in return on assets is attributable to the decrease in net profit margin. If we go further each component of right hand side equation could be broken into parts to find out the cause for change in individual components. With this approach of breaking down into components we can get an overall picture of the changes taking place in the system which will be of great help to the analyst. The following figure shows the Du Pont chart as applied to Rainbow-chem Limited, for the year 5.

Figure 1



Du Pont Chart

The left hand side of the Du Pont chart gives the details of the net profit margin ratio. This side is examined to find out whether cost reduction improves the net profit margin. Comparative common-size analysis is used to understand where cost control efforts should be directed. From the right hand side of the Du Pont chart, we get the details of total assets turnover ratio. In addition to this, if we study the turnover ratios (inventory turnover, fixed assets turnover, etc), an insight can be gained into asset utilization efficiencies.

We can extend the basic Du Pont analysis to analyze the determinants of Return on Equity (ROE). But the return-on-equity ratios require an adjustment.

We can derive the basic Du Pont equation for return on equity as:

Return on Equity (ROE)

$$\frac{\text{Net Profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Average Assets}} \times \frac{\text{Average Assets}}{\text{Average Equity}}$$

The third component of the equation is called equity multiplier. The equity multiplier can be restated in terms of the total debt-to-assets ratio as follows:

$$\begin{aligned} \text{Equity multiplier} &= \frac{\text{Average Assets}}{\text{Average Equity}} \\ &= \frac{\text{Average Assets}}{\text{Average Assets} - \text{Average Debt}} \\ &= \frac{1}{1 - (\text{Average Debt}/\text{Average Assets})} \\ &= \frac{1}{1 - (\text{Debt to Assets Ratio})} \end{aligned}$$

This way, we can breakdown each return ratio into its margin and turnover components.

## **PROBLEMS ENCOUNTERED IN FINANCIAL STATEMENT ANALYSIS**

Analysis of financial statements using ratios can be very helpful in understanding a company's financial performance and condition. Yet there are certain problems which come in the way of such an analysis.

### **Development of Benchmarks**

Many companies have operations spread across a number of industries. As no other company may have a presence in the same industries, that too in the same proportion, development of a benchmark becomes a problem. Even when the company is not a diversified one, figures for the various firms are needed in addition to the industry average, in order to draw a meaningful conclusion.

### **WINDOW-DRESSING**

Firms may window-dress the financial statements in order to show a rosy picture. In such a case, the whole exercise of analyzing the statements becomes useless. In order to draw some meaningful results out of the analysis, the average figures over a period of time should be looked into.

### **PRICE LEVEL CHANGES**

Financial statements do not take into account changes in price levels. Analysis of such statements may not give a true picture of the state of affairs.

### **DIFFERENCES IN ACCOUNTING POLICIES**

Different companies may follow different accounting policies in respect of depreciation, stock valuation, etc. Comparison between the ratios of two firms following different policies may not give the true result.

## INTERPRETATION OF RESULTS

A problem may arise on two accounts – interpretation of ratio on its own, and interpretation of all the ratios taken together. It is difficult to decide the optimum level of a ratio, in spite of the presence of industry averages. For example, it is difficult to say whether a high current ratio shows a good liquidity position or an unnecessarily high level of inventories. Secondly, some ratios may be in favor of a company, while some others may be against it. In such a case, it may be difficult to form an overall opinion about the company.

## CORRELATION AMONG RATIOS

There may be a high degree of correlation among the various ratios calculated, due to the presence of some common factor. This may make interpretation of all the ratios confusing. Hence it becomes essential to choose a few ratios which can convey the required information.

## SUMMARY

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- Financial statement analysis involves the application of analytical tools and techniques to the financial data to get information that is useful in decision making. The foundation of any good analysis is a thorough understanding of the objectives to be achieved and the uses to which it is going to be put. Such understanding leads to economy of effort as well as to an useful and most relevant focus on the points that need to be clarified and the estimates and projections that are required.
- Financial statement analysis is oriented towards the achievement of definite objectives. There are three types of users to whom the financial statement analysis could be very useful. They are short-term lenders, long-term lenders and finally stockholders. In this chapter an important tool ratio analysis is covered extensively. Other tools covered are comparative analysis and Du Pont analysis.
- The analysis of a ratio gives the relationship between two variables at a point of time and over a period of time. There are three kinds of ratios and they are liquidity ratios, profitability ratios, ownership ratios. Liquidity ratios measure the short-term liquidity of the firm with the help of ratios like current ratio, quick ratio and turnover ratios. Profitability ratios measure the operational efficiency of the firm. They give the details of how efficient the firm is in applying its resources to get the maximum returns. Ownership ratios help the present or future stockholder in assessing the value of his investment. Earning ratios, leverage ratios (capital structure and coverage ratios) and dividend ratios fall into the category of ownership ratios. Leverage ratios measure the long-term solvency of the firm. They are further divided into capital structure ratios and coverage ratios.
- Du Pont analysis divides a particular ratio into components and studies the effect of each and every component on the ratio. Comparative analysis gives an idea where a firm stands across the industry and studies its financial trends over a period of time. The final step in analysis is the interpretation of the data and measures assembled as a basis for decision and action. This is the most important and difficult of the steps, and requires application of a great deal of judgment, skill, and effort.
- Though there are limitations to financial statement analysis, it is the only means by which the financial realities of an enterprise can be reduced to a common denominator that can be quantified and mathematically manipulated and projected in a rational and disciplined way.

## **Lesson 3**

# **Funds Flow Analysis**

**After reading this lesson, you will be conversant with:**

- Concept of Funds Flow Statement
- Significance of a Funds Flow Statement

We can say that a balance sheet is a “snap shot” view of the affairs of a business, whereas a profit and loss statement is a “motion picture” view of how the change in the owners’ equity comes about. However, ‘retained earnings’ merely forms one of the many balance sheet items. Over time, practically every other item in the balance sheet undergoes a change. For instance additional capital may be brought in, loans may be raised or retired, fixed assets acquired or disposed off, inventories built up or consumed and so on. Also, while a business may show considerable profits in a certain year, there may be practically no cash in the business to meet the operational requirement. Or else, despite borrowing a considerable amount of working capital, the management may still find it difficult to support their inventory. Why does this happen? How does this happen? These are questions which are not answered by either the balance sheet or the profit and loss statement. The financial statement which attempts to answer these questions is the Statement of Changes in Financial Position (SCFP). Other common names for the same statement are: ‘Funds Flow Statement’, ‘Sources and Applications (Uses) of Funds’ and ‘Cash Flow Statement’. The more pretentious names include ‘Money Provided and its Disposition’, ‘Summary of Financial Operations’, ‘Financial Expansion and Replacement’ etc.

## **CONCEPT OF FUNDS FLOW STATEMENT (FFS)**

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A funds flow statement is a statement which explains the various sources from which funds were raised and the uses these funds were put to. The reader may notice that this definition of Funds Flow Statement comes disconcertingly close to the definition of a balance sheet. Since liabilities and assets are themselves sources and uses of funds respectively, even a balance sheet itself may be considered as a form of “Funds Flow Statement”. One would notice that in fact the balance sheets of most companies are increasingly being expressed in the “Sources of Funds” and “Application of Funds” format. The major difference, however, between a true funds flow statement and a balance sheet is that the former captures the movements in funds, while the latter merely presents a static picture of the sources and uses of funds. On account of this property, a funds flow statement would enable one to see how the business financed its fixed assets, built up the inventory, discharged its liabilities, paid its dividends and taxes and so on. Similarly, it would enable one to see how the business managed to meet the above capital or revenue expenditure. Was it by raising additional capital or loans from public? Was it by stretching the trade creditors or by incurring some other liabilities?

One may wonder as to which of the three, viz. a funds flow statement, a balance sheet or a profit and loss account is more important. This question may be well akin to whether a mango, a banana or an orange is a better fruit. It must be recognized that each statement complements the other in its information content. True, in India there is no statutory obligation for a company to publish a funds flow statement in its annual report, but that should hardly be a reflection on the purpose which the statement serves. Incidentally, the Accounting Principles Board (US) requires the companies to publish the SCFP along with the balance sheet and income statement in their annual report. Even in India, companies are beginning to incorporate the funds flow statement in their annual reports.

## **Preparation of a Funds Flow Statement (FFS)**

The simplest funds flow statement for a period may merely be the difference between the corresponding balance sheet items at the beginning and the end of the period, such that all increases in liabilities and decreases in assets are shown as sources of funds and all decreases in liabilities and increases in assets are shown as applications of funds. Thus, for such a funds flow statement one needs the opening and closing balance sheets of the period for which the statement is to be prepared. However, a more sophisticated FFS can be prepared with the help of the two balance sheets (opening and closing) and the profit and loss statement of the intervening period. Such a funds flow statement defines funds as “total resources” and the sources of funds will always be equal to the uses of funds.



A funds flow statement may be so prepared as to explain only the change in the working capital (current assets – current liabilities) from the beginning of a period to the end of the period. Alternatively it may explain the change in the cash position during the period or it may be prepared so as to indicate the changes in total resources as explained earlier.

In general, it is conventional to record the changes in the assets and liabilities, only if such changes have an impact on the cash or working capital position. For instances, if some land were to be bought in exchange for a company’s shares, such a transaction would have no impact on cash or working capital of that company. Hence, conventionally such transactions are excluded from FFS. However, one may also choose to include them under the FFS, if the FFS be regarded as a statement conveying all changes in the assets and liabilities structure of a business. Also, such inclusion may be justified by the fact that even transactions which result in no ostensible change of cash or funds for the business, do have an indirect impact on the cash or funds, though perhaps at a later date.

Let us take a closer look at how a funds flow statements can be prepared on total resources basis, working capital basis and cash basis.

**Total Resources Basis**

The sources and uses of funds can be summarized as

Sources	Uses
1. Operations – Profit after tax – Depreciation and other non-cash charges.	1. Dividends 2. Decrease in liabilities
2. Issue of equity capital	3. Increase in assets
3. Increase in liabilities	
4. Decrease in assets	

To prepare the funds flow statement for a company on total resources basis, we have to first compare the balance sheets over the period of time in which we are interested and rate the increases and decreases in various assets and liabilities and also see whether the company had any inflow of funds through the issue of equity or preference capital. The profit and loss statements for the years must also be analyzed to calculate the funds from operations (profit after tax to which all non-cash charges like depreciation are added back) and dividend payments. All these information have to be combined to prepare the funds flow statement. It is to be noted that since the change in all items of the balance sheet are considered, the source of funds will always be equal to the use of funds.

Tables 1 and 2 below present two years of Lamda Company’s financial history as captured by its income statements and balance sheets.

**Table 1  
Lamda Company Ltd. Income Statements, Year 1 and Year 2**

(in rupees)

	Year 1	Year 2
Sales	515,000	557,500
Cost of goods sold	335,000	355,000
Materials	1,67,500	1,77,500
Labor	77,500	80,000
Overhead	90,000	97,500
Gross Profit	180,000	202,500
Depreciation	7,500	5,000
Selling, general and administrative expenses	149,400	181,100
Operating profit before interest and taxes	23,100	16,400
Interest	8,100	3,900
Profit before tax	15,000	12,500
Tax @ 50%	7,500	6,250
Profit after tax	7,500	6,250

**Table 2**  
**Lamda Company Ltd. Year-end Balance Sheet**  
**Year 1 and Year 2**

(in rupees)

	Year 1	Year 2
<b>Assets</b>		
Cash	1,000	1,000
Accounts receivable	125,000	90,000
Inventory	187,500	180,000
Total current assets	313,500	271,000
Fixed assets net of depreciation	55,000	50,000
Other assets	17,500	15,000
Total assets	386,000	336,000
<b>Liabilities and net worth</b>		
Bills payable	66,200	16,400
Accounts payable	52,500	42,500
Provisions	3,500	6,550
Accruals	15,000	17,500
Total current liabilities	137,200	82,950
Term loan	36,000	34,000
Total liabilities	173,200	116,950
Share capital	155,000	155,000
Reserves + Surplus	57,800	64,050
Total liabilities and net worth	386,000	336,000

Table 3 presents the funds flow statement on a total resources basis. Part A of the table is the statement of balance sheet changes for the company over year 1 to year 2. Part B of the table classifies these changes into sources and uses of funds. Part C of the table draws on information provided by the income statements for a more detailed analysis of the flow of funds.

**Table .3****Part A: Statement of Balance Sheet Year 1 and Year 2 changes**

	Year 1	Year 2	Change (in rupees)
<b>Assets</b>			
Cash	1000	1,000	(-)
Accounts receivable	125,000	90,000	(-) 35,000
Inventory	187,500	180,000	(-) 7,500
Total current assets	313,500	271,000	(-) 42,500
Fixed assets net of depreciation	55,000	50,000	(-) 5,000
Other assets	17,500	15,000	(-) 2500
Total assets	386,000	336,000	(-) 50,000
<b>Liabilities and net worth</b>			
Bills payable	66,200	16,400	(-) 49,800
Accounts payable	52,500	42,500	(-) 10,000
Provisions	3,500	6,550	(+) 3,050
Accruals	15,000	17,500	(+) 2,500
Total current liabilities	137,200	82,950	(-) 54,250
Term loan	36,000	34,000	(-) 2,000
Total liabilities	173,200	116,950	(-) 56,250
Share capital	155,000	155,000	—
Reserves and surplus	57,800	64,050	(+) 6,250
Total liabilities and net worth	386,000	336,000	(-) 50,000

**Part B: Statement of Sources and Uses of Funds for the Year 2**

(in rupees)

<b>Sources</b>	
Reduction in Accounts Receivable	35,000
Reduction in Inventory	7,500
Reduction in Net Fixed Assets	5,000
Reduction in Other Assets	2,500
Increase in Provisions	3,050
Increase in Accruals	2,500
Increase in Reserves and Surplus	6,250
Total Sources	61,800
<b>Uses</b>	
Reduction in Bills Payable	49,800
Reduction in Accounts Payable	10,000
Reduction in Term Loan	2,000
Total Uses	61,800

**Part C: Funds Flow Statement for the Year 2**

(in rupees)

<b>Sources</b>	
Profit before tax	12,500
Depreciation	5,000
Increase in Liabilities:	
Provisions	3,050
Accruals	2,500
	5,550
Decrease in Assets:	
Accounts Receivable	35,000
Inventory	7,500
Gross Fixed Assets	0*
Sources	
Other Assets	2,500
	45,000
	68,050
<b>Uses</b>	
Taxes	6,250
Dividends	–
Decrease in Liabilities:	
Bills Payable	49,800
Accounts Payable	10,000
Term Loan	2,000
	61,800
Increase in Assets	–
	68,050

\* When depreciation is shown as a source of funds, the changes in gross fixed assets must be analyzed to see whether funds have been generated or used. For this purpose, from the given data, gross fixed assets can be calculated as:

$$\text{Gross Fixed Assets} = \text{Net Fixed Assets} + \text{Accumulated Depreciation}$$

	Year 1	Year 2
Gross Fixed Assets	62,500	62,500
Accumulated Depreciation (7,500 + 5,000)	7,500	12,500
Net Fixed Assets	55,000	50,000

Students will note that the gross fixed assets will not change usually unless there is a purchase or sale of a fixed asset, or the company changes its method of depreciation.

### **Interpreting the Funds Flow Statement**

What do we learn from source-and-use analysis? Let us take a look at Part B of table 3. We see that all the assets of the company have decreased over the period, leading to a source of funds. Why are decrease in assets treated as a source? When an asset account increases, it uses funds as funds are required for their purchase. Correspondingly, when an asset account decreases, it releases or provides funds and hence becomes a source. Similarly, when a liability account increases, it provides funds (acts as a source), when it decreases, funds are required to make the reduction (the account uses up funds). Lamda Company has increased its provisions, accruals and reserves which generated funds to the extent of Rs.11,800 and additional funds to the extent of Rs.50,000 were generated by a decrease in assets. The amounts so released have been used up by the company in paying off its creditors (Bills Payable Rs.49,800 and Accounts Payable Rs.10,000) and also in repaying Rs.2,000 towards term loan.

A deeper look at the funds flow statements reveals that the largest source of funds was from Accounts Receivable by Rs.35,000. Is this an indicator that the company follows efficient receivable management techniques? A major use of funds have been in paying off short-term creditors for supplies. In spite of apparently efficient working capital management, we notice that there has been no increase in cash. Is this because the management is following an aggressive working capital policy? Or is it an indicator of liquidity problems in the years to come? We cannot come to any valid conclusions with the data given, but we can definitely get an insight into those areas which require further investigation.

### **FUNDS FLOW STATEMENT ON A CASH BASIS**

A funds flow statement on cash basis is prepared by:

- Classifying net balance sheet changes that are seen between two points in time into changes that increase and decrease cash.
- Classifying from the income statement the factors that increase and decrease cash.
- Consolidating this information into a source and use of funds format.

The steps are similar to those while preparing a funds flow statement on total resources basis, but here, instead of classifying increase/decrease in cash as use or source, all the other increases and decreases are classified into sources and uses, and if sources exceed uses, there has been an increase in cash to that extent and on the other hand, if uses exceed sources, there has been a decrease in cash to that extent. In the earlier illustration of Lamda Company, we can see that there has been no increase in cash.

Let us take a closer look at the sources of funds that increase cash and the uses of funds that decrease cash. Sources of funds that increase cash are:

- A net decrease in any asset other than cash or fixed assets.
- A gross decrease in fixed assets.
- A net increase in any liability.
- Proceeds from the sale of equity or preference stock.
- Funds from operations.

Funds from operations are not expressed directly in the income statement. In order to get funds from operations, depreciation has to be added back to profit after taxes. If on the other hand, depreciation is added back to profit before taxes, taxes have to be shown separately as a use of funds.

Uses of funds which decrease cash include:

- A net increase in any asset other than cash or fixed assets.
- A gross increase in fixed assets.
- A net decrease in any liability.
- A retirement or purchase of stock.
- Cash dividends.
- To illustrate the preparation of the funds flow statement on a cash basis, we shall use the balance sheet and income statements of Alpine Resorts Ltd., as shown in tables 4 and 5 below:

**Table 4: Alpine Resorts Ltd's Balance Sheet as on 31st March**  
(in rupees '000)

	Year 1	Year 2
<b>Assets</b>		
Fixed Assets at Cost	1,538,495	1,596,886
Less: Accumulated Depreciation	791,205	856,829
Net Fixed Assets	747,290	740,057
Long-term Investments	–	65,376
Other Assets	205,624	205,157
<b>Current Assets</b>		
Inventories	1,234,725	1,328,963
Accounts Receivable	740,705	678,279
Pre-paid Expenses	17,197	20,756
Other Current Assets	29,165	35,203
Cash & Marketable Securities	175,042	177,689
	2,196,834	2,240,890
<b>Total Assets</b>	3,149,748	3,251,480
<b>Liabilities &amp; Net Worth</b>		
Share Capital	781,883	781,986
Reserves & Surplus	956,361	1,014,635
<b>Total Owner's Equity</b>	1,738,244	1,796,621
Long-term Loans	626,460	630,783
<b>Current Liabilities:</b>		
Bills Payable	356,511	448,508
Accounts Payable	136,793	148,427
Accrued Taxes	127,455	36,203
Outstanding	164,285	190,938
	785,044	824,076
<b>Total Liabilities &amp; Net worth</b>	3,149,748	3,251,480

**Table 5**

**Alpine Resorts Ltd's Income Statements for the years ended 31st March**

(in rupees '000)

	Year 1	Year 2
Net sales	3,721,241	3,946,873
Cost of goods sold	2,499,965	2,680,298
Selling, general or administrative expenses	726,959	801,395
Depreciation	113,989	65,624
Interest	69,764	85,274
Profit before tax	310,564	314,282
Income tax	172,446	163,708
Profit after tax	138,118	150,574
Cash dividends	88,634	92,300
Retained earnings	49,484	58,274

Before we prepare the funds flow statement, let us calculate funds from operations and the gross change in fixed assets.

**Funds from operations**

(in rupees '000)

Net income after taxes	150,574
Add: Depreciation and other non-cash expenses	65,624
Funds from operations	216,198

**Gross Change in Fixed Assets**

Since depreciation has been already shown as a source of funds, in order to avoid double counting, we compute gross changes in fixed assets by adding depreciation for the period to net fixed assets at the ending financial statement date. From this figure, the net fixed assets at the beginning financial statement date is deducted.

The residual represents the gross change in fixed assets, which, if positive (as is usually the case) represents a use of funds; if negative, a source.

In this illustration, gross change in fixed assets can be calculated as follows:

$$\text{Gross change in fixed assets} = \text{Rs.}7,40,057 + \text{Rs.}65,624 - \text{Rs.}7,47,290 = \text{Rs.}58,391$$

Since this is a positive figure, it indicates a use of funds or in other words, additions to fixed assets.

Once all sources and uses are computed, they may be presented as:

**Funds Flow Statement of Alpine Resorts Ltd.  
Year 1 to Year 2**

(in rupees '000)

<b>Sources of Cash</b>		
Funds from operations		216,198
Net decrease in assets: (Other than fixed assets and cash)		
Other assets	467	
Accounts receivable	62,426	62,893
Increase in liabilities:		
Long-term loans	4,323	
Bills payable	91,997	
Accounts payable	11,634	
Outstandings	26,653	134,607
Increase in share capital		103
		413,801
<b>Uses of Cash</b>		
Additions to fixed assets		58,391
Dividends paid		92,300
Net increase in assets: (Other than fixed assets and cash)		
Inventories	94,238	
Pre-paid expenses	3,559	
Other current assets	6,038	103,835
Increase in investments		65,376
Decrease in liabilities		
Accrued taxes		91,252
		411,154
Increase in cash		2647

We find that when we subtract the total sources of cash from the total uses of cash, the difference (increase of Rs.2,647) is equal to the actual change in cash between the two balance sheet dates as shows in table 4. This tallying is a must. If there is a discrepancy in the figure of change in cash as indicated by the funds flow statement and the financial statements, the analyst must search for the cause of discrepancy. Frequently discrepancies will occur due to surplus adjustments and the analyst should be alert to this possibility.

From the funds flow statement of Alpine Resorts Ltd., the principal uses of funds for year 2 were additions to fixed assets, increases in inventories and investments and a sizeable decrease in taxes payable. These uses were financed primarily by funds provided by operations after payment of dividends, a decrease in accounts receivable and by increases in bank loans, payable and outstandings.

**Funds Flow Statement – Working Capital Basis**

The preparation of a statement showing the source and use of working capital is very similar to the preparation of a funds flow statement on a cash basis. The only difference between the two is that in the former, changes in the various components of current assets and current liabilities are omitted and greater attention is given to changes in fixed assets and long-term liabilities.

This statement is frequently used by bankers to determine whether the minimum working capital requirement is being maintained by borrowers who come to them for working capital loans.

Such a statement is also an internal control device often used by managements.

Students may note the following points:

- An increase in a current asset results in an increase in working capital.
- A decrease in a current asset results in a decrease in working capital.
- An increase in a current liability results in a decrease in working capital.
- A decrease in a current liability results in an increase in working capital.

The funds flow statement of Alpine Resorts on working capital basis can be prepared as:

**Alpine Resorts Ltd. Sources and Uses of Working Capital Year 1 to Year 2**  
(in Rupees)

Source of working capital	
Funds from operations	216,198
Decrease in other assets	467
Increase in share capital	103
Increase in long-term loans	4,323
	221,091
Uses of Working Capital	
Dividends	92,300
Additions to fixed assets	58,391
Increase in investments	65,376
	216,067
Net Increase in Working Capital	5,024

In order to check the accuracy of the net change whether positive or negative, as disclosed by the funds flow statement, students may prepare a schedule of changes in working capital as shown below:

**Schedule of Changes in Working Capital**

Current Assets	Increase (+)	Decrease (-)
Inventories	94,238	
Pre-paid expenses	3,559	
Other current assets	6,038	
Cash	2,647	
Accounts receivable		62,426
Current Liabilities		
Bills payable		91,997
Accounts payable		11,634
Outstandings		26,653
Accrued taxes	91,252	
	1,97,734	1,92,710
Increase in working capital		5,024
Total	1,97,734	1,97,734



## **SIGNIFICANCE OF A FUNDS FLOW STATEMENT**

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We can see that an analysis of the sources and uses of funds provides valuable insights into the operations of a firm. These can be summarized as:

### **Detection of Imbalances and Appropriate Action**

For Example, an analysis spanning several years might reveal a growth in inventories which is out of proportion with the growth of other assets and sales. This over stocking of inventories would have gradually led to a decline in profitability as the funds locked up in inventories could have been put to more profitable uses. This inefficiency in inventory management can be corrected before it leads to further losses.

### **Divisional Performance Appraisal**

When a company has a number of divisions, individual funds statements will enable top management to appraise the performance of divisions in relation to the funds committed to each division.

### **Evaluation of the Firm's Financing**

An analysis of the major sources of funds in the past reveals what portion of the firm's growth was financed internally and what portion externally. A funds flow analysis will also tell us whether short-term liabilities have been used to finance fixed assets and permanent portion of working capital, in which case, at least in the future, the mix of short-term and long-term finance has to be strictly watched over.

### **Planning of Future Financing**

An analysis of a funds flow statement for the future (projected funds flow statement) will reveal the firm's total prospective need for funds when these needs will arise and how these are to be financed depending on whether the need is for fixed assets, fluctuating component of working capital etc.

Thus funds flow analysis is a very important analytical tool in the hands of the Finance Manager in developing information to be used in financial decision-making.

## **SUMMARY**

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- A funds flow statement explains the various sources from which funds are raised and the uses to which these funds are put to in a particular year within a company. Although, the definition is quite similar to that of a balance sheet, the difference between a balance sheet and a funds flow statement is that the latter captures the movements in funds, while the former presents a static picture of the sources and uses of funds.
- Funds flow statements can be prepared on total resources basis, cash basis or working capital basis depending upon the requirement of the user. To prepare the funds flow statement for a company on total resources basis, one has to compare the balance sheets over the period of time that one wants. The increases and decreases in various assets and liabilities are calculated while taking into consideration the inflow through issue of equity or preference capital. The profit and loss statements for those years must also be analyzed to calculate the funds from operations and dividend payments. While funds from operations, issue of new capital, increase in liabilities and decrease in assets form the sources of funds for the period, dividend payments, decrease in liabilities and increase in assets form the uses of funds.

- A funds flow statement on cash basis is prepared by classifying net balance sheet changes between two points in time into changes that increase and decrease cash as well as classifying the increase and decrease in cash from the factors available in the income statement. A net decrease in any current asset other than cash, a gross decrease in fixed assets, a net increase in any liability, proceeds from sale of equity/preference stock and funds from operations form the sources of cash. On the other hand, a net increase in any current asset other than cash, a gross in fixed assets, a net decrease in any liability a retirement or purchase of stock and cash dividends form the uses of cash.
- Preparing a funds flow statement on a working capital basis is very similar to preparing a statement on cash basis, the only difference being that the former makes use of changes in the various components of current assets and liabilities and not just cash. In this case, an increase in current assets or a decrease in current liabilities results in increase in working capital, while a decrease in current assets or an increase in current liabilities results in decrease in working capital.
- Funds flow statements are very helpful in detecting any imbalances in inventory management, assisting in appraisal of divisional performance, evaluating the firm's financing options and planning for future financing.

## **Chapter V**

# **Short-term Financial Planning**

## **Lesson 1**

### **Working Capital Management**

**After reading this lesson, you will be conversant with:**

- Introduction to Working Capital Management
- Components of Current Assets and Current Liabilities
- Objectives of Working Capital Management
- Static and Dynamic view of Working Capital
- Factors Affecting Composition of Working Capital
- Interdependence among Components of Working Capital
- Criteria for Evaluation of Working Capital Management
- Important Working Capital Ratios

## **INTRODUCTION TO WORKING CAPITAL MANAGEMENT**

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Assets and liabilities of a company can be classified on the basis of duration into:

Assets – Fixed Assets and Current Assets

Liabilities – Long-term liabilities and short-term or current liabilities.

Assets are nothing but possessions owned by the firm which are capable of being expressed in monetary terms, whether tangible (like land, building, stock, etc.) or intangible (goodwill, patents, copyrights, etc). These are used by the company for generating future benefits. Fixed assets are those assets which are permanent in nature and are held for use in business activities and not for sale. Examples of fixed assets are land, building, machinery, long-term investment, etc. Current assets, on the other hand, are those liquid assets of the company which are either held in the form of cash or can be easily converted into cash within one accounting period, usually a year. Examples of current assets are cash, short-term investments, sundry debtors or accounts receivable, stock, loans and advances, etc.

Liabilities are economic obligations of the company to pay cash or provide goods or services to outsiders including shareholders. Liabilities may be long-term or current. Long-term liabilities are those which are repayable over a period greater than the accounting period like share capital, debentures, long-term loans etc. Current liabilities on the other hand have to be paid within the accounting period like sundry creditors or accounts payable, bills payable, outstanding expenses, short-term loans, etc.

The management of fixed assets and current assets differs in three important ways -

- In managing fixed assets, the time factor is very important. That is why discounting and compounding play a very important role in any capital budgeting decision. But because the time frame of current assets is only one accounting period, the time value of money is less significant in the management of current assets.
- The liquidity position of a firm is dependent on the investment in current assets, the more, the better, whereas the role of fixed assets as far as liquidity is concerned is negligible.
- Any short run, immediate need of the company whether that be need for cash or adjustments to fluctuations in sales can be made only through adjusting the levels of the various components of the current assets. This calls for efficient management of current assets which forms part of management of working capital.

## **COMPONENTS OF CURRENT ASSETS AND CURRENT LIABILITIES**

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Working capital management involves not only managing the different components of current assets, but also managing the current liabilities, or to be more precise, the financing aspect of current assets. It is, therefore appropriate to provide a brief description of current assets and current liabilities. To provide an insight into the practices followed in the Indian corporate sector we shall make the presentation in the context of XYZ Ltd., taken from the company's balance sheet, the practices followed are presented in Table 1.

**Table 1**  
**XYZ Co. Ltd.**  
**Composition of Current Assets and Current Liabilities**  
**Current Assets, Loans and Advances**

Rupees in lakh		
<b>A. INVENTORIES</b>		
1. Stores and Spare Parts		37.63
2. Loose Tools		13.37
3. Stock of machines, including own manufactured	1952.11	
4. Goods in Transit	<u>550.20</u>	
		2502.31
5. Raw Materials		411.91
6. Work-in-process		567.61
7. Value of incomplete job contracts carried forward		2133.03
		<u>5665.86</u>
Note:		
1. Inventories are as valued and certified by the Management [See Note a for mode of valuation]		
Rupees in lakh		
<b>B. SUNDRY DEBTORS</b>		
1. Debts outstanding for a period exceeding six months		
Unsecured-Good		1173.43
Unsecured-Doubtful		17.93
		<u>1191.36</u>
Less: Provision for doubtful debts		17.93
		<u>1173.43</u>
2. Other debts (Unsecured-Good)		4069.35
		<u>5242.78</u>
Rupees in lakh		
<b>C. CASH AND BANK BALANCES</b>		
1. Cash and Cheques on hand and at collection centers including remittances in transit Rs.40.40 lakh		501.13
2. Balance with Scheduled Banks:		
In Current Account	9.09	
In Fixed Deposits (Receipts endorsed favoring customers as security)	1.49	
In Guarantee/L/C/Margin Account	<u>23.73</u>	34.31
3. Balances with Non-Scheduled Banks in Current Account with:		
a. Bank of Ceylon	0.21	
b. In Investioni Bank (Czechoslovakia)	<u>1.85</u>	2.06
		<u>537.50</u>
* Includes Rs.0.54 lakh (Rs. 0.54 lakh) with a Bank in liquidation		

	Rupees in lakh
<b>D. LOANS AND ADVANCES</b>	
1. Bills Receivable-Guaranteed by Scheduled Banks	30.97
2. Loans including secured Rs.4.48 lakh (Rs. 5.01 lakh)	28.83
3. Advances & loans to Subsidiary (See Note 9)	308.46
4. Advances recoverable in cash or in kind or for value to be received	
Considered Good	1229.94
Considered Doubtful	0.18
	1230.12
Less: Provision for doubtful advances	0.18
	1229.94
5. Balances with Excise, Customs and Port Trust	23.83
6. Taxes paid in advance and deducted at source (after adjusting provision for taxation Rs.114.87 lakh)	183.93
	1805.96
<b>E. OTHER CURRENT ASSETS</b>	313.48
<b>Total of A + B + C + D + E</b>	13,565.58

**Current Liabilities and Provisions**

	Rupees in lakh
<b>A. CURRENT LIABILITIES</b>	
1. Acceptances:	1435.15
2. Sundry Creditors (including premium on Redemption of Debentures Rs.25.54 lakh)	3906.76
3. Advances and Deposits from Customers	2688.35
4. Other Liabilities	437.40
5. Unclaimed Dividends	7.50
6. Application Money Refundable	5.21
7. Interest accrued but not due on loans	105.67
8. Hire Purchase Dues	42.23
9. Temporary Bank Overdraft as per books of account	15.81
	8644.08
<b>B. PROVISIONS</b>	
1. Provision for Taxation (for Wealth Tax)	0.16
2. Proposed Dividend	42.44
	42.60
<b>C. SECURED LOANS</b>	
From Banks for working capital	2959.40
<b>D. UNSECURED LOANS</b>	
1. Fixed Deposits	40.88
2. Short-term loans and advances	600.00
3. Other term loans and advances	363.00
	1003.88
<b>TOTAL (A + B + C + D)</b>	12649.96

**Note:** Valuation of Inventories

- Stores and spare parts, loose tools, goods-in-transit, raw materials and work-in-process are valued at cost.
- The finished goods including those manufactured by the company are valued at cost or estimated market value, whichever is lower.
- Incomplete job contracts are valued at the direct cost incurred on such contracts.

## **Current Assets**

1. When the Balance Sheet is presented in the form of a 'T', the right hand side will present the current assets, loans and advances of the company. The first item of current assets is inventories whose value is certified by the management in accordance with the principle of conservatism which says that inventories are to be valued at cost or market price whichever is lower. Item (1) in inventories denotes the value of stores and spare parts which amounted to Rs.37.63 lakh at the end of the accounting period. When spare parts for machinery used are not readily available, they are acquired at the time of purchase and held in stock. In the case of imported plant and machinery, the supplier also sells spare parts which may be lying in stock. Some of the stores and spares will be consumed during the year when the machinery is being operated. However, when a better machine comes into the market, existing machinery may have to be replaced for increased operational efficiency. At that time, spares of the old machine will fetch very little in the market. A thorough analysis of spares in terms of Vital, Essential and Desirable (VED) categories is warranted when they comprise a reasonably large chunk of current assets. The company started with an opening inventory of stores and spares of Rs.39.52 lakh. Stores to the extent of Rs.160.43 lakh were consumed during the year as revealed by the annual reports of the company.
2. Item (2) shows loose tools used by the company for the manufacture and repair of the various machines and equipment, which stood at Rs.13.37 lakh at the end of the year. The opening balance was Rs.14.89 lakh and purchases of loose tools amounted to Rs.43.49 lakh, indicating that loose tools worth Rs.45.01 lakh were consumed during the year. (consumption = opening stock plus purchases less closing stock.)
3. The company is in the business of manufacturing various items of machinery and machine tools like industrial equipment, pollution control equipment, air-conditioning and refrigeration systems, textile machinery, etc. As such, the machines manufactured by the company for the purposes of sale will be included under inventories and not under fixed assets. The set of machines used for making these machineries meant for sale will come under fixed assets as these will be used by the company year after year for the manufacture of its goods (machineries for sale). Item (3) indicates the closing stock of the finished goods of the company including goods (machinery) in transit. This amounts to Rs.2,502.31 lakh. The company had an opening stock of finished goods of Rs.1,728.02 lakh. These are also conservatively valued by the company at cost or market value whichever is lower.
4. Item (5) denotes raw materials. The company started with an opening balance of raw materials of Rs.359.14 lakh. The company purchased raw materials worth Rs.1,835.23 lakh during the year, making Rs.2,194.37 lakh available for consumption. Actual consumption was to the tune of Rs.1,782.46 lakh, leaving a closing balance of Rs.411.91 lakh.
5. Work-in process, also called stock-in process indicates partially finished goods which have been valued at the end of the year at Rs.567.61 lakh. Since it takes some time for the raw materials and components that enter the production process to become finished goods, at any point of time, there will always be some partly finished goods besides goods that are finished and ready for sale shown in item (3). Item (6) shows the value of such work-in process which have been valued at cost.
6. The company undertakes job works on contract basis like project engineering. Job contracts which are incomplete at the end of the accounting period, and which are to be carried forward to the next accounting period. Such items will also be shown under inventories. This is shown in item (7) and such incomplete jobs have been valued at Rs.2,133.03 lakh.

7. Item (B) represents sundry debtors or accounts receivable and is more liquid than inventories as it arises consequent upon the sale of finished goods on a credit basis. In accordance with the provisions of Company Law, debtors are to be categorized into 2 groups – one group outstanding for a period exceeding 6 months and the other below 6 months. For the company, debtors outstanding for a period exceeding 6 months amount to Rs.1,191.36 lakh, of which Rs.17.93 lakh are considered doubtful for which a provision has to be made, and this leaves the net amount at Rs.1,173.43 lakh. The second group amounts to Rs.4,069.35 lakh, making total sundry debtors Rs.5,242.78 lakh.
8. Item (C) indicates the most liquid form of all current assets, viz., cash and bank balances. While these assets provide immediate liquidity, they do not generate any returns unless they are invested in some other form. Consequently only a reasonably small percentage is held in this form, the influencing or determining factors being the degree of synchronization of cash inflows and outflows, the degree of uncertainty surrounding them and the ability of the firm to raise liquid cash at short notice. For the Company the amount of cash and bank balance is only 3.96% of total current assets whereas inventory accounts for 41.8% of total current assets.
9. Item (D) consists of loans and advances which include bills receivables, advances and loans to subsidiaries of the company, balances with Excise, Customs and Port Trust, advance payments of tax, etc., after deducting provision for taxation and providing for doubtful advances. The net amount under this head for the company amounts to Rs.1,805.96 lakh. Item (E) represents other current assets like interest accrued on investments, prepaid expenses etc., which amount to Rs.313.48 lakh.

## **Current Liabilities**

These are shown on the left hand side of a 'T' shaped Balance Sheet and are grouped under 4 heads. As per the provisions of the Companies Act, Items (C) and (D) of Table 1 will not be shown as part of current liabilities but will be shown separately along with other long-term secured and unsecured loans. However, as the liabilities have been utilized for financing the current assets of the company, they have been included here to give a complete picture.

1. Item (A) represents current liabilities, the major chunk of which is contributed by sundry creditors or accounts payable, followed by advances and deposits from customers which have to be returned. Refund of application money on non-allotment, interest accrued but not due, hire purchase dues, unclaimed dividends, temporary bank over draft (OD) and other outstanding expenses also come under this head, creating a total of Rs.8,664.08 lakh.
2. Item (B) includes provisions which like current liabilities also call for short-term payments by the company, but the exact figure of which is not known beforehand. The company has provided Rs.0.16 lakh for taxes and Rs.42.44 lakh for dividend, totalling to Rs.42.60 lakh.
3. As per the requirements of Company Law, the arrangements made with banks for working capital towards the financing part of the current assets by providing security in the form of hypothecation of stocks or pledge on sundry debtors are shown separately under the head secured loans along with term loans from financial institutions secured by mortgaging fixed assets or bank



guarantees. But since bank loans for working capital are strictly of short-term nature and used for financing the current assets of the company, these should also be shown along with current liabilities and provisions. Item (C) shows that the company has availed itself Rs.2,959.40 lakh as secured loan for working capital from commercial banks.

4. Strictly speaking, fixed deposits repayable within one year should also form part of current liabilities. However, since fixed deposits are mainly raised to meet the financial requirement of current assets, it may not be a bad idea to consider the total amount of fixed assets as part of current liabilities. However in Table 1, Item (D) Fixed Deposits and other short-term loans includes only those repayable within one year by the company. They amount to Rs.1,003.88 lakh.

## **OBJECTIVES OF WORKING CAPITAL MANAGEMENT**

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### **Liquidity vs. Profitability**

The basic objective of working capital is to provide adequate support for the smooth functioning of the normal business operations of a company. The question then arises as to the determination of the quantum of investment in working capital that can be regarded as 'adequate'. Once we recognize the fact that a company has to operate in an environment permeated with uncertainty/risk, the term 'adequate working capital' becomes somewhat subjective depending upon the attitude of the management towards uncertainty/risk. Therefore the quantum of investment in current assets has to be made in a manner that it not only meets the needs of the forecasted sales but also provides a built-in cushion in the form of safety stocks to meet unforeseen contingencies arising out of factors such as delays in arrival of raw materials, sudden spurts in sales demand etc. Consequently, the investment in current assets for a given level of forecasted sales will be higher if the management follows a conservative attitude than when it follows an aggressive attitude. Thus a company following a conservative approach is subjected to a lower degree of risk than the one following an aggressive approach. Further, in the former situation the high amount of investment in current assets imparts greater liquidity to the company than under the latter situation wherein the quantum of investment in current assets is less. This aspect considers exclusively the liquidity dimension of working capital. There is another dimension to the issue, *viz.*, the 'profitability' and it is discussed below.

Once we recognize the fact that the total amount of financial resources at the disposal of a company is limited and these resources can be put to alternative uses, the larger the amount of investment in current assets, the smaller will be the amount available for investment in other profitable avenues at hand with the company. A conservative attitude in respect of investment in current assets leaves less amount for other investments than an aggressive approach does. Further, since current assets will be more for a given level of sales forecast under the conservative approach, the turnover of current assets (calculated as the ratio of net sales to current assets) will be less than what they would be under the aggressive approach. This being so, even if we assume the same level of sales revenue, operating profit before interest and tax and net (operating) fixed assets, the company following a conservative policy will have a low percentage of operating profitability compared to its counterpart following an aggressive approach as can be seen from the numerical illustration 1.

## Illustration 1

S.No.	Particulars	Conservative Policy	Aggressive Policy
1.	Net Sales	Rs.50 lakh	Rs.50 lakh
2.	Operating Profit Before Interest and Tax	Rs.5 lakh	Rs.5 lakh
3.	Net (Operating) Fixed Assets	Rs.10 lakh	Rs.10 lakh
4.	Current Assets	Rs.8 lakh	Rs.5 lakh
5.	Total Operating Assets [= (3) + (4)]	Rs.18 lakh	Rs.15 lakh
6.	Net Operating Profit Margin $\left[ = \frac{(2)}{(1)} \right]$	$\frac{5}{50} = 10\%$	$\frac{5}{50} = 10\%$
7.	Turnover of Net Operating Fixed Assets $\left[ = \frac{(1)}{(3)} \right]$	$\frac{50}{10} = 5$ times	$\frac{50}{10} = 5$ times
8.	Turnover of Current Assets $\left[ = \frac{(1)}{(4)} \right]$	$\frac{50}{8} = 6.25$ times	$\frac{50}{5} = 10$ times
9.	Turnover of Total Operating Assets $\left[ = \frac{(1)}{(5)} \right]$	$\frac{50}{18} = 2.78$ times	$\frac{50}{15} = 3.33$ times
10.	Rate of Return on Total Operating Assets [ = (6) x (9), (2) x 100 (5)]	27.8%	33.3%
11.	Ratio of Current Assets to Net Operating Fixed Assets $\left[ = \frac{(4)}{(3)} \right]$	$\frac{8}{10} = 0.8$ = 80%	$\frac{5}{10} = 0.5$ = 50%

From the illustration, it can be easily seen from item (10), that the alternative of following a conservative approach to investment in current assets results in a low profitability of 27.8 percent compared to the profitability of 33.3 percent obtained under the alternative – an aggressive approach. The reason for this can be directly traced to the low turnover of current assets leading to a lower turnover of total operating assets under the conservative approach compared to that under the aggressive approach. From item (11) it can be seen that current assets comprise 80 percent of net operating fixed assets resulting in higher proportion of current assets and hence greater liquidity compared to the corresponding figure of 50 percent indicating low liquidity under the aggressive approach.

From the above discussion it is apparent that management of current assets inevitably leads to a trade-off between 'profitability' and 'liquidity'. An aggressive approach results in greater profitability but lower liquidity while a conservative approach results in lower profitability but higher liquidity. This can be resolved to a certain extent by the management by following a moderate policy which is neither highly aggressive nor highly conservative. Under this approach some liquidity and some profitability have to be sacrificed so that the resultant figures of liquidity and profitability are reasonably satisfactory to the company. For example, in the numerical illustration given earlier, if the management decides to follow a moderate approach which leads to an investment of Rs.6.5 lakh in current assets, then the rate of return of total operating assets will become 30.30 percent ( $=5/16.5$ ) which is higher than the rate of return of 27.8 percent under the conservative approach but lower than the figure of 33.3 percent under the aggressive approach. Further, the degree of liquidity as indicated by the ratio of current assets to net operating fixed assets will now be 65 percent which is lower than the figure of 80 percent under the conservative approach but higher than the figure of 50 percent under the aggressive approach. Thus, a proper balancing between liquidity and profitability can be reached by considering alternatives along with their consequences on liquidity and profitability. Among the alternatives the one which matches the attitude of the management toward risk can be selected.

### **Choosing the Pattern of Financing**

The objective of working capital management covers not only the management of current assets in tune with the attitude of management toward risk and arriving at a satisfactory level of current assets that balances the liquidity and profitability criteria but also the management of financing the chosen level of current assets, once again taking into consideration the attitude of management towards risk.

From the description of current assets and current liabilities discussed above, it can be observed that in the normal course of business a company will usually have access to non-interest bearing short-term liabilities such as sundry creditors, accrued expenses and other current liabilities as also provisions toward financing current assets. These are called spontaneous liabilities as they arise more or less automatically in the context of current assets. The difference between the amounts of current assets and spontaneous liabilities needs to be financed by a combination of bank borrowings in the form of cash credit/overdraft arrangement and long-term sources of finance such as debentures and equity capital. Fixed deposits obtained from the public for periods ranging from one to three years can also be used for the same purpose. Here also an aggressive financing policy will tend to have a financing mix tilted in favor of bank borrowings and public deposits compared to a conservative policy tilted more towards long-term sources like equity and to some extent debentures.

Except in rare instances, the general tendency in the case of manufacturing and trading companies is that during certain periods in an year the need for current assets will be much higher than in other periods in the year. As the financing charges in the case of bank borrowings are geared to and move in tandem with the credit needs occasioned by the higher investment in current assets, the total interest charge is likely to be low. However, debt-servicing cost will be high as bank borrowings have to be repaid (rather re-negotiated for the coming year). Consequently, the risk of 'technical insolvency' (a situation where a company is not in a position to honor its current liabilities including short-term bank borrowings which can arise even in the case of profitable companies) is likely to be high. On the other hand, a conservative policy having a high proportion of equity capital and to some extent debentures will have comparatively low debt-servicing resulting in a lower degree of the risk of technical insolvency. However, the cost of financing will be high as the cost of equity capital is the highest and it does not provide tax benefit which the interest on borrowed capital provides to the company and debenture interest (even after reckoning with tax benefit) has to be

paid throughout the year irrespective of the fluctuating credit needs of a company towards financing its current assets. Even in the case of choosing the mix of instruments for financing current assets the risk of technical insolvency tends to be high while the cost of financing tends to be low under an aggressive policy compared to a conservative policy under which the risk of technical insolvency will be low while the cost of financing tends to be high. Once again, the management's attitude toward risk will go a long way in determining the financing-mix considered appropriate to the company.

The tendency of the management to follow an aggressive mix of financial instruments towards financing current assets is severely handicapped by the restrictions imposed by the commercial banks in permitting cash credit/overdraft limits.

From the above discussion it emerges that working capital management encompasses the management of current assets and the means of financing them. The objective of working capital management is to balance the 'liquidity' and 'profitability' criteria while taking into consideration the attitude of management toward risk and the constraints imposed by the banking sector while providing short-term credit in the form of cash credit/bank overdraft.

## **STATIC VIEW OF WORKING CAPITAL AND ITS SHORTCOMINGS**

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Traditionally the term working capital is defined in two ways, *viz.*, gross working capital and net working capital. Gross working capital is equal to the total of all current assets (including 'loans and advances') of a company. Net working capital is defined as the difference between gross working capital and current liabilities (including 'provisions'). Sometimes net working capital is also referred to as 'net current assets.' Since both gross working capital and net working capital are obtained from the data contained in the balance sheet, working capital viewed in either sense denotes the position of current assets (or net current assets) as at the end of a company's accounting year. An important characteristic of current assets is conventionally considered to be their convertibility into cash within a single accounting year unlike fixed assets which provide the 'production capacity' for the manufacture of finished goods for sale. Current liabilities arise in the context of and hence are derived from current assets. Conventionally current liabilities are of short-term nature and come up for payment within a single accounting year. Consequently, a lot of emphasis is traditionally placed on the current assets (which are valued on a conservative basis in accordance with the 'conservatism principle' of accounting) vis-à-vis current liabilities. As a rule of thumb, the value of 2:1 for the ratio of current assets to current liabilities (popularly known as current ratio) is considered to be satisfactory by the short-term creditors, the underlying logic being that a company can face the unlikely situation of meeting all of its current liabilities by liquidating its current assets even at half of their recorded value without any financial embarrassment.

### **Limitations**

The definition of working capital given above considers the purpose of current assets is to provide adequate cover for current liabilities. This definition suffers from many limitations as stated below.

First, the amount of working capital, viewed in either sense, is obtained from the data contained in the balance sheet which merely indicates the financial position of a company as on a specific date and, is therefore, 'static' in nature. Consequently 'working capital' as defined traditionally provides a snapshot picture of current assets and current liabilities as on the balance sheet date. It fails to reflect the true dynamic nature of working capital which can be captured by combining the data contained in both the balance sheet and profit and loss account of a company. The dynamic approach to working capital is far more useful from the point of view of managerial decision-making than the static approach.

Secondly, the balance sheet of a company is prepared and presented in the annual report in accordance with the Schedule VI requirements of the Indian Companies Act. As a result, the amount of net working capital obtained by subtracting current liabilities from current assets presented in the balance sheet fails to reflect the true amount of net working capital. This is so, for the following reasons:

- Bank borrowings in the form of cash credit/overdraft accounts obtained for financing current assets, which are basically short-term borrowings, are not shown as part of current liabilities but separately under the head-secured loans. Similarly, unsecured loans of short-term duration such as public deposits are also shown separately under the head-unsecured loans. To obtain a true picture of the position of net working capital the above mentioned items have to be regarded as part of current liabilities. This problem is taken care of by the Bombay Stock Exchange official directory as their classification of current liabilities includes all borrowings other than long-term borrowings.
- Current assets, as presented in the balance sheet do not include marketable securities such as treasury bills whose main motive is to improve the liquidity position of the company and are held for short periods. These are considered under the generic head ‘investments’ which include both trade investments and others.
- Points mentioned above tend to distort the calculation of net working capital from the simple balance sheet heads stated as current assets and current liabilities. For XYZ Company, net working capital as per the Static definition will amount to Rs.4,878.90 lakh i.e., current assets, loans and advances of Rs.13,565.58 lakh from which current liabilities and provisions of Rs.8,686.68 lakh have been deducted. But if we include bank loan for working capital of Rs.2,959.40 lakh and unsecured loans repayable within one year of Rs.1,003.88 lakh, we find that net working capital amounts to only Rs.915.62 lakh. This seems to be a more realistic amount and denotes the magnitude of long-term funds used for financing the balance amount of current assets not financed from short-term funds.
- A negative net working capital indicates the siphoning off of short-term funds for the financing of long-term or fixed assets which when continued for long can lead to problems of liquidity for an organization. This is because, the investment in fixed assets will not create liquidity in the short run and the company may face problems in meeting its short-term financial obligations. It is worth noting that the calculation of net working capital made above is more in line with what bankers follow, as it will be useful in taking managerial decisions in respect of working capital which encompasses not only the management of current assets but also the management of the ‘financing’ aspect of current assets.

## **DYNAMIC VIEW OF WORKING CAPITAL**

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In the light of shortcomings of the traditional view of working capital there is a need for evolving a more expressive definition that highlights the importance of working capital to a company. Working capital can be viewed as the amount of capital required for the smooth and uninterrupted functioning of the normal business operations of a company ranging from the procurement of raw materials, converting the same into finished products for sale and realizing cash along with profit from the accounts receivables that arise from the sale of finished goods on credit.

From the above definition, the need for working capital by a typical manufacturing and selling company becomes self-evident. In order to meet the production plans of a company some quantity of raw materials has to be maintained in the form of inventory as there will usually be a time lag from the moment an order is placed for raw materials with suppliers till the same is received by the company. Absence of adequate raw materials inventory may result in stoppage of production for want of raw materials.

The quantum of raw material inventory to be maintained by a company depends, *inter alia*, on the availability of raw materials in the domestic market, the need for importing raw materials in case they are not indigenously available, the existence or otherwise of curbs by the government on imported raw materials, the lead time (the time gap between placing an order and receiving the supply of raw materials) for the procurement of raw materials, availability of bulk purchase discounts offered by suppliers and inflationary pressure on the price of raw materials. Once the raw materials are put into the production process, the company has to incur manufacturing expenses like wages and salaries, fuel and other manufacturing overheads. The nature of process technology adopted by the company is an important factor in determining the time taken for converting raw materials into finished goods. Consequently, the company may have some amount of finished goods and the balance in the form of partly-finished goods denoted by the term work-in-process. Thus, work-in-process inventory which a company carries becomes an inevitable accompanying feature of the production process.

The quantum of finished goods inventory a company carries is basically determined by the degree of accuracy in forecasting sales demand, the ability to meet sudden and unforeseen spurts in the demand for finished goods of the company, seasonality of the demand considered in conjunction with the production policy and the amenability of the product to become perishable in a relatively short period of time (as in the case of cigarettes and certain types of pharmaceuticals). The amount of finished goods inventory held by a company should normally provide its sales executives reasonable elbow-room for negotiating and clinching deals with new customers. Unless a company enjoys special advantage over its competitors, it may have to honor the practices followed by the industry to which it belongs in the sale of finished goods. By and large in a competitive market, the finished goods are sold on a credit basis. When a company gives a credit period to its customers from the date of consummation of sale, the amount of sales value will become accounts receivable or sundry debtors which get converted into cash only after the expiry of credit period.

Further, a company usually maintains at all times some amount of liquid cash either on hand or at bank towards meeting cash payments arising out of transactions as also for providing adequate cushion towards meeting unanticipated demand for cash such as, for example, availing cash discount on purchases suddenly introduced by suppliers, before the generation of cash takes place in the normal course of business. One more point needs to be considered at this stage. Just as the company extends credit to its customers, in many instances it can receive credit from its suppliers of materials. Consequently, the drain on cash resources of the company can be delayed till the expiry of credit period. Until such time the amount will become 'Accounts payable' of the company and as such provides a spontaneous source of credit. From this discussion it is evident how important a role working capital plays in supporting the normal business operations of a typical manufacturing and trading company.

## **FACTORS AFFECTING THE COMPOSITION OF WORKING CAPITAL**

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We have discussed the need for working capital along with its constituent elements in the case of a typical manufacturing and selling organization. But it is not necessary that every company should have all the constituent elements considered earlier. For example, a purely trading company which purchases finished products on credit basis and sells the same for cash will only have finished goods inventory and cash as current assets and accounts payable as current liabilities. Since there is no manufacturing involved, the investment in fixed assets will be minimal, say around 5 percent of the investment in current assets. Consequently working capital management assumes greater significance in such organizations. Now, we shall try to identify some of the significant factors affecting the composition of working capital or current assets.

## **Nature of Business**

As mentioned above purely trading organizations will have basically finished goods inventory, accounts receivable (in some cases) and cash as current assets and accounts payable as current liabilities. Similarly travel agency firms will have predominantly accounts receivable and some amount of cash as current assets unlike manufacturing and trading companies. The investment in net (operating) fixed assets<sup>1</sup> will at most be around 5 percent of investment in current assets. On the other hand, capital goods manufacturing and trading companies will have a high proportion of current assets in the form of inventory of raw materials components and work-in-process. The ratio of net (operating) fixed assets to current assets will be around 100 percent or more.

## **Nature of Raw Material Used**

The nature of major raw material used in the manufacture of finished goods will greatly influence the quantum of raw material inventory. For example, if the raw material is an agricultural product whose availability is pronouncedly seasonal in character the proportion of raw material inventory to total current assets will be quite high. For example, tobacco is the major raw material for cigarette industry whose availability is seasonal in nature and also the tobacco procured requires a reasonably long 'curing' period. Consequently, the percentage of raw material inventory to total current assets will be quite high compared to other items.

Similarly, companies using imported raw materials with long lead time tend to have a high proportion of raw material inventory. In the case of a capital goods manufacturing company the demand for whose product is growing over time the tendency will be to have high inventory of raw materials and components.

## **Process Technology Used**

In case the raw material has to go through several stages during the process of production, the work-in-process inventory is likely to be much higher than any other item of current assets.

## **Nature of Finished Goods**

The nature of finished goods greatly influences the amount of finished goods inventory. For example, if the finished goods have what is called a short span of 'shelf-life' as in the case of cigarettes the finished goods inventory will constitute a very low percentage of total current assets.

In the case of construction companies, which undertake work on a turnkey basis, as soon as the construction is completed the customer will take possession of it. Consequently the finished goods inventory will be virtually insignificant and the work-in-process inventory (rather work-in-progress) will be considerably high.

In the case of companies the demand for whose finished goods is seasonal in character, as in the case of fans, the inventory of finished goods will constitute a high percentage of total current assets. This is mainly because from the point of view of fixed costs to be incurred by the company it would be more economical to maintain optimum level production throughout the year than stepping up production operations during busy season.

In the case of reputed companies, manufacturing consumer goods that enjoy growing demand over the years, the finished goods inventory need not be high as sales demand can be forecast with a reasonable degree of accuracy. However, in such companies the raw material inventory tends to be high in view of the large variety of products to be manufactured.

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<sup>1</sup> The term net (operating) fixed assets consists only of net fixed assets that are being used for the normal business operations of a company and will not include capital work-in-progress as the latter cannot be used for the present operations of the company.

## Degree of Competition in the Market

When the degree of competition in the market for finished goods in an industry is high, then companies belonging to the industry may have to resort to an increased credit period to its customers, partially lowering credit standards and similar other practices to push their products. These practices are likely to result in a high proportion of accounts receivable.

## INTERDEPENDENCE AMONG COMPONENTS OF WORKING CAPITAL

Inter-dependence among the various components of working capital can be easily understood from figure 1 given below:

**Figure 1: Working Capital Cycle (Operating)**

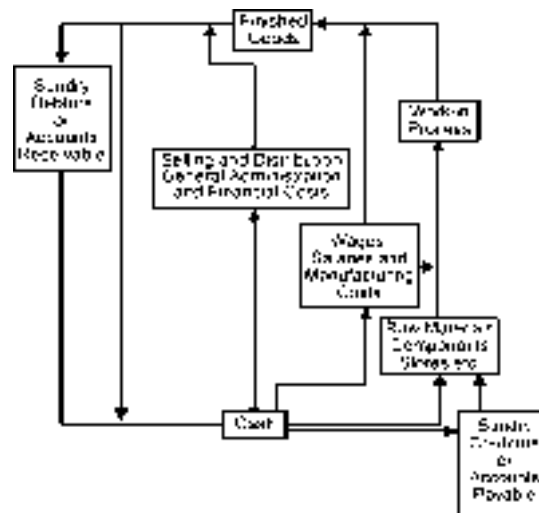


Figure 1 depicts the inter-dependence among the components of working capital. A company starting with cash purchases raw materials, components etc., on a cash or credit basis. These materials will be converted into finished goods after undergoing the stage of work-in-process. For this purpose the company has to make payments towards wages, salaries and other manufacturing costs. Payments to suppliers have to be made on purchase in the case of cash purchases and on the expiry of credit period in the case of credit purchases. Further, the company has to meet other operating costs such as selling and distribution costs, general, administrative costs and non-operating costs described as financial costs (interest on borrowed capital). In case the company sells its finished goods on a cash basis it will receive cash along with profit with least delay. When it sells goods on a credit basis, it will pass through one more stage, viz, accounts receivable and gets back cash along with profit on the expiry of credit period. Once again the cash will be used for the purchase of materials and/or payment to suppliers and the whole cycle termed as working capital or operating cycle repeats itself. This process indicates the dependence of each stage or component of working capital on its previous stage or component.

The dependence of one component of working capital on its previous stage/component is described above highlighting the inter-dependence among the components of working capital. However, there can be other kinds of inter-dependence which are not dictated by the usual sequence of manufacturing and selling operations. For example, in case the manufacturing process may require a raw material which is in short supply, the company may have to make advance payment in anticipation of the receipt of that raw material. This will cause immediate drain on cash resources unlike a situation where credit purchase of raw materials can be made. Similarly, if there is an excessive accumulation of finished goods inventory the company may have to provide more liberal credit period



and/or relax its existing credit standards which will increase sundry debtors. In situations of greater need for cash, even providing cash discount as part of credit-terms for sale which is likely to boost the cash resources, may have to be resorted to. In such cases, the relative benefits and costs may have to be taken into consideration before taking decisions.

### **Operating Cycle Approach to Working Capital Management**

What has been considered in figure 1 above as working capital cycle is more popularly known as the operating cycle. This title is more expressive in the sense that the normal business operations of a manufacturing and trading company start with cash, go through the successive segments of the operating cycle, viz, raw material storage period, conversion period, finished goods storage period and average collection period before getting back cash along with profit. The total duration of all the segments mentioned above is known as 'gross operating cycle period'. In case the company is placed in an advantageous position of being able to sell its products for cash then the segment of average collection period will disappear from the gross operating cycle period and to that extent the total duration of the cycle gets reduced. In case advance payments are to be made for procuring materials, the operating cycle period increases. The purchase of raw materials, components etc., are usually made on a credit basis, thereby giving rise to the spontaneous current liability, viz, accounts payable. When the average payment period of the company to its suppliers is deducted from the gross operating cycle period the resultant period is called net operating cycle period or simply 'operating cycle period'. It becomes obvious that shorter the duration of operating cycle period, faster will be the transformation of current assets into cash. The operating cycle approach is quite useful both in controlling and forecasting working capital. The step by step calculation of the different segments of operating cycle is presented below.

#### **RAW MATERIAL STORAGE PERIOD**

1. Annual consumption of raw materials, components etc.
2. Average daily consumption of raw materials, components etc. assuming an year of 360 days for convenience = (1) ÷ 360
3. Average stock of raw materials, components etc.

$$\frac{\text{Opening Stock} + \text{Closing Stock}}{2}$$

4. Raw material storage period = (3) ÷ (2) =  $n_1$  days.

#### **CONVERSION PERIOD**

1. Annual cost of production = Opening Stock of work-in process  
+ Consumption of raw materials etc  
+ Other manufacturing costs such as wages and salaries, power and fuel etc.  
+ Depreciation – Closing work-in process.

2. Average daily cost of production = (1) ÷ 360

3. Average Stock of Work-In Process =  $\frac{\text{Opening W.I.P.} + \text{Closing W.I.P}}{2}$

4. Average conversion period = (3) ÷ (2) =  $n_2$  days.

#### **FINISHED GOODS STORAGE PERIOD**

1. Annual cost of sales = Opening stock of finished goods + Cost of production  
+ Excise duty + Selling and distribution costs  
+ General administrative costs + Financial costs  
– Closing stock of finished goods.

2. Average daily cost of sales =  $(1) \div 360$
3. Average stock of finished goods =  $\frac{\text{Opening stock} + \text{Closing stock}}{2}$
4. Finished goods storage period =  $(3) \div (2) = n_3$  days.

**AVERAGE COLLECTION PERIOD**

1. Annual credit sales of the company.
2. Average daily credit sales =  $(1) \div 360$
3. Average balance of sundry debtors =  $\frac{\text{Opening balance} + \text{Closing balance}}{2}$
4. Average collection period =  $(3) \div (2) = n_4$  days

**AVERAGE PAYMENT PERIOD**

1. Annual credit purchases made by the company
2. Average daily credit purchases =  $(1) \div 360$
3. Average balance of sundry creditors =  $\frac{\text{Opening balance} + \text{Closing balance}}{2}$
4. Average payment period =  $(3) \div (2) = n_5$  days

From the above calculations, the gross operating cycle period is obtained as  $(n_1 + n_2 + n_3 + n_4)$  days where  $n_1$  denotes the raw material storage period,  $n_2$  denotes the period for conversion of raw materials into finished goods,  $n_3$  denotes the finished goods storage period and  $n_4$ , the average collection period; each of which is expressed in days. When the average payment period of  $n_5$  days is subtracted from the gross operating cycle period, as calculated above, the resultant figure provides the operating cycle period. When the operating cycle period is short it implies that the locking up of funds in current assets is for a relatively short duration and the company can obtain greater mileage from each rupee invested in current assets.

**Illustration 2**

The gross and net operating cycle periods for XYZ Industries Ltd. are calculated below, using the principles of calculation already developed, for the previous accounting year. The following assumptions are made for the calculation in respect of the data contained in the annual reports of the company.

- Manufacturing expenses have been selectively taken from total items given in the schedule which gives details of manufacturing, selling, distribution and administrative expenses.
- 'Wages and salaries' given under manufacturing costs are inclusive of wages and salaries to employees engaged in non-manufacturing functions also.
- 'Purchase' figures are obtained as the balancing item of the equation:
- $\text{Opening stock} + \text{Purchases} - \text{Closing stock} = \text{Consumption of 'materials'}$ , where all the items excepting purchases are obtained from the annual reports. In the absence of detailed information 'purchases' are assumed to have been made on a credit basis.
- In the absence of information in respect of categorization of sales into cash and credit components all sales are assumed to have been made on a credit basis.
- For the sake of convenience an year is assumed to have 360 days.

The data for the calculation of operating cycle are presented below:

**Data for the previous year**

Particulars	Amount (Rs. in lakh)
1. Opening Balance of	
a. Raw Materials, Stores and Spares, etc	3454.84
b. Work-in-Process	56.15
c. Finished Goods	637.92
d. Accounts Receivable	756.45
e. Accounts Payable	2504.18
2. Closing Balance of	
a. Raw Materials, Stores and Spares, etc.	4095.41
b. Work-in-Process	72.50
c. Finished Goods	1032.74
d. Accounts Receivable	1166.32
e. Accounts Payable	3087.47
3. Purchases of Raw Materials, Stores and Spares, etc.	10676.10
4. Manufacturing Expenses	1146.76
5. Depreciation	247.72
6. Customs and Excise duties	35025.56
7. Selling, Administration and Financial Expenses	4557.48
8. Sales	54210.65

The calculations of the different segments of the operating cycle for XYZ Industries are shown below:

**A. Raw Material Storage Period**

$$1. \text{ Average stock of Raw Materials} = \frac{3,454.84 + 4,095.41}{2} = 3,775.13$$

$$2. \text{ Annual Consumption of Raw Materials} \\ = \text{Opening Stock} + \text{Purchases} - \text{Closing Stock} \\ = 3,454.84 + 10,676.10 - 4,095.41 = 10,035.53$$

$$3. \text{ Average daily consumption of Raw Materials} = \frac{10,035.53}{360} = 27.88$$

$$4. \text{ Raw Material Storage Period} = \frac{3,775.13}{27.88} = 135 \text{ days}$$

**AVERAGE CONVERSION OR WORK-IN-PROCESS PERIOD**

$$1. \text{ Average Stock of Work-in-process} = \frac{56.15 + 72.50}{2} = 64.33$$

$$2. \text{ Annual cost of production} = \text{Opening work-in-process} \\ + \text{Consumption of materials} \\ + \text{Manufacturing Expenses} + \text{Depreciation} \\ - \text{Closing work-in-process} \\ = 56.15 + 10,035.53 + 1,146.76 + 247.72 - 72.50 \\ = 11,413.66$$

3. Average daily cost of production  

$$= \frac{11,413.66}{360} = 31.70$$
4. Average conversion period =  $\frac{64.33}{31.70} = 2$  days

**FINISHED GOODS STORAGE PERIOD**

1. Average inventory of finished goods  

$$= \frac{637.92 + 1,032.74}{2} = 835.33$$
2. Annual cost of sales = Opening stock of finished goods + Cost of production  
 + Selling, administration and financial expenses  
 + Customs and excise duties – Closing stock  
 of finished goods.  

$$= 637.92 + 11,413.66 + 4,557.48 + 35,025.56 - 1,032.74$$
  

$$= 50601.88$$
3. Average daily cost of sales  

$$= \frac{50,601.88}{360} = 140.56$$
4. Finished goods storage period  

$$= \frac{835.33}{140.56} = 6 \text{ days}$$

**AVERAGE COLLECTION PERIOD**

1. Average book debts  

$$= \frac{756.45 + 1,166.32}{2} = 961.38$$
2. Annual Sales = 54,210.65
3. Average daily Sales  

$$= \frac{54,210.65}{360} = 150.59$$
4. Average Collection Period  

$$= \frac{961.38}{150.59} = 6 \text{ days}$$

**AVERAGE PAYMENT PERIOD**

1. Average balance of trade creditors  

$$= \frac{2,504.18 + 3,087.47}{2} = 2,795.82$$
  2. Annual purchases = 10,676.10
  3. Average daily purchases  

$$= \frac{10,676.10}{360} = 29.66$$
  4. Average payment period  

$$= \frac{2,795.82}{29.66} = 94 \text{ days}$$
- Operating cycle period =  $135 + 2 + 6 + 6 - 94 = 55$  days

The number 135 against segment (A) can be interpreted as 135 days' worth of 'raw material consumption' is held, on the average, in the form of raw material inventory during the year. It may be noted that Raw Material storage period is the maximum compared to other segments. The greater raw material storage period has also increased the operating cycle.

The number 2 days against (B) indicates that 2 days' worth of 'cost of production' on the average is held in the form of work-in-process inventory reflecting efficiency in the management of work-in-process inventories.

The number 6 days against (C) represents 6 days' worth of cost of sales', has been held in the form of finished goods inventory on the average. Average collection period denotes that '6 days' worth of (credit) sales' are held, on an average in the form of finished goods inventory. This reflects high turnover of accounts receivable indicating efficiency in the management of receivables. XYZ has an average payment period of 94 days indicating that 94 days' worth of credit purchases' are held in the form of sundry credits. Although sundry creditors is a non-interest bearing current liability a reduction in the average payment period is likely to enhance the image of the company from its suppliers' point of view.

The end result of the calculations is reflected in the operating cycle whose duration is 55 days.

#### **APPLICATION OF THE OPERATING CYCLE**

As mentioned earlier, operating cycle approach proves quite useful as a technique for exercising control over working capital. Each segment of operating cycle can be compared with a pre-specific norm or with the corresponding figure in the previous accounting year or with the corresponding figure obtainable from the master budget of the company. Significant deviations call for closer scrutiny by the management who can seek the reasons for such occurrences. The deviations may have occurred due to a variety of reasons. For example, an increase in the average conversion period may have occurred due to shortage of an important raw material (in which case the purchase manager may be asked for an explanation), plant break-down (in which case the maintenance engineer may be asked for an explanation), a wild-cat strike by the workers (which calls for an explanation from the chief of personnel and industrial relations) etc. Once the reasons are known, remedial measures can be taken in respect of immediately controllable factors and the other factors may be accepted as constraints for the time being, pending long-term solutions. For example, frequent break-down of plant may call for replacement of certain sections and/or modernization which cannot be implemented immediately but can be implemented say in about a year. Towards the end of exercising better control, the operating cycle may be calculated on a quarterly basis and/or on a product group basis.

In the case of seasonal industries such as tea industry, two sets of operating cycles may be calculated – one for the busy season and the other for the slack season – for exercising better control. As inter-temporal comparisons for monitoring working capital efficiency for a company are likely to be affected by the inflation factor, necessary adjustments can be made by the application of appropriately chosen price-index. The comparisons made, after neutralizing the impact of inflation both on sales and working capital, are more likely to provide greater insight into the efficiency of working capital management across the years.

Another important area for the application of operating cycle approach lies in estimating the working capital requirement of a company to support the forecasted level of sales. Given the duration of various components of the operating cycle, the working capital needs can be estimated.

This may be illustrated with the help of an illustration.

**Illustration 3**

R.K. Ltd. plans to sell 1,00,000 units next year. The expected cost of goods sold is as follows:

Particulars	Unit Cost	Monthly Cost*
Raw Material Cost	Rs.50	Rs.4,00,000
Manufacturing Expenses	20	1,60,000
Selling, Administration, Financial Expenses	15	1,20,000
<b>Total</b>	<b>Rs.85</b>	<b>Rs.6,80,000</b>
The selling price per unit is expected to be Rs.100		

\* At a monthly sales level of 8,000.

The deviations at various stages of the operating cycle are expected to be as follows:

- Raw materials stage = 3 months
- Work-in-process stage = 1 month
- Finished goods stage = 1 month
- Debtors stage = 2 months

Based on this information, investment in various current assets can be calculated.

**Investment in Various Current Assets**

Input	Period (in months)	(Rs. in thousand)				
		Raw Materials	Work-in process	Finished Goods	Debtors	Total
<b>1. Raw Material</b>						
In Stock	3	1,200				
In W.I.P.	1		400			
In Finished goods	1			400		
In Debtors	2				800	
						2,800
<b>2. Manufacturing Expenses</b>						
In W.I.P.	½@	–	80			
In Finished Goods	1			160		
In Debtors	2				320	
						560
<b>3. Selling, Administration and Financial Expenses</b>						
In Finished Goods	1	–	–	120		
In Debtors	2				240	
						360
<b>4. Profit</b>						
In Debtors	2	–	–	–	240	
						240
<b>Total</b>		<b>1,200</b>	<b>480</b>	<b>680</b>	<b>1,600</b>	<b>3,960</b>

@ Manufacturing expenses are expected to occur evenly. The work-in-process stage lasts for one month. Hence, on an average, the manufacturing expense component in work-in-process value will be equal to half month's manufacturing expenses.

The total investment in various assets works out to Rs.3,960 lakh. To this sum a desired cash balance may be added to get an estimate of working capital needs.

## **CRITERIA FOR EVALUATION OF WORKING CAPITAL MANAGEMENT**

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In the first Section we have considered working capital in two ways. First, when working capital is viewed as the difference between 'current assets' and 'current liabilities' the basic objective of working capital appears to be one of providing adequate cover to meet the current obligations of a company as and when they become due. This approach lays greater emphasis on the 'liquidity' aspect of working capital. Second, when working capital is looked upon as the amount held in different forms of current assets to provide adequate support to the smooth functioning of the normal business operations of a company the objective becomes one of deciding on the trade-off between liquidity and profitability. While developing suitable criteria for the evaluation of working capital management we shall bear in mind both the approaches to working capital.

The following criteria may be adopted for evaluating the working capital management of a company:

### **Liquidity**

By and large, the current assets of a company are considered to be more liquid than fixed assets. Even among the current assets, some items are considered to be much more liquid than others. In a descending order of liquidity, the current asset items can be stated as cash and bank balances, marketable securities, sundry debtors, raw material inventory, finished goods inventory and work-in-process inventory. But, of these items, inventories are considered to be less liquid as they have to pass through the different stages of the operating cycle before becoming accounts receivable and eventually back to cash. The ultimate test of liquidity is the ability of a company to meet its current obligations.

Although accounts receivables are generally considered to be liquid, the degree of liquidity depends upon the paying habits of customers and the collection efforts made by the company. So the degree of liquidity of current assets both in its qualitative and quantitative aspects has to be assessed. Consequently, the efficiency of working capital management can be regarded as the ability of a company to have adequate liquidity in its current assets so that it can honor its financial obligations without creating embarrassment of 'technical insolvency'. The criterion of liquidity can be quantitatively assessed by means of ratios to be discussed in subsequent paragraphs.

### **Availability of Cash**

Even the most profitable companies may have faced at sometime or the other problems of cash shortage. In seasonal industries it is much more common to pass through bouts of cash shortage while in other cases it can happen because of mismatching of cash inflows and cash outflows. As a result companies keep some minimum cash balance. It should be noted that the larger the proportion of current assets held in the form of cash and bank balances, the liquidity position of the company improves but at the cost of sacrificing profitability as idle cash fetches no return. However, the great uncertainty surrounding future cash flows, lack of synchronization between cash inflows and cash outflows, the liquidity mix in terms of cash and bank balances and marketable securities, the attitude of management towards risk are some of the important factors that are likely to influence the proportion of cash in the total current assets of a company. This aspect will also be considered as part of the ratio analysis for the evaluation of the working capital management of a company.

### **Inventory Turnover**

Any type of inventory will represent the amount of cash locked up and the amount of carrying costs, which can be as high as 25 percent of the value of inventory, associated with inventory. Too high a level of inventory and too low a level of inventory are not conducive to the financial health of a company as the former can create problems of liquidity while the latter can affect profitability due to stoppage of work for want of raw materials and/or loss of a customer for want of finished

goods in the inventory in adequate quantity. The application of inventory theoretic models will help mitigate the problem but the utility of these models will eventually depend on the attitude of management towards risk. Thus risk-return trade-off is inevitable. However, turnover of inventory can be useful for comparisons across time, across companies belonging to the same industry or against norms stipulated by banks or by the company's budgeting system.

### **Credit Extended to Customers**

In a competitive market environment, the output of a company is usually sold on credit basis. Credit sales has got many dimensions. Indiscriminate sale of output without reckoning with the credit standards may result in higher volume of sales, larger amount of cash locked up in the form of receivables and higher incidence of bad debt losses. By following high credit standards, the company's sales volume may get adversely affected.

It is therefore, necessary to ensure whether reasonable credit is provided to customers as part of the evaluation of working capital management. This can be quantified in the form of turnover of receivables or average collection period.

### **Credit Obtained from Suppliers**

Just as a company extends credit to its customers it would also obtain credit from its suppliers in most cases. Working capital management should provide adequate flexibility to the purchase department so that they can shop around and obtain better terms for procurement of supplies. Further, regular payment habit on the part of the company can instill confidence in the minds of the suppliers. This can be quantified by the average payment period.

### **Under-Trading and Over-Trading**

Before considering precautionary measures against under-trading and over-trading, let us first understand the meaning of these two terms, their financial implications and the precautionary measures to be taken.

#### **UNDER-TRADING**

A situation of under-trading arises in a company when the volume of sales is much less than the amount of assets employed. This becomes apparent when the performance of the company is compared against similar companies. Under-trading also indicates that funds of the company are locked up in current assets resulting in a lower turnover of working capital. Another way of stating under-trading is that a company is over capitalized compared to the volume of sales. As this would result in lower turnover, the company has to take precautionary measures such as altering capital structure so that the debt-equity ratio comes down, hastening the collection process, reducing the levels of inventory to reasonable levels compared to the sales forecast and production plans. Unless these measures are taken, the rate of return on equity is likely to come down as a result of which the market price of the company can be adversely affected.

#### **OVER-TRADING**

Over-trading is a situation which is the opposite of under-trading. The symptoms of over-trading can be noticed from the disproportionately high turnover of assets compared to the volume of sales. In the context of working capital over-trading can be noticed from high turnover of current assets compared to similar companies. While increase in the turnover of current assets is generally considered to be a virtue, disproportionately high turnover is indicative of less amount of cash invested in current assets which can create problems of liquidity at the time of making payments for current obligations. The problem of over-trading can be restated as one of under capitalization.



Precautionary measures for over-trading can be taken by initially reducing the sales to a level commensurate with the amount of assets and a final solution lies in increasing the asset base through additional finances raised through the issuance of shares and/or obtaining loan funds.

Unless a company takes precautionary measures once it observes symptoms of over or under-trading, it may run into serious working capital problems as outlined above.

### **Profit Criterion for Working Capital**

When we analyze whether to make an investment or not, we check whether the proposed investment will have a positive Net Present Value (NPV)<sup>2</sup>. The NPV of a proposed investment is calculated by deducting the present value of the outflows from the present value of the inflows. Investment in working capital should also be evaluated on the same lines. Yet, there is a significant difference between other types of investments and investment in current assets. Investment in current assets is generally completely realizable at the time of liquidation.

For these types of investments, the profit per period criterion is equivalent to the NPV criterion.

The profit per year on current assets would be:

$$P_r - P_k$$

Where

$P_r$  = return for the year

$P_k$  = cost of funds for the year.

The net present value, assuming that the investment in the current asset continues for  $n$  years will be

$$NPV = -P + P_r (PVIFA_{k,n}) + P (PVIF_{k,n})$$

On putting the values of PVIFA and PVIF in the formula and solving further, we get

$$NPV = (P_r - P_k) \left[ \frac{(1+k)^n - 1}{k(1+k)^n} \right]$$

Since the NPV criteria is a multiple of the profit per period criteria, they can be taken as equivalent. Hence, for the purpose of evaluating investment in working capital, the profit-per-period criteria can be used.

### **IMPORTANT WORKING CAPITAL RATIOS**

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Despite the usual limitations associated with ratios, ratio analysis is still popular among financial analysts. This is mainly attributable to the simplicity in calculation and indication of the direction in which further probing is necessary. We shall briefly outline below some of important ratios that can be used for gauging the efficiency of working capital management.

#### **Current Ratio**

This is the ratio of 'current assets' to 'current liabilities'. In a broad sense, the value of current ratio indicates the ability of a company to meet its current liabilities. A minimum current ratio of 1.33 has been recommended by the Tandon Committee and the same is followed by commercial banks.

Net working capital is regarded as the difference between 'current assets' and 'current liabilities', while current ratio is the amount of 'current assets' divided by the amount of 'current liabilities'. As a result the current ratio value of less than unity implies that net working capital is negative for the company. This is not a healthy sign as it amounts to a diversion of short-term funds for long-term purposes.

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<sup>2</sup> Note: For details of NPV calculation, refer to the chapter on 'Capital Expenditure Decisions'.

## Quick Ratio

This ratio is calculated by considering quick assets ('current assets' – inventories) in the numerator and current liabilities in the denominator. As inventories are farther placed in the liquidity hierarchy of current assets these are not considered. Quick ratio is supposed to provide a better measure of the liquidity position of a company in meeting its current liabilities. A caution is needed here that sundry debtors that are slow moving may not be readily convertible into cash and, therefore, one cannot draw immediate inference as to the liquidity position of a company by the magnitude of quick ratio.

## Cash to Current Assets

As cash on hand and at bank is the most liquid form of all the current assets the ratio of cash to current assets will indicate the liquidity position of a company much better than the earlier ratios. While a high ratio is indicative of better liquidity the opportunity loss sustained by the company by keeping a large amount of idle cash should also be taken note of.

## Sales to Cash

This indicates the turnover of cash, the higher the turnover the better it is from the company's point of view. However, for a given level of sales, the higher turnover of cash can also indicate that the cash balance is less. Only by considering the turnover for a few years, one can draw meaningful conclusions as to the liquidity position of the company, as the relationship between cash balance and sales is not quite direct and easily comprehensible.

## Average Collection Period

As this is discussed in detail in the chapter on Receivables Management it will not be repeated here. However, a few observations on it are relevant here. Average collection period can be compared with the credit period stipulated by the company. If the average collection period is found to be consistently higher than the net credit period extended by the company to its customers, then the collection effort has to be made more effective as cash is locked up for a period more than what is warranted by the credit terms extended.

## Inventory Turnover Ratio

In the literature one comes across two definitions for inventory turnover ratio. The first one is to calculate the ratio of average sales to inventory. This ratio suffers from one shortcoming. While the numerator i.e., sales includes profit, the denominator by the very definition of inventory, cannot include profit. Consequently, this ratio's importance is considerably reduced.

An alternative definition calls for the calculation of cost of goods sold to average inventory. As both the numerator and denominator are devoid of profit element, this ratio is much more consistent than the earlier one.

By and large, the higher the turnover of inventory, the better it is from the point of view of efficiency in working capital management. However, caution is needed as very high turnover may be indicative of over-trading. This can be verified by comparing the ratio with that of the average for the industry or with that of the competitor company.

## Working Capital to Sales

This ratio indicates the reciprocal of the popular ratio of working capital turnover. Working capital turnover is the ratio of sales to working capital and indicates how many times working capital has turned over during the year. Higher the turnover, the better it is for the company. Given the profit margin, sales and net fixed assets, the larger the turnover the higher will be the rate of return on net operating capital employed. Very low and very high turnover values will call for a closer look as

they may be indicative of the symptoms of under-trading and over-trading respectively in its incipient stage. Precautionary measures can be initiated before the situation gets worsened. Similar arguments and comments (in the opposite way) will hold good in the case of working capital to sales ratio which is the reciprocal of working capital turnover.

While we have discussed some of the criteria for evaluating working capital management, certain aspects of management of working capital need more specific attention *viz.*, Inventory Management, Receivables Management and Cash Management. These have been covered under separate chapters. How a company decides to finance its current assets is also an important aspect of working capital management which we will study in the next chapter.

## **SUMMARY**

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- Financial statement analysis involves the application of analytical tools and techniques to financial data to get information that is useful in decision-making. As we have observed, the foundation of any good analysis is a thorough understanding of the objectives to be achieved and the uses to which it is going to be put. Such understanding leads to economy of effort as well as to a useful and most relevant focus on the points that need to be clarified and the estimates and projections that are required.
- So, to begin with, financial statement analysis is oriented towards the achievement of definite objectives. Importantly there are three types of users to whom the financial statement analysis could be very useful. They are short-term lenders, long-term lenders and stockholders. Having defined the objectives, the next step is to decide the tools of analysis. An important tool – Ratio Analysis is covered extensively in this chapter. Other tools covered are Comparative analysis and Du Pont analysis.
- The analysis of a ratio gives the relationship between two variables at a point of time and over a period of time. There are three kinds of ratios and they are liquidity ratio, profitability ratio and ownership ratio. Liquidity ratios measure the short-term liquidity of the firm with the help of ratios like current ratio, quick ratio and turnover ratios. Profitability ratios measure the operational efficiency of the firm. They give the details of how efficient the firm is in applying its resources to get the maximum returns. Ownership ratios help the present or future stockholder in assessing the value of his investment. Earning ratios, leverage ratios (capital structure and coverage ratios) and dividend ratios fall into the category of ownership ratios. Leverage ratios measure the long-term solvency of the firm. They are further divided into capital structure ratios and coverage ratios.
- Du Pont analysis divides a particular ratio into its components and studies the effect of each and every component on the ratio. Comparative analysis gives an idea as to where a firm stands across the industry and studies its financial trends over a period of time.
- The final step in analysis is the interpretation of the data and measures assembled as a basis for decision and action. This is the most important and difficult of the steps, and requires application of a great deal of judgments, skill, and effort.
- Though there are limitations for financial statement analysis, it is the only means by which the financial realities of an enterprise can be reduced to a common denominator that is quantified and that can be mathematically manipulated and projected in a rational and disciplined way.

## **Lesson 2**

# **Financing Current Assets**

**After reading this lesson, you will be conversant with:**

- Behavior of Current Assets and Pattern of Financing
- Spontaneous Sources of Finance
- Trade Credit
- Short-term Bank Finance
- Public Deposits for Financing Current Assets
- Commercial Paper and Factoring
- Regulation of Bank Credit: Reports of Various Committees

## BEHAVIOR OF CURRENT ASSETS AND PATTERN OF FINANCING

At any point of time a manufacturing company will have some minimum level of current assets. This level is largely influenced by the operating cycle period of the company concerned and the policy of management to provide some degree of flexibility to the production and sales functions of the company. The minimum level of current assets maintained by a company is more in the nature of fixed assets and, therefore, can be regarded as 'permanent or fixed component' of current assets. For example, cash, receivables and inventory required to carry on the operations without any break.

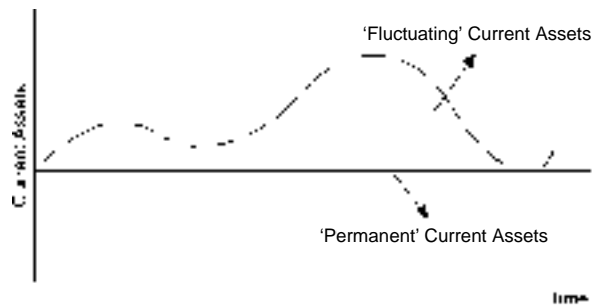
### Fluctuating Component of Current Assets

Over and above the minimum level, the current assets of a company vary depending upon the level of activity or operations. For example, a higher level of finished goods inventory will enable the company to cope with the busy period demand for its product. Further, the level of Accounts Receivables will also tend to increase as a result of the increased level of sales. Thus, the level of current assets associated with the tempo of business activity can be regarded as the 'fluctuating or temporary component' of current assets. This component is likely to be more pronounced in seasonal industries where either the demand for output or the supply of the important input is seasonal in nature. Woollen garment-making companies are characterized by seasonal demand for output while sugar manufacturing companies are characterized by the seasonal nature in the supply of the important input, viz., sugarcane.

### The Behavior of Current Assets

The level of current assets of a company can be looked upon as the permanent component of current assets superimposed by the fluctuating component. As the behavior of current assets in terms of fixed and fluctuating components has an important bearing on the pattern of financing to be normally adopted, the level of current assets over time (which can be restricted to a single accounting year) is depicted in figure 1 below.

Figure 1: Behavior of Current Assets



As can be seen from figure 1, the 'permanent component' of current assets is more in the nature of a fixed asset than of a current asset. However, this analogy cannot be stretched too far. The so called permanent current assets will go through the different stages of the operating cycle but are not locked-up permanently as in the case of fixed assets. However, the current assets released will be replaced thereby giving the appearance of 'permanency'. Consequently, the permanent component needs to be financed from the long-term sources of finance available to a company such as internal accruals, ordinary shares, preference shares, debentures and to some extent term loans. The 'temporary or fluctuating component' can be financed from short-term sources such as accounts payables or trade credit, short-term bank borrowings and public deposits. Although public deposits have a maturity period of two or three years they cannot be strictly considered as short-term source or a current liability. These have been included here keeping in view their end use.

From the above discussion, it is apparent that the 'behavior' of current assets influences in a broad sense the pattern of financing to be adopted by a company. Further, it lays down the logical foundation for the insistence of commercial banks (as per Tandon Committee recommendations to be discussed later in this chapter) that companies should place greater reliance on long-term sources towards financing current assets. It is also clear from the discussion that long-term sources should be used for financing fixed assets and part of the current assets (preferably the permanent component).

## **SPONTANEOUS SOURCES OF FINANCING CURRENT ASSETS**

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During the normal course of business operations, a company will usually have ready access to certain sources for financing its current assets to some extent. As these sources emerge in the normal course of business these are referred to as 'spontaneous' sources. These include accrued expenses, provisions and trade credit. As trade credit is one of the very important sources of finance. It merits a detailed discussion in its own right. It is taken up in the following section while the other two sources are considered below.

### **Accrued Expenses**

These are basically liabilities covering expenses incurred on and prior to a specified date, payable at some future date. Typical examples of accrued expenses are accrued wages and salaries. In case, a company decides to make payment of wages on a monthly basis instead of weekly basis (assuming trade unions accept the policy change without demur) the amount of accrued wages will increase and the drain on cash resources is deferred by three weeks. It should be noted that 'accrued expenses' constitute a small fraction of current liabilities and its usefulness as a source of financing current assets is very much limited.

### **Provisions**

These are basically charges for an estimated expense. Typical examples are provision for dividends, provision for taxes and provision for payment of bonus. Provisions also do not call for immediate cash drain. The drain on cash resources occurs when the actual amount of liability is known and paid for. The usefulness of 'provisions' as a source of financing current assets is very much limited.

## **TRADE CREDIT**

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Trade credit or accounts payables or sundry creditors is a very important spontaneous source for financing current assets. On an average, trade credit accounts for about 40 percent of current liabilities.

Trade credit has two important facets. The first one is to instill confidence in suppliers by maintaining good relations supported by prompt payment. This will enable a company to obtain trade credit. It may not be out of place here to mention that some of the reputed companies tend to stretch payment to their suppliers. In one instance involving an automobile manufacturing company, one of the supplying companies stopped supplies because of unduly delayed payments. This aspect needs a little elaboration. The second facet of trade credit relates to the cost of trade credit when suppliers provide an incentive in the form of cash discount for prompt payment. These two aspects are briefly discussed below.

## **Obtaining Trade Credit**

Just as a company decides whether it should offer the facility of credit sales to its customers, which is discussed in the chapter on the management of receivables, the companies supplying materials will also consider whether or not to extend credit sales to its customers. In order to obtain trade credit from its suppliers, a company has to prove its creditworthiness.

This can be achieved by tackling the problem both quantitatively and qualitatively. The quantitative measures are outlined below:

- Good track record of profitability and liquidity. Profitability measures include return on investment, return on equity, earnings per share and dividends per share. Measures of liquidity include current ratio, quick ratio, average collection period and other liquidity ratios covered in chapter 6. As these measures have already been discussed in earlier chapters, no elaboration is made here.
- A record of prompt payment by the company to other suppliers will not only help in projecting a good image but also instill confidence in the potential suppliers as they get the information through the usual grapevine.

The qualitative measures are outlined below:

- Even in the case of companies which are profitable and reasonably well managed, external factors such as recession, wild cat strike by workers, etc., can impair its ability to pay promptly to its suppliers. In such situations, a free and frank discussion with the suppliers can go a long way in establishing the company's credibility.
- Once the suppliers are satisfied, the company can negotiate for payments to synchronize with the company's cash inflows. The arrangement will help reduce idle cash balances of the company.

Trade credit helps in paying at the end of the credit period for supplies received now and prevents immediate cash drain.

## **Cost of Trade Credit**

Whenever a company purchases materials on credit basis the supplier stipulates the credit terms. If the credit period allowed is, say, net 30 days then the company can pay on the 30th day for the purchases made now. By paying earlier than the stipulated 30 day period the company is not going to gain anything. It is therefore, advisable to defer payment till the last day of the credit period. The question may arise whether trade credit under the terms net 30 days is cost-free or not. In so far as explicit cost is concerned, it can be regarded as cost-free. However, once we recognize the fact that the drain on the cash resources of the company is deferred by one month, then the amount of cash equal to the purchase value of materials can be utilized to earn some rate of return either by investing in short-term securities of equivalent maturity period or by crediting the same to its cash credit/over draft account thereby reducing the incidence of interest to some extent. This can be regarded as the opportunity gain associated with the prevention of cash drain for one month.

When suppliers offer credit terms such as 2/15, Net 30, there is a cost implicitly associated for not availing oneself of the cash discount of 2 percent offered for payment made on or before the 15th day of sale. As payment made beyond the 15th day but on the 30th day will not entitle the company for cash discount there is an implicit cost associated with 'buying' time for 15 days for not making payment. The implicit cost can be calculated as:

By not availing the cash discount the company is losing at the rate of  $2/98 \times 100$  or 2.041 percent for gaining 15-day period for payment. The implicit cost is thus

$$\frac{2.041 \times 360 \text{ days}}{15 \text{ days}} = 48.98 \text{ percent, which is quite high.}$$

The above calculation can be summarized into a simple formula as shown below:

$$\frac{\text{Rate of discount}}{1 - \text{Rate of discount}} \times \frac{\text{Number of days in a year}}{(\text{Credit period} - \text{Discount period})}$$

In the above illustration, the implicit cost of not availing oneself of discount can be obtained as

$$\frac{0.02}{(1 - 0.02)} \times \frac{360}{(30 - 15)} = 48.98 \text{ percent.}$$

The cost of trade credit under different credit terms is presented below with a view to drawing broad conclusions on the relationship between the cost of trade credit and credit terms.

Credit Terms	Cost of Trade Credit
2/10, Net 30	36.72 percent
2/10, Net 45	20.99 percent
2/10, Net 60	14.69 percent
1/10, Net 30	18.18 percent
1/10, Net 45	10.39 percent
1/10, Net 60	7.27 percent
2/15, Net 30	48.98 percent
1/15, Net 30	24.24 percent

From the above calculations, we can make the following observations, all other factors under credit terms remaining the same.

- The higher the discount rate offered, the higher will be the cost of trade credit. This can be seen by comparing the cost of trade credit under the terms 2/10, Net 30 and 1/10, Net 30. By the same token the smaller the discount rate offered, the lower will be the cost of trade credit.
- The smaller the spread between credit and cash discount periods, the higher will be the cost of trade credit. This can be noticed, for example, by comparing the cost of trade credit under the terms 2/10, Net 30 and 2/15, Net 30. By the same token, the larger the spread between credit and cash discount periods, the lower will be the cost of trade credit.

On the basis of the above observations, the following aspects may be considered before taking policy decisions in respect of availing oneself of or foregoing cash discounts offered by suppliers to a company.

### **Cost of Trade Credit vs. Opportunity Cost of Cash**

First, the usual credit terms offered by suppliers give rise to a high cost of trade credit. This will inevitably result in a decision to avail oneself of cash discount. However, it is preferable to calculate the implicit cost of trade credit and compare the same with the opportunity cost of cash. A decision to avail oneself of cash discount can be taken only when the cost of trade credit exceeds the opportunity cost of cash. For example, the cost of trade credit associated with the credit terms 1/10, Net 60 and, 1/10, Net 45 are only 7.27 percent and 10.39 percent respectively. In such situations, foregoing cash discounts is likely to be more advantageous from the company's point of view as the opportunity cost of cash can be much higher.

### **Flexibility to Cash**

Secondly, if a company could not avail itself of the cash discount facility during the stipulated time period, for some reason or the other, it is more advantageous to pay the amount only on the date of expiry of the credit period. This strategy provides greater flexibility to cash without incurring any additional cost as payments made after the discount period but before the credit period will not result in any financial gain to the company.



## Image of the Company

Thirdly, if delaying payment even beyond the stipulated credit period is not likely to impair the creditworthiness of a company this possibility can also be explored and utilized. However, frequent delays in payment beyond the normal credit period can adversely affect the company's image in the long run. Therefore, this course of action can be followed only when there are compelling reasons for delayed payment.

## **SHORT-TERM BANK FINANCE**

Traditionally, bank finance is an important source for financing the current assets of a company. Bank finance is available in different forms. Bankers are guided by the creditworthiness of the customer, the form of security offered and the margin requirement on the assets provided as security. These aspects will be discussed below.

Bank finance may be either direct or indirect. Under direct financing the bank not only provides the finance but also bears the risk. Cash credit, overdraft, note lending, purchase/discounting of bills belong to the category of direct financing. When the bank opens a Letter of Credit in favor of a customer, the bank assumes only the risk of default by the customer and the finance is provided by a third party. Both direct and indirect forms of finance are briefly outlined below.

### Cash Credit

Under the cash credit arrangement, the customer is permitted to borrow up to a pre-fixed limit called the cash credit limit. The customer is charged interest only on the amount actually utilized, subject to some minimum service charge or maintaining some minimum balance also known as compensatory balance in the cash credit account. The security offered by the customer is in the nature of hypothecation or pledge to be discussed later in this chapter under the head security. As per the banking regulations, the margins are specified on different types of assets provided as security. From the operational view point, the amount that can be borrowed at any time is the minimum of the sanctioned limit and the value/asset as reduced by the required margin. A simple illustration is given below for better understanding.

(Rs. in lakh)

	Situation A	Situation B
1. Sanctioned Limit	2	2
2. Value of Security	2	3
3. Margin Requirement	20%	20%
	(0.40)	(0.60)
4. Value of Security Less Margin:	1.6	2.4
5. Drawing Power = (Minimum of 1 and 4)	1.6	2

### Overdraft

Overdraft arrangement is similar to the cash credit arrangement described above. Under the overdraft arrangement, the customer is permitted to overdraw upto a pre-fixed limit. Interest is charged on the amount(s) overdrawn subject to some minimum charge as in the case of cash credit arrangement. The drawing power is also determined as in the case of cash credit arrangement. Both cash credit and overdraft accounts are running accounts and are frequently treated synonymously. However, there is a minor technical difference between these two arrangements. Cash credit account operates against security of inventory and accounts receivables in the form of hypothecation/pledge. Overdraft account operates against security in the form of pledge of shares and securities, assignment of life insurance policies and sometimes even mortgage of fixed assets. While advances provided by banks in the form of cash credit or overdraft are technically repayable on demand, in actual practice it never happens.

As a matter of fact, the chief executive of a nationalized bank remarked that the so called overdraft is more permanent than term loans sanctioned by financial institutions like IDBI as the latter are repaid while cash credit/overdraft is only re-negotiated for a further period referred to in common parlance as the “roll over phenomenon”. This is peculiar to the Indian market.

### **Purchasing/Discounting of Bills**

With a view to reduce reliance on cash credit/overdraft arrangement as also to create a market for bills which can be purchased by banks with surplus funds and sold by banks with shortage of funds the Reserve Bank of India has been trying hard for nearly two decades for the creation of an active bill market but with very limited success.

Under this arrangement, the bank provides finance to the customer either by outright purchasing or discounting the bills arising out of sale of finished goods. Obviously, the bank will not pay the full amount but provides credit after deducting its charges. To be on the safe side the banker will scrutinize the authenticity of the bill and the creditworthiness of the concerned organization besides covering the amount under the cash credit/overdraft limit.

Unlike open credit sale of goods which gives rise to accounts receivables, the bill system specifies the date by which the purchaser of goods has to make payment. Thus, the buyer is time-bound in his payment under this system which did not find much favor with many buyers. This is the real reason besides stamp duties etc., for the limited success of the bill market scheme.

### **Letter of Credit**

Letter of credit is opened by a bank in favor of its customer undertaking the responsibility to pay the supplier (or the supplier’s bank) in case its customer fails to make payment for the goods purchased from the supplier within the stipulated time. Letter of credit arrangement is becoming more and more popular both in the domestic and foreign markets. Unlike in other types of finance where the arrangement is between the customer and bank and the bank assumes the risk of non-payment and also provides finance, under the letter of credit arrangement the bank assumes the risk while the supplier provides the credit.

### **Security**

As mentioned earlier, before taking a decision to provide financial assistance to a company the bank will consider the creditworthiness of the company and the nature of security offered. For providing accommodation towards financing the current assets of a company, the bank will ask for security in the form of hypothecation and/or pledge.

### **Hypothecation**

By and large, security in the form of hypothecation is limited to movable property like inventories. Under hypothecation agreement, the goods hypothecated will be in the possession of the borrower. The borrower is under obligation to prominently display that the items are hypothecated to such and such a bank. In the case of limited companies, the hypothecation charge is required to be registered with the Registrar of Companies of the state where the registered office of the company is located.

## **Pledge**

Unlike in the case of hypothecation, in a pledge, the goods/documents in the form of share certificates, book debts, insurance policies, etc., which are provided as security will be in the possession of the bank lending funds but not with the borrowing company. Thus possession of items of security, distinguishes pledge from hypothecation. In the event of default by the borrowing company either under hypothecation or pledge, the lender can sue the company that has borrowed funds and sell the items of security to realize the amount due.

## **PUBLIC DEPOSITS FOR FINANCING CURRENT ASSETS**

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Regulations imposed on the availability of bank finance have induced many companies to explore alternative sources for financing their current assets. Mobilization of funds from general public, especially from the middle and upper middle class people, by offering reasonably attractive rates of interest has become an important source. The deposits thus mobilized from public by non-financial manufacturing companies are popularly known as 'Public Deposits' or 'Fixed deposits'. These are governed by the regulations of public deposits under the Companies (Acceptance of Deposits) Amendment Rules, 1978. Let us consider the salient features of public deposits from the legal point of view and later as a source of finance from the viewpoint of the company mobilizing such deposits.

### **Salient Features of 'Public Deposits'**

- A company cannot raise more than 10 percent of its 'paid-up share capital' and 'free-reserves'. However, for the purpose of calculating the maximum amount a company can raise from public, the treatment accorded to reserves is in favor of the company. For illustration, 'capital redemption reserve' is treated as part of free reserves and 'share premium account' is treated as part of paid-up share capital. This will allow a company to raise more money even within the 10 percent limit. Government companies can accept deposits up to 35% of their paid-up share capital and free reserves.
- The maximum maturity period allowed for public deposits is three years while the minimum permitted maturity period is six months. In certain cases, a maturity period of even three months also is allowed. By and large companies invite public deposits with maturity periods of 1, 2 and 3 years.
- A company inviting deposits from the public is required to issue an advertisement disclosing the following details and the same has to be filed with the Registrar of Companies before releasing it to the press. The details contained in the advertisement are:
  - Name of the company.
  - Date of incorporation.
  - Business carried out by the company and its subsidiary with the registered office and details of branches and units, if any.
  - Particulars of the management and board of directors indicating the names, addresses and occupations.
  - Profits and dividends of the company over the preceding three consecutive years.
  - Summarized financial position of the company as appearing in the two latest audited balance sheets along with brief particulars of contingent liabilities.
  - Declaration in respect of compliance with the provisions of Companies (acceptance of deposits) Rules as amended up-to-date; that the deposits to be accepted by the company are of unsecured nature and as such rank pari passu with other unsecured loans of the company; that compliance with rules does not imply repayment of deposits is guaranteed by the Central Government.

## Evaluation of Public Deposits from the Company's Point of View

From the point of view of the company, public deposits are quite advantageous for the following reasons:

- The procedure involved in raising public deposits is fairly simple, as it does not involve underwriting and related issue expenses are minimal.
- No security is offered in the case of public deposits while security in the form of hypothecation/pledge is necessary for procuring bank finance and mortgage of assets in the case of long-term debt. Thus, the unencumbered assets can be used in raising further funds from banks/financial institutions.
- The after-tax cost of public deposits will be much less than the after-tax cost of bank borrowing.
- As public deposits with maturity periods of two and three years cannot be regarded as current liabilities, the calculation of 'working capital gap' by the bankers to provide short-term finance is likely to be favorable from the company's point of view.
- Unlike term loans/bank finance, public deposits will not have restrictive covenants in respect of dividend payments, appointment of senior executives etc.
- Despite the advantages associated with public deposits outlined above, there are certain limitations which have to be recognized.
- The scope for mobilization of public deposits is somewhat limited.
- With the maximum maturity period being limited to three years, debt servicing may become difficult.
- If there is a grain of truth in the allegations made in one of the reputed business magazines that some well reputed companies failed to honor their commitments in the repayment of public deposits, the middle class people may not be forthcoming to invest their hard earned savings in public deposits of companies. This has two repercussions. First, a very useful source for financing the current assets of a company may dry up. Secondly, the Reserve Bank of India cannot afford to turn a blind eye to the malpractices/abuse of public funds and may come up with greater restrictions.

Considering both pros and cons, it is obvious that the public deposits are quite advantageous from the point of view of a company.

## COMMERCIAL PAPER AND FACTORING

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Commercial Papers (CPs) are short-term usance promissory notes with a fixed maturity period, issued mostly by leading, reputed, well-established, large corporations who have a very high credit rating. It can be issued by body corporates whether financial companies or non-financial companies. Hence, it is also referred to as Corporate Paper.

CPs are mostly used to finance current transactions of a company and to meet its seasonal need for funds. They are rarely used to finance the fixed assets or the permanent portion of working capital. The rise and popularity of CPs in other countries like USA, UK, France, Canada and Australia, has been attributed to the limitations and difficulties they experienced in obtaining funds from banks.

Factoring is a "continuing" arrangement between a financial intermediary called a "Factor" and a "Seller" (also called a client) of goods or services. Based on the type of factoring, the factor performs the following services in respect of the Accounts Receivables arising from the sale of such goods or services.

- Purchases all accounts receivables of the seller for immediate cash.
- Administers the sales ledger of the seller.
- Collects the accounts receivable.
- Assumes the losses which may arise from bad debts.
- Provides relevant advisory services to the seller.

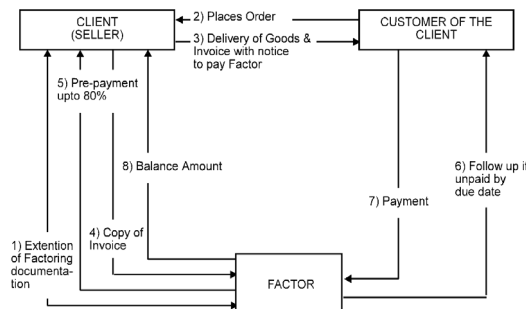
Factors are usually subsidiaries of banks or private financial companies. It is to be noted that factoring is a continuous arrangement and not related to a specific transaction. This means that the factor handles all the receivables arising out of the credit sales of the seller company and not just some specific bills or invoices as is done in a bills discounting agreement.

### Mechanics of Factoring

The factoring arrangement starts when the seller (client) concludes an agreement with the factor, wherein the limits, charges and other terms and conditions are mutually agreed upon. From then onwards, the client will pass on all credit sales to the factor. When the customer places the order, and the goods along with invoices are delivered by the client to the customer, the client sells the customers account to the factor and also informs the customer that payment has to be made to the factor. A copy of the invoice is also sent to the factor. The factor purchases the invoices and makes prepayment, generally up to 80% of the invoice amount. (Just as in the case of cash credit, for factoring also, a “drawing power” is fixed based on a margin which is normally around 20%. The client is free to withdraw funds up to the drawing power). The factor sends monthly statements showing outstanding balances to the customer, copies of which are also sent to the client. The factor also carries follow-up if the customer does not pay by the due date. Once the customer makes payment to the factor, the balance amount due to the client is paid by the factor.

The factoring process is explained in figure 2.

**Figure 2: Mechanics of Factoring**



### Servicing and Discount Charges

For rendering the services of collection and maintenance of sales ledger, the factor charges a commission which varies between 0.4% to 1% of the invoice value, depending upon the volume of operations. This service charge is collected at the time of purchase of invoices by the factor. For making an immediate part-payment to the client, the factor collects discount charges from the client. These discount charges are comparable to bank interest rates in that it is calculated for the period between the date of advance payment by the factor to the client and the date of collection by the factor from the customer. These are collected monthly.

### Types of Factoring

Factoring can be classified into many types. This section covers only those forms of factoring which are more prevalent in India today.

1. **Recourse Factoring:** Under recourse factoring, the factor purchases the receivables on the condition that any loss arising out of irrecoverable receivables will be borne by the client. In other words, the factor has recourse to the client if the receivables purchased turn out to be irrecoverable.
2. **Non-recourse or Full Factoring:** As the name implies, the factor has no recourse to the client if the receivables are not recovered, i.e., the client gets total credit protection. In this type of factoring, all the components of service viz., short-term finance, administration of sales ledger and credit protection are available to the client.

3. **Maturity Factoring:** Under this type of factoring arrangement, the factor does not make any advance or pre-payment. The factor pays the client either on a guaranteed payment date or on the date of collection from the customer. This is as opposed to “Advance factoring” where the factor makes prepayment of around 80% of the invoice value to the client.
4. **Invoice Discounting:** Strictly speaking, this is not a form of factoring because it does not carry the service elements of factoring. Under this arrangement, the factor provides a pre-payment to the client against the purchase of accounts receivables and collects interest (service charges) for the period extending from the date of pre-payment to the date of collection. The sales ledger administration and collection are carried out by the client.

In terms of the services available to the client, these 4 types of factoring can be illustrated with the help of table 1.

**Table 1**

The Service Types of Factoring	Short-term Finance	Sales Ledger Administration	Credit Protection
Recourse Factoring	✓	✓	×
Non recourse Factoring	✓	✓	✓
Maturity Factoring	×	✓	×
Invoice Discounting	✓	×	×

There are also other types of factoring such as Bank Participation Factoring, Supplier Guarantee Factoring, and Cross Border or International Factoring which are beyond the scope of this chapter.

### **Factoring in India**

While factoring in the modern sense of the term is more than three decades old in Europe and other developed countries, it came to India as a result of the recommendations of the ‘Kalyansundaram Committee’ a study group set up at the request of RBI, much later. The first two factoring companies in India, viz., SBI Factors and Commercial Services Ltd. and Canbank Factors Ltd. commenced operations in 1991. These companies provide only recourse factoring at present. Private financial companies are also planning to enter the factoring arena.

### **REGULATION OF BANK CREDIT: REPORTS OF VARIOUS COMMITTEES**

Traditionally, bank finance is an important source of financing the current assets of companies. The banking sector provides the funds so long as there is adequate security for the funds lent. The security-oriented approach followed by the banking sector has resulted in over-financing large and, to some extent, medium scale companies who could provide adequate security. As a result, those companies could utilize the money for piling up stocks with a view to derive holding period gains as the rate of inflation was high and for the diversion of bank finance, which is basically meant to meet the short-term credit needs, for acquiring fixed assets.

In the wake of nationalization of major banks in 1969, the banking sector had been called upon to act as catalyst in the overall development of different sections of society. The development potential approach had to be adopted by the banking sector in place of security-oriented approach. Consequently, the demand on bank finance had gone up considerably. This had resulted in focusing attention on the weaknesses of the system followed by the banks earlier.

First, the cash credit/overdraft system followed by the banks had been tilted to favor borrowers rather than the banks. Once the cash credit limit is decided, then the quantum of funds to be utilized is decided by the needs of the borrower and not on the availability of funds lying with the bank at that point in time. As a result, credit planning by the banks had become extremely difficult.

Secondly, the banks are called upon to provide financial assistance to weaker sections of the society who may not be in a position to provide security.

Thirdly, large and medium borrowers abused bank finance to acquire stock much more than warranted by the production programs and to divert funds for other uses unrelated to working capital.

It is against this backdrop, that the Reserve Bank of India had appointed some special study groups for streamlining the practices followed by banks so that the weaknesses of the existing practices are removed and a better sense of direction provided to the banking sector. We shall confine ourselves to four important committees. These are – the Tandon Committee, the Chore Committee, the Marathe Committee and the Kannan Committee.

### **Summary of Recommendations of the Tandon Committee**

The Reserve Bank of India (RBI) constituted in July 1974 a study group to frame guidelines for the follow-up of bank credit programs under the chairmanship of P.L.Tandon. The report submitted by the committee in August, 1975 is popularly referred to as the Tandon Committee Report. The terms of reference for the committee were:

- To suggest guidelines for commercial banks to follow up and supervise credit to ensure proper end-use of funds and to keep a watch on the safety of the advances and to suggest the type of operational data and other information that may be obtained by banks periodically from such borrowers and by the Reserve Bank of India from the lending banks.
- To make recommendations for obtaining periodical forecasts from borrowers of (a) business/production plans and (b) credit needs.
- To make suggestions for prescribing inventory norms for different industries both in the private and public sectors and indicate the broad criteria for deviating from these norms.
- To suggest criteria regarding satisfactory capital structure and sound financial basis in relation to borrowings.
- To make recommendations regarding the sources for financing the minimum working capital requirements.
- To make recommendations as to whether the existing pattern of financing working capital requirements by cash credit/overdraft system etc., requires to be modified, and if so, to suggest suitable modifications, and
- To make recommendations on any other related matter as the group may consider germane to the subject of enquiry or any other allied matter which may be specifically referred to it by the Reserve Bank of India.

The study group reviewed the existing practices, obtained views from different associations of industries, chambers of commerce and executives and came up with a comprehensive set of recommendations. These may be broadly grouped under the following four heads outlined below.

### **NORMS FOR INVENTORY AND RECEIVABLES**

The Committee has come out with a set of norms that represent the maximum levels for holding inventory and receivables in each of 15 major industries, covering about 50 percent of industrial advances of banks. As norms cannot be rigid, deviations from norms can be permitted under extenuating circumstances such as bunched receipt of raw materials including imports, power-cuts, strikes,

transport bottlenecks etc., for usually short periods. Once normalcy is restored, the norms should become applicable. The norms should be applied to all industrial borrowers with aggregate limits from the banking system in excess of Rs.10 lakh and extended to smaller borrowers progressively.

**APPROACH TO LENDING**

- As a lender, the bank should only supplement the borrower’s resources in carrying a reasonable level of current assets in relation to his production requirements.
- The difference between total current assets and current liabilities other than bank borrowing is termed as working capital gap. The bank should finance a part of the working capital gap and the balance should be financed through long-term sources comprising equity and long-term borrowings.
- Three alternative methods have been suggested for calculating the maximum permissible bank borrowing. These methods will progressively reduce the maximum permissible bank borrowing. These three methods are explained by means of a numerical illustration which indicates the projected financial position as at the end of the next year.

**Illustration 1**

The financial position of Simplex Co. Ltd., has been projected for the forthcoming year as summarized below:

Current Liabilities		Current Assets*	
	(Rs. in lakh)		(Rs. in lakh)
Accounts Payable	150	Raw Materials	250
Other Current Liabilities	50	Work-in-Process	50
	200	Finished Goods	150
Bank borrowings (including bills discounted with banks)	360	Receivables (including bills discounted with banks)	90
		Other Current Assets	20
	560		560

\* As per suggested norms or past practice, whichever is lower, in relation to projected production for the forthcoming year.

Under Method I, the bank will finance at the most 75 percent of the working capital gap i.e., maximum permissible bank finance

$$= 0.75 (\text{Current Assets} - \text{Current Liabilities}).$$

This method will ensure a minimum current ratio of unity.

Under Method II, the borrower will finance 25 percent of total current assets (140) through long-term sources. The bank will finance at the most 220 of the working capital gap (360 – 140). i.e., maximum permissible bank finance

$$= (0.75 \times \text{Current Assets}) - \text{Current Liabilities}. \text{ This method will ensure a current ratio of 1.33.}$$

Under Method III, there will be further reduction in bank borrowings which will ensure a still higher current ratio. The amount of excess borrowing calculated as the difference between the amount of bank borrowing and the maximum permissible bank borrowing to which the borrower is eligible will be converted into a term loan, that is to be repaid over a suitable period, depending upon the cash generating capacity and ability to raise additional equity etc., i.e., maximum permissible bank finance

$$= 0.75 (\text{Current Assets} - \text{Core Current Assets}) - \text{Current Liabilities}.$$



**Method I**

Total Current Assets :	560
Less : Current Liabilities other than Bank Borrowings	200
Working Capital Gap	360
25% of above from long-term sources	90
Maximum Permissible Bank Borrowings (75% of 360)	270
Excess Borrowing:	90
Current Ratio = $\frac{560}{470}$	1.19

**Method II**

Total Current Assets :	560
25% of above from long-term sources	140
75% of current assets	420
Less : Current Liabilities other than Bank Borrowings	200
	220
Working Capital Gap	360
Maximum Permissible Bank Borrowings	220
Excess Borrowing:	140
Current Ratio = $\frac{560}{420}$	1.33

**Method III**

Total Current Assets:	560
Less: 'Core' Current Assets (illustrative figure) from long-term sources	100
Real Current Assets	460
25% of above long-term sources	115
	345
Less: Current liabilities other than Bank Borrowings	200
	145
Working Capital Gap:	360
Maximum Permissible Bank Borrowings	145
Excess Borrowing:	215
Current Ratio = $\frac{560}{345}$	1.62

**STYLE OF CREDIT**

The Tandon Committee suggested the following:

- Instead of making available the amount to which a borrower becomes eligible, the bank may bifurcate the credit limit into a loan and a demand cash credit, which will be reviewed annually.
- The irreducible minimum level of borrowing which is expected to be used throughout the year will comprise the loan component while the fluctuating part will be taken care of by the cash credit component.
- As the loan component carries interest throughout the year it will induce financial discipline on the part of the borrower to plan his credit needs carefully.
- As the intention of the proposed approach is to ensure financial discipline on the part of the borrower the interest rate structure can be charged such that, the rate of interest on loan component is lower than the rate of interest on cash credit component while the rate of interest chargeable on excess borrowing converted into a term loan should carry a slightly higher interest rate than the cash credit component.

- A part of the total eligible amount could also be provided by way of bill limits to finance the selling company's receivables, besides the cash credit and loan components. This is likely to ensure proper-end-use of credit.

### **INFORMATION SYSTEM**

The information system suggested by the committee is intended to induce better planning of the credit needs by the borrowing company, ensure end-use of credit for the intended purpose and to ensure better monitoring of the borrower's credit situation by the banker. Keeping these aspects in view, the committee had recommended a quarterly budgeting-cum-reporting system. The following statements are to be submitted by the borrowing company.

- Quarterly profit and loss statement giving details of previous year's actuals, current year's budget, previous quarter's budget and actuals, and current quarter's projections of revenues, costs and profit.
- Quarterly statement of current assets and current liabilities giving details of raw material inventory (imported and indigenous) work-in-process; finished goods and consumable stores; receivables; advances to suppliers and other current assets and current liabilities.
- Half-yearly proforma balance sheet and profit and loss statement within two months.
- Annual audited accounts within three months and
- Monthly stock statement in required detail so as to enable the banker to reconcile stocks of raw materials and finished goods.

The Tandon Committee had identified the problems associated with cash credit system and recommended for the bifurcation of the credit limit into a loan component and a fluctuating cash credit component. The information system recommended by the committee is intended to ensure proper end-use of credit besides introduction of financial discipline on the part of borrowing companies.

### **Summary of Recommendations of Chore Committee**

Various committees constituted by the Reserve Bank of India including the Tandon Committee had pointed out the drawbacks of the cash credit system. Though the Tandon Committee had recommended for the bifurcation of the credit limit into a demand loan and a fluctuating cash credit component, the progress achieved in this respect had been very slow. Consequently, a small working group was set up by the Reserve Bank of India under the chairmanship of Shri K. B. Chore in April 1979 with specific terms of reference outlined below:

### **TERMS OF REFERENCE OF THE CHORE COMMITTEE**

- To review the operation of the cash credit system in recent years, particularly with reference to the gap between sanctioned credit limits and the extent of their utilization;
- In the light of the review, to suggest:
  - modifications to the system with a view to making the system more amenable to rational management of funds by commercial banks and/or
  - alternative types of credit facilities, which would ensure greater credit discipline and also enable banks to relate credit limits to increases in output or other productive activities, and
- To make recommendations on any other related matter as the group may consider germane to the subject.

The Working Group had analyzed the existing data in respect of cash credit/overdraft by the banking sector, practices followed by other countries and submitted its report on August 31, 1979. The recommendations of the Chore Committee were accepted by the Reserve Bank of India and implemented by the commercial banks.

Summary of the recommendations made by the committee is presented below:

1. The advantages of the existing system of extending credit by a combination of the three types of lending, viz., cash credit, loan and bill should be retained. At the same time it is necessary to give some directional changes to ensure that wherever possible the use of cash credit would be supplanted by loans and bills. It would also be necessary to introduce necessary corrective measures to remove the impediments in the use of bill system of finance and also to remove the drawbacks observed in the cash credit system.
2. Bifurcation of cash credit limit into a demand loan portion and a fluctuating cash credit component has not found acceptance either on the part of the banks or the borrowers. Such bifurcation may not serve the purpose of better credit planning by narrowing the gap between sanctioned limits and the extent of utilization thereof. It is not likely to be voluntarily accepted nor does it confer enough advantages to make it compulsory.
3. The need for reducing the over-dependence of the medium and large borrowers – both in the private and public sectors – on bank finance for their production/trading purposes is recognized. The net surplus cash generation of an established industrial unit should be utilized partly at least for reducing borrowing for working capital purposes.
4. In order to ensure that the borrowers do enhance their contributions to working capital and to improve their current ratio, it is necessary to place them under the second method of lending recommended by the Tandon Committee which would give a minimum current ratio of 1.33:1. As many of the borrowers may not be immediately in a position to work under the second method of lending, the excess borrowings should be segregated and treated as a working capital term loan which should be made repayable in installments. To induce the borrowers to repay this loan, it should be charged a higher rate of interest. For the present, the group recommends that the additional interest may be fixed at two percent per annum over the rate applicable on the relative cash credit limits. This procedure should be made compulsory for all borrowers (except sick units) having aggregate working capital limits of Rs.10 lakh and over.
5. While assessing the credit requirements, the bank should appraise and fix separate limits for the 'normal non-peak level' as also for the 'peak level' credit requirements indicating also the periods during which the separate limits would be utilized by the borrower. This procedure would be extended to all borrowers having working capital limits of Rs.10 lakh and above. One of the important criteria for deciding such limits should be the borrowers' utilization of credit limits in the past.
6. If any ad hoc or temporary accommodation is required in excess of the sanctioned limit to meet unforeseen contingencies, the additional finance should be given, where necessary through a separate demand loan account or a separate 'non-operable' cash credit account. There should be a stiff penalty for such demand loan or 'non-operable' cash credit portion, at least two percent above the normal rate, unless Reserve Bank exempts such penalty. This discipline may be made applicable in cases involving working capital limits of Rs.10 lakh and above.
7. The borrower should be asked to give his quarterly requirement of funds before the commencement of the quarter on the basis of his budget, the actual requirement being within the sanctioned limit for the particular peak level and non-peak level periods. Drawings less than or in excess of the operative limit so fixed (with a tolerance of 10 percent either way) but not exceeding sanctioned limit would be subject to a penalty to be fixed by the Reserve bank from time to time. For the time being, the penalty may be fixed at 2 percent per annum. The borrower would be required to submit his budgeted requirements in triplicate and a copy would be sent immediately by the branch to the controlling office and the Head Office for record.

The penalty would be applicable only in respect of parties enjoying credit limits of Rs.10 lakh and above, subject to certain exemptions.

8. The non-submission of the returns in time is partly due to certain features in the forms themselves. To get over this difficulty, simplified forms have been proposed. As the quarterly information system is part and parcel of the revised style of lending under the cash credit system, if the borrower does not submit the return within the prescribed time, he should be penalized by charging for the whole outstandings in the account at a penal rate of interest, one percent per annum more than the contracted rate for the advance from the due date of the return till the date of its actual submission.
9. Requests for relaxation of inventory norms and for ad hoc increases in limits should be subjected to close scrutiny by banks and agreed to only in exceptional circumstances.
10. The banks should devise their own check lists in the light of the instructions issued by the Reserve Bank for the scrutiny of data at the operational level.
11. Delays on the part of banks in sanctioning credit limits could be reduced in cases where the borrowers co-operate in giving the necessary information about their past performance and future projections in time.
12. As one of the reasons for the slow growth of the bill system is the stamp duty on usance bills and difficulty in obtaining the required denominations of stamps, these questions may have to be taken up with the State Governments.
13. Banks should review the system of financing book debts through cash credit and insist on the conversion of such cash credit limits into bill limits.
14. A stage has come to enforce the use of drawee bills in the lending system by making it compulsory for banks to extend at least 50 percent of the cash credit limit against raw materials to manufacturing units whether in the public or private sector by way of drawee bills. To start this, discipline should be confined to borrowers having aggregate working capital limits of Rs.50 lakh and above from the banking system.
15. Banks should insist on the public sector undertakings/large borrowers to maintain control accounts in their books to give precise data regarding their dues to the small units and furnish such data in their quarterly information system. This would enable the banks to take suitable measures for ensuring payment of the dues to small units by a definite period by stipulating, if necessary, that a portion of limits for bills acceptance (drawee bills) should be utilized only for drawee bills of small scale units.
16. To encourage the bill system of financing and to facilitate call money operations, an autonomous financial institution on the lines of the Discount Houses in the U.K. may be set up.
17. No conclusive data are available to establish the degree of correlation between production and quantum of credit at the industry level. As this issue is obviously of great concern to the monetary authorities, the Reserve Bank may undertake a detailed scientific study in this regard.
18. Credit control measures to be effective will have to be immediately communicated to the operational level and should be followed up. There should be a 'Cell' attached to the Chairman's office at the Central Office of each bank to attend such matters. The Central Offices of banks should take a second look at the credit budget as soon as changes in credit policy are announced by the Reserve Bank and revise their plan of action in the light of the new policy and communicate the correct measures to the operational levels as quickly as possible.
19. Banks should give particular attention to monitor the key branches and critical accounts.

20. The communication channels and systems and procedures within the banking system should be toned up so as to ensure that minimum time is taken for collection of instruments.
21. Although banks usually object to their borrowers dealing with other banks without their consent, some of the borrowers still maintain current accounts and arrange bill facilities with other banks, which vitiate the credit discipline. Reserve bank may issue suitable instructions in this behalf.

### **Summary of Recommendations of the Marathe Committee**

With a view to regulate the growth of bank credit the Reserve Bank of India has advised all commercial banks to obtain its prior authorization before sanctioning credit limit to any single party with a limit of Rs.1 crore or above from the entire banking sector. This was felt imperative as the economy was passing through a period of considerable stress during 1965 and the stipulation of the Reserve Bank provided an additional measure of credit regulation for ensuring greater alignment of bank credit to the requirements of the plan. This regulation of RBI is the genesis for what has come to be known more popularly as the Credit Authorization Scheme (CAS).

Since 1965 many environmental changes took place. These include – the nationalization of banks in 1969; the fixing up of percentages of bank credit to priority sector borrowers such as small scale industries, agriculture etc; the recommendations of Dehejia Committee report which highlighted the need for banks to take into consideration a broad view of the borrowers operations rather than be guided solely by security orientation; the recommendations of Tandon and Chore Committees which underlined the need for banks to switch over from security oriented approach to ‘end-use’ or ‘need-based’ approach that called for greater financial discipline on the part of banks as well as borrowers; the Krishnaswamy Committee report of 1980 which provided guidelines for fixing sub-targets for ‘weaker’ sectors in the wake of 20 Point Program in 1976; and Integrated Rural Development Program in 1979; and the recommendations of the Ghosh Committee report in 1982 which refined further the definitions and ‘Groups’ needing special attention in lending operations. In the light of these environmental changes, the credit authorization scheme also underwent several changes. The credit limit originally fixed at Rs.1 crore has been progressively increased to Rs.3 crore and later in certain cases to Rs.5 crore. It is against this backdrop that the Reserve Bank of India, set up a committee under the chairmanship of Shri S. S. Marathe in November, 1982 with the following terms of reference.

#### **TERMS OF REFERENCE OF THE MARATHE COMMITTEE**

- To examine the objectives, scope and content of the scheme and make suggestions with regard to making modifications therein, if any, having regard to the changing economic situation.
- To examine the adequacy or otherwise of the credit appraisal machinery/procedures in commercial banks, and based thereon, suggest modifications, if any, in the modalities in this behalf.
- To study the existing set-up for compliance with the requirements of the scheme within the commercial banks at the head and regional office levels and suggest any modifications therein considered necessary to facilitate proper appraisal and expeditious disposal of applications and monitoring thereof.
- To examine the existing data base relevant for making recommendations by banks to Reserve Bank of India for authorizing a given level of credit for a particular party and suggest modification/ simplification, if any, in that behalf.

- To examine the existing format for submitting applications by banks to Reserve Bank of India in respect of seeking authorization and suggest modifications therein, if necessary.
- To study the desirability of introducing time bound guidelines to be observed within commercial banks and Reserve Bank for speeding up the processing and disposal of applications.
- To make any other recommendations which are germane to the scheme.

#### **BROAD-BASING THE OBJECTIVES OF CREDIT AUTHORIZATION SCHEME**

After making a thorough study of CAS in its historical perspective, the committee had followed broad-based objectives of CAS whose initial aim was to closely align the growth of bank credit with the requirements of the plan and use it as an additional measure of credit regulations. The enlarged objectives of CAS are:

- To ensure that additional bank credit is in conformity with the approved purposes and priorities and that the bigger borrowers do not pre-empt scarce resources;
- To enforce financial discipline on the larger borrowers, where necessary, on uniform principles;
- Where a borrower is financed by more than one bank, to ensure that the customer's proposal is assessed in the light of the information available with all the banks; and
- To bring about improvements in the techniques of credit appraisal by banks and their system of follow-up.

#### **Kannan Committee Recommendations**

Kannan Committee headed by Bank of Baroda chairman, Mr. K. Kannan was formed on the suggestion of the Reserve Bank of India in January, 1997 to examine the validity of the MPBF concept and to suggest what could replace it. The report submitted in March, 1997 gave the following recommendations:

The report suggested doing away with the prescribed uniform formula for MPBF with the bank having sole discretion to determine the borrowing limits of corporates.

In a significant move, the committee has said that developing the modalities of working capital assessment of borrowers will be left to the banks, which may devise a flexible system. Corporate borrowers may be allowed to issue short-term working capital debentures of 12-18 months' maturity and banks may subscribe to such debentures as working capital assistance.

Alternatively, borrowers with working capital requirements of over Rs.20 crore may be granted working capital facility in full by way of a demand loan. Borrowers with requirements of over Rs.10 crore up to Rs.20 crore may have a loan component of 75 percent.

Interest rate incentives will be provided to borrowers availing full working capital finance by way of loan component. Also, margin and holding level of stocks, book-debts, etc. as security for working capital facility, may entirely be left to the discretion of the financing bank. The current benchmark ratio of 1.33 and matters relating to the ideal debt-equity ratio of the borrower should also be left to the discretion of the financing bank. Borrowers have to obtain prior approval for investment of funds outside the business, like inter-corporate deposits, investment in associate concerns or in other investments.

The committee recognizes that the existing norms/guidelines as prescribed by the Tandon-Chore Committee in 1974 do not serve the needs of the productive sectors of the economy. It recommended that need-based working capital finance should be made available without sticking to an age-old rule which may have largely outlived its utility.

## Nayak Committee Recommendations

A committee headed by Mr P R Nayak, ex-Deputy Governor of RBI was set up in December, 1991 to look into the adequacy of the institutional credit to SSI sector, suggest modifications to the financing norms to SSI as per Tandon-Chore Committee norms and revisions, if any, for the rehabilitation of sick SSI units. Among them the relevant portions for the computation of working capital are that the working capital requirement of SSI should be worked out based on the projected turnover and the limit should be to the extent of 20% of such projected turnover. This recommendation was accepted and the process of assessment of working capital requirement was made very simple and easy. But the onus lies with the bank to check up the genuineness of the projected turnover. If the request for working capital is from a new borrower who is starting the venture, the bank has to compare the projected turnover with the performance of already existing entrepreneurs in the same industry. If the proposal is for a renewal of the existing limit of working capital, the projected enhanced turnover should be studied from the angle of previous years' performance and the possible trend that could be extrapolated.

As per the extant guidelines from the RBI, banks are advised to follow turnover method of assessment of working capital requirement mentioned above for limits up to Rs.2 crore in the case of other than SSI borrowers and up to Rs.5 crore for SSI borrowers. In respect of loans beyond these limits banks have been given discretion to choose any method like MPBF method or cash budget method, etc. Even while applying MPBF, the level of current ratio to be maintained has been left to the discretion of the individual bank.

**Implementation of Loan Delivery System:** In terms of the guidelines of RBI, the working capital limit sanctioned to all borrowal accounts with fund based working capital limit of Rs.10 crore and above from the banking system, funds are to be disbursed as demand loan and cash credit in the ratio of 80:20. The demand loan portion of the working capital is called Working Capital Demand Loan which is repayable within a year. This was brought in to introduce more discipline among the borrowers availing the working capital finance.

## SUMMARY

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- Any company will need to maintain a minimum level of current assets at any point of time. This level can be termed as the 'permanent' or 'fixed' component of current assets. Above this level, the current assets vary as per the level of activity of the company – higher the level of activity, more the current assets required. Since the 'permanent' component of current assets are locked up permanently within the organization just as fixed assets, this component needs to be financed from long-term sources of finances such as internal accruals, equity shares, preference shares, debentures and to an extent, term loans.
- The 'fluctuating' component of current assets can be financed through short-term sources such as accounts payable/trade credit, short-term bank borrowings and public deposits. Some other sources of financing current assets include commercial paper and factoring.

## **Lesson 3**

# **Cash Management**

**After reading this lesson, you will be conversant with:**

- The Difference between Profits and Cash
- Need for and Objective of Cash Management
- Factors for Efficient Cash Management
- Internal Treasury Controls



## **DIFFERENCE BETWEEN PROFITS AND CASH**

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Cash, the most liquid asset and also referred to as the life blood of a business enterprise is of vital importance to the daily operations of business firms. Its efficient management is crucial to the solvency of the business because cash is the focal point of the fund flows in a business.

### **Profits vs. Cash**

There is a general tendency to confuse profits with cash. But there is a difference between the two. Profits can be said to be the excess of income over the expenditure of the business entity, for a particular accounting period. They include both cash incomes (cash sales, interest on investments, etc.) and non-cash incomes (credit sales, discounts received, excess provisions like provision for doubtful debts charged in the previous accounting period, etc.). Similarly both expenses in cash/check (payment of salaries, wages, interest on term loans, etc.) and non-cash expenses (depreciation, preliminary expenses incurred during incorporation which are written-off every year, outstanding expenses like unpaid salaries or rent or insurance) where there is no actual outflow of cash at the time of accounting are included. 'Cash' refers to the cash as well as the bank balances of a company at the end of the accounting period, as reflected in its balance sheet. While profits reflect the earning capacity of a company, cash reflects its liquidity position.

### **Meaning of Cash**

There are two ways of viewing the term 'cash'. In a narrow sense it includes actual cash in the form of notes and coins and bank drafts held by a firm and the deposits withdrawable on demand. And in a broader sense, it includes even marketable securities which can be immediately sold or converted into cash.

## **NEED FOR AND OBJECTIVE OF CASH MANAGEMENT**

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We have seen earlier that cash is embedded in different forms of current assets ranging from raw material inventory to Accounts Receivables and comes back in the form of cash again along with profit after completing one round of the company's operating cycle. In view of the 'flow of cash' through successive phases of the operating cycle, cash can be regarded as the life-blood of a body corporate.

Cash, either in hand or at bank, is the most liquid of all the current assets. Thus larger cash and bank balances indicate high liquidity position of a company. It must, however, be noted that cash lying in the coffers of a company or in the current account of banks fetches no return to the company. Consequently, the higher liquidity position attained by holding a large amount of cash will result in lower profitability as idle cash fetches no return, while the same when invested in the assets of the company will result in profits. Why should companies, then, hold cash and bank balances knowing fully well that no return can be expected of them?

### **Why do Companies Hold Cash**

Let us now turn to the need for holding cash (which is taken to be inclusive of cash at bank as well) by the corporate sector. The need for holding cash arises from a variety of reasons which are briefly summarized below.

### **TRANSACTION MOTIVE**

A company is always entering into transactions with other entities. While some of these transactions may not result in an immediate inflow/outflow of cash (eg: credit purchases and sales), other transactions cause immediate cash inflows and outflows. So firms always keep a certain amount as cash to deal with routine transactions where immediate cash payment is required.

### **Precautionary Motive**

Contingencies have a habit of cropping up when least expected. A sudden fire may break out, accidents may happen, employees may go on strike, creditors may present bills earlier than expected or debtors may make payments later than warranted. The company has to be prepared to meet these contingencies to minimize its losses. For this purpose companies generally maintain some amount in the form of cash.

### **Speculative Motive**

Firms also maintain cash balances in order to take advantage of opportunities that do not take place in the course of routine business activities. For example, there may be a sudden decrease in the price of raw materials which is not expected to last long or the firm may want to invest in securities of other companies when the price is just right. These transactions are of a purely speculative nature for which the firms need cash.

### **LACK OF PROPER SYNCHRONIZATION BETWEEN CASH INFLOWS AND OUTFLOWS**

In the case of reasonably well-managed profitable companies, the total amount of cash inflows for the year is usually higher than the total amount of cash outflows. However, the company can have spells of cash deficits and surpluses. This kind of a situation arises mainly due to lack of proper synchronization between cash inflows and outflows. Seasonal industries such as tea, jute are typical examples of mismatching of inflows and outflows. Consequently, these companies tend to follow a conservative cash management policy by holding more cash.

### **ASYMMETRY IN THE CONSEQUENCE OF 'SHORTAGES' AND 'SURPLUSES' OF CASH**

Orgler comes out with an interesting argument that the Finance Manager is more worried about the situation of an 'uncovered cash deficit' than the situation of surplus cash lying idle in the bank. This attitude on the part of the Finance Manager is quite understandable as the deficiencies in cash management are more likely to come out into the open during a period of cash crunch than in a period of cash surplus. As the opportunity loss sustained by the company for keeping excess cash at bank is not likely to affect all sections of the employees while inability to meet wages and salaries does, the Finance Manager may feel tempted to err, if at all, on the conservative side. This will have the impact of the need for additional cash lying at bank.

### **Objectives of Cash Management**

All or some of the reasons explained above give rise to the company's need for cash. The question will naturally arise as to the amount of cash to be maintained by a company. While trying to answer this question one should not lose sight of the fact that cash is the most liquid of all the assets and can be put to alternative uses. So, idle cash has an opportunity cost as the same could have been invested to fetch a positive return. Thus, the objective of cash management can be regarded as one of making short-term forecasts of cash position, finding avenues for financing during periods when cash deficits are anticipated and arranging for repayment/investment during periods when cash surpluses are anticipated with a view to minimizing idle cash as far as possible. Towards this end short-term forecasts of cash receipts and payments are made in the structured form of cash budgets, information is monitored at appropriate intervals for the purpose of control and taking suitable measures as warranted by the situation.

### **Cash Forecasting and Budget**

The principal tool of cash management is cash budgeting or short-term cash forecasting. Usually, the time chosen for making short-term forecast for preparing cash budgets is taken to be one year. For the purpose of better monitoring and control, however, the year is divided into quarters, quarters into months and months into weeks. Under critical conditions a week is further divided into days.

Cash budget becomes a part of the total budgeting process under which other budgets and statements are prepared. The information generated during the preparation of operating budgets such as sales forecasts, wages and salaries, manufacturing expenses overheads etc., will become useful. While the operating budgets are prepared based on the principles of accrual, cash budget is concerned with cash inflows and outflows.

Short-term cash forecasting is prepared under the receipts and payments method, showing the time and magnitude of expected cash receipts and payments. The various items of cash receipts and payments and the basis for estimating them is listed below:

Items of Cash Inflow	Basis of Estimation
Cash sales	Sales forecast. The proportion of cash sales and credit sales are based on averages of recent past.
Collections from credit sales	Same as above along with past collection pattern unless there is a policy change to depart from past practices.
Proceeds from sale of scrap and/or by-products	Based on the past proportion of these items to sales.
Receipts of interest and dividends	Based on the company's investment portfolio and the returns expected therefrom.
Increase in long-term loans, public deposits and issuance of other long-term securities	Based on capital expenditure budget and financing plan.
Sale of assets	Based on the proposed disposal of assets.
Payments for purchases	Purchases plan based on sales forecast, anticipated changes in the inventory of raw materials, stores, spares, components etc., proportion of cash and credit purchases as also the payment pattern based on past practice.
Wages and salary payments	Based on payroll accounts of the previous year with suitable adjustments, manning pattern and the structure of wages and salaries along with perquisites.
Payments for other manufacturing expenses such as power, fuel etc.	Based on the production plan and past experience.
Payments for selling and distribution and general administration expenses	Based on sales promotion plans, distribution costs, salary structure of personnel in the marketing and general administration; other items for payment are based on past experience or a rule of thumb.
Interest payment and repayment of loans and redemption of debentures and preference shares; repayment of public deposits	Based on the existing structure of fixed-return bearing securities and financing plan.
Payment of dividends	Based on projected after-tax profit and dividend-pay out policy followed.
Payments for the purchase of capital assets	Based on capital expenditure budget and the payment pattern.
Lease rentals	Based on the terms under which capital equipment was taken on lease.
Taxes	Based on estimated pre-tax profit.

**Preparation of Cash Budget and its Usefulness**

On the basis of information discussed above the cash budget for a company can be prepared. It will be useful to prepare initially a work sheet containing items of cash inflows and outflows and the resultant net cash inflows and outflows and the net cash flows. At this state one can have an idea of cash by scrutinizing the pattern and amount of inflows and outflows to see whether some of the items of outflows can be either advanced or postponed so that outflows are not clustered during certain months. This is possible only with discretionary payments, such as, payment for purchase of capital equipment, non-recurring items of outflows for research and development activities etc. While these are important, no significant impact on the profitability of the company is likely to be felt if these items of cash outflows are deferred by a couple of months. This flexibility will not be available to mandatory payments such as meeting the installments on term loans obtained. Let us now consider first the preparation of a work sheet and then have the cash budget. This is illustrated by means of an illustration for a six month period.

The most important input in the entire process of cash forecasting is the estimated sales figure because business plans are closely related to estimated plans.

**Illustration 1**

VRK Industries manufactures razor blades. Its sales figures are given below.

	Actual Sales Rs.		Forecasted Sales Rs.
November	1,00,000	January	1,00,000
December	1,00,000	February	1,00,000
		March	1,20,000
		April	1,20,000
		May	1,40,000
		June	1,40,000

- Cash and credit sales are expected to be 20 percent and 80 percent respectively.
- Receivables from credit sales are expected to be collected as follows: 50% percent of receivables, on an average, one month from the date of sale and balance 50 percent, on an average, two months from the date of sale.
- No bad debt losses.
- Rs.50,000 expected from the sale of a machine in March and Rs.2,000 expected as interest on securities in June.

	Actual Purchases Rs.		Forecasted purchases Rs.
December	40,000	January	40,000
		February	40,000
		March	45,000
		April	50,000
		May	55,000
		June	55,000

- The payments for these purchases are made a month after the purchase. The payment for purchases in December will be made in January.
- Miscellaneous cash purchases of Rs.2,500 per month are planned from January through June.

**Treasury Management: Theory and Practice**

- Wage payments are expected to be Rs.16,000 per month, January through June. Manufacturing expenses expected to be Rs.20,000 per month; general administrative and selling expenses are expected to be Rs.10,000 per month.
- Dividend payment of Rs.20,000 and tax payment of Rs.18,000 are scheduled in June.
- A machine worth Rs.55,000 proposed to be purchased on cash in March.
- Opening cash balance is Rs.20,000. The management policy is to maintain a minimum cash balance of Rs.18,000. Given the above information work out a statement of Cash Receipts forecast, Cash Payments forecast and the Cash Budget for the period January - June.

**Solution**

**Forecast of Cash Receipts (January – June)**

Item of Cash Receipts	January	February	March	April	May	Rs. June
1. Cash Sales	20,000	20,000	24,000	24,000	28,000	28,000
2. Collection on Credit Sales	80,000	80,000	80,000	88,000	96,000	1,04,000
3. Sale of Machine	–	–	50,000	–	–	–
4. Interest on Securities	–	–	–	–	–	2,000
<b>Total Cash Receipts (1+2+3+4)</b>	<b>1,00,000</b>	<b>1,00,000</b>	<b>1,54,000</b>	<b>1,12,000</b>	<b>1,24,000</b>	<b>1,34,000</b>

**Forecast of Cash Payments (January – June)**

Item of Cash Payment	Jan.	Feb.	March	April	May	Rs. June
1. Payment on Credit Purchases	40,000	40,000	40,000	45,000	50,000	55,000
2. Misc. Cash purchases	2,500	2,500	2,500	2,500	2,500	2,500
3. Wage Payments	16,000	16,000	16,000	16,000	16,000	16,000
4. Manufacturing Expenses	20,000	20,000	20,000	20,000	20,000	20,000
5. General Administration & Selling Expenses	10,000	10,000	10,000	10,000	10,000	10,000
6. Dividend	--	--	--	--	--	20,000
7. Tax	--	--	--	--	--	18,000
8. Capital Equipment Purchase	--	--	55,000	--	--	--
<b>Total Cash Payments</b>	<b>88,500</b>	<b>88,500</b>	<b>1,43,500</b>	<b>93,500</b>	<b>98,500</b>	<b>1,41,500</b>

**Cash Budget for the period (January – June)**

Item	Jan.	Feb.	March	April	May	Rs. June
1. Opening Cash Balance	20,000	--	--	--	--	--
2. Total Receipts	1,00,000	1,00,000	1,54,000	1,12,000	1,24,000	1,34,000
3. Total Payments	88,500	88,500	1,43,500	93,500	98,500	1,41,500
4. Net Cash Flow (2-3)	11,500	11,500	10,500	18,500	25,500	(7,500)
5. Cumulative Net Cash Flow	11,500	23,000	33,500	52,000	77,500	70,000
6. Opening CashBalance + Cum-NCF (H 5)	31,500	43,000	53,500	72,000	97,500	90,000
7. Minimum Cash Balance	18,000	18,000	18,000	18,000	18,000	18,000
8. Surplus or Deficit in relation to Min.Cash balance	13,500	25,000	35,500	54,000	79,500	72,000

From the above statement of cash budget it can be seen that a cash shortage is expected during the month of March. From the month of April cash balance would improve as the business operations would bring in cash flows. Further, the shortage expected during March is due to the proposed capital expenditure decision. This shortage can be avoided by the management by adopting one of the following options: (i) postponement of the asset acquisition to a later month when cash inflows improve, (ii) deferring a portion of the payment for the capital asset to April, May and June, and (iii) resorting to short-term borrowing in the month of March.

### **Cash Reports**

Cash budgets are nothing but short-term cash forecasts and their advantage lies in their amenability in monitoring actuals for exercising control. The purpose of monthly cash reports will be served when cash inflows and outflows do not fluctuate very much and the collection and payment patterns are stabilized. When there is high uncertainty in the cash flows, then the need arises to monitor information on the cash position more frequently on a weekly or sometimes on daily basis and to revise the budget for the subsequent period based on the variance between the actual and budgeted figures and the reasons thereof.

For a multi-product multi-branch company, it is better to have cash budgets and cash reports both product-wise and branch-wise.

Thus cash reports provide a comparative picture of actual with forecasted figures and help in controlling and revising cash forecasts continuously. Cash reports can be prepared in several ways and the important ones are (i) the daily cash report, (ii) the daily treasury report, and (iii) the monthly cash report.

#### **Daily Cash Report**

1. Opening Cash Balance	—
2. Receipts	—
Cash sales	***
Collection on Credit Sales	****
Loans	****
Others Receipts	****
3. Payments	***
Cash Purchases	****
Payment to Creditors	****
Repayment of Loans	****
Other Payments	
4. Net Cash flow (2-3)	****
5. Closing Cash Balance (1 + 4)	***

The daily cash report provides information on the cash position on a daily basis. Though this information is helpful for control purposes, it does not indicate the position of Accounts Receivables, Accounts payable and marketable securities of the company. Hence a close watch is required to get a comprehensive picture of changes in cash, marketable securities, debtors, and creditors. Therefore, a daily treasury report has to be prepared which will indicate the opening and closing net treasury positions.

**Daily Treasury Report**

	Today	This month to date
1. Cash		
a) Opening Balance	xxx	xxx
b) Receipts	xxx	xxx
c) Payments	xxx	xxx
d) Closing Balance (a + b - c)	xxx	xxx
2. Marketable Securities	xxx	xxx
a) Opening Balance	xxx	xxx
b) Purchases	xxx	xxx
c) Sales	xxx	xxx
d) Closing Balance (a + b - c)	xxx	xxx
3. Accounts Receivable		
a) Opening Balance	xxx	xxx
b) Bills Raised	xxx	
c) Cash Receipts	xxx	xxx
d) Closing Balance (a + b - c)	xxx	xxx
4. Accounts Payable		
a) Opening Balance	xxx	xxx
b) Bills Received	xxx	xxx
c) Cash Payment	xxx	
d) Closing Balance (a + b - c)	xxx	xxx
5. Opening Net Treasury Position (1a + 2a + 3a - 4a)	xxx	xxx
6. Closing Net Treasury Position (1d + 2d + 3d - 4d)	xxx	xxx

**Cash Report for the Month of**

	This Month		Year to Date	
	Actual	Budget Variance	Actual	Budget Variance
<b>Cash Receipts</b>				
Cash Sales				
Collections on Credit Sales				
Interest and Dividend Receipts				
Short-term borrowings				
Long-term borrowings				
Issue of Long-term securities				
Sale of Assets				
Total				
<b>Cash payments</b>				
Cash Purchases				
Payment for credit purchases				
Wages and Salaries				
Manufacturing Expenses				
General, Administration and selling expenses				
Interest Dividends				
Taxes				
Capital equipment purchases				
Repayment of Loans				
Redemptions of long-term securities				
Total				

The monthly cash report, thus, shows the cash position on a monthly basis.

## FACTORS FOR EFFICIENT CASH MANAGEMENT

Cash reports help in monitoring actual data for comparison with the budgeted amounts, understanding the reasons for the deviation between the two and in the light of this knowledge, controlling and revising the budget on a regular basis. The efficiency of cash management can be enhanced considerably by keeping a close watch and controlling a few important factors briefly described and illustrated below:

### Prompt Billing and Mailing

A time lag occurs from the date of despatching goods to the date of preparing invoice documents and mailing the same to the customers. If this time gap can be minimized early remittances can be expected, otherwise remittances get delayed.

In the case of one organization it was observed that the time lag was as high as one week. Subsequent scrutiny revealed that the reason for delay was the practice of preparing bills and mailing them in 'bunches'. As a result the bills on earlier sales got delayed resulting in late realization. Once the reason for the delay was identified, corrective measures were taken to prevent the accumulation of bills. This reduced the delay in remittances. Thus accelerating the process of preparing and mailing bills will help reduce the delay in remittances and early realization of cash.

### Collection of Cheques and Remittance of Cash

Delay in the receipt of cheques and depositing the same in the bank will inevitably result in delayed cash realization. This delay can be reduced by taking measures to hasten the process of collecting and depositing cheques/cash from customers. An Illustration will help understand how this can be achieved.

An organization having branches in all the districts of West Bengal had been selling fertilizers to a great extent by a vast network of consignees receiving a margin for the services rendered. Quite often the consignees would make remittances to the head office in Kolkata resulting in delays in cash realization. An in-depth study revealed that delays could be considerably reduced by adopting the following procedure:

- The consignees should be asked to prepare challan-cum-invoice on credit sales which would cut-short the work of raising separate bills.
- Non-operating collection accounts had to be opened in the district level branches of the head office bank into which checks and cash from sales are to be deposited by the consignees, under advice to the branch manager. The amounts so deposited are to be transferred to the main bank account of the head office telegraphically, under advice to the head office. The branch managers/their assistants should make occasional visits to the bank branches as also to the consignees for ensuring compliance with the instructions issued.

The above practice considerably reduced the delay in receipts with a resultant decrease in the incidence of interest on the cash credit account of the head office.

### Centralized Purchases and Payments to Suppliers

The company can gain some advantages, as listed below, when purchases and payments to suppliers are centralized at the head office:

- By the sheer size of purchases there is scope to obtain bulk purchase discounts on certain items which will effectively reduce the cost.
- As cash receipts get consolidated at the head office, the disbursement schedule can be more effectively implemented. As far as possible, the company can make an arrangement with suppliers so that the payment schedule matches with the schedule of cash receipts.



- As far as possible cash discounts on purchases can be utilized, preferably by remitting cheques on the last day for utilizing such facility. This will release cash within the discount period and the company can also avoid the implicit rate of interest underlying the failure to avail cash discount, as this rate will be considerably high.
- Under the centralized purchase system, arrangements can be made with the suppliers for direct shipment of materials to the company's units located at different parts. This will reduce to some extent the total cost of transportation, handling and storage.

**Playing the Float**

The basis for the concept of 'float' arises from the practice of banks not to credit the customer's account in its books when a cheque is deposited by him and not to debit his account in its books when a cheque is issued by him until the cheque is cleared and cash is realized or paid respectively. In the normal course of business, a company issues cheques to suppliers and deposits cheques received from customers. It can take advantage of the concept of float, while doing so. Let us see what float means.

Whenever cheques are deposited with the bank, the credit balance increases in the company's books of account but not in the books of the bank until the cheques are cleared and money realized. The amount of cheques deposited by a company in the bank awaiting clearance is called 'collection float'. Similarly, the amount of cheques issued by the company awaiting payment by the bank is called 'payment float'. The difference between 'payment float' and 'collection float' is called 'net float'. Obviously, when the net float is positive, the balance in the books of the company is less than that in the bank's books; when net float is negative the book balance of the company is more than that in the bank's books.

When a company has a 'positive net float' it may issue cheques to the extent that the amount shown in the bank's books is higher than the amount shown in the company's books, even if the company's books indicate an overdrawn position. The company is then said to have been playing the float. This is illustrated by means of a numerical Illustration before considering the merits and demerits of playing the float.

Suppose, the opening credit balance of a company with the bank is Rs.10,000. Let us assume that it deposits cheques daily to the amount of Rs.30,000 and it takes three days for realization. Let us also assume that the company issues cheques daily to the amount of Rs.30,000 and it takes five days for actual payment. The opening balance in the company's books as also in the bank's books will remain the same at Rs.10,000. The closing balance in the books of the company and in the books of the bank are presented in table 1 below:

**Table 1  
Closing Balance in the Books of the Company  
and in the Books of the Bank**

Day	Books of the Company	Books of the Bank
1.	Remains at Rs.10,000 as the decrease of Rs.30,000 the amount of cheques issued is offset by the increase of Rs.30,000, the amount of cheques deposited.	The opening balance of Rs.10,000 will remain as the closing balance and the company's accounting will remain unchanged.
2.	- Do -	- Do -
3.	- Do -	- Do -
4.	- Do -	The opening balance of Rs.10,000 increases by Rs.30,000 as the amount of the first day's cheque gets encashed. The closing balance is Rs.40,000.

5.	– Do –	The opening balance of Rs.40,000 will increase by the amount of Rs.30,000 due to the encashment of the second day's cheque deposited. Thus the closing balance is Rs.70,000.
6.	– Do –	The opening balance of Rs.70,000 is increased by Rs.30,000 due to the encashment of the third day's cheque deposited and reduced by Rs.30,000 due to the payment of the cheque issued on the first day. So the closing balance from now onwards will remain at Rs.70,000.

From table 1, it can be noticed that from day six onwards the closing balance remains stable at Rs.70,000 in the books of the bank. The closing balance in the company's books will, however, remain at Rs.10,000. Consequently, the company will continue to enjoy a net float of Rs.60,000 (Rs.70,000 – Rs.10,000). As a result of this, the company issues cheques amounting to Rs.40,000 or Rs.50,000 even if the company's book balance is only Rs.10,000 because of the net float of Rs.60,000 available to it. While the number of cheques issued and deposited by the company is assumed to be the same for the sake of simplicity, it can differ. Then, the net float will become the difference between the balance in the bank's books and the balance in the company's books.

While a company can obtain greater mileage out of its cash balance by playing the float, there are certain inherent risks involved. When the clearing system operates much faster than anticipated, the cheques issued may come for payment earlier than anticipated leading to financial embarrassment to the company. When the word goes round that the cheques issued by the company to a supplier had bounced the company's image will be at stake. In order to minimize the risks associated with playing the float a company can take some of the following precautionary measures and obtain greater mileage out of its cash resources.

- A minimum amount of cash can always be maintained with the bank.
- Desist from the temptation to use a larger proportion of the net float.
- Preferably have an overdraft arrangement with the bank to avoid financial embarrassment.

### **Investment of Surplus Cash**

Investing surplus cash involves two basic problems:

- i. Determining the amount of surplus cash
- ii. Determining the channels of investment.

#### **DETERMINATION OF SURPLUS CASH**

The cash in excess of the firm's normal cash requirements is termed as surplus cash. Before determining the amount of surplus cash, the minimum cash balance required by the firm has to be accounted. This minimum level may be termed as a 'safety level for cash.'

The safety level of cash is determined by the Finance Manager separately for normal and peak period. In both the cases, the two basic factors to be decided are:

- a. Desired days of cash: This is the number of days for which cash balance should be sufficient to cover payments.
- b. Average daily cash outflows: This is the average amount of disbursements to be made daily.

The 'desired days of cash' and 'average daily cash outflows' are to be determined separately for normal and peak period.

Then the safety level of cash can be calculated as follows:

**During Normal Periods**

Safety level of cash = Desired days of cash x Average daily cash outflows;

**Illustration 2**

The finance manager feels that a safety level should provide sufficient cash to cover cash payments for a week and firm's average daily cash outflows are Rs.15,000. The safety level of cash will be Rs.1,05,000 i.e., 7 x 15,000.

**During Peak Periods**

Safety level of cash = Desired days of cash at the business period x Average of highest daily cash outflows.

**Illustration 3**

During the four busiest days in the month of March, a firm's cash outflows were Rs.6,000, Rs.7,000, Rs.8,000 and Rs.9,000. The Finance manager desires sufficient cash to cover payments for 4 days during the peak periods. Calculate the safety level.

**Solution**

$$\text{The average cash outflow} = \frac{6,000 + 7,000 + 8,000 + 9,000}{4} = \text{Rs.7,500}$$

$$\text{Safety level} = 4 \times 7,500 = \text{Rs.30,000}$$

**Illustration 4**

From the following data ascertain whether the firm has surplus or deficiency of cash

	Normal Periods	Peak Periods
Desired days of cash	7	5
Average daily outflows	25,000	50,000
Actual cash balance	1,00,000	2,50,000

**Solution**

During normal periods – The firm has a cash balance of Rs.1,00,000. The average daily cash outflows are Rs.25,000. It means the firm has cash available only for 4 days as compared to a requirement for 7 days. Hence, the firm is cash deficient.

During peak periods - Cash balance is Rs.2,50,000 and average daily cash outflows Rs.50,000. The firm has cash available for 5 days which is equal to the required 5 days. Hence the firm is neither cash deficient nor is cash surplus. It has just sufficient cash.

**DETERMINATION OF CHANNELS OF INVESTMENT**

The Finance Manager can determine the amount of surplus cash, by comparing the actual amount of cash available with the safety level or minimum level of cash, as explained in the preceding pages. Such surplus cash may be either of a temporary or a permanent nature. Temporary cash surplus consists of funds which are available for investment on a short-term basis (maximum 6 months), since they are required to meet regular obligations such as those of taxes, dividends, etc. Permanent cash surplus consists of funds which are kept by the firm to use in some unforeseen profitable opportunity of expansion or acquisition of some asset. Such funds are, therefore, available for investment for a period ranging from six months to a year.

**Criteria for Investment:** In most of the companies there are usually no formal written instructions for investing the surplus cash. It is left to the discretion and judgement of the Finance Manager. While exercising such discretion or judgement, he usually takes into consideration the following factors:

- a. **Security:** This can be ensured by investing money in securities whose price remains more or less stable and where a minimum return is guaranteed.

- b. **Liquidity:** This can be ensured by investing money in short-term securities including short-term fixed deposits with the bank.
- c. **Yield:** Most corporate managers give less emphasis to yield as compared to security and liquidity of investment. They, therefore, prefer short-term Government securities for investing surplus cash. However, some corporate managers follow aggressive investment policies which maximize the yield on their investments.
- d. **Maturity:** Surplus cash is not available for an indefinite period. Hence, it will be advisable to select securities according to their maturities keeping in view the period for which surplus cash is available. If such selection is done carefully, the Finance Manager can maximize the yield as well as maintain the liquidity of investments.

For example, a firm can divide the surplus cash available with it in three categories:

- i. Surplus cash, which is to be made available for meeting unforeseen disbursements. Such cash should, therefore, be invested in securities which can be immediately sold without much loss. In case of such cash, liquidity is more important than yield.
- ii. Surplus cash, which is to be made available on certain definite dates for making specific payments such as those on account of tax, dividends, capital expenditure, etc. Such cash should, therefore be invested in securities whose maturities coincide with the dates of payment.
- iii. Surplus cash, which is a sort of general reserve and not required to meet any specific payment. Such cash can therefore, be invested in securities with relatively longer maturities and more favorable yields.

### Forms of Liquidity and Choice of Liquidity Mix

While a company's demand for cash has already been discussed above, it does not always keep the entire amount in the form of cash balance in the current account for the simple reason that the opportunity cost of idle cash is considerably high. That is why, companies try to maintain, besides cash, other liquid assets which provide some return but at the same time can be converted into cash within a reasonably short time with relatively low risk. Let us first consider the forms of liquidity and then the choice of liquidity mix.

### Forms of Liquidity

**Cash Balance in the Current Account:** This is the highest form of liquid asset a company can conceive of, but the return provided by it is nil. However, companies maintain approximately four to five percent of their total assets, on the average, in this form despite no returns for reasons already explained.

**Keeping Reserve Drawing Power under Cash Credit/Overdraft Arrangement:** This form of liquidity appears to be quite attractive as it can have access to bank borrowing. However, constraints imposed by the banking sector made it much less attractive than what it once used to be. Close scrutiny of the quarterly budgets of the company by banks and imposition of penal interest of two percent over and above the normal rate of interest on under- or over-utilization make this form more tedious and time consuming. However, a built-in cushion may possibly be included while preparing the quarterly budgets and during some periods the full amount may be drawn. The tax benefit on the interest makes effective after-tax rate to be much less costly, even if part of it is held in the form of idle cash. This not only helps as a liquid source but also helps in obtaining equal or higher limits during the forthcoming year.

**Marketable Securities:** These are short-term securities of government such as treasury bills and other gilt-edged securities whose default risk is nil and, for that very reason, the return is low. It is preferable to ensure the maturity structure of these short-term securities with the likely periods of excessive cash drain on the part of the company. Then, the transaction costs can be considerably minimized as early liquidation prior to maturity may result in low return from these assets.

**Investment in Intercorporate Deposits:** A company can invest money with other companies in the form of short-term deposits ranging from two or three months to five or six months at remunerative rates. However, these deposits being unsecured in nature, are subject to considerable risk, unless the companies accepting such deposits have excellent antecedents as to their paying habits.

From among the different forms of liquidity available to a company a deliberate choice has to be made in selecting an appropriate mix that suits the liquidity requirements of the company and disposition of its management towards risk.

### **Choice of Liquidity Mix**

The choice of selecting the portfolio of cash and near cash assets also known as the choice of liquidity mix is governed by a variety of factors which are briefly explained below:

**Uncertainty Surrounding Cash Flow Projections:** It is generally said that the only certain factor in the corporate environment is its uncertainty. Even if cash flow projections have been made with the utmost care the general uncertainty can at times make the projections go awry. However, the degree of uncertainty is more in certain types of industries than in others. For example, general engineering industry is more recession prone than others. Consequently, the onset of recession which was not anticipated may call for a thorough revision of cash flows and policy changes in respect of production plans, dividend payments, etc. Similarly tea plantations can get adversely affected with an untimely hailstorm. Even within the same company which is stable and growing certain types of cash flows, especially collections and payables tend to be more uncertain than others. When the degree of uncertainty is high as evidenced by the sensitivity of cash forecasts to adverse changes in some of the underlying assumptions, the company will do well to have the liquidity mix tilted largely towards cash balance and in so far as possible reserve drawing power under the cash credit/overdraft arrangement and to a less extent gilt-edged securities.

On the other hand certain types of industries such as synthetic fabrics, electrical appliances enjoy stable and growing demand. Once a company has established its image the degree of uncertainty surrounding cash flow projections will be comparatively less. Consequently, the liquidity mix of such companies will be tilted more towards marketable securities and intercorporate deposits.

**Attitude of the Management towards Risk:** When the management of the company attaches greater importance to a given percentage increase in return than to the same percentage increase in liquidity, the portfolio of liquid assets held by such company will have a higher proportion of intercorporate deposits and a lower proportion of marketable securities and cash balances.

When the attitude of the management towards risk is quite conservative the liquidity mix chosen tends to have a higher proportion of cash balance and marketable securities and a lower proportion of intercorporate deposits.

**Ability to Raise Non-bank Funds and/or Control its Cash Flows:** When a company is favorably placed in a position to have ready access to non-bank funds it can afford to have less proportion of cash and more of intercorporate deposits and marketable securities. This kind of a situation arises mostly in the case of group companies. For example, when a manufacturing company promoted by a group faces cash shortage, a finance and investment company promoted by the

same group can come to its rescue by providing funds. Such a company need not maintain a large portion of its liquid assets in the form of cash. Similarly, companies which can control their cash flows effectively need not hold a large proportion of idle cash in their liquidity mix. This kind of situation can arise in the case of companies that have horizontal or vertical integration. For example a manufacturing company which has got substantial interest and/or has promoted another company for the supply of raw materials the company can exercise greater control on payables.

On the other hand, companies which do not enjoy ready access to non-bank sources of funds and/or not in a position to control cash flows may need to have greater proportion of cash and reserve drawing power in their liquidity mix.

### Models for Determining Optimal Cash

Given the overall transactions and precautionary balances, the finance manager of a firm would like to consider the appropriate balance between cash and marketable securities. This is because, optimal levels of cash and marketable securities would reduce and minimize the costs such as (a) transaction costs – costs incurred for transferring marketable securities to cash or vice versa, (b) inconvenience costs; and (c) opportunity costs – the interest earnings foregone on marketable securities for holding cash. In this section, we will discuss three models for determining an appropriate balance between cash and marketable securities.

#### Inventory Model

If future cash flows were known with certainty, the EOQ model (used in inventory management) is one of the simple models for determining the optimal average amount of transaction cash. Here, in this model, the opportunity (carrying) cost of holding cash, is balanced against the fixed costs associated with securities transactions to arrive at an optimal balance.

By using the EOQ formula, the firm attempts to determine the funds transfer size that will minimize the total cash costs that is, total transaction cost and total carrying (opportunity) costs.

Total cost = Transaction cost + Carrying (opportunity) cost

This cost can be expressed as:  $F (T/C) + I(C/2)$ .

Where,

F = Fixed transaction cost associated with a transaction \*

T = Total demand for cash over the specified period

I = Interest rate on marketable securities for the period \*\*

C = Cash balance for the period

Note that:

\* Assumed to be independent of the amount transferred.

\*\* Assumed to be constant.

In the above formula, T/C reflects the number of transactions during the period. If we multiply T/C with F that is, fixed cost per transaction, we will get total fixed cost for the period. C/2 implies the average level of cash balance over the period of time involved and when it is multiplied with the interest rate (I), we will obtain the total carrying (opportunity) cost. From the above equation, we conclude that the larger the C or C/2, the smaller the total transaction cost  $[F (T/C)]$  and the higher the opportunity cost  $[I (C/2)]$ . Balancing the two costs can minimize total costs. The optimal level of cash can be determined using the underlying equation.

$$C = \sqrt{\frac{2FT}{I}}$$

**Illustration 5**

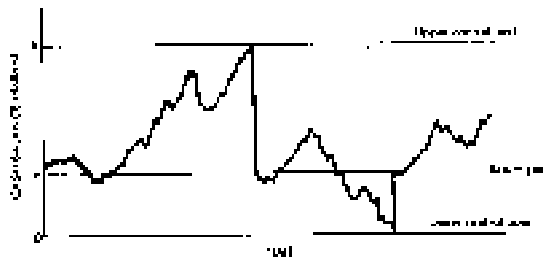
Suppose ABC Ltd., a manufacturing firm, expects its total cash payments over the planning period (2-months) to be Rs.10,00,000, while the fixed cost per transaction is Rs.100 and the interest rate on marketable securities is 12 percent per annum, or 2.0 percent for the 2-month period. Substituting these values,  $C = \sqrt{(2 \times 10,00,000 \times 100 / 2)} = (100,000,000 = \text{Rs.}10,000.)$  Thus, if the firm maintains an average cash balance of Rs.10,000, it can minimize its total costs. It is noted that the limitations and assumptions of this model are similar to that of the EOQ inventory model.

**Stochastic Models**

Since the EOQ model assumes a constant demand for cash, this inventory model becomes inappropriate when the cash flows of the firms are relatively or reasonably unpredictable, and some other models must be employed to determine optimal cash balances. If cash balances fluctuate randomly, we can apply control theory to the problem. To apply, assume that the cash flows are stochastic and random, and then set control limits such that when cash balance touches the upper bound, a conversion of cash into marketable securities is undertaken, and when it approaches the lower bound, a transfer from marketable securities to cash is activated. And, no transactions take place as long as the cash balance remains within these bounds.

Here, the question is how to set these boundaries (bounds) such that they should depend upon both fixed costs of a transaction and the opportunity cost of holding cash. For determining these limits, there are many control limit models, however, we study a relatively trouble-free one, the Miller-Orr model. This model specifies two bounds – h dollars as an upper bound and 0 (zero) dollars as a lower bound; is demonstrated in the following figure, assuming that there is no underlying movement in the cash flows during the period.

**Figure 1**



Source: Merton H. Miller and Daniel

From the figure, we can observe that when the cash balance reaches the upper bound, h-z dollars (cash) are converted into marketable securities, and the new balance becomes z dollars (return point). When the cash balances hit the lower bound (zero dollars), z dollars of marketable securities are transferred to cash, and the new balance again becomes z dollars. And, as long as the cash balances stays within the bounds, no transaction is undertaken. Note that the lower bound (control limit) is taken as zero only for our better explanation, and can be set higher than zero.

The optimal value of return point, z is:

$$z = \sqrt[3]{\frac{3F\sigma^2}{4i}}$$

Where ‘F’ is the fixed transaction cost, ‘σ’ is the variance of daily net cash balances, and ‘i’ is the interest rate per day on marketable securities. The optimal value of ‘h’ is 3z. The model reduces the total fixed transaction cost and total

opportunity cost by setting these bounds. However, the average cash balance recommended by the control-limit models will be higher than that of the EOQ model, as these models assume that cash flows are stochastic and unpredictable.

**A Probability Approach**

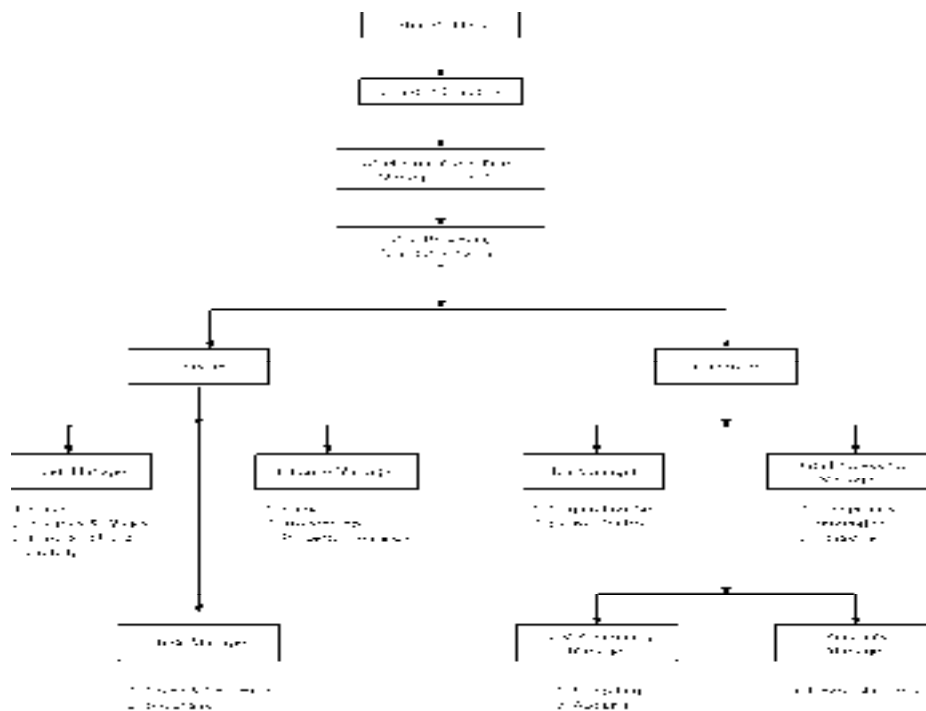
In practice, depending upon the nature of the business, the cash flows of a firm can be predictable within a range. Although the economic-order-quantity (EOQ) model assumes constant demand, when there is only moderate uncertainty, the model can be modified through the inclusion of safety (buffer) cash against uncertainty. And, for those cases, where the uncertainty is large, the EOQ model becomes inappropriate. In contrast, when the cash flows of the firm are relatively or reasonably unpredictable, a stochastic model can be employed to make automatic transfers between cash and marketable securities. This is because, when we employ this model in place of the EOQ model, we will always end up with a higher level of average cash balance, and this higher level of average cash balance is not appropriate for those firms, whose cash flows are reasonably predictable.

For those firms, whose cash flows are neither reasonably predictable, nor reasonably unpredictable, a probabilistic approach can be applied. To get a probability distribution, end-of-period cash balances are to be estimated for different cash flow outcomes. For more accuracy, length of the period used should be short say, one-week or less. This probabilistic information, together with information about the fixed (transaction) cost and interest earnings on investments in marketable securities is required to estimate the initial balance between cash and marketable securities. Once the information is available, compute the expected net earnings [interest earned – (fixed transaction cost + opportunity cost)] associated with initial levels of marketable securities for different possible cash flow outcomes. The level at which expected net earnings are maximized is the optimal level of marketable securities.

**INTERNAL TREASURY CONTROLS**

**Structure and Organization of Treasury**

Figure 2





The organization of finance department differs from company to company. There is no statutory pattern. Legally and theoretically, the right of managing a company vests in its shareholders, but their numbers being large and scattered, this task is entrusted to the Board of Directors. The main representative of the Board of Directors is the Chief Executive Officer/Managing Director. He is the competent authority to take decisions on matters relating to the overall policy formulations and execution. To learn about the constitution of the treasury, a study can be made about the constitution of the finance department. The finance department is headed by the Vice President (Finance) to whom the Treasurer and the Controller are responsible.

## **Treasury**

The treasury in the finance department deals with liquid assets and thus the treasurer has a major responsibility of being a custodian of cash and other liquid assets. The other functions of the treasurer are:

- Formulate capital structure for the organization in accordance with business goals and implement the same.
- Management of liquid assets including cash.
- Acts as a cashier.
- Role of an authorized signatory on payment checks including the authority to approve such checks.
- Reconciliation in checking accounts.
- Overall management of the credit function of the firm.
- Authority to utilize surplus cash of the company in short-term beneficial investments.
- Establishes the company policy with respect to decision on trade discounts and vendor payment aging.
- Establishes relationship with the bankers and investors.

All the above mentioned functions are implemented by the treasury with the co-operation of the cash manager, finance manager and the credit manager.

## **Controller**

Just as the treasurer deals with liquid assets, the controller of the organization has to record the transactions of these liquid assets. It is the combined and effective working of both the departments that gives rise to an effective system of internal controls.

Some of the functions of the Controller are:

- Records all transactions in the general ledger, the accounts receivables and the accounts payables sub ledger, transactions with respect to fixed assets such as depreciation, inventory control etc.
- Looks into the aspect of taxes and insurance.
- Keeps track of the company's short-term investments by recording and reconciling the transactions with those of the brokerage firms.
- Looks into the regulatory aspects and implementation of the company's policy on trade discounts and receivables aging.
- Acts as planning director.
- Keeping a record of the attendance of the employees, their movement timings so as to facilitate in preparing payroll.
- Reporting information to the management.

To assist the controller in accomplishing the above are the tax manager, data processing manager, cost accounting manager and accounting manager. Thus, the functions of financial accounting, internal audit, taxation, management accounting and control, budgeting, planning and control are accomplished.

### **Other Aspects**

The size of the treasury depends on the size of the organization. Big companies, usually the public limited companies and large private sector giants like Reliance Industries Ltd., ITC, VST etc., may have the structures as mentioned above or similar to it. However, small fledgling organizations usually have the Director (Finance) to take major policy decisions and fulfill the role of both the treasurer and controller. He will have the finance manager, accounts officer and the cashier to look into aspects of the implementation and thus assist him, or in some cases, some of these officials are responsible even for more than one of the above listed functions. Once the rules and regulations are framed in respect of various functions of the treasury, it is important that these standards of accounting and control are properly implemented and strictly adhered to.

### **Accounting and Control**

In small family holdings, sole proprietorship and partnership firms, accounting and control measures are closely held between the promoters. They would do everything on their own and see to the day-to-day transactions. However, as the organization grows, it will become humanly impossible to check individually and thus the need for a system of internal accounting control would be felt. The types of risks a company would face are:

- Entry of counterfeit documents, vouchers, challans, receipts into the accounting system.
- A 'no-care attitude' towards the policies introduced by the management.
- Loss/Misplacement of important documents.
- Inaccuracy in reporting and recording transactions.
- Unauthorized disposal of assets.
- Failure and inefficiency in safeguarding the assets.
- Neglect of work in the event of non-allocation of authority and responsibility.

### **Purpose of Establishing Control**

Ideally, the internal control system is designed to prevent any financial impropriety by the employees. The thrust is not on detection of such a happening, but to prevent it. When implemented a proper control system automatically hints at the weakness of the major policies with respect to managing cash, receivables, discounts, investments, etc.

Implementation of effective system of accounting and controls deters the people from committing any act of fraud. The very fact that their actions are being monitored will prevent them from committing any such acts. Of course, people inclined to steal/misappropriate will go elsewhere where they have easy access.

**Example:** The unauthorized use of telephones by the staff for personal purpose. The cost controller of a company was quite concerned about the highly inflated telephone bill. As it was not possible for him to personally tell each employee to minimize the use of telephone for personal use, he installed a printing machine on to the telephone which would give details on the telephone calls with respect to the number dialed and duration of the call. This automatically created an awareness among the employees that their calls would be monitored. It was not surprising therefore to note, that the bill for the subsequent months had reduced.

However, every company should understand that people who ‘want to make hay, while the sun shines’ will do so, whatever be the systems of control implemented. One can only hope that the system implemented is strict and fool-proof which will make risk taking even more difficult.

### **Design of Internal Control**

Internal control systems are designed according to the size of the firms. Large firms either have the audit staff to design and implement the control system or appoint experts of the treasury and control function to design the same. Smaller companies whose treasurer and controller may not have the experience in formulating a system of control often employ the services of consultants or their auditors. Some of the guidelines which are adhered to while designing an internal control system are:

- A plan to segregate responsibilities based on functions.
- Allocation of responsibilities between the maintenance of records (by the controller) and custodianship of cash and other liquid assets (by the treasurer).
- A system for proper documentation and recording procedures.
- Formulation of policies and procedures in tune with the organization’s long-term goal and a systematic model for implementation of those policies.
- Appointment of suitable personnel whose qualifications, interest and experience are commensurate with the nature of job and responsibilities to be entrusted to them so as to obtain maximum job enrichment.

### **Manning the System**

Human resources are the most important resource available to an organization to successfully implement the control system. Capable persons must demonstrate their ability to execute the job which has been entrusted to them. The treasurer and controller should emphasize on the basic skills and qualifications a prospective employee needs to have for a particular type of job. Experienced people are particularly selected when they have in-depth knowledge of the procedures, documentation, loopholes in the system and how the same can be detected. If inexperienced people are placed in responsible positions, the more experienced people may take advantage of this and misguide them to suit their own convenience. Certain companies also introduce sessions of ‘Personnel development’ and other training programs in order to familiarize them with current business practices and latest software technology.

### **Maintenance and Monitoring of Internal Control Systems**

- a. **Identification of problem:** The control system must be able to identify an upcoming problem and suggest solutions to each situation at the earliest.  
**Example:** There are two unrelated employees working in a company. One is the supervisor in the controlling department who issues checks and the other is in the treasurer’s office who has custody of the signature plate of the authorized signatories for various levels of payment. As long as both are not related, there would seem to be no problem as there is a segregation of duties. Suppose, later they become very good friends, there are chances that they may connive with each other to make misappropriations.
- b. **Cost-Benefit Analysis:** Every control system has costs involved in both monetary terms and in terms of time spent by people to prepare and review the control systems. Whatever be the case, a company is benefited only when the cost of controls does not exceed the loss it is trying to prevent from occurring.

To effectively implement cost beneficial controls, one should make a study of:

- The opportunity costs in preventing the occurrence of frauds, misappropriations, theft, errors, negligence.
  - Recurrence of such misappropriations and its cost if the control system was not implemented.
  - The total costs incurred in establishing a control system.
- c. **Monitoring for Compliance:** Just as policies and procedures of a company require to be complied with, so also the rules with internal control systems. Each system needs to be monitored constantly to ensure that it is implemented. It is specially important when the employees do not feel the necessity for a particular type of control.

One of the methods for ensuring compliance is to select a representative sample and test them. The procedure which can be followed is:

- Define the test: It is very important to define a particular control to be tested.

**Example:** The controller and treasurer of a company decide to measure their internal deposit float – the time taken to record and deposit a customer’s check. The procedure to be followed would be to first check their daily deposit register with the number of checks received on the relevant day. A study of the bank statement will also be made to know if the deposits have been accounted for at the bank. The number of days from the receipt of the checks to their deposit at the bank will be the internal deposit float. Of course, an important observation here is that the deposit float should be for one day. Such results should then be compared to the projections as given by the management policy. Any deviation, if noted can be rectified by suitable means.

- *Select the transactions for testing:* In usual cases, a representative sample is taken for testing, a non-compliance of which would mean losses. If such results are obtained for some tests, one can also take up a statistically significant sample. Size of the sample is important. However, one should also provide for certain errors which can occur while using statistically significant samples. In order to prevent such errors, a pre determined rate of tolerable error and the expected rate of error in the population should be accounted for. There are published tables which will provide sample sizes based on tolerable error and expected error.
- *Conduct the test:* Using the selection method, the test methodology and sample size, the test should be conducted. As the rate of tolerable error has already been established, all results falling outside the purview of this error will be the number of exceptions.

**Example:** We assume that 5% is the tolerable error on continuing with internal deposit float. It means that the internal float can be greater than 1 day, not more than 5% of the time and the results of the test show that the float exceeds 1 day, 10% of the time. If the average daily deposit is Rs.1,00,000 and the borrowing rate is 10%, then

To compute the cost of non-compliance of the control:

Daily deposit	=	Rs.1,00,000
Exception rate –	=	5%
Tolerable rate (10% – 5%)		
Daily deposit not in compliance	=	Rs.5,000
Annual interest rate	=	10%
Annual cost of non-compliance	=	Rs.500

Certainly the cost of non-compliance of Rs.500 is insignificant when compared to the daily deposit inflow of Rs.1,00,000. However, if more such costs are obtained for non-compliance of the internal control measures, it will certainly add up to a sizeable sum.

### **The Daiwa Episode<sup>1</sup>**

One of the major financial disasters in the banking sector was the damages incurred due to the actions of a single individual of the DAIWA BANK – one of Japan's largest banks. The collapse of the internal control systems led to nearly \$1.1 billion losses.

Mr Toshihide Iguchi was Daiwa's head of securities trading and bank office functions. Thus, he was both the 'cashier and the accountant'. It all started with a small loss of \$2,00,000 in the trading of securities. Mr Iguchi covered this loss by selling some securities of the bank and concealing these sales by forging statements. M/s Bankers' Trust – The US Investment bank and Daiwa's custodian of securities – would regularly send in statements to Mr Iguchi. As Mr Iguchi had already fraudulently disposed off the securities, he would then prepare a forged statement (to cover the loss) on the letterhead of Bankers' Trust and forward the same to his higher authorities. As Daiwa continued to incur more losses, this modus-operandi continued not for 1 or 2 weeks, but for 11 long years. By this time, the magnitude of the loss was an average of \$4,00,000 per working day. This lapse also failed to come to the notice of the internal auditors of the bank.

It was only when Mr Iguchi confessed about this incident through a letter sent to the President of Daiwa bank that this catastrophe was discovered. The reason for this self-confession was a change in the administrative arrangement whereby the Securities trading division was shifted and Mr Iguchi was no longer the head. Obviously, the exposure of the fraud was inevitable. In spite of this, Daiwa could bear the loss of \$1.1 billion due to its strong capital base.

Some of the reasons for the collapse were:

- The Investment bank, which was the custodian of the securities was unaware of the disposal of the securities.
- The internal auditors failed to notice the frauds that continued for nearly 11 years.
- The top management was unaware that it lost \$1.1 billion probably because of the weakness of the accounting system and false bookkeeping.
- Precautions were not observed by the auditors in obtaining certificates of compliance and concurrence from the custodians of the assets (Here – The Bankers' Trust).
- Entrusting one person with all the responsibility of maintaining both trading and accounting.
- Entrusting a job to one person for a very long period (Daiwa bank now wishes that Mr Iguchi had gone for an annual vacation).

### **Internal Audit**

The Institute of Internal Auditors has defined Internal Audit as "An independent appraisal activity, within an organization, of the review of accountancy, financial and other operations as a basis for service to the management. It is a managerial control which functions by measuring and evaluating the effectiveness of other controls."

Internal audit is therefore an independent appraisal activity within an organization. Not only is its nature to check matters relating to pure finance, but also reviews and undertakes a critical appraisal of the policies and procedures of the company.

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<sup>1</sup> [Source: Article by Mr S. Venkitaramanan, Former governor of Reserve Bank of India in the Business Line dated October 9, 1995.](#)

Small companies with lots of attention from the senior management who look into the operations of the firm on a daily basis may not have the necessity of conducting an internal audit. However, as companies grow and diversify, it becomes difficult for the management to involve themselves in the day-to-day administration. To prevent non-compliance of the company's rules, regulations and procedures, the management delegates this responsibility to internal audit staff. The audit staff on completion of their review submit their reports to the top management. In public limited companies, an audit committee plays the role of the internal audit staff.

### Objectives of Internal Audit

Unlike an independent auditor, the internal auditor has to look into the working of the whole organization – let alone only the financial operations.

- a. **Evaluation of Internal Controls:** Internal controls in the areas of treasury, accounting and operations are evaluated and reviewed by the internal auditors to assess the operations and the adequacy and effectiveness of such controls. They should also assess the costs incurred in implementing an internal control system and see that the costs do not exceed the losses the control systems are designed to avoid.
- b. **Verification of Documentation:** Verification of documents is particularly important for companies whose branches are geographically located in remote places. Reconciliation of accounts of the head office with the branch office, though time consuming, is essential. The top management cannot always be present at the site daily to check the proceedings. For the same reason, internal auditors conduct verification regarding –
  - Equity
  - Accounting books and records
  - Appraisal of quality of work in carrying out assignments
  - The extent to which the company's assets are accounted and the methods to safeguard against losses
  - Accuracy of the reports to the head office
  - Recommending operational innovations.
- c. **Compliance:** “Sticking to the rules” is one of the primary aspects to be considered by the internal auditors. Framing rules and regulations for an organization is one thing and ensuring that these regulations are adhered to is another thing. Having strict and regulated controls which are not followed renders the whole system redundant. People also have a tendency to revert to the initial procedures if they do not find the controls convenient to stick to. They would also like to simplify their work by following previous practices without being aware of the consequences such changes may have on other control functions of the company. For most corporate offices who have their branches at remote places, design of control system is initiated at the corporate office, and the same system is implemented at the branch. However, if the corporate office has incorporated some new system without realizing the necessity of the same in the branch, the system may not be used at all in the branch. A compliance review conducted by the internal auditors would then help unearth the flaws in such a system. In this manner, the internal audit staff will act as a link and a medium of express communication between the head office and the branch office.

To summarize, the other objectives of an internal audit are:

- To ensure the management that the internal control systems and the accounting procedures are effective in design and operation.
- To assist management to obtain maximum utilization of resources.
- To help in preparation of reports which would be helpful to the lower, middle and top management.

- To ensure that liabilities have been incurred for legitimate purpose of the business.
- To facilitate the annual audit to be conducted by the external auditor.

**Elements of Internal Audit**

Successful completion of internal audit depends on the elements of internal audit to which due importance is given. The elements also represent the basic procedures which will simplify the completion of internal audit, they being:

- a. **“Totality:”** This concept demands that all aspects of the organization should be considered for purpose of review and control. If the system is imposed partially, it may not give the desired effect to promote overall efficiency in the controls of the organization.
- b. **“Expertize:”** This represents the professional aspects of the job. Only those with professional qualifications and experience and who are well acquainted with the principles and practices of internal audit are appointed as internal auditors.
- c. **“Independence:”** This means that the internal auditors have the opportunity and permission to report directly to the senior management.
- d. **“Objectivity:”** The objectivity aspect of internal audit judges the efficiency and effectiveness of the system when put into operation. The system should not only be able to ensure accuracy and reliability of records, but should also be able to safeguard the assets.
- e. **“Utility:”** All the systems are finally put to practice, to be of ultimate utility to the management and not to lead to redundancy.

**Limitations of Internal Audit**

As every procedure has its pros and cons, the system of internal audit is not without the following drawbacks:

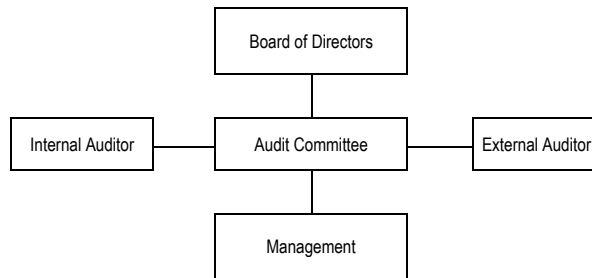
- Inefficient staff will not undertake adequate examination of the records. Thus, the very purpose of ‘Totality’ is defeated.
- Inefficiency will creep in if the records are not checked immediately after they are prepared.
- Internal audit will not serve its rightful purpose if the internal auditor is also performing other executive functions of the company.

**Differences between Internal Audit and Independent Audit**

	Internal Audit	Independent Audit
a. Objectives	Scrutiny of policies and procedures of the management to improve operational efficiency. Equal importance to economy and efficiency of business.	Report on the financial position and operating capacity of the firm. Report to be true and fair.
b. Appointment	Optional By the board of directors/management	Statutory according to law. Appointed by the shareholders/proprietor.
c. Scope	To ensure compliance to the policies of the management (which are laid down by the management). Free to adopt any method of Report to the top management on the adequacy of internal control working.	To ascertain the accuracy of accounting information, accounting principles and procedures. Specialized/Statutory procedure of working.

	Internal Audit	Independent Audit
	Report to the top management on the adequacy; of internal control.	Report to the shareholders.
d. Approach	Concerned about detection of fraud, misrepresentation, forgery, irregularities. To ensure substantial accuracy of records and compliance to the rules already set.	Not to detect fraud, unless it quantitatively effects the financial statements. To ensure true and fair presentation accounts.
e. Independence	They are employees of the firm, but must have no affiliation to either the treasurer, the controller or any department which they audit.	They are not employees of the company whose auditing has been undertaken and are strictly independent from the company.
f. Periodicity	Continuous review of company's operations.	Audit is undertaken on a periodic basis – Once a year.

**Audit committee**



A new dimension given to the concept of auditing is the formation of audit committees in corporate entities to further strengthen the credibility of financial information. The audit committee is a sub-committee of the Board of Directors and are primary responsible to review the financial statements before submitting the same to the Board of Directors. They also have to oversee the process of internal audit and the hiring and working of the external auditor. The audit committee can be considered as a valuable link between the management, the internal auditor, external auditor and the Board of Directors and will also help build a better understanding of the policies of the company and a sound process of decision making.

**Objectives of Audit Committee**

- Evaluation of financial reports and policies of the company which are distributed to shareholders and other parties interested in them.
- Assessment of the extent of performance, levels of the management and staff.
- Assurance to the shareholders that the actions of the company are in line with the target and that the company is exercising proper social responsibility.
- Monitoring of solutions to various operational problems.
- Acting as an independent reporting channel for the internal audit department.
- To have an overview of the implementation of the recommendations of the internal and external auditors.

**Effectiveness of Audit Committee**

Formation of an audit committee is not the be-all and end-all of the process of accounting and control. It is important that the audit committees comprise of efficient members to accomplish the tasks assigned to them.

- Member directors need to be strong to question the policies and practices of the top management (when necessary).
- They should have the authority to direct the external auditor to certain flaws which are already unearthed by the internal auditors.
- Qualified and independent directors who represent the interests of the company and work for the progress of the company should be selected for the audit committee.



## **Physical – Custodial Controls**

Common controls in the accounting department center around the recording of transactions wherein the risk of losing/misplacing a document is greater than theft.

As treasury controls generally affect cash and investment, the treasury has to verify various accounting and procedural controls. Both physical and custodial controls comprise the following methods by which the risk of losses is reduced:

### **1. Control of Authorized Signatories**

The most efficient method of fixing the limits for the authorized signatories is to follow the hierarchical format in the organization. Thus, one can establish the signature authority for a particular departmental head up to a particular rupee level. Any transactions which exceed the limit will call for permission from the next higher official. After the limits of authorization are fixed, the accounting department has to match the signatures of the authorized individuals to the transactions. This is usually supervised by the treasurer.

### **2. Control over Mail Receivables**

As the treasury is concerned with receipt of the monetary instruments like cash and cheque, strict control should be enforced over the mail receivables. Cheques are usually recorded in the cheques receipt register and then forwarded to the bank and accounts department for records and documentation. Reconciliation can be made from time to time to know the flaws in the control system.

### **3. Control over Pettycash**

Petty cash is one of those areas where the most liquid asset, i.e. cash is kept. Therefore, a system designed to minimize the risk of loss at acceptable levels should be implemented.

- a. *Recording of Vouchers:* Vouchers should record the date of disbursement, the name of the recipient and the purpose of the disbursement along with the signature of the authorized person for the value of the voucher. After recording these vouchers, the accounting department replenishes the cash box. At the end of the financial year, the accounting department should receive all the vouchers to record the expenses.
- b. *Reconciliation of Petty Cash:* Some companies with an active petty cash usually reconcile the accounts on a day-to-day basis. This reconciliation should be conducted by an individual independent of the functions of the maintenance of petty cash transactions.
- c. *Establishment of Petty Cash Amount:* In practice, a fixed amount is maintained for the petty expenses of one month. Ideally, the cash is as low as possible in order to minimize the risk of loss. If the requirements exceed the fixed amount, vendors have to submit the invoices for their requirement.

### **4. Control of Bad Debts and Account Credits**

Individuals who are entrusted with the responsibility of recording new receivables should not be in a position to credit the same accounts. These credits can be:

- Writing-off bad debts
- Credit memos
- Discounts
- Refunds
- Reconciliation of Accounts.

This practice is to prevent them from having an opportunity to reduce their own balances in accounts.

### 5. Control over Receivables and Customer Payments

There should be a demarcation over the duties of individuals who receive cash and those who record the receipts of cash. The person who records the cash receipts should not deal with incoming mail or prepare any statements for the customers. Such controls will prevent misappropriation of cash receipts and recording.

**Example:** If there is no demarcation of duties, money received from customer A will be misappropriated, the payment received from customer B will be credited in A's account, payment from customer C will be credited in B's account and the chain goes on.

The treasurer should be entrusted with the responsibility of reconciling the receivables ledgers. As he also holds the prime responsibility of collection of all dues, supervision of the treasurer is important. If a person other than the treasurer is checking the books, he can countercheck the accounts with the treasurer. Requests for confirmation can be had from the customer by sending a statement of account by mail. Here also, care should be taken that the person preparing the confirmation list is different from the person holding the accounts receivables function. If not, the person preparing the confirmation list would change the address on the confirm list, and see that these statements reach his own house rather than the customer. Obviously, the response received will state that the statement of account is right.

### 6. Control over Investments

One of the responsibilities of the treasurer is to invest surplus funds into profitable investments on behalf of the company. As the size of these investments is considerable, strict control is very important. The investment controls deal with issues such as:

- a. **Accountability:** The Board of Directors authorize an individual (usually the treasurer) to deal with the investment portfolio. Special instructions for the treasurer are also incorporated, some of which are:
  - Comprehensive responsibility
  - Authorized persons to assist the treasury department
  - Securities for investment
  - Acceptable risk
  - Term for investment
  - Qualification of brokerage firms
  - Reporting about transactions
  - Custodianship
  - Procedures for change in policy.
- b. **Dual controlled custody:** Dual controlled custody involves keeping securities in a bank safety deposit box with two keys. The controller and the treasurer has one key each.
- c. **Authorization:** Only individuals who have the qualifications and competency to make investment decisions on behalf of the company are given authorization for selection of brokerage firms, etc. A brokerage firm's track record with respect to their response for complaints, investigation, arbitration disputes should be studied in detail before committing the business of the company.
- d. **Execution:** After surplus funds are invested in various firms, a periodic monthly review should be conducted by the company with the brokerage firm. An individual independent of the investment function should perform the function of reconciliation. After review, a report on

the firm's investment function is forwarded to the Board of Directors for their information. It may be recalled that many banks lost heavily in the securities scam of 1992, because the brokers had virtually a free run and nobody reconciled the transactions for a long time.

**7. Control over Disbursements**

The disbursement function includes maintaining the custody of stock of checks, preparation of checks and supervising the disbursing function. The controller has the sole responsibility of being the custodian of checks. He has to maintain a log book on the checks issued. The treasurer reconciles the accounts after the controller has made the record of disbursements.

In addition to the duty of check disbursements, the controller also plays an active role in preventing payroll fraud. Some of the common issues which perpetuate fraud in this system are:

- Inaccurate tax deductions and withholding from payroll.
- Payment to fictitious employees.
- Overpayment to employees (for work not done).
- Payment irregularities to government (regarding certain taxes and provision).
- Inaccurate accumulation of payroll statistics.

**8. Control over Capital Stock and Dividends**

Exercising control over the capital stock and dividends can be accomplished by:

- Accurate recording of all transactions;
- Compliance with the directives of the management;
- Adherence to the rules of the government.

a. **Services of a Registrar:** According to law, all public trading firms should employ the services of a stock registrar. According to the charter of the corporation, the registrar issues stock. Only those stock certificates which bear the signature of the registrar are considered valid. In case, individuals purchase stock without the signature of the registrar, it is a sure case of fraudulent issue by the company.

Private placements do not require to comply with the formality of appointing a registrar. The Board of Directors appoint officers for this purpose. They have the authorization to sign the stock certificates.

b. **Services of a Transfer Agent:** On appointment of a registrar, a transfer agent is also appointed for maintaining a record of the shareholders and for executing all other formalities concerned with the transfer of stock ownership.

On request by the company, the transfer agent should give the list of the shareholders to the Board of Directors. Such a list will enable the company to not only determine the number of votes each shareholder is entitled to, but also helps determine a dividend declaration date.

For disbursal of dividends, the management usually forwards one check covering the payment to the transfer agent and the agent accordingly arranges for individual cheques to the shareholders.

**Insurance Control**

A part of the internal control mechanism also deals with protection of assets. This is where insurance becomes an important aspect. Large companies usually engage insurance specialists/professional consultants to give them the necessary guidance to insure their assets. Most companies also insure against catastrophic loss where they feel that of losses may effect the operational capacity of the firm.

## Insurance Review and Analysis

Professionals recommend that all organizations conduct an annual review and analysis of the insurance aspects – both at macro and micro level. Thus, the firm's overall risk of loss can be analyzed. To enable such an analysis, the internal control procedures should have the following components:

- A list of all the policies of the company;
- Assurance that all the policies are stored in a safe place;
- Verification that none of the policies are redundant in the aspect of coverage;
- A written statement that the coverage taken is adequate and not excessive.

A detailed study of the above will bring to light certain shortcomings for which adjustment will have to be made in areas such as:

- Increase or decrease of fixed assets;
- Number of employees;
- The range of business/activity the firm engages in.

## Coverages

Depending on the size, the line of activity and the extent of risk, companies may opt for various types of insurance coverages.

- a. **Blanket (Umbrella) Policies:** Also called excess liability coverage, such policies insure all other risks which are not covered under any policy. When claims exceed the coverage of all other policies, this coverage can be resorted to.

**Example:** If a personal judgment injury exceeds the limit specified in a policy, the excess liability will be covered by the blanket policy. If the liability exceeds the blanket policy's limits, then the insured is on his or her own.

- b. **Insurance against Business Interruption:** Business interruption insurance covers losses which result from occurrences which halt the proceedings of an organization. Most common occurrences attributable are:
  - Riots and strikes
  - Floods
  - Storm
  - Fire
  - Explosions
  - Loss of data due to failure in computer systems.

This apart, some companies may depend on an uninterrupted supply of materials from another company. Therefore, they can buy a policy against interruptions of that supply.

- c. **Employees Health Insurance:** A standard perquisite expected by employees in companies is medical benefits for themselves and their dependents. However, some companies also provide a policy wherein the employee and the employer contribute a portion as premium each month. The Employees State Insurance Act (which is next only to the Provident Fund Act in terms of being a powerful legal provision) has made it compulsory for all organizations to cover their employees under this act (who draw up to Rs.3,500 per month).

The premium in early 2000 was

- 1.5% – Employee's contribution
- 4.5% – Employer's contribution

on the basic monthly income. All expenses for any casualties are borne by the ESI Hospitals.

- d. **Insurance against Non-performance:** When non-performance of tasks can result in material damages such as in the construction of buildings or other capital assets, these insurance coverages are particularly useful. It thus covers a third party beneficiary if your company does not perform as agreed upon.
- e. **Insurance against Employees:** Job hopping has become a common phenomenon in today's world of emerging career opportunities. Moreover, a company's work would suffer if employees placed at suitably responsible positions leave their work undone. Though the concept of Fidelity bonds have yet to emerge in the Indian scenario, these bonds have been enforced in countries like the USA, Canada. Fidelity bonds cover the actions of its employees against the company and its customers. Some companies resort to obtaining a comprehensive bond (which will cover all employees) rather than take up individual bonds for each employee. Employees whose jobs involve considerable risk to the firm such as investment officers usually have to execute a separate bond.
- f. **Life Insurance of Key Personnel:** Loss of life of key personnel of a firm would do the firm considerable material damage. Some companies who have an insurable interest in the life of their key personnel also arrange for an insurance policy for them. Such a policy would provide for and compensate the loss of service and subsequent profits which were to be obtained. However, if the company is the beneficiary in such policies, such premiums are not tax deductible as they cannot be considered a necessary business expense.

## **Information Systems and Reporting**

Information systems were in vogue even before the advent of computers. Such systems provided managers with vital information to plan and control operations. The computers have now only added speed, accuracy and increased database which offer a wide range of alternatives to arrive at a decision.

The basis of an information system in the treasury is the flow of money throughout the organization. Periodically, the management provides a financial plan (also called the master budget). Responsibilities relating to maintenance of investment, income, expenditure within the limits are assigned to the respective departments. These plans form the basis for generation of reports periodically and become the devices through which control is exercised.

Some of the essential features of an effective reporting system are:

- Result orientation
- All encompassing
- Accuracy
- Promptness
- Forecast for future
- Size of reports is inversely proportional to the management level
- Comparative statements
- Cost benefit analysis.

To have an understanding of the process of information systems and control, studying the following flow chart will be useful.

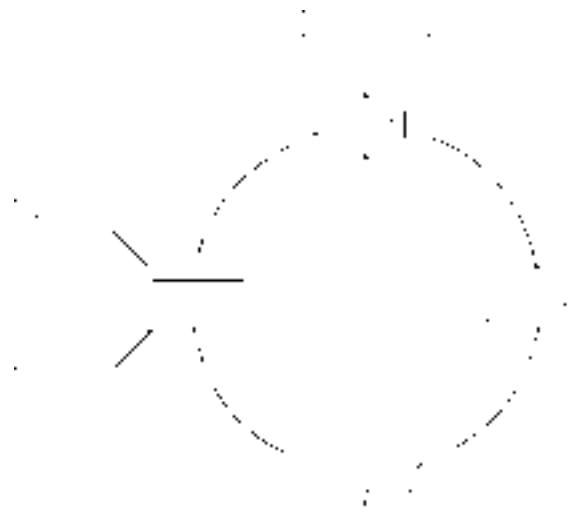
Most of the information systems involve reporting by means of informal communication channels like memoranda, meetings and conversations. However, a more formal methodology involves the following steps:

1. **Programming**

These are the long-term policies and the short-term programs (for achieving these policies), a company will undertake. It involves formulations of various strategies to achieve the results in a desired manner.

**Example:** If a strategy is adopted in a pharmaceutical company to improve on the existing products and also search for new products, an R&D program is formulated aimed at bringing in more development in an existing product and another program will be made to bring in innovations to market new products.

**Figure 3**



2. **Budgeting**

Budget is a plan expressed in monetary terms over a specific time period. Every strategy makes a forecast of the costs to be incurred on implementing the same.

3. **Operating and Accounting**

During actual operations, accounts of the resources actually consumed and the revenues earned are maintained. These results are then compared to the budgeted figures to study for any deviations. Such data is later used as a base for future programming and measuring the performance of managers of each responsibility center.

4. **Reporting and Analysis**

After analysis of all transactions, various reports are prepared from each department for review and reporting to the management. These include information collected from the workings within the organization and outside. As reports are a basis for control, the prescribed format of reports is to have a comparison between the budgeted projections and the actual results obtained from operating and accounting. Any deviations are to be explained and suitable options given to change the plans and initiate a new planning process.

Some of the reports which can be generated by the treasury would be:

- Daily stock report on Raw materials, Work-in-progress, finished goods;
- Bank deposits, withdrawals;
- Report on cash inflow and outflow;

- Total accounts receivables;
- Individual party account;
- Payroll;
- Comparison between sales and accounts receivables;
- Cost analysis of acquisition of capital assets and their maintenance.

The contents of the above report will be in line with the extent of information required by the management. The ultimate information should be of use and based on the outcome of such reports, necessary remedial action will be initiated by structuring a new program.

Delegation of responsibility in a reporting system is such that no single person has independent authority over a particular decision.

**Example:** Cheque payment: Invoices are recorded in the accounts payable sub-ledger by the controller. He also prints the payment cheques with details. Treasurer being the authorized signatory for the cheque, signs it and despatches it. Treasurer also maintains a record of the pre-numbered cheques and the whole stock of cheques. Thus, a cheque is kept over the number of leaves issued to the controller. The controller finally conducts a reconciliation statement to verify about the disbursement of funds.

## **Measuring Treasury Performance**

Hitherto, the ways and means of maximizing performance of treasury have been discussed with the help of various measures like formulating programs, preparing budgets, executing the programs. However, equally important is to know whether the treasury has achieved its targets.

One could argue that it is virtually impossible for organizations to function without some goals and plans. A goal is a future target that an organization wishes to achieve and a plan is the means devised to attain this goal. Every operating unit has a set of goals to facilitate performance. In order to be effective, goals should have five major characteristics:

- Challenging
- Attainable
- Specific and measurable
- Time limited
- Relevant.

Once the goals and forecasts are decided; financial personnel should devise ways and means of financing the ventures in order to achieve their goals. Costs incurred for acquiring capital, risks involved and, securities are to be analyzed before making a commitment on investments.

Control systems should also be such that the targets and allocation of responsibilities are segregated to different departments. Common costs can be shared and care should be taken to see that no conflicts arise because, such conflicts will affect the performance of the management in the long run.

In order to quantify and analyze the profits, they can be compared to the profits generated in the previous financial year. A statement of cash inflows and outflows is the common methodology adopted. A statement on the accounts receivables with the mode of payment will also bring to the notice of the management the most common mode of payment which is realized at the earliest.

**Example:** If after a study of the sales report for a financial year, it is noted that “Letter of Credit” payment term is realized soon, the management can then decide to concentrate primarily on L/C backed orders.

Thus, just as it is important to devise policies for a company, it is equally important to review its progress time and again, both on quantitative and qualitative terms in order to maximize the performance of the treasury.

## Failure of Controls

The following illustrations enrich the reader to know how the lack of controls could result in losses to or downfall of the institutions.

### The Sumitomo Debacle

One of the major disasters in the history of derivatives trading were losses incurred by Sumitomo Corporation.

The loss was incurred due to the actions of a single trader, Yasuo Homanaka. The Sumitomo Corporation, one of the world's largest commodities trading firm, and a 300 year old company with a market value of \$11.85 billion. Most of its trading was done in metals, chemicals and energy products. In June, 1996, Sumitomo collapsed due to lack of control on exposure limits, accounting for a loss of \$1.8 billion.

Yasuo Homanka, a 48 year old Tokyo based copper trader, is the central figure in the Sumitomo debacle. He was Sumitomo's star trader having over 20 years experience in copper trading. He won acclaims from the company for his profits on copper trading which helped Sumitomo cover its cheap sales of copper in Asia. He was trading in the copper since 1975 and was made the head of copper futures trading division. Homanaka traded copper for Sumitomo mainly on the London Metal Exchange.

Sumitomo was not a member of LME and its trades were executed by members of the exchange. Homanaka held large long positions in copper periodically over several maturity periods and several million dollars worth of copper futures contracts annually with the objective of closing them at a profit. He held tremendous influence over the copper trading sections and for almost a decade he was able to hold copper prices on the LME higher or lower at his will through his control over international copper stocks and volumes of trades. The strategy was to amass large stocks of copper, squeeze the prices of copper on LME and profit from the derivatives trade. For a very long time, the US hedge funds showed little interest in the commodities market. But around 1994-95 these funds, constantly on prowl for a kill based on their research, expected a fall in copper prices because of new copper production. So they entered the copper market and started short selling large quantity of copper in the forward market hoping to buy them back at lower prices. Homanaka took an opposite position and went on a buying spree. It seems that the US hedge funds could not bring the copper prices down even after selling around 1 million tonne of copper; that was the kind of influence Homanaka wielded in the market. Two Chinese state owned firms hastened the exit of Homanaka. These firms and Sumitomo had a joint venture in copper trades and derivatives. Homanaka used this venture to control copper prices and both of them profitted from this relationship. But these Chinese companies dealt the final blow to Homanaka, when they went against him by selling copper. The US hedge funds, George Soros and the Chinese firms together brought down copper prices and Homanaka with it. Homanaka made huge losses on his long-positions and it is said that these losses constituted the major part of \$1.8 bn loss made by Sumitomo over a period of 10 years.

In the aftermath that followed, Homanaka was the first to make a quiet exit into oblivion. The shares of Sumitomo fell by 200 yen on a single day, once the news spread that Sumitomo was in trouble. This was market's reaction to the fear that Sumitomo may sell its large copper holdings.

Sumitomo let Homanaka to have a free rein in copper futures trading out of greed for profits, without actually understanding the extent of risk it is exposed to. Another reason that may have contributed to the loss is the lack of strict



vigilance of the Japanese Government over these trading companies that trade outside Japan.

But uncontrolled and irrational use of derivatives with the sole intention of earning speculative profits has been the main reason for the losses.

## **Indian Bank Fiasco**

Indian Bank declared the biggest loss ever made by a commercial bank in India, the loss being Rs.1,336.40 cr. in 1995–96. The major reasons behind this were – loans extended to corporates becoming sticky, booking the interest on NPAs and not following the classification norms. The bank also made an operating loss due to high interest cost of borrowings.

This loss had wiped out the net worth of Indian Bank and had turned its capital adequacy ratio to zero. Indian Bank had surpassed the previous record of Rs.1,089.15 crore loss by the Bank of India in 1993-94. The losses were mainly made due to the sticky loans to corporates including the East – West Airlines, the Poddar Group of Kolkata, SM Deychem and MVR exports. These bad loans were not provided for earlier and amounted to Rs.980.62 crore. The bank did not follow the classification norms for non-performing assets and booked interest on them. These, when reclassified in the year 1995-96, resulted in an interest reversal of Rs.132.1 crore. The bank also made an operating loss of Rs.223.68 crore largely on account of the high interest cost of borrowings from the money market. The RBI has black listed two auditors of the bank – for failing to spot accounting malpractices that helped the bank management conceal the losses.

## **CRB Fiasco**

CRB Group had come a long way since its inception as CRB Consultants in 1985 and went on to become CRB Capital Markets in November, 1991. A year after its incorporation, it went public with an issue of Rs.4.6 crore. In September 1994, the group ventured into the mutual fund industry and mopped up Rs.229 crore from its maiden MF Scheme.

However, a year later SEBI had discovered certain irregularities in the Scheme. Nearly 85 percent of the mutual funds operations were handled by the groups stockbroking company, CRB Share and Stocking, located in the same premises. Apart from this, the securities of the fund were found to be kept in the possession of the CRB Caps instead of CRB Mutual Fund. With the total corpus of the fund having shrunk by 51 percent and NAV dropping to Rs.4.95, as of March 1997, (assets worth was Rs.113 crore) the company became irregular in publishing its NAV. Following these irregularities, SEBI imposed a ban on the CRB Mutual Fund from floating any further schemes since April, 1996.

Continuing its expansion plans, in July 1996, the Group entered the banking sector and got an in-principle approval from the RBI for starting the CRB Global Bank. After this the decline of CRB Capital Markets had begun. Later during the year, in September 1996, CRB Caps applied to the RBI for registration as an NBFC. When the RBI started an audit examination for the registration purpose, one by one the irregularities of the company came into picture. These included the intercorporate deposits and the NRI deposits crossing the stipulated limits and the company defaulting on its ICDs; the deposit periods going beyond the specified limits; broker incentives being very high. And to worsen things there was a severe asset-liability mismatch in the company.

CRB owed huge amounts of money to the market. The assets of CRB (Rs.230 crore) were less than its liabilities (Rs.600 crore). The company was not in a position to pay-off (nearly 200 crore) to its depositors.

If the CRB case is examined keenly it can be observed that there has been a severe mismatch between the assets and liabilities of the company. This was however, not checked at the right time and as a consequence, there was the downfall of CRB Capital Markets.

## **SUMMARY**

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- The need for holding cash arises from a variety of reasons, viz. Transaction Motive, Speculative Motive and Precautionary Motive.
- The objective of cash management can be regarded as one of making short-term forecasts of cash position, finding avenues for financing during periods when cash deficits are anticipated and arranging for repayment/investment during periods when cash surplus are anticipated with a view to minimize ideal cash as far as possible.
- Cash budget becomes a part of the total budgeting process under which other budgets and statements are prepared. Short-term cash forecasting is prepared under the receipts and payment method.
- The finance manager of a firm would like to consider the appropriate balance between cash and marketable securities. This is because the optimal level of cash and marketable securities would reduce and minimize the transaction cost, inconvenience cost and opportunity cost.
- Inventory model, Stochastic Model and Probability approach are used to determine the optimum cash balance.

## **Lesson 4**

# **Inventory Management**

**After reading this lesson, you will be conversant with:**

- The Role of Inventory in Working Capital
- The Purpose of Inventories
- Types of Inventory and Costs Associated with it
- Inventory Management Techniques
- Inventory Planning
- Other Inventory Management Techniques
- Pricing of Inventories
- Inventory and Finance Manager

Inventory Management involves the control of assets being produced for the purposes of sale in the normal course of the company's operations. Inventories include raw material inventory, work-in process inventory and finished goods inventory. The goal of effective inventory management is to minimize the total costs – direct and indirect – that are associated with holding inventories. However, the importance of inventory management to the company depends upon the extent of investment in inventory. It is industry-specific.

## **THE ROLE OF INVENTORY IN WORKING CAPITAL**

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Inventories are a component of the firm's working capital and, as such, represent a current asset. Some characteristics that are important in the broad context of working capital management, include:

1. **Current Asset:** It is assumed that inventories will be converted to cash in the current accounting cycle, which is normally, one year. In some cases, this is not entirely true, for example, a vintner may require that the wine be aged in casks or bottles for many years. Or, a manufacturer of fine pianos may have a production process that exceeds one year. In spite of these and similar problems, we will view all inventories as being convertible into cash in a single year.
2. **Level of Liquidity:** Inventories are viewed as a source of near cash. For most products, this description is accurate. At the same time, most firms hold some slow-moving items that may not be sold for a long time. With economic slowdowns or changes in the market for goods, the prospects for sale of entire product lines may be diminished. In these cases, the liquidity aspects of inventories become highly important to the manager of working capital. At a minimum, the analyst must recognize that inventories are the least liquid of current assets. For firms with highly uncertain operating environments, the analyst must discount the liquidity value of inventories significantly.
3. **Liquidity Lags:** Inventories are tied to the firm's pool of working capital in a process that involves three specific lags, namely:
  - a. *Creation Lag:* In most cases, inventories are purchased on credit, creating an account payable. When the raw materials are processed in the factory, the cash to pay production expenses is transferred at future times, perhaps a week, month, or more. Labor is paid on payday. The utility that provided the electricity for manufacturing is paid after it submits its bill. Or for goods purchased for resale, the firm may have 30 or more days to hold the goods before payment is due. Whether manufactured or purchased, the firm will hold inventories for a certain time period before payment is made. This liquidity lag offers a benefit to the firm.
  - b. *Storage Lag:* Once goods are available for resale, they will not be immediately converted into cash. First, the item must be sold. Even when sales are moving briskly, a firm will hold inventory as a back-up. Thus, the firm will usually pay suppliers, workers, and overhead expenses before the goods are actually sold. This lag represents a cost to the firm.
  - c. *Sale Lag:* Once goods have been sold, they normally do not create cash immediately. Most sales occur on credit and become accounts receivable. The firm must wait to collect its receivables. This lag also represents a cost to the firm.
4. **Circulating Activity:** Inventories are in a rotating pattern with other current assets. They get converted into receivables which generate cash and invested again in inventory to continue the operating cycle.

## THE PURPOSE OF INVENTORIES

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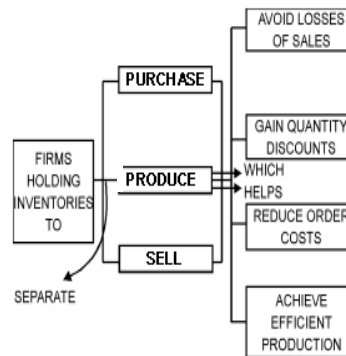
The purpose of holding inventories is to allow the firm to separate the processes of purchasing, manufacturing, and marketing of its primary products. The goal is to achieve efficiencies in areas where costs are involved and to achieve sales at competitive prices in the market place. Within this broad statement of purpose, we can identify specific benefits that accrue from holding inventories.

1. **Avoiding Lost Sales:** Without goods on hand which are ready to be sold, most firms would lose business. Some customers are willing to wait, particularly when an item must be made to order or is not widely available from competitors. In most cases, however, a firm must be prepared to deliver goods on demand. **Shelf stock** refers to items that are stored by the firm and sold with little or no modification to customers. An automobile is an item of shelf stock. Even though customers may specify minor variations, the basic item leaves a factory and is sold as a standard item. The same situation exists for many items of heavy machinery, consumer products, and light industrial goods.
2. **Gaining Quantity Discounts:** In return for making bulk purchases, many suppliers will reduce the price of supplies and component parts. The willingness to place large orders may allow the firm to achieve discounts on regular prices. These discounts will reduce the cost of goods sold and increase the profits earned on a sale.
3. **Reducing Order Costs:** Each time a firm places an order, it incurs certain expenses. Forms have to be completed, approvals have to be obtained, and goods that arrive must be accepted, inspected, and counted. Later, an invoice must be processed and payment made. Each of these costs will vary with the number of orders placed. By placing fewer orders, the firm will pay less to process each order.
4. **Achieving Efficient Production Runs:** Each time a firm sets up workers and machines to produce an item, startup costs are incurred. These are then absorbed as production begins. The longer the run, the smaller the costs to begin production of the goods. As an example, suppose it costs Rs.12,000 to move machinery and begin an assembly line to produce electronic printers. If 1,200 printers are produced in a single three-day run, the cost of absorbing the startup expenses is Rs.10 per unit ( $12,000/1,200$ ). If the run could be doubled to 2,400 units, the absorption cost would drop to Rs.5 per unit ( $12,000/2,400$ ). Frequent setups produce high startup costs; longer runs involve lower costs.

These benefits arise because inventories provide a “buffer” between purchasing, producing, and marketing goods. Raw materials and other inventory items can be purchased at appropriate times and in proper amounts to take advantage of economic conditions and price incentives. The manufacturing process can occur in sufficiently long production runs and with pre-planned schedules to achieve efficiency and economies. The sales force can respond to customer needs and demands based on existing finished products. To allow each area to function effectively, inventory separates the three functional areas and facilitates the interaction among them.

This role of inventory is diagrammed in Figure 1

Figure 1



5. **Reducing Risk of Production Shortages:** Manufacturing firms frequently produce goods with hundreds or even thousands of components. If any of these are missing, the entire production operation can be halted, with consequent heavy expenses. To avoid starting a production run and then discovering the shortage of a vital raw material or other component, the firm can maintain larger than needed inventories.

## TYPES OF INVENTORY

Four kinds of inventories may be identified:

1. **Raw Materials Inventory:** This consists of basic materials that have not yet been committed to production in a manufacturing firm. Raw materials that are purchased from firms to be used in the firm's production operations range from iron ore awaiting processing into steel to electronic components to be incorporated into stereo amplifiers. The purpose of maintaining raw material inventory is to uncouple the production function from the purchasing function so that delays in shipment of raw materials do not cause production delays.
2. **Stores and Spares:** This category includes those products which are accessories to the main products produced for the purpose of sale. Examples of stores and spares items are bolts, nuts, clamps, screws, etc. These spare parts are usually bought from outside or sometimes they are manufactured in the company also.
3. **Work-in-Process Inventory:** This category includes those materials that have been committed to the production process but have not been completed. The more complex and lengthy the production process, the larger will be the investment in work-in-process inventory.  
Its purpose is to uncouple the various operations in the production process so that machine failures and work stoppages in one operation will not affect the other operations.
4. **Finished Goods Inventory:** These are completed products awaiting sale. The purpose of a finished goods inventory is to uncouple the productions and sales functions so that it no longer is necessary to produce the goods before a sale can occur.

Table 1 provides the details of the investment in inventories in confectionery industry.

Table 1  
Investment in Inventories

Types of Inventories Cadbury India Ltd.	Value in Rs. lakh	% in total Inventory
Raw Materials	715.01	27.50
Packing Materials	387.70	14.90
Work-in-Process	551.17	21.17
Finished Goods	937.38	36.00
Stores and Spare Parts	11.32	0.43
Total	2,602.58	100.00

Source: Official Directory of Bombay Stock Exchange

## COSTS ASSOCIATED WITH INVENTORIES

The effective management of inventory involves a trade off between having too little and too much inventory. In achieving this trade off, the Finance Manager should realize that costs may be closely related. To examine inventory from the cost side, five categories of costs can be identified of which three are direct costs that are immediately connected to buying and holding goods and the last two are indirect costs which are losses of revenues that vary with differing inventory management decisions.

The five categories costs of holding inventories are:

**Material Costs:** These are the costs of purchasing the goods including transportation and handling costs.

**Ordering Costs:** Any manufacturing organization has to purchase materials. In that event, the ordering costs refer to the costs associated with the preparation of purchase requisition by the user department, preparation of purchase order and follow-up measures taken by the purchase department, transportation of materials ordered for, inspection and handling at the warehouse for storing. At times even demurrage charges for not lifting the goods in time are included as part of ordering costs. Sometimes, some of the components and/or material required for production may have facilities for manufacture internally. If it is found to be more economical to manufacture such items internally, then ordering costs refer to the costs associated with the preparation of requisition forms by the user department, set-up costs to be incurred by the manufacturing department and transport, inspection and handling at the warehouse of the user department. By and large, ordering costs remain more or less constant irrespective of the size of the order although transportation and inspection costs may vary to a certain extent depending upon order size. But this is not going to significantly affect the behavior of ordering costs. As ordering costs are considered invariant to the order size, the total ordering costs can be reduced by increasing the size of the orders. Suppose, the cost per order is Rs.100 and the company uses 1200 units of a material during the year. The size of the order and the total ordering costs to be incurred by the company are given below.

Size of order (units)	100	150	200
Number of orders in a year	12	8	6
Total ordering costs @ Rs.100 per order	Rs.1,200	Rs.800	Rs.600

From the above example, it can be easily seen that a company can reduce its total ordering costs by increasing the order size which in turn will reduce the number of orders. However, reduction in ordering costs is usually followed by an increase in carrying costs to be discussed now.

**Carrying Costs:** These are the expenses of storing goods. Once the goods have been accepted, they become part of the firm's inventories. These costs include insurance, rent/depreciation of warehouse, salaries of storekeeper, his assistants and security personnel, financing cost of money locked-up in inventories, obsolescence, spoilage and taxes. By and large, carrying costs are considered to be a given percentage of the value of inventory held in the warehouse, despite some fixed elements of costs which comprise only a small portion of total carrying costs. Approximately, carrying costs are considered to be around 25 percent of the value of inventory held in storage. The greater the investment in inventory, greater is the carrying costs. In the example considered in the case of ordering costs, let us assume that the price per unit of material is Rs.40 and that on an average about half-of the inventory will be held in storage.

Then, the average values of inventory for sizes of order 100, 150 and 200 along with carrying cost @ 25 percent of the inventory held in storage are given below.

Size of order (units):	100	150	200
Average value of inventory:	Rs.2,000	Rs.3,000	Rs.4,000
Carrying cost @ 25 percent of above:	Rs.500	Rs.750	Rs.1,000

From the above calculations, it can be easily seen that as the order size increases, the carrying cost also increasing in a directly proportionate manner.

**Cost of Funds Tied up with Inventory:** Whenever a firm commits its resources to inventory, it is using funds that otherwise might have been available for other purposes. The firm has lost the use of funds for other profit making purposes. This is its opportunity cost. Whatever the source of funds, inventory has a cost in terms of financial resources. Excess inventory represents unnecessary cost.

**Cost of Running out of Goods:** These are costs associated with the inability to provide materials to the production department and/or inability to provide finished goods to the marketing department as the requisite inventories are not available. In other words, the requisite items have run out of stock for want of timely replenishment. These costs have both quantitative and qualitative dimensions. These are, in the case of raw materials, the loss of production due to stoppage of work, the uneconomical prices associated with 'cash' purchases and the set-up costs which can be quantified in monetary terms with a reasonable degree of precision. As a consequence of this, the production department may not be able to reach its target in providing finished goods for sale. Its cost has qualitative dimensions as discussed below.

When marketing personnel are unable to honour their commitment to the customers in making finished goods available for sale, the sale may be lost. This can be quantified to a certain extent. However, the erosion of the good customer relations and the consequent damage done to the image and goodwill of the company fall into the qualitative dimension and elude quantification. Even if the stock-out cost cannot be fully quantified, a reasonable measure based on the loss of sales for want of finished goods inventory can be used with the understanding that the amount so measured cannot capture the qualitative aspects.

## **INVENTORY MANAGEMENT TECHNIQUES**

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As explained above, while the total ordering costs can be decreased by increasing the size of order, the carrying costs increase with the increase in order size indicating the need for a proper balancing of these two types of costs behaving in opposite directions with changes in order size.

Again, if a company wants to avert stock-out costs it may have to maintain larger inventories of materials and finished goods which will result in higher carrying costs. Here also proper balancing of the costs becomes important.

Thus, the importance of effective inventory management is directly related to the size of the investment in inventory. To manage its inventories effectively, a firm should use a systems approach to inventory management. A systems approach considers in a single model all the factors that affect the inventory.

A system for effective inventory management involves three subsystems namely economic order quantity, reorder point and stock level.

### **Economic Order Quantity**

The Economic Order Quantity (EOQ) refers to the optimal order size that will result in the lowest total of order and carrying costs for an item of inventory given its expected usage, carrying costs and ordering cost. By calculating an economic order quantity, the firm attempts to determine the order size that will minimize the total inventory costs.



$$\begin{aligned} \text{Total inventory cost} &= \text{Ordering cost} + \text{Carrying cost} \\ \text{Total ordering costs} &= \text{Number of orders} \times \text{Cost per order} \\ &= \text{Rs. } \frac{U}{Q} \times F \end{aligned}$$

Where U = Annual usage  
 Q = Quantity ordered  
 F = Fixed cost per order

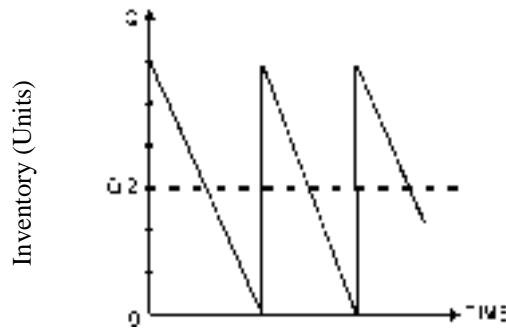
The total carrying costs = Average level of inventory x Price per unit x Carrying cost (percentage)

$$\therefore \text{Total carrying costs} = \text{Rs. } \frac{Q}{2} \times P \times C = \text{Rs. } \frac{QPC}{2}$$

Where Q = Quantity ordered  
 P = Purchase price per unit  
 C = Carrying cost as %

As the lead time (i.e., time required for procurement of material) is assumed to be zero an order for replenishment is made when the inventory level reduces to zero. The level of inventory over time follows the pattern shown in figure 2.

**Figure 2: Inventory Level and Order Point for Replenishment**



From figure 2 it can be noticed that the level of inventory will be equal to the order quantity (Q units) to start with. It progressively declines (though in a discrete manner) to level 0 by the end of period 1. At that point an order for replenishment will be made for Q units. In view of zero lead time, the inventory level jumps to Q and a similar procedure occurs in the subsequent periods. As a result of this the average level of inventory will remain at (Q/2) units, the simple average of the two end points Q and Zero.

From the above discussion the average level of inventory is known to be (Q/2) units.

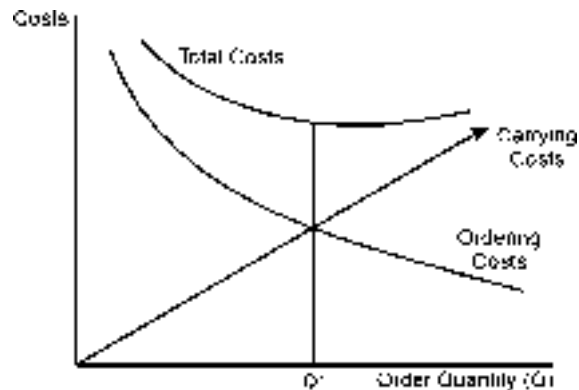
From the previous discussion, we know that as order quantity (Q) increases, the total ordering costs will decrease while the total carrying costs will increase.

The economic order quantity, denoted by Q\*, is that value at which the total cost of both ordering and carrying will be minimized. It should be noted that total costs associated with inventory

$$= \text{Rs. } \frac{UF}{Q} + \text{Rs. } \left( \frac{QPC}{2} \right)$$

where the first expression of the equation represents the total ordering costs and the second expression the total carrying costs. The behavior of ordering costs, carrying costs and total costs for different levels of order Quantity (Q) is depicted in figure 3.

**Figure 3: Behavior of costs associated with inventory for changes in order quantity**



From figure 3, it can be seen that the total cost curve reaches its minimum at the point of intersection between the ordering costs curve and the carrying costs line. The value of  $Q$  corresponding to it will be the economic order quantity  $Q^*$ . We can calculate the EOQ formula.

The order quantity  $Q$  becomes EOQ when the total ordering costs at  $Q$  is equal to the total carrying costs. Using the notation, it amounts to stating:

$$\frac{UF}{Q} = \frac{QPC}{2}$$

(i.e.)  $2UF = Q^2 PC$

or  $Q = \sqrt{\frac{2UF}{PC}}$  units

To distinguish EOQ from other order quantities, we can say

$$EOQ = Q^* = \sqrt{\frac{2UF}{PC}}$$

In the above formula, when 'U' is considered as the annual usage of material, the value of  $Q^*$  indicates the size of the order to be placed for the material which minimizes the total inventory-related costs. When 'U' is considered as the annual demand  $Q^*$  denotes the size of production run.

Suppose a firm expects a total demand for its product over the planning period to be 10,000 units, while the ordering cost per order is Rs.100 and the carrying cost per unit is Rs.2. Substituting these values,

$$EOQ = \sqrt{\frac{2 \times 10,000 \times 100}{2}} = 1,000 \text{ units}$$

Thus if the firm orders in 1,000 unit lot sizes, it will minimize its total inventory costs.

#### Examination of EOQ Assumptions

The major weaknesses of the EOQ model are associated with several of its assumptions, in spite of which the model tends to yield quite good results. Where its assumptions have been dramatically violated, the EOQ model can generally be easily modified to accommodate the situation. The model's assumptions are as follows:

1. **Constant or uniform demand:** Although the EOQ model assumes constant demand, demand may vary from day-to-day. If demand is stochastic that is, not known in advance – the model must be modified through the inclusion of a safety stock.

2. **Constant unit price:** The EOQ formula derived is based on the assumption that the purchase price Rs.P per unit of material will remain unaltered irrespective of the order size. Quite often, bulk purchase discounts or quantity discounts are offered by suppliers to induce customers for buying in larger quantities.  
The inclusion of variable prices resulting from quantity discounts can be handled quite easily through a modification of the original EOQ model, redefining total costs and solving for the optimum order quantity.
3. **Constant carrying costs:** Unit carrying costs may vary substantially as the size of the inventory rises, perhaps decreasing because of economies of scale or storage efficiency or increasing as storage space runs out and new warehouses have to be rented. This situation can be handled through a modification in the original model similar to the one used for variable unit price.
4. **Constant ordering costs:** While this assumption is generally valid, its violation can be accommodated by modifying the original EOQ model in a manner similar to the one used for variable unit price.
5. **Instantaneous delivery:** If delivery is not instantaneous, which is generally the case, the original EOQ model must be modified by including of a safety stock.
6. **Independent orders:** If multiple orders result in cost savings by reducing paperwork and transportation cost, the original EOQ model must be further modified. While this modification is somewhat complicated, special EOQ models have been developed to deal with this.

These assumptions have been pointed out to illustrate the limitations of the basic EOQ model and the ways in which it can be easily modified to compensate for them. Moreover, an understanding of the limitations and assumptions of the EOQ model will provide the Finance Manager with a strong base for making inventory decisions.

## **INFLATION AND EOQ**

Inflation affects the EOQ model in two major ways. First, while the EOQ model can be modified to assume constant price increases, many times major price increases occur only once or twice a year and are announced ahead of time. If this is the case, the EOQ model may lose its applicability and may be replaced with anticipatory buying – that is buying in anticipation of a price increase in order to secure the goods at a lower cost. Of course, as with most decisions, there are trade offs associated with anticipatory buying. The costs are the added carrying costs associated with the inventory that you would not normally be holding. The benefits of course, come from buying the inventory at a lower price. The second way inflation affects the EOQ model is through increased carrying costs. As inflation pushes interest rates up, the cost of carrying inventory increases. In the EOQ model this means that  $C$  increases, which results in a decline in the optimal economic order quantity.

**Determination of Optimum Production Quantity:** The EOQ Model can be extended to production runs to determine the optimum production quantity. The two costs involved in this process are: (i) set up cost and (ii) inventory carrying cost. The set-up cost is of the nature of fixed cost and is to be incurred at the time of commencement of each production run. The larger the size of the production run, the lower will be the set-up cost per unit. However, the carrying cost will increase with an increase in the size of the production run. Thus, there is an inverse relationship between the set-up cost and inventory carrying cost. The optimum production size is at that level where the total of the set-up cost and the inventory carrying cost is the minimum. In other words, at this level the two costs will be equal.

The formula for EOQ can also be used for determining the optimum production quantity as given below:

$$E = \sqrt{\frac{2U \times P}{S}}$$

Where E = Optimum production quantity  
 U = Annual (monthly) output  
 P = Set-up cost for each production run  
 S = Cost of carrying inventory per unit per annum (per month)

#### Illustration 1

Arvee Industries desires an annual output of 25,000 units. The set-up cost for each production run is Rs.80. The cost of carrying inventory per unit per annum is Rs.4. The optimum production quantity per production run (E) is

$$\begin{aligned} E &= \sqrt{\frac{2U \times P}{S}} \\ &= \sqrt{\frac{2 \times 25,000 \times 80}{4}} \\ &= \frac{2,000}{2} = 1,000 \text{ units.} \end{aligned}$$

**Modified EOQ to include Varying Unit Prices:** Bulk purchase discount is offered when the size of the order is at least equal to some minimum quantity specified by the supplier. The question may arise whether  $Q^*$ , EOQ calculated on the basis of a price without discount will still remain valid even after reckoning with the discount. While no general answer can be given to such a question we can certainly say that a general approach using the EOQ framework will prove useful in decision-making – whether to avail oneself of the discount offered and if so what should be the optimal size of the order.

The procedure for such an approach is outlined below:

The first step under the general approach is to calculate  $Q^*$ , EOQ without considering the discount. Let us suppose  $Q'$  is the minimum order-size stipulated by the supplier for utilizing discount. After calculating  $Q^*$  the same will be compared to  $Q'$ . Only three possibilities can arise out of the comparison.

In case  $Q^*$  is greater than or equal to  $Q'$ , then  $Q^*$  will remain valid even in the changed situation caused by the quantity discount offered. This is so because the company can avail itself of the benefit of quantity discount with an order-size of  $Q^*$  as it is at least equal to  $Q'$ , the minimum stipulated order size for utilizing discount.

Only in the case of  $Q^*$  being less than  $Q'$  the need for the calculation of an optimal order size arises as the company cannot avail itself of the discount with the order size of  $Q^*$ . An incremental analysis can be carried out to consider the financial consequences of availing oneself of discount by increasing the order-size to  $Q'$ . A decision to increase the order-size is warranted only when the incremental benefits exceed the incremental costs arising out of the increased order-size.

The incremental benefits will have two components: First, the total amount of discount available on the amount of material is to be used. If we assume Rs.D of discount per unit of material, then the total discount on the annual usage of material of U units amounts to:

Annual usage of materials in units x Discount per unit of material = Rs.UD

Secondly, with an increase in order-size from  $Q^*$  to  $Q'$ , the number of orders will be reduced. As the ordering cost is assumed to be Rs.F per order irrespective of the order size, there will be a reduction in the total ordering cost. Thus, the reduction in ordering cost.

$$= \text{(The difference between the number of orders with sizes of } Q^* \text{ and } Q') \times \text{(the cost per order of Rs. F)}$$

$$= \text{Rs. } \left[ \frac{U}{Q^*} - \frac{U}{Q'} \right] \times F$$

Thus, the total incremental benefits will be the sum of the above two expressions and is given by

$$\text{Total incremental benefits} = \text{Rs. } UD + \text{Rs. } \left\{ \frac{U}{Q^*} - \frac{U}{Q'} \right\} \times F$$

With an increase in the order-size, there is likely to be an increase in the average value of inventory even after reckoning with the discount per unit of material of Rs.D which will go to reduce the price per unit for the valuation of inventory. The increase in the average value of inventory will result in higher incidence of carrying cost, assumed to be C percent of the average value of inventory.

$$\text{Incremental carrying cost} = \frac{Q'(P-D)C}{2} - \frac{Q^*PC}{2}$$

The net incremental benefit can be obtained by subtracting the incremental carrying cost from the total incremental benefits. This is given by the expression.

Net incremental benefits

$$= \text{Rs. } U \times D + \text{Rs. } \left( \frac{U}{Q^*} - \frac{U}{Q'} \right) F - \text{Rs. } \left[ \frac{Q'(P-D)C - Q^*PC}{2} \right]$$

If the net incremental benefits are positive, then the optimal order quantity becomes  $Q'$ . Otherwise  $Q^*$  will continue to remain valid even in a situation of bulk purchase discount. A numerical illustration is given below to illustrate the procedure to be adopted in a situation of bulk purchase discount.

### **Illustration 2**

The annual usage of a raw material is 40,000 units for the Hy Fly Co., Ltd. The price of the raw material is Rs.50 per unit. The ordering cost is Rs.200 per order and the carrying cost 20 percent of the average value of inventory. The supplier has recently introduced a discount of 4 percent on the price of material for orders of 1,500 units and above. What was the company's E.O.Q. prior to the introduction of discount? Should the company opt for availing the discount? What would be the optimal order size if the company opts to avail for itself the discount offered?

Let us first arrange the data contained in the problem in accordance with the notation familiar to us by now.

U	=	40,000 units
F	=	Rs.200 per order
P	=	Rs.50 per unit
D	=	Rs.2 per unit
C	=	0.20

E.O.Q. without discount,

$$\begin{aligned} Q^* &= \sqrt{\frac{2UF}{PC}} \\ &= \sqrt{\frac{2 \times 40,000 \times 200}{50 \times 0.2}} \\ &= 1,265 \text{ units} \end{aligned}$$

For utilizing discount the minimum order size  $Q' = 1,500$  units. As  $Q^*$  is less than  $Q'$ , we have to calculate the incremental benefits and incremental costs.

Total amount of discount available with an order size of 1,500 units.

$$\begin{aligned} &= U \times D = 40,000 \text{ units} \times \text{Rs.}2 \text{ per unit.} \\ &= \text{Rs.}80,000 \end{aligned} \quad \text{.....(1)}$$

Savings due to reduction in ordering costs

$$\begin{aligned} &= \text{Rs.} \left( \frac{U}{Q^*} - \frac{U}{Q'} \right) \times F \\ &= \frac{40,000}{1265} - \frac{40,000}{1500} \\ &= (32 - 27) \times \text{Rs.}200 \\ &= \text{Rs.}1,000 \end{aligned} \quad \text{.....(2)}$$

Incremental carrying cost

$$\begin{aligned} &= \frac{Q'(P-D)C}{2} - \frac{Q^*PC}{2} \\ &= \frac{1,500 \times 48 \times 0.2}{2} - \frac{1,265 \times 50 \times 0.2}{2} \\ &= \text{Rs.}7,200 - \text{Rs.}6,325 \\ &= \text{Rs.}875 \end{aligned} \quad \text{.....(3)}$$

Net incremental benefits (= 1 + 2 - 3)

$$= \text{Rs.}80,000 + \text{Rs.}1,000 - \text{Rs.}875 = \text{Rs.}80,125$$

As the net incremental benefits is a positive sum of Rs.80,125, the company should opt for availing the discount offered. The optimal order-size will be 1,500 units, the minimum order size required for availing of the discount.

From the illustration 2, it is clear that although EOQ value of 1,265 units ( $Q^*$ ) is not relevant in the present situation of bulk purchase discount, the general framework of the EOQ model has provided the necessary basis for subsequent calculations and the decision reached therefrom.

### Reorder Point Subsystem

In the EOQ model discussed we have made the assumption that the lead time for procuring material is zero. Consequently, the reorder point for replenishment of stock occurs when the level of inventory drops down to zero. In view of instantaneous replenishment of stock, the level of inventory jumps to the original level from zero level. In real life situations one never encounters a zero lead time. There is always a time lag from the date of placing an order for material and the date on which materials are received. As a result the reorder level is always at a level higher than zero, and if the firm places the order when the inventory reaches the reorder point, the new goods will arrive before the firm runs out of goods to sell. The decision on how much stock to hold is generally referred to as the order point problem, that is, how low should the inventory be depleted before it is reordered.

The two factors that determine the appropriate order point are the procurement or delivery time stock which is the inventory needed during the lead time (i.e., the difference between the order date and the receipt of the inventory ordered) and the safety stock which is the minimum level of inventory that is held as a protection against shortages.

∴ Reorder Point = Normal consumption during lead time + Safety Stock.

Several factors determine how much the delivery time stock and safety stock should be held. In summary, the efficiency of a replenishment system affects amount of much delivery time needed. Since the delivery time stock is the expected inventory usage between ordering and receiving inventory, efficient replenishment of inventory would reduce the need for delivery time stock. And the determination of level of safety stock involves a basic trade-off between the risk of stock-out, resulting in possible customer dissatisfaction and lost sales, and the increased costs associated with carrying additional inventory.

Another method of calculating reorder level involves the calculation of usage rate per day, lead time which is the amount of time between placing an order and receiving the goods and the safety stock level expressed in terms of several days' sales.

Reorder level = Average daily usage rate x lead time in days.

From the above formula it can be easily deduced that an order for replenishment of materials be made when the level of inventory is just adequate to meet the needs of production during lead time.

If the average daily usage rate of a material is 50 units and the lead time is seven days, then

$$\begin{aligned}\text{Reorder level} &= \text{Average daily usage rate} \times \text{Lead time in days} \\ &= 50 \text{ units} \times 7 \text{ days} \\ &= 350 \text{ units}\end{aligned}$$

When the inventory level reaches 350 units an order should be placed for material. By the time the inventory level reaches zero towards the end of the seventh day from placing the order, materials will reach and there is no cause for concern.

### **Safety Stock**

Once again in real life situations one rarely comes across lead times and usage rates that are known with certainty. When usage rate and/or lead time vary, then the reorder level should naturally be at a level high enough to cater to the production needs during the procurement period and also to provide some measures of safety for at least partially neutralizing the degree of uncertainty.

The question will naturally arise as to the magnitude of safety stock. There is no specific answer to this question. However, it depends, *inter alia*, upon the degree of uncertainty surrounding the usage rate and lead time. It is possible to a certain extent to quantify the values that usage rate and lead time can take along with the corresponding chances of occurrence, known as probabilities. These probabilities can be ascertained based on previous experiences and/or the judgemental ability of astute executives. Based on the above values and estimates of stock-out costs and carrying costs of inventory, it is possible to work out the total cost associated with different levels of safety stock.

Once we realize that higher the quantity of safety stock, lower will be the stock-out cost and higher will be the incidence of carrying costs, the formula for estimating the reorder level will call for a trade-off between stock-out costs and carrying costs. The reorder level will then become one at which the total stock-out costs (to be more precise, the expected stock-out costs) and the carrying costs will be at their its minimum. We consider below through an illustration the way of arriving at the reorder level in a situation where both usage rate and lead time are subject to variation.

**Illustration 3**

Below are presented the daily usage rate of a material and the lead time required to procure the material along with their respective probabilities (which are independent) for Sigma Company Ltd. The probabilities and the values of usage rate and lead time are based on optimistic, realistic and pessimistic perceptions of the executives concerned.

Average Daily Usage Rate (units)	Probability of Occurrence	Lead Time (No. of days)	Probability of Occurrence
200	0.25	12	0.25
500	0.50	16	0.50
800	0.25	20	0.25

The stock-out cost is estimated to be Rs.10 per unit while carrying cost for the period under consideration is Rs.3 per unit. What should be the reorder level based on financial considerations?

From the data contained in the table we can calculate the expected usage rate and expected lead time.

The expected usage rate is nothing but the weighted average daily usage rate, where the weights are taken to be the corresponding probability values. Thus, expected daily usage rate

$$\begin{aligned}
 &= 200 \times 0.25 + 500 \times 0.5 + 800 \times 0.25 \\
 &= 50 + 250 + 200 \\
 &= 500 \text{ units}
 \end{aligned}$$

Similarly expected lead time

$$\begin{aligned}
 &= 12 \times 0.25 + 16 \times 0.5 + 20 \times 0.25 \\
 &= 3 + 8 + 5 = 16 \text{ days}
 \end{aligned}$$

Normal consumption during lead time can be obtained by multiplying the above two values.

(i.e.,) Normal consumption during lead time

$$= 500 \text{ units per day} \times 16 \text{ days} = 8,000 \text{ units}$$

Since normal consumption during lead time has been obtained as 8000 units, stock-outs can occur only if the consumption during lead time is more than 8,000 units.

Let us enumerate the situations with lead time consumption of more than 8,000 units, along with their respective probabilities of occurrence. This can be achieved by considering the possible levels of usage.

The possible levels of usage are:

Daily usage rate	Leadtime in days		Possible levels of usage		
	Probability	Units	Probability	Units	
200	0.25	12	0.25	2400	0.0625
		16	0.50	3200	0.1250
		20	0.25	4000	0.0625
500	0.5	12	0.25	6000	0.1250
		16	0.50	8000	0.2500
		20	0.25	10000	0.1250
800	0.25	12	0.25	9600	0.0625
		16	0.50	12800	0.1250
		20	0.25	16000	0.0625



From the above table it is clear that the situations with the lead time consumption of more than 8,000 units (normal usage) are 10,000 units with a probability of 0.1250, 9,600 units with 0.0625, 12,800 units with 0.1250 and 16,000 units with 0.0625 probability. And the levels of stock-out are 2,000 units, 1,600 units, 4,800 units and 8,000 units respectively.

Thus, safety stock level can be maintained at any of the above levels and the stock-out cost and carrying cost associated with these various levels are shown in the table.

**Table 2**  
**Levels of Safety Stocks and Associated Costs**

Safety Stock (1)	Stockouts (2)	Probability (3)	Expected Stockout (4) = (2 x 3)	Expected Stockout Cost (5)	Carrying Cost (6)	Total Cost (7)
8,000 units	0	0	0	0	Rs. 24,000	Rs. 24,000
4,800 units	3,200 units	0.0625	200 units	Rs. 2,000	Rs. 14,400	Rs. 16,400
2,000 units	6,000 units	0.0625	375 units	Rs. 7,250	Rs. 6,000	Rs. 13,250
	2,800 units	0.1250	350 units			
1,600 units	6,400 units	0.0625	400 units	Rs. 8,500	Rs. 4,800	Rs. 13,300
	3,200 units	0.1250	400 units			
	400 units	0.1250	50 units			
0	8,000 units	0.0625	500 units	Rs.14,500	0	Rs. 14,500
	4,800 units	0.1250	600 units			
	2,000 units	0.1250	250 units			
	1,600 units	0.0625	100 units			
			1,450 units			

If the safety stock of the firm is 8,000 units, there is no chance of the firm being out of stock. The probability of stock-out is, therefore zero. If the safety stock of the firm is 4,800 units, there is 0.0625 chance that the firm will be short of inventory.

If the safety stock of the firm is 2,000 units, there is stock-out of 6,000 units with a probability of 0.0625 and 2,800 units with a probability of 0.125 based on the possible usage of 16,000 units with probability of 0.0625 and 12,800 with a probability of 0.125 stock-out and the probability of occurrence of stock-out at other levels are calculated in the same way.

**Reorder Point Formula**

Even in a relatively simple situation considered in the illustration above, the amount of calculations involved for arriving at the reorder level is large. In real life situations the assumption of independence in the probability distributions made in the illustration above may not be valid and the number of time periods may also be large. In such cases the approach adopted earlier can become much more complex. Therefore, one can adopt a much simpler formula which gives reasonably reliable results in calculating at what point in the level of inventory a reorder has to be placed for replenishment of stock. The formula along with its application is given below, using the notation developed earlier.

$$\text{Reorder point} = S \times L + F \sqrt{(S \times R \times L)}$$

Where,

S = Usage in units per day

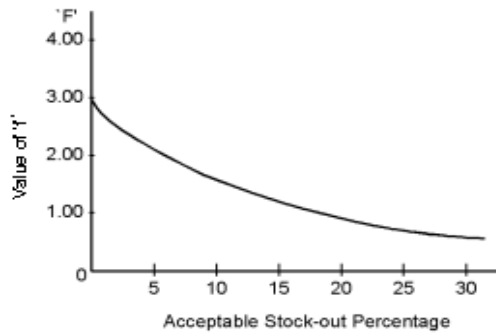
L = Lead time in days

R = Average number of units per order

F = Stockout acceptance factor

The stock-out acceptance factor, 'F', depends on the stock-out percentage rate specified and the probability distribution of usage (which is assumed to follow a Poisson distribution). For any specified acceptable stockout percentage the value of 'F' can be obtained from the figure presented below.

**Figure 4: Value of 'f' for different Stocks out percentage**



**Illustration 4**

For Apex company the average daily usage of a material is 100 units, lead time for procuring material is 20 days and the average number of units per order is 2000 units. The stockout acceptance factor is considered to be 1.3. What is the reorder level for the company?

From the data contained in the problem we have

S = 100 units

L = 20 days

R = 2,000 units

F = 1.3

$$\begin{aligned} \text{Reorder level} &= S \times L + F \sqrt{(S \times R \times L)} \\ &= 100 \times 20 + 1.3 \sqrt{(100 \times 2,000 \times 20)} \\ &= 2,000 + 1.3 \times 2,000 = 4,600 \text{ units} \end{aligned}$$

Reorder for replenishment of stock should be placed when the inventory level reaches 4,600 units.

**Stock-level Subsystem**

This stock level subsystem keeps track of the goods held by the firm, the issuance of goods, and the arrival of orders. It maintains records of the current level of inventory. For any period of time, the current level is calculated by taking the beginning inventory, adding the inventory received, and subtracting the cost of goods sold. Whenever this subsystem reports that an item is at or below the reorder point level, the firm will begin to place an order for the item.

**Total System**

The three subsystems are tied together in a single inventory management system. The inventory management system can also be illustrated in terms of the three subsystems that comprise it. The figure No. 15.5 below ties each subsystem together and shows the three items of information needed for the decision to order additional inventory.

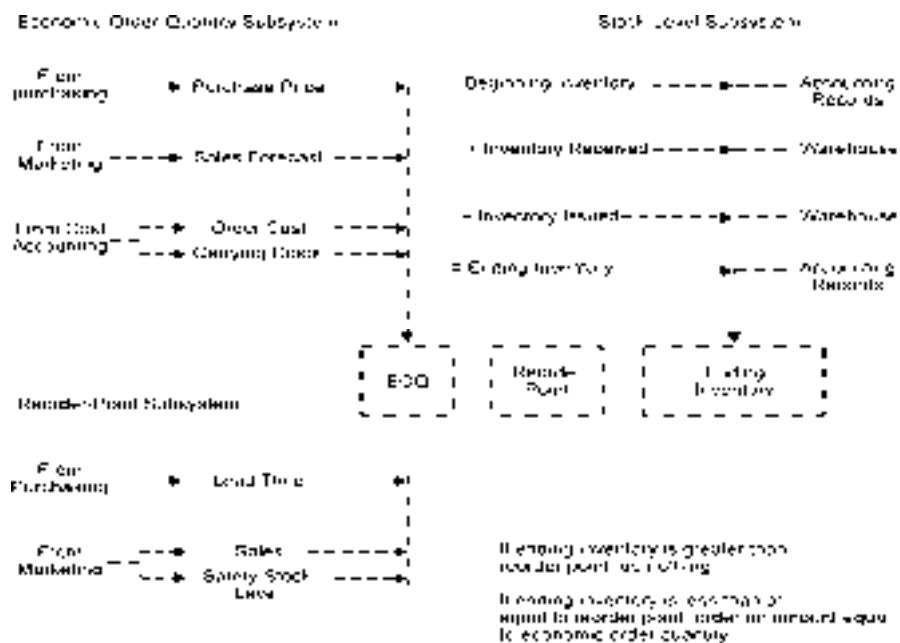
## INVENTORY PLANNING

An important task of working-capital management is to ensure that inventories are incorporated into the firm's planning and budgeting process. Sometimes, the level of inventory reflects the orders received by the general manager of the plant without serious analysis as to the need for the materials or parts. This lack of planning can be costly for the firm, either because of the carrying and financing costs of excess inventory or the lost sales from inadequate inventory. The inventory requirements to support production and marketing should be incorporated into the firm's planning process in an orderly fashion.

### The Production Side

The first step in inventory planning deals with the manufacturing mix of inventory items and end products. Every product is made up of a specified list of components. The analyst must recognize the different mix of components in each finished product. Each item maintained in inventory will have a cost. This cost may vary based on volume purchases, lead time for an order, historical agreements, or other factors. For the purpose of preparing a budget, each item must be assigned a unit cost.

Figure 5: Three Subsystems of the Inventory-Management System



Once the mix of components is known and each component has been assigned a value, the analyst can calculate the materials cost for each product which is the weighted average of the components and the individual products.

### The Marketing Side

The second step in inventory planning involves a forecast of unit requirements during the future period. Both a sales forecast and an estimate of the safety level to support unexpected sales opportunities are required. The Marketing Department should also provide pricing information so that higher profit items receive more attention.

### Inventory Data Base

An important component of inventory planning involves access to an inventory data base. A data base is a collection of data items arranged in files, fields and records. Essentially, we are working with a structured framework that contains the information needed to effectively manage all items of inventory, from raw materials to finished goods. This information includes the classification and amount of inventories, demand for the items, cost to the firm for each item, ordering costs, carrying costs, and other data.

The first component of an inventory data base deals with the movement of individual items and the second component of inventory management data involves information needed to make decisions on rendering or replenishing the items.

**Conclusion**

The task of inventory planning can be highly complex in manufacturing environments. At the same time, it rests on fundamental principles. The system used for inventory must tie into the operations of the firm. Inventory planning and management must be responsive to the needs of the firm. The firm should design systems, including reports, that allow it to make proper business decisions.

**OTHER INVENTORY MANAGEMENT TECHNIQUES**

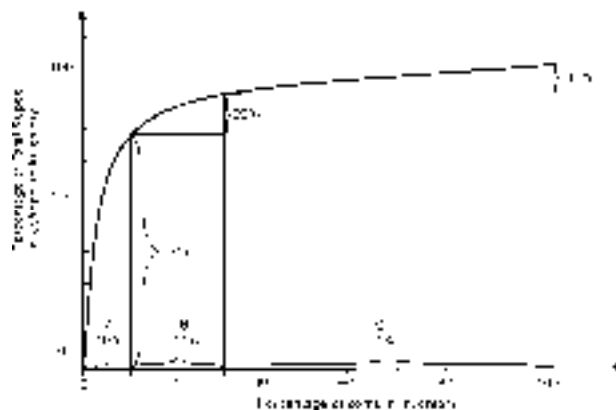
**The ABC system**

In the case of a manufacturing company of reasonable size the number of items of inventory runs into hundreds, if not more. From the point of view of monitoring information for control it becomes extremely difficult to consider each one of these items. The ABC analysis comes in quite handy and enables the management to concentrate attention and keep a close watch on a relatively less number of items which account for a high percentage of the value of annual usage of all items of inventory.

A firm using the ABC system segregates its inventory into three groups – A, B and C. The A items are those in which it has the largest rupee investment. In the Figure 15.6 which depicts the typical distribution of inventory items, A group consists about 10 percent of the inventory items that account approximately for 70 percent of the firm’s rupee investment. These are the most costly or the slowest turning items of inventory. The B group consists of the items accounting for the next largest investment. This group consists approximately 20 percent of the items accounting for about 20 percent of the firm’s rupee investment. The C group typically consists of a large number of items accounting for a small rupee investment. C group consists of approximately 70 percent of all the items of inventory but accounts for only about 10 percent of the firm’s rupee investment. Items such as screws, nails, and washers would be in this group.

Dividing its inventory into A, B, and C items allows the firm to determine the level and types of inventory control procedures needed. Control of the A items should be most intensive due to the high rupee investments involved, while the B and C items would be subject to correspondingly less sophisticated control procedures.

**Figure 6: Typical Distribution of Inventory Items – ABC System**



The general procedure for categorization of items into 'A', 'B' and 'C' groups is briefly outlined below followed by an illustration.

- All the items of inventory are to be ranked in the descending order of their annual usage value.
- The cumulative totals of annual usage values of these items along with their percentages to the total annual usage value are to be noted alongside.
- The cumulative percentage of items to the total number of items is also to be recorded in another column.
- An approximate categorization of items into A, B, and C groups can be made by comparing the cumulative percentage of items with the cumulative percentage of the corresponding usage values.

**Illustration 5**

From the following details, draw a plan of ABC Selective Control.

Item	Units	Unit Cost
1.	7,000	5.00
2.	24,000	3.00
3.	1,500	10.00
4.	600	22.00
5.	38,000	1.50
6.	40,000	0.50
7.	60,000	0.20
8.	3,000	3.50
9.	300	8.00
10.	29,000	0.40
11.	11,500	7.10
12.	4,100	6.20

**Solution****Ranking of Items According to their Usage Value**

Item	Units	Unit Cost Rs.	Total Cost Rs.	% of Total cost	Ranking
1.	7,000	5.00	35,000	9.8	4
2.	24,000	3.00	72,000	20.2	2
3.	1,500	10.00	15,000	4.2	7
4.	600	22.00	13,200	3.7	8
5.	38,000	1.50	57,000	16.0	3
6.	40,000	0.50	20,000	5.6	6
7.	60,000	0.20	12,000	3.4	9
8.	3,000	3.50	10,500	3.0	11
9.	300	8.00	2,400	0.7	12
10.	29,000	0.40	11,600	3.3	10
11.	11,500	7.10	81,650	23.0	1
12.	4,100	6.20	25,420	7.1	5
			3,55,770	100.0	

The advantages of this system are as follows:

- It ensures closer control on costly items in which a large amount of capital has been invested.
- It helps in developing a scientific method of controlling inventories, Clerical costs are reduced and stock is maintained at optimum level.
- It helps in achieving the main objective of inventory control at minimum cost. The stock turnover rate can be maintained at comparatively higher level through scientific control of inventories.

The system of ABC analysis suffers from a serious limitation. The system analyzes the items according to their value and not according to their importance in the production process. It may, therefore, sometimes create difficult problems. For example, an item of inventory may not be very costly and hence it may have been put in category C. However, the item may be very important to the production process because of its scarcity. Such an item as a matter of fact requires the utmost attention of the management though it is not advisable to do so as per the system of ABC analysis. Hence, the system of ABC analysis should not be followed blindly.

The required plan of ABC selective control can now be drawn as:

**Table 3: ABC Plan**

Items in order of ranking	Item numbers	Percentage of total items	Value	Cumulative value	Cumulative percentage	Percentage of total value	Category
				Rs.			
1	3	25%	81,650	81,650	23.0	59.2%	A
2			72,000	1,53,650	43.2		
3			57,000	2,10,650	59.2		
4	4	33.3%	35,000	2,45,650	69.0	26.8%	B
5			25,420	2,71,070	76.2		
6			20,000	2,91,070	81.8		
7			15,000	3,06,070	86.0		
8	5	41.7%	13,200	3,19,270	89.7	14%	C
9			12,000	3,31,270	93.1		
10			11,600	3,42,870	96.4		
11			10,500	3,53,370	99.3		
12	–	–	2,400	3,55,770	100.0	–	
<b>Total</b>	<b>12</b>	<b>100</b>	<b>3,55,770</b>			<b>100</b>	

**Monitoring of Stores and Spares**

Just like ABC Analysis for classification of inventories, there is an inventory management technique called VED Analysis for monitoring and control of stores and spares inventory by classifying them into 3 categories viz., Vital, Essential and Desirable. The mechanics of VED analysis are similar to those of ABC Analysis.

**PRICING OF INVENTORIES**

There are different ways of valuing the inventories and a knowledge of these methods of valuing stocks is essential for an efficient inventory management process. The following methods can be adopted to value the raw material:

- **First-In-First-Out (FIFO):** When a firm adopts the FIFO method to price its raw material, the issue of material from the stores will be in the order which it was received. Thus the pricing will be based on the cost of material that was obtained first.
- **Last-In-First-Out (LIFO):** In the LIFO method, the material issued will be priced based on the material that has been purchased recently.
- **Weighted Average Cost Method:** The pricing of materials will be done on weighted average basis (weights will be given based on the quantity).
- **Standard Price Method:** Material is priced based on a standard cost which is predetermined. When the material is purchased the stock account will be debited with the standard price. The difference between the purchase price and the standard price will be carried into a variance account.
- **Replacement/Current Price Method:** In this method, material is priced at the value that is realizable at the time of the issue.

**Illustration 6**

The following information is extracted from the stores ledger of M/s Meena Ltd.

Material: X

Opening Stock: NIL

Purchases:

July 1 175 units @ Re.1 per unit

July 12 175 units @ Re.2 per unit

Issues:

July 21 105 units

July 30 70 units

- i. Complete the receipts and issues valuation by adopting the FIFO, LIFO and Weighted Average Method.
- ii. If the standard price is Rs.1.25 per unit for the year and the replacement costs of the material on July 21 and July 30 are Rs.1.25 and Rs.1.75 respectively, then show the stock ledger account using the standard price method and the replacement price method.

The illustration has been solved in the following tables.

**Valuation of Work-in-process and Finished Stock**

The valuation of work-in-process and finished goods inventory depends to a certain extent on the method of pricing the raw material and to a large extent on the method of costing used to apportion the fixed manufacturing overheads. Direct Costing and Absorption Costing are the two techniques used for allocation of costs to the inventory.

Direct costing is based on the traceability of cost to the cost objective. All indirect costs (which may include fixed manufacturing overheads) are charged to the income statement and are known as period costs. If the fixed costs are directly identifiable, then it is considered for inventory valuation.

Absorption costing is a technique which treats the fixed manufacturing overheads as product costs. Thus, all costs i.e., both fixed and variable will be assigned to the inventory value.

This difference in approach to costing will affect the inventory value and also the profits. The direct costing method lowers the inventory value (by not considering the indirect costs) and increases profits with a decrease in inventory level (when the inventory level decreases the direct costs come down while the fixed costs remain the same). Contrary to this the inventory valuation will be higher for stocks valued under absorption costing method as it considers all the fixed manufacturing overheads.

- i. Statement showing the valuation of raw material using FIFO, LIFO and Weighted Average Methods:

**Stores Ledger A**

		FIFO Method									LIFO Method						Weighted Average Method					
		Receipts			Issues			Balance			Issues			Balance			Issues			Balance		
Date	Particulars	Qty.	Rate (Rs.)	Value (Rs.)	Qty.	Rate (Rs.)	Value (Rs.)	Qty.	Rate (Rs.)	Value (Rs.)	Qty.	Rate (Rs.)	Value (Rs.)	Qty.	Rate (Rs.)	Value (Rs.)	Qty.	Rate (Rs.)	Value (Rs.)	Qty.	Rate (Rs.)	Value (Rs.)
July 1	Purchases	175	1	175				175	1	175				175	1	175				175	1	175
July 12	Purchases	175	2	350				350	2	525				350	2	525				350	2	525
July 21	Issued				105	1	105	70	1	70	105	2	210	175	1	175	105	1.5	157.5	245	1.5	367.5
								175	2	350				70	2	140						
July 30	Issued				70	1	70	175	2	350	70	2	140	175	1	175	70	1.5	105	140	1.5	262.50
					35	2	70	140	2	280	35	1	35	140	1	140						

$$* \text{ Weight Average Rate} = \frac{175 \times 1 + 175 \times 2}{175 + 175} = 1.50$$

- ii. Statement showing the valuation of stock using the standard price method and replacement method:

**Stores Ledger Account**

				Standard Price Method				Replacement Method					
Receipts				Issues			Stock		Issues			Stock	
Date	Qty.	Rate (Rs.)	Value (Rs.)	Qty.	Rate (Rs.)	Value (Rs.)	Qty.	Value (Rs.)	Qty.	Rate (Rs.)	Value (Rs.)	Qty.	Value (Rs.)
July 1	175	1	175				175	175				175	175
July 12	175	2	350				350	525				350	525
July 21				105	1.15	120.75	245	404.25	105	1.25	131.25	245	393.75
July 30				70	1.15	80.50	175	323.75	70	1.75	122.75	175	271.25

**INVENTORY AND THE FINANCE MANAGER**

The inventory control methods described in this chapter give us a means for determining an optimal level of inventory, as well as how much should be ordered and when. These tools are necessary for managing inventory efficiently and balancing the advantages of additional inventory against the cost of carrying it. Computers have opened new vistas in inventory control, and operations research has many applications to inventory management – all beyond the scope of this chapter.

Although inventory management usually is not the direct operating responsibility of the finance manager, the investment of funds in inventory is an important aspect of financial management. Consequently, the finance manager must be familiar with ways to control inventories effectively, so that capital may be allocated efficiently. The greater the opportunity cost of funds invested in inventory, the lower is the optimal level of average inventory and also the lower the optimal order quantity, all other things held constant. The EOQ model also can be useful to the finance manager in planning for inventory financing.

When demand or usage of inventory is uncertain, the finance manager may try to effect policies that will reduce the average lead time required to receive inventory, once an order is placed. The lower the average lead time, the lower is the safety stock needed and lower is the total investment in inventory, all other things held constant. The greater the opportunity cost of funds invested in inventory, the greater is the incentive to reduce this lead time. The purchasing department may try to find new vendors that promise quicker delivery, or it may pressure existing vendors to deliver faster. The production department may be able to deliver finished goods faster by producing a smaller run. In either case, there is trade off between the added cost involved in reducing the lead time and the opportunity cost of funds tied up in inventory.

The finance manager is also concerned with the risks involved in carrying inventory. The major risk is that the market value of specific inventories will be less than the value at which they were acquired. Certain types of inventory are subject to obsolescence, whether it be in technology or in consumer tastes. A change in technology may make an electronic component worthless. A change in style may cause a retailer to sell dresses at substantially reduced prices. Other inventories, such as agricultural products, are subject to physical deterioration. With deterioration, of course, inventories will have to be sold at lower and lower prices, all other things remaining the same. In other situations, the principal risk is that of fluctuations in market price. Some items of inventory, such as copper, are subject to rather wide price swings. The finance manager is perhaps the best person to make an objective analysis of the risks associated with the firm's investment in inventories. These risks must be considered in determining the appropriate level of inventory the firm should carry.



The opportunity cost of funds is the link by which the finance manager ties inventory management to the overall objective of the firm. In this regard, inventory can be treated as an asset to which capital is committed, as in any capital-budgeting project. Different items of inventory may involve different risks, and these differences can be incorporated into an analysis of risk similar to that for capital budgeting. Our discussion in this chapter has focused on determining an optimal level of investment. We know that greater the efficiency with which the firm manages its inventory, lower is the required investment and greater is the shareholder wealth, all other things remaining the same.

## **SUMMARY**

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- Inventory forms a substantial part of current assets for any manufacturing or trading organization and includes raw materials, stores and spares, work-in-progress and finished goods. Maintaining an inventory is absolutely essential for most companies for five main reasons: avoiding lost sales, gaining quantity discounts, reducing order costs, achieving efficient production runs and reducing the risk of production shortages.
- Inventory management comprises control of assets that are being produced for the purpose of sale. The objective of inventory management is to minimize total costs – both direct as well as indirect. The direct costs include material costs, ordering costs and carrying costs, while the indirect costs comprise the cost of funds tied up in inventory and the cost of running out of goods. While an increase in the size of the order can decrease the ordering costs, this will however increase the carrying costs. Therefore, a proper balance between the two is required to minimize the total costs of holding inventory. Economic order quantity is the optimal order size that will result in the lowest total ordering and carrying costs for a given usage level, and given ordering costs and carrying costs.
- Although inventory management usually is not the direct operating responsibility of the finance manager, the investment of funds in inventory is an important aspect of financial management. Consequently, the finance manager must be familiar with ways to control inventories effectively, so that capital may be allocated efficiently. The greater the opportunity cost of funds invested in inventory, the lower is the optimal level of average inventory and also the optimal order quantity, all other things held constant. The EOQ model while is also be useful to the finance manager planning for inventory financing.
- When demand or usage of inventory is uncertain, the finance manager may try to effect policies that will reduce the average lead time required to receive inventory, once an order is placed. The lower the average lead time, the lower is the safety stock needed and the lower is the total investment in inventory, all other things held constant. The greater the opportunity cost of funds invested in inventory, the greater is the incentive to reduce this lead time. The purchasing department may try to find new vendors that promise quicker delivery, or it may pressurize existing vendors to deliver faster. The production department may be able to deliver finished goods faster by producing a smaller run. In either case, there is a trade off between the added cost involved in reducing the lead time and the opportunity cost of funds tied up in inventory.
- The finance manager is also concerned with the risks involved in carrying inventory. The major risk is that the market value of specific inventories will be less than the value at which they were acquired. Certain types of inventory are subject to obsolescence, whether it be in technology or in consumer tastes. A change in technology may make an electronic component worthless.

A change in style may cause a retailer to sell dresses at substantially reduced prices. Other inventories, such as agricultural products, are subject to physical deterioration. With deterioration, of course, inventories will have to be sold at lower and lower prices, all other things remaining the same. In other situations, the principal risk is that of fluctuations in market price. Some items of inventory, such as copper, are subject to rather wide price swings. The finance manager perhaps is the best person to make an objective analysis of the risks associated with the firm's investment in inventories. These risks must be considered in determining the appropriate level of inventory the firm should carry.

## **Lesson 5**

# **Receivables Management**

**After reading this lesson, you will be conversant with:**

- Purpose and Cost of Maintaining Receivables
- The Impact of Credit Policy
- The Process of Credit Evaluation
- Decision Tree Approach
- Monitoring of Receivables

Business firms generally sell goods on credit, to facilitate sales especially from those customers who cannot borrow from other sources, or find it very expensive or difficult to do so.

Finished goods sold on credit get converted (from the point of view of the selling firm) into receivables (book debts) which when realized, generate cash. The average balance in the receivables account would approximately be: average daily credit sales multiplied by average collection period. For Illustration, if the average daily credit sales of a firm are Rs.3,00,000 and the average collection period is 40 days, the average balance in the receivables account would be Rs.1,20,00,000. Since receivables often account for a significant proportion of the total assets, management of receivables take up a lot of the Finance Manager's time.

## **PURPOSE OF RECEIVABLES**

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The purpose of receivables can be understood if we can grasp the basic objective of receivables management. The objective of receivables management is to promote sales and profits until that point is reached where the returns that the company gets from funding of receivables is less than the cost that the company has to incur in order to fund these receivables. Hence, the purpose of receivables is directly connected with the company's objectives of making credit sales, which are:

- To increase total sales; because when a company sells goods on credit, it will be in a position to sell more goods than if it insists on immediate cash payment.
- To increase profits; because this results in an increase in sales not only in volume, but also because companies charge a higher margin of profit on credit sales as compared to cash sales.
- To meet increasing competition; and for this the company may have to grant better credit facilities than those offered by its competitors.

## **COST OF MAINTAINING RECEIVABLES**

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- **Additional fund requirement for the company**

When a firm maintains receivables, some of the firm's resources remain blocked in them because there is a time lag between the credit sale to customer and receipt of cash from them as payment. To the extent that the firm's resources are blocked in its receivables, it has to arrange additional finance to meet its own obligations towards its creditors and employees, like payments for purchases, salaries and other production and administrative expenses. Whether this additional finance is met from its own resources or from outside, it involves a cost to the firm in terms of interest (if financed from outside) or opportunity costs (if internal resources, they could have been put to some other use.)

- **Administrative costs**

When a company maintains receivables, it has to incur additional administrative expenses in the form of salaries to clerks who maintain records of debtors, expenses on investigating the creditworthiness of debtors, etc.

- **Collection costs**

These are costs which the firm has to incur for collection of the amounts at the appropriate time from the customers.

- **Defaulting costs**

When customers make default in payments, not only is the collection effort to be increased but the firm may also have to incur losses from bad debts.

The size of receivables or investment in receivables is determined by the firm's credit policy and the level of its sales.

The following aspects of receivables management are discussed in this chapter:

- Formulation of credit policy.
- Credit evaluation.
- Credit granting decision.
- Monitoring receivables.

## **THE IMPACT OF CREDIT POLICY**

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The credit policy of a company can be regarded as a kind of trade-off between increased credit sales leading to increase in profit and the cost of having larger amount of cash locked up in the form of receivables and the loss due to the incidence of bad debts. In a competitive market, the credit policy adopted by a company is considerably influenced by the practices followed by the industry. A change in the credit policy of a company, say, by extending credit period to 30 days, when the other companies are following a credit period of 15 days can result in such a high demand for the company's product that it cannot cope with. Further, other companies also may have to fall in line in the long run. It is assumed generally that such factors have already been taken into consideration before making changes in the credit policy of a company.

The term credit policy encompasses the policy of a company in respect of the credit standards adopted, the period over which credit is extended to customers, any incentive in the form of cash discount offered, as also the period over which the discount can be utilized by the customers and the collection effort made by the company.

Thus, the various variables associated with credit policy are:

1. Credit standards
2. Credit period
3. Cash discount
4. Collection program.

All these variables underlying a company's credit policy influence sales, the amount locked up in the form of receivables and some of the receivables turning sour and eventually becoming bad debts. While the variables of credit policy are related to each other, for the purpose of clarity in understanding, we shall follow what is technically known as comparative static analysis by considering each variable independently, holding some or all others constant, to study the impact of a change in that variable on the company's profit. It is also assumed that the company is making profits and has adequate unutilized capacity to meet the increased sales caused by a change in some variables without incurring additional fixed costs like wages and salaries, rent, etc.

### **Credit Standards**

When a company is confronted with the question of the standards to be applied to customers before deciding whether to extend credit or not, application of very stiff standards for the purpose is likely to result in a low level of sales, less amount of money locked up in the form of receivables, virtually no bad debt losses and less amount to be spent for collection. On the other hand, indiscriminate extension of credit without bothering much about the credit standards expected of the customers is likely to increase sales. But in its wake, the company is more likely to be saddled with a large quantum of money locked up in the form of accounts receivable, higher incidence of bad debt losses and increased expenses on the collection front. In the United States, there are excellent professional credit rating agencies such as Dun and Bradstreet whose services can be utilized for a consideration. In the Indian situation, no such reputed agencies exist except for credit rating of public issues. Let us assume for the time being (because we shall

consider these aspects in the section on credit evaluation) that the company has rated the customers into four categories ranging from 'high', 'good', 'fair' and 'limited' in the descending order of credit rating. Let us also assume that the company has been currently extending credit to only those customers rated as high and good. This way, the company has been foregoing sales from 'fair' and 'limited' categories. The company has been contemplating to increase its sales from its existing level by liberalizing or relaxing its credit standards to some extent. What course of action should it take – liberalize or not?

The answer to the above question lies in making a comparison of the incremental benefits associated with a liberalized policy and the associated incremental costs. The decision to liberalize will be justified only when the net incremental benefits are positive. Before going into the analysis we have to reckon with the factor that the existing and top-rated customers may take a lenient view in their paying habit once they come to know that the lowly rated customers of the company are taking a longer period for payment than what they themselves have been taking to pay. With a view to facilitate the exposition, it is assumed that the existing customers will not alter their paying habit even after liberalization of credit by the company (lest they be relegated to the lower rated groups) and the company can meet the increase in sales demand without incurring additional fixed costs as stated earlier on.

Let us now consider the items of incremental benefits and incremental costs<sup>1</sup> under the simplified assumptions. A numerical illustration will help in understanding the incremental cost benefit analysis.

**Illustration 1**

The existing sales of Laxmi company are Rs.2 crore. The current customers are drawn from companies having 'high' or 'good' credit rating. With partially liberalized credit standards the company's sales are likely to go up by Rs.24 lakh, the mix of new customers being 67 percent and 33 percent from the groups rated 'fair' and 'limited' respectively. The average collection period is likely to be 45 days and the incidence of bad debt losses 10 percent for the new customers. The contribution to sales ratio for Laxmi company is 20 percent and the cost of funds is 15 percent<sup>2</sup>.

Additional profit from increased sales

$$\begin{aligned}
 &= \text{Increase in sales revenues} \times \frac{\text{Contribution}}{\text{Sales revenue}} \\
 &= \text{Rs.}24,00,000 \times \frac{20}{100} = \text{Rs.}4,80,000 \qquad \dots(a)
 \end{aligned}$$

Additional receivables

$$\begin{aligned}
 &= \frac{\text{Additional Sales Revenue}}{360 \text{ days}} \times \text{Collection Period} \\
 &= \frac{24,00,000}{360} \times 45 \text{ days} = \text{Rs.}3,00,000
 \end{aligned}$$

1 Ignore Taxes

2 Under the assumption that fixed costs like salaries and wages, rent, etc. have already been recovered from existing sales, the total contribution on new sales will be the additional profit. Contribution is the difference between sales revenue and variable costs (like the cost of raw material). Thus contribution

$$\text{sales ratio} = \frac{\text{Total Contribution}}{\text{Sales Revenue}} = \frac{(\text{Sales Revenue} - \text{Variable Costs})}{\text{Sales Revenue}}$$

When fixed costs are already recovered, the additional contribution will be the profit and is given by Additional Sales Revenue x Contribution to Sales Ratio by the same token the variable costs to be incurred for additional sales

$$= \text{Sales revenue} \left( 1 - \frac{\text{Contribution}}{\text{Sales revenue}} \right)$$

$$\begin{aligned} \text{Additional investment in receivables} &= \text{Amount of receivables} \times \frac{\text{Variable cost}}{\text{Sales revenue}} \\ &= 3,00,000 \times \frac{80}{100} = \text{Rs.2,40,000} \end{aligned}$$

Cost of financing the additional investment in receivables

$$= \text{Rs.2,40,000} \times \frac{15}{100} = \text{Rs.36,000} \quad \dots(b)$$

Total amount of bad debt losses = New sales x Bad debt percentage

$$= \text{Rs.24,00,000} \times \frac{10}{100} = \text{Rs.2,40,000} \quad \dots(c)$$

We have now calculated the relevant amounts in terms of additional benefits and additional costs.

a. Additional profit on new sales = Rs.4,80,000

Additional Costs:

b. Cost of financing additional investment in receivables = Rs.36,000

c. Amount of bad debt losses on new sales = Rs.2,40,000

Total of additional costs (b + c) = Rs.2,76,000

Net additional benefit (a – b – c) = Rs.2,04,000

Since the net additional benefit is positive being Rs.2,04,000 liberalization of credit standards is to the advantage of the company and should, therefore, be followed.

The effect of relaxing the credit standards on profit may also be estimated by using the following formula.

$$\Delta P = \Delta S (1 - V) - k \Delta I - b_n \Delta S$$

where

$\Delta P$  = change in profit

$\Delta S$  = increase in sales

V = variable costs to sales ratio

k = cost of capital

$\Delta I$  = increase in receivables investment

$$= \frac{\Delta S}{360} \times \text{Average Collection Period (ACP)} \times V$$

$b_n$  = bad debts loss ratio on new sales

$1 - V$  = contribution to sales ratio

Illustration 1 can be reworked by using the above equation to find out the effect of relaxing the credit standards on profit as follows:

$$\begin{aligned} \Delta P &= 24,00,000 \times 0.2 - 0.15 \times \frac{24,00,000}{360} \times 45 \times 0.8 - 0.1 \times 24,00,000 \\ &= 4,80,000 - 36,000 - 2,40,000 = \text{Rs.2,04,000} \end{aligned}$$

## Credit Period

The credit period refers to the length of time allowed to customers to pay for their purchases. It generally varies from 15 days to 60 days. If a firm allows, say, 45 days of credit with no discount to induce early payment, its credit terms are stated as “net 45”.

Lengthening of the credit period pushes sales up by inducing existing customers to purchase more and attracting additional customers, at the same time increasing receivables investment and incidence of bad debt loss. A shortening of credit period will tend to lower sales as customers decrease; reduce investment in receivables, and reduce the incidence of bad debt loss. Let us consider the impact of lengthening credit period by means of an illustration.

### Illustration 2

Radha company's existing sales are Rs.180 lakh. It is currently extending a credit period of 'net 30 days' to its customers. The company's contribution to sales ratio is 20 percent and the cost of funds is 15 percent. The company is contemplating to increase its sales by Rs.16 lakh to be achieved by means of lengthening the existing period to 'net 45 days'. The bad debt losses on additional sales is expected to be 5 percent. Should the company go in for a policy change or not?

To answer the above question, we have to consider the incremental benefits and costs associated with the policy change and a favorable decision taken only if the incremental benefits exceed the incremental costs.

The calculation procedure is outlined below:

Additional profit arising out of new sales

$$= \text{Amount of additional sales} \times \frac{\text{Contribution}}{\text{Sales revenue}}$$

$$= \text{Rs.16,00,000} \times \frac{20}{100} = \text{Rs.3,20,000} \quad \dots(a)$$

As a result of elongation in the credit period, the existing customers will pay after 45 days, instead of 30 days.

Consequently the increase in receivables on existing sales will be

$$(45 - 30) \times \text{Rs.} \frac{1,80,00,000}{360} = \text{Rs.7,50,000}$$

As the increase in receivables is only on existing sales which have arisen because of lengthening credit period by 15 days, the full amount of Rs.7,50,000 will be regarded as investment in receivables.

The amount of receivables arising out of new sales

$$= \text{Amount of new sales} \times \frac{45}{360}$$

$$\text{or Rs.16,00,000} \times \frac{45}{360} = \text{Rs.2,00,000}$$

The investment in receivables on new sales

$$= \text{Rs.2,00,000} \times \frac{\text{Variable cost}}{\text{Sales revenue}}$$

$$= \text{Rs.2,00,000} \times \frac{80}{100} = \text{Rs.1,60,000}$$

The total amount of investment in receivables

$$= \text{Rs.7,50,000} + \text{Rs.1,60,000} = \text{Rs.9,10,000}$$

The cost of additional investment in receivables

$$= \text{Rs.9,10,000} \times \frac{15}{100} = \text{Rs.1,36,500} \quad \dots(b)$$

The cost of bad debt losses on new sales

$$= \text{Rs.16,00,000} \times \frac{5}{100} = \text{Rs.80,000} \quad \dots(c)$$



The amount of additional cost associated with increasing credit period  
 = (b) + (c) = Rs.1,36,500 + Rs.80,000 or Rs.2,16,500

The net additional benefit = a – (b + c)  
 = Rs.3,20,000 – Rs.2,16,500 = Rs.1,03,500

As the net additional benefit is a positive amount of Rs.1,03,500 the policy change is beneficial to the company.

The effects of increasing the credit period are similar to that of relaxing credit standards and hence we can also estimate the effect on profit of change in credit period using the same formula.

$$\Delta P = \Delta S(1 - V) - k \Delta I - b_n \Delta s$$

The components of the formula are same except

$$\Delta I = (ACP_N - ACP_0) \left[ \frac{S_0}{360} \right] + V(ACP_N) \frac{\Delta S}{360}$$

Where

- $\Delta I$  = increase in investment
- $ACP_N$  = new average credit period (after increasing credit period)
- $ACP_0$  = old average credit period
- $V$  = ratio of variable cost to sales
- $\Delta S$  = increase in sales

The above illustration can be worked out as follows:

$$\Delta P = \Delta S(1 - V) - k \Delta I - b_n \Delta s$$

$$\Delta I = (ACP_N - ACP_0) \left[ \frac{S_0}{360} \right] + V(ACP_N) \frac{\Delta S}{360}$$

$$= (45 - 30) \left[ \frac{180}{360} \right] + 0.8 \times 45 \times \frac{16}{360}$$

$$= 7.5 + 1.6 = \text{Rs.}9.1 \text{ lakh}$$

$$P = 16(0.2) - 0.15 \times 9.1 - 0.05 \times 16$$

$$= 3.2 - 1.365 - 0.8$$

$$= \text{Rs.}1.035 \text{ lakh or Rs.}1,03,500.$$

## Cash Discount

Firms generally offer cash discounts to induce prompt payments. Credit terms reflect the percentage of discount and the period during which it is available. For example, credit terms of 1/20, net 30 mean that a discount of 1 percent is offered if the payment is made by the 20th day, otherwise the full payment is due by the 30th day.

A company which is not offering cash discount may introduce it later to induce prompt payment. Alternatively, a company which has already been offering an incentive of say '1/10, net 30 days may further liberalize by either increasing the rate of discount and/or extending the period of discount. It may be noted that extending the period of discount will only result in customers' taking the discount at the end of the extended period and may not be very fruitful.

Even in the case of cash discount the incremental benefits arising out of additional sales and the reduction in the cost of funds locked up in the form of receivables have to be compared with the amount to be paid in the form of discount and a decision to provide/liberalize cash discount has to be taken only when the incremental net benefit is positive. The steps involved in the incremental analysis are illustrated by means of an illustration.

### Illustration 3

Rama company is presently having sales of Rs.108 lakh. Its existing credit terms are 1/10, net 45 days and the average collection period is 30 days. Fifty percent of customers in terms of sales revenue are utilizing the cash discount incentive. The contribution to sales ratio of the company is 20 percent and cost of funds 15 percent. In order to hasten the collection process further as also to increase sales, if possible, the company is contemplating liberalization of its existing credit terms to 2/10, net 45 days. It is expected that sales are likely to increase by Rs.3 lakh and average collection period to decline to 20 days. Eighty percent of customers in terms of sales revenue are expected to avail themselves of the cash discount under the liberalization scheme. Should the company increase its cash discount?

Let us consider the incremental benefits associated with the liberalization of credit terms. These are:

Profit associated with additional sales to be generated and cost savings on the release of funds locked up in receivables.

The incremental costs are:

The cost of funds invested in the receivables arising out of new sales. Additional amount to be paid as cash discount.

Profit to be generated by increase in sales

$$\text{Amount of sales} \times \frac{\text{Contribution}}{\text{Sales}} = \text{Rs.}3,00,000 \times 0.2 \text{ or Rs.}60,000 \quad \dots(a)$$

$$\text{Existing cost of carrying receivables} = \frac{\text{Rs.}1,08,00,000}{360 \text{ days}} \times 30 \text{ days} \times 0.15 = \text{Rs.}1,35,000$$

$$\begin{aligned} \text{Cost of carrying receivables after liberalization} &= \frac{\text{Rs.}1,08,00,000}{360 \text{ days}} \times 20 \text{ days} \times 0.15 \\ &= \text{Rs.}90,000 \end{aligned}$$

$$\text{Savings in the cost of carrying receivables} = \text{Rs.}1,35,000 - \text{Rs.}90,000 = \text{Rs.}45,000 \dots(b)$$

$$\text{Thus, incremental benefits} = a + b = \text{Rs.}60,000 + \text{Rs.}45,000 = \text{Rs.}1,05,000 \quad \dots(c)$$

The cost of funds invested in the receivables arising out of new sales

$$= \frac{\text{Rs.}3,00,000}{360 \text{ days}} \times 20 \text{ days} \times 0.8 \times 0.15 = \text{Rs.}2,000 \quad \dots(d)$$

$$\text{Amount of discount presently paid} = \text{Rs.}1,08,00,000 \times \frac{50}{100} \times \frac{1}{100} = \text{Rs.}54,000$$

Amount of discount payable after liberalization

$$= \text{Rs.}1,11,00,000 \times \frac{80}{100} \times \frac{2}{100} = 1,77,600$$

$$\text{The additional amount of discount payable} = 1,77,600 - \text{Rs.}54,000 = 1,23,600 \quad \dots(e)$$

Thus, incremental costs = (d + e)

$$= \text{Rs.}2,000 + \text{Rs.}1,23,600 = \text{Rs.}1,25,600 \quad \dots(f)$$

A comparison of items (c) and (f), the total incremental benefits and incremental costs reveal that the net incremental benefit is

$$= \text{Rs.}1,05,000 - \text{Rs.}1,25,600 = - \text{Rs.}20,600$$

It is, therefore, not advisable to increase the rate of cash discount from 1 to 2 percent.

The effect of such an action on gross profit may be estimated by the following formula.

$$\Delta P = \Delta S(1 - V) + k \Delta I - \Delta \text{DIS}$$

where

$\Delta S$  = increase in sales

$V$  = ratio of variable cost to sales

$k$  = cost of capital

$\Delta I$  = savings in receivables management

$$= \frac{S_0}{360} (\text{ACP}_o - \text{ACP}_N) - V \frac{\Delta S}{360} \text{ACP}_N$$

$\Delta \text{DIS}$  = increase in discount cost

$$= p_n (S_0 + \Delta S) d_n - p_0 s_0 d_0$$

where

$p_n$  = proportion of discount sales after liberalizing

$S_0$  = sales before liberalizing

$\Delta S$  = increase in sales

$d_n$  = new discount percentage

$p_0$  = proportion of discount sales before liberalizing

$d_0$  = old discount percentage

The above illustration 3 can also be solved using the equation as follows:

$$\Delta P = \Delta S(1 - V) + k \Delta I - \Delta \text{DIS}$$

$$\Delta I = \frac{S_0}{360} (\text{ACP}_o - \text{ACP}_N) - V \frac{\Delta S}{360} \text{ACP}_N$$

$$= \frac{108}{360} (30 - 20) - 0.8 \times \frac{3}{360} \times 20 = \text{Rs.} 2,86,667$$

$$\Delta \text{DIS} = p_n (S_0 + \Delta S) d_n - p_0 s_0 d_0$$

$$= 0.8 \times 111 \times 0.02 - 0.5 \times 108 \times 0.01$$

$$= \text{Rs.} 1,23,600$$

$$\text{DP} = 3,00,000 (0.2) + 0.15 \times 2,86,667 - 1,23,600 = \text{Rs.} -20,600$$

Liberal cash discount policy involves increasing the discount percentage or lengthening the discount period. Such a policy tends to enhance sales (because the discount is regarded as price reduction), reduce the average collection period (as customers pay promptly), and increase the cost of discount.

## Collection Program

The collection effort of a company is decided by the collection policy, which is a part of the overall credit policy of the company. The objective of collection policy is to achieve timely collection of receivables, thereby releasing funds locked up in receivables for a longer period than they should have been under the credit terms and to minimize bad debt losses.

The collection program consists of the following.

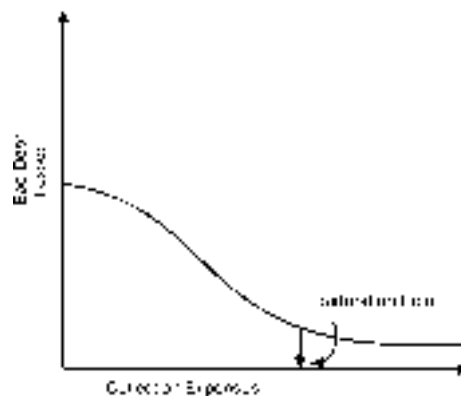
- Monitoring the state of receivables
- Despatch of letters to customers whose due date is approaching
- Telegraphic and telephonic advice to customers around the due date
- Threat of legal action to overdue accounts
- Legal action against overdue accounts.

While formulating the collection policy a company should reckon with the factor that a very rigorous collection policy may act as an irritant to customers, thereby jeopardizing the good customer relations built over the years. Further, the sales of

the company may decline as customers with some overdues may fear to place further orders. However, the amount of receivables and bad debt losses will reduce to a certain extent as the company increases the collection expense associated with collection programs.

The general pattern of the relationship between collection expenses incurred and bad debt losses will be such that initial increase may not have perceptible impact while subsequent amounts up to a certain level will have a pronounced impact in reducing bad debt losses. This is depicted in the form of a graph below. The amount of expenses incurred beyond the saturation point are likely to have very little impact on bad debt losses.

**Figure 1: Behavior of bad debt losses/collection expenses**



Similarly, deliberate laxity on the part of the company in the rigor of collection effort is likely to increase sales, increase average collection period, increase bad debt losses and to some extent reduce collection expenses.

Once again, the incremental financial benefits in the form of the cost of funds released by a reduction in the level of receivables and the reduction in bad debt losses have to be compared with the incremental costs associated with additional collection expenses; and policy change is warranted only when the incremental net benefits are positive. The following illustration is intended to illustrate the analytical approach to be adopted in taking decisions on collection effort.

**Illustration 4**

The present sales of PK Ltd. are Rs.108 lakh, the average collection period 60 days, bad debt losses 6 percent of sales and collection expenses Rs.1 lakh. The company’s cost of funds is 15 percent. It is contemplating to increase the collection effort through special programs to reduce the amount of receivables and the incidence of bad debt losses. Two separate programs called A and B are under consideration. Program A is likely to reduce the average collection period to 45 days, decrease bad debt losses to 4 percent of sales and involve collection expenses of Rs.3 lakh. Program B is envisaged to reduce the average collection period to 30 days, decrease bad debt losses to 3 percent sales and involve collection expenses of Rs.5 lakh. On the assumption that sales are not likely to get affected, should the company go in for any of the programs under consideration?

Let us consider the incremental benefits and costs associated with each of the programs under consideration.

**Relaxation of Collection Effort: Incremental Costs and Benefits**

	Present Program	Program A	Program B
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	Rs.	Rs.	Rs.
1. Sales revenue	1,08,00,000	1,08,00,000	1,08,00,000
2. Average collection period	60 days	45 days	30 days
3. Accounts receivable	$\frac{1,08,00,000 \times 60}{360}$ = 18,00,000	$\frac{1,08,00,000 \times 45}{360}$ = 13,50,000	$\frac{1,08,00,000 \times 30}{360}$ = 9,00,000
4. Reduction in receivables from present level		4,50,000	9,00,000
5. Cost savings @ 15% on reduction in receivables		67,500	1,35,000
6. Bad Debt losses on sales	6%	4%	3%
7. Amount of bad debt losses	6,48,000	4,32,000	3,24,000
8. Reduction in bad-debt losses from present level		2,16,000	3,24,000
9. Incremental benefits of Program A due to cost savings and reduction in bad debt losses compared to Present Program (5 + 8)		2,83,500	4,59,000
10. Collection expenses	1,00,000	3,00,000	5,00,000
11. Incremental collection expenses from present level		2,00,000	4,00,000
12. Incremental net benefits (9 – 11)		83,500	59,000

From the calculations presented, it can be seen that the incremental net benefits associated with program A are Rs.83,500 while program B has resulted in an incremental net gain of Rs.59,000. It is, therefore, financially prudent to go in for program A instead of program B.

The effect of decreasing the rigor of collection program on profit may be estimated as:

$$\Delta P = \Delta S (1 - V) - k \Delta I - \Delta BD - \Delta C$$

Where,

$\Delta P$  = change in profits

$\Delta S$  = increase in sales

$V$  = variable costs to sales ratio

$k$  = cost of capital

$\Delta I$  = increase in investment in receivables

$$= \frac{S_0}{360} (ACP_N - ACP_0) + \frac{\Delta S}{360} ACP_N \times V$$

$\Delta BD$  = increase in bad debts cost

$$= b_n (S_0 + \Delta S) - b_o S_0$$

$\Delta C$  = increase in collection expenses.

The illustration is reworked using the equation given above as follows:

**Program A:**

$$\Delta P = \Delta S (1 - V) - \Delta BD - k \Delta I - \Delta C$$

$$\begin{aligned} \Delta BD &= b_n (S_0 + \Delta S) - b_0 S_0 \\ &= 0.04 \times 108 - 0.06 \times 108 \\ &= -\text{Rs.}2.16 \text{ lakh} \end{aligned}$$

$$\Delta I = \frac{S_0}{360} (\text{ACP}_N - \text{ACP}_0) + \frac{\Delta S}{360} \text{ACP}_N \times V$$

As there is no change in sales

$$\Delta I = \frac{108}{360} \times (45 - 60) = -\text{Rs.}4.5 \text{ lakh}$$

$$\Delta C = 3 - 1 = \text{Rs.}2 \text{ lakh}$$

$$\Delta NP = 0 - (-2.16) - 0.15 (-4.5) - 2 = \text{Rs.}83,500$$

**Program B:**

$$\Delta BD = (0.03 - 0.06) 108 = -\text{Rs.}3.24 \text{ lakh}$$

$$\Delta I = \frac{108}{360} \times (30 - 60) = -\text{Rs.}9 \text{ lakh}$$

$$\Delta C = 5 - 1 = \text{Rs.}4 \text{ lakh}$$

$$\Delta P = 0 + 3.24 + 9 \times 0.15 - 4 = \text{Rs.}59,000$$

At times a company may tend to relax the rigor of its collection effort deliberately with a view to increasing its sales. This practice is not usually followed as it is likely to increase the average collection period and bad debt losses. There may be a marginal decrease in collection expenses. Here also a consideration of the incremental benefits and incremental costs helps in decision-making as the following illustration illustrates.

**Illustration 5**

Alpha company is contemplating to relax its collection effort with a view to increase its sales. Its existing sales are Rs.240 lakh, average collection period 30 days, bad debt losses 5 percent of sales, contribution to sales ratio 20 percent and cost of funds 15 percent. After relaxing the collection effort sales are expected to increase by Rs.60 lakh. Average collection period is increased to 60 days. Bad debt losses rose to 7 percent. Should the company go in for relaxing its collection effort?

Let us work out the incremental benefits and incremental costs associated with the contemplated decision.

Increase in profit due to increase in sales

$$= \text{Rs.}60,00,000 \times 0.2 = \text{Rs.}12,00,000 \quad \dots\dots(a)$$

Existing amount of receivables

$$= \frac{\text{Rs.}2,40,00,000}{360} \times 30 = \text{Rs.}20,00,000$$

Amount of receivables on existing sales after relaxation

$$= \frac{\text{Rs.}2,40,00,000}{360} \times 60 = \text{Rs.}40,00,000$$

Increase in the investment in receivables on existing sales

$$= \text{Rs.}40,00,000 - \text{Rs.}20,00,000 = \text{Rs.}20,00,000 \quad \dots\dots(b)$$

Amount of receivables on additional sales

$$= \frac{\text{Rs.60,00,000}}{360} \times 60 = \text{Rs.10,00,000}$$

Investment in the receivables on additional sales

$$= \text{Rs.10,00,000} \times 0.8 = \text{Rs.8,00,000} \quad \dots(\text{c})$$

Incremental investment in receivables (b) + (c) = Rs.28,00,000

Cost of financing additional investment in receivables @ 15%

$$= \text{Rs.28,00,000} \times 0.15 = \text{Rs.4,20,000} \quad \dots(\text{d})$$

Existing bad debt losses = Rs.2,40,00,000 x 0.05 = Rs.12,00,000

Bad debt losses after relaxation = Rs.3,00,00,000 x 0.07 = Rs.21,00,000

Increase in bad debt losses = Rs.21,00,000 – Rs.12,00,000 = Rs.9,00,000  $\dots(\text{e})$

Incremental costs (d) + (e) = Rs.13,20,000

Net incremental benefits = a – (d + e)

$$= \text{Rs.12,00,000} - \text{Rs.13,20,000} = - \text{Rs.1,20,000}$$

As the contemplated relaxation results in a net incremental loss of Rs.1,20,000, it is not financially prudent to relax the collection effort by the company.

## **THE PROCESS OF CREDIT EVALUATION**

Before granting credit to a customer, a firm seeks information of the creditworthiness of that customer. In judging the creditworthiness of an applicant, three basic factors – the three Cs have to be considered. And they are – character, capacity, and collateral. Character refers to the willingness of the customer to honor his obligations. It reflects integrity, a moral attribute, considered very important by credit managers. Capacity refers to the ability of the customer to pay on time. It depends on the financial situation (particularly the working capital position and profitability) and the general business conditions affecting the performance of the customer. Collateral represents the security offered by the firm in the form of mortgages.

Credit evaluation of the prospective customer involves obtaining information from which the financial capacity as also the paying habits can be evaluated. It should, however, be noted that the procedure of evaluation is related to the amount or order likely to be placed by the prospective customer and the cost of obtaining information. If evaluating the information gathered is likely to exceed the profit generated by the order, then a detailed evaluation is not warranted. Further, the evaluation procedure should not be lengthy and time consuming. In a competitive market by the time the evaluation is completed, the prospective customer may have been ‘snatched away’ by one of the competitors in the market. The absence of reputed professional credit-rating agencies makes the task of credit-evaluation more difficult in India. However, some of the relevant information can be gathered from the financial statements.

The annual reports of a company provide considerable information in the form of balance sheets and profit and loss accounts besides detailed notes and the auditors’ report. The prospective customer company’s audited annual reports over the past three or four years can be sought. In case, the company declines to oblige, that in itself can arouse suspicion about the creditworthiness of the company.

When the financial statements are obtained, the financial strengths and weaknesses can be gauged by the application of ratio analysis. Some of the important ratios are briefly mentioned below.

$$a. \quad \text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

$$b. \quad \text{Quick ratio} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$$

The above two ratios are widely used to assess the liquidity position of a company in meeting its short-term obligations. These can be supplemented with other ratios.

$$c. \quad \text{Average payment period} = \frac{\text{Average Balance of Sundry Creditors}}{\text{Average Daily (Credit) Purchases}}$$

$$d. \quad \text{Average collection period} = \frac{\text{Average Balance of Sundry Debtors}}{\text{Average Daily (Credit) Sales}}$$

$$e. \quad \text{Capital structure ratio} = \frac{\text{Debt}}{\text{Equity}} \quad (\text{also called Debt - Equity Ratio})$$

$$f. \quad \text{Return on equity} = \frac{\text{Net profit after tax and preference share dividend}}{\text{Owners' equity}}$$

The ratios mentioned above will indicate the payment period, collection periods of the company, and return on owner's equity. When calculated for three or four consecutive years in the recent past, the ratios will throw adequate light on the financial strength of the company and whether the trend over the years is favorable or not.

In addition to ratio analysis, an idea of changes in the funds position can be obtained by preparing funds flow statements, even if they are sketchy.

### Obtaining Bank References

The prospective customers' bank must be having a lot of information obtained in the normal course for granting cash credit/overdraft facility. However, it may not be advisable to directly approach the customer's bank for information and rely on the bank's own assessment of the customer, as the bankers are generally reluctant to part with 'confidential' information about their client. It will be embarrassing to ask the prospective customer to issue a letter to its bank for furnishing such information which is considered to be important. A better course of action is to obtain information through the company's bank from the customer's bank. This approach can provide useful information needed to assess the financial strength of the customer.

### Firm's Experience

If the firm has had previous dealings with the customers, it can judge the customer's creditworthiness by the latter's promptness in payments in the past. If the customer is approached for the first time, the company salesman's opinion about the customer's integrity is important.

### Numerical Credit Scoring

A numerical credit index based on several factors is framed to study the creditworthiness of a customer. For example, any firm selling consumer durables on installments may determine the numerical credit index of its customers as follows:

$$\text{Credit Index} = W_1 \text{ Income level} + W_2 \text{ Years of residence in the present place} \\ + W_3 \text{ Number of dependents.}$$

The credit index is simply a weighted sum of facts which ostensibly has a bearing on creditworthiness. In the above case,  $W_1$  and  $W_2$  would be positive and  $W_3$  would be negative.



From the information obtained, a quantitative evaluation can be made using the techniques of ratio and funds flow analysis of the customer's financial statements as also a qualitative evaluation as to the character of the customer. In the light of evaluation, the standing of the prospective customer vis-à-vis the existing standards followed by the company can be made. For convenience sake a format of the credit evaluation report is presented in Table 1.

**Table 1: Credit Evaluation Report on X Co. Ltd.**

Item Head	For X Co. Ltd.	Standard	Remarks
Current Ratio	1.70	1.75	Liquidity position is
Quick Ratio	1.15	1.00	Good
Average Payment Period	45 days	40 days	Can be persuaded to pay within 40 days
Average Collection Period	40 days	30 days	This may have caused delay in payments
Debt-Equity Ratio	1.5:1	2:1	Lower because of Capital Structure
Return on Equity	15%	18%	

Paying Habit: Good (Usually prompt; deviation occurred only once 2 years back when there was a fire in the godown).

Integrity and Honesty: Good (As from the statements of other suppliers).

Based on the above evaluation, customers may be classified into various risk categories. A simple risk classification scheme is shown in the Table 2.

**Table 2: Risk Classification Scheme**

Risk class	Description
1.	Customers with no risk of default
2.	Customers with negligible risk of default (default rate less than 2 percent)
3.	Customers with a little risk of default (default rate between 2 and 5 percent)
4.	Customers with some risk of default (default rate between 5 and 10 percent)
5.	Customers with significant risk of default (default rate in excess of 10 percent)

## **DECISION TREE APPROACH**

Credit evaluation, discussed earlier, attempts to formalize the procedure to gauge the creditworthiness of a prospective customer. It is a precursor to the final decision whether to grant credit to the prospective customer or not as it provides the decision-maker with necessary input data for decision-making. However, the decision whether to grant credit or not depends on the cost benefit analysis. If the customer pays, the company will make profit on the sale and if he fails to do so then the amount of cost gone into the product will be lost by the company. An astute manager, more often than not, can form a subjective opinion based on credit evaluation about the chance of getting payment and the chance of not getting the payment. The relative chances of getting the payment or not is at the back of his mind while taking a decision. The feeling can perhaps be translated into numerical figures such as there is a nine-in-ten chance that the payment will be made while the chance of the account turning into a bad debt is one-in-ten. Once, these relative chances are expressed in the above terms one can say that the probability of getting payment is 0.9 and the probability of not getting the payment is 0.1. It is then possible to obtain the financial consequences of granting credit as a weighted average of the profit to be obtained and the loss to be sustained where the weights are the respective probabilities. If the weighted average is positive, it can be concluded that the weighted benefits exceed the weighted loss, and hence it is prudent to grant credit; otherwise not. It should be noted that the probabilities are

always non-negative and add up to unity. The process of credit granting decision is illustrated by means of numerical examples.

**Illustration 6**

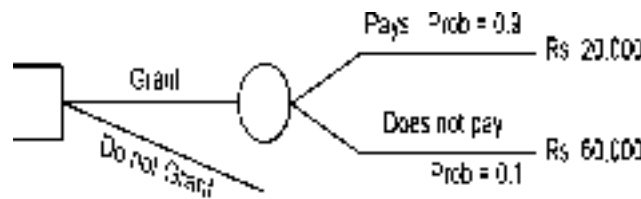
The Rex company is considering whether to grant credit to a prospective customer or not. A close scrutiny of the credit evaluation made by the credit manager reveals that there is going to be nine-in-ten chance of payment being made and one-in-ten chance of non-payment. The revenue from the order is going to be Rs.80,000 whose cost is Rs.60,000. Should credit be granted to the customer?

On the basis of above information, the financial consequences of granting credit can be summarized as follows:

Revenue from the order	= Rs.80,000
Cost of the order	= Rs.60,000
Financial benefit or profit from the order	= Rs.20,000

Thus, if the customer pays, the company gets a profit of Rs.20,000 while it loses Rs.60,000 if he fails to pay. The benefit and cost associated with granting credit along with their respective probabilities are depicted below in the form of a decision-tree for visual impact. It may be noted that a square represents a decision point and a circle, a chance event.

**Figure 2: Credit granting decision: Decision tree approach (Single Order)**



The weighted net benefit is  $Rs.20,000 \times 0.9 - Rs.60,000 \times 0.1$  or Rs.12,000. Hence, it is preferable to grant credit as the weighted net benefit is positive.

The above problem can also be solved in the following way:

The expected profit for the action 'offer credit' is

$$p(\text{REV} - \text{cost}) - (1 - p) \text{cost}$$

where p is the probability that the customer pays his dues, (1 - p) is the probability that the customer defaults, REV is the revenue from sale, COST is the cost of goods sold.

The expected profit in the above illustration is

$$0.9 (80,000 - 60,000) - 0.1 (60,000) = Rs.12,000.$$

The expected profit for the action 'refuse credit' is 0. Obviously, the expected profit from the course of action 'offer credit' is positive, i.e. Rs.12,000 it is desirable to extend credit.

**Illustration 7**

Sunshine Industries is considering offering credit to a customer. The probability that the customer would pay is 0.5 and the probability that the customer would default is 0.5. The revenues from the sale would be Rs.2,500, and the cost of sale would be Rs.1,700.

The expected profit from offering credit, given the above information, is:

$$0.5(2,500 - 1,700) - 0.5(1,700) = - Rs.450$$

As this is negative the company cannot offer credit.

**Repeat Order Situation**

Generally, the sales order from a customer is not going to be a single order as considered earlier. The customer, once granted credit, is likely to place repeat

orders and the company will be favorably inclined to oblige the customer provided he made timely payment for the first shipment. In case there is a repeat order the chance of not paying will become less than in the case of single order. Consequently, the net benefits to the company accruing from both the orders will be higher than two separate single orders. This is highlighted by an illustration.

**Illustration 8**

X Company Ltd. is considering whether to grant credit to a prospective customer who is likely to place a repeat order for the same quantity. Initially the probability of payment is considered to be 0.9 and that of default 0.1. In case the customer pays for the first order the probability of default for the repeat order is likely to be 0.05 while that of payment increases to 0.95. The revenue from each order is going to be Rs.1 lakh and the associated cost Rs.70,000, leaving a profit of Rs.30,000 if payment is made and a loss of Rs.70,000 if payment is not made.

The financial consequences of the first order are a profit of Rs.30,000 with a probability of 0.9 and a loss of Rs.70,000 with a probability of 0.1. Given that the customer has paid with 0.9 probability for the first order, the financial consequences of the second order will be Rs.30,000 with a probability of 0.95 and a loss of Rs.70,000 with a probability of 0.05. These can be visualized better when presented in the form of a decision-tree.

The net weighted financial benefit in the above situation can be calculated in two steps.

- a. The net weighted financial benefit on the initial order is calculated in the same way as in the case of a single order (i.e.)

$$0.9 \times \text{Rs.}30,000 - 0.1 \times \text{Rs.}70,000 \text{ or}$$

$$\text{Rs.}27,000 - \text{Rs.}7,000 = \text{Rs.}20,000$$

- b. Given that the first order is paid with a probability of 0.9, the net weighted benefit from the repeat order will be

$$0.9 [0.95 \times \text{Rs.}30,000 - 0.05 \times \text{Rs.}70,000]$$

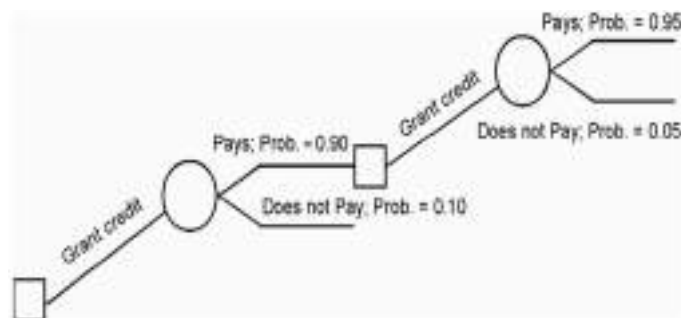
$$= 0.9 [\text{Rs.}28,500 - \text{Rs.}3,500]$$

$$= 0.9 (\text{Rs.}25,000) \text{ or } \text{Rs.}22,500.$$

The multiplication with 0.9 is necessitated by the fact that credit granting for repeat order is conditional upon the payment of first order whose probability is 0.9. Combining (a) and (b), the net weighted financial benefit is an amount of Rs.42,500 which is higher than two separate individual orders for the same amount with probabilities 0.9 and 0.1 for payment and default respectively.

The decision tree approach has greater visual impact. However, as the number of chance events, decision points and branches indicating alternatives increase, it becomes quite unwieldy. One may, then, tend to miss the ‘decision woods’ for the ‘decision trees’.

**Figure 3: Credit granting decision: Decision-tree approach (Separate order)**



**MONITORING OF RECEIVABLES**

An important aspect of receivables management is to monitor the payment of receivables. Several measures can be employed by the credit manager for this purpose like (i) Days Sales Outstanding, (ii) Ageing Schedule, and (iii) Collection Matrix are some of the measures employed.

The average collection period is based on year-end balance of receivables. For the purpose of internal control, monitoring has to be made more frequently. Further, year-end balance can be misleading when the sales are subject to seasonality or have grown towards the end of the year. For this reason two approaches, viz, ‘days’ sales outstanding’ and ‘aging schedule of receivables’ are followed for control purpose. These are described below.

**Days Sales Outstanding**

The average number of days’ sales outstanding at any time, say end of the month or end of the quarter, is obtained by following the formula which is not very different from the usual formula for average collection period :-

$$\text{Day's Sales Outstanding} = \frac{\text{Accounts receivable at time chosen}}{\text{Average daily sales}}$$

To illustrate the calculation of this measure, consider the monthly sales and month-end accounts receivable for a product line as given in the table 3 below.

**Table 3: Sales and Receivables Data**

Month	Sales	Receivable	Month	Sales	Receivables
January	200	460	July	200	340
February	225	360	August	200	360
March	230	315	September	220	360
April	150	310	October	230	390
May	150	300	November	245	500
June	180	320	December	250	520

If the average collection period is calculated at the end of each quarter, we get the following picture.

Quarter	Average Collection Period
First	$\frac{315}{(200 + 225 + 230) \div 90} = 43 \text{ days}$
Second	$\frac{320}{(150 + 150 + 180) \div 91} = 61 \text{ days}$
Third	$\frac{360}{(200 + 200 + 220) \div 92} = 53 \text{ days}$
Fourth	$\frac{520}{(230 + 245 + 250) \div 92} = 66 \text{ days}$

In case, the daily sales outstanding is within a pre-specified norm linked to the credit period followed by the company then the status of receivables is regarded to be under control. In case it is found to be higher, then the collection policy has to be strengthened as the collections are slow.

**Ageing Schedule**

The age-wise distribution of accounts receivable at a given time is depicted in the ageing schedule. For Illustration, the ageing schedule at the end of various quarters may be as follows:

**Table 4: Outstanding Accounts Receivable**

Age	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
0-30 days	40%	42%	44%	46%
31-60	30%	28%	26%	25%
61-90	20%	22%	25%	23%
120	10%	8%	5%	6%

A comparison of ageing schedules at periodic intervals help to identify changes in the payment behavior of customers.

The ageing schedule can be compared with the credit period extended by the company. When the percentage of receivables belonging to higher age groups is above a stipulated norm, action has to be initiated before they turn into bad debts. If the company’s credit terms are say ‘net sixty days’, then control needs to be exercised in the form of follow-up measures in respect of the bottom 20 percent accounts.

The average collection period and the ageing schedule have traditionally been popular measures for monitoring receivables. However, they suffer from a limitation. They are influenced by the sales pattern as well as the payment behaviors of the customers. If sales are decreasing, average collection period and the ageing schedule will differ from what they would be if sales are constant. This holds even when the payment behavior of customers remains unchanged. The reason is simple: a greater portion of sales is billed currently. Similarly, decreasing sales lead to the same results. The reason here is that a smaller portion of sales is billed currently. It can be explained well with an illustration.

**Illustration 9**

Presented below are the monthly sales of ABC Company Ltd. for the period April to December with quarterly break-up. Collections are made at the rate of ten percent during the month of sales followed by 50 percent, 30 percent and 10 percent during the three succeeding months. Consequently the receivables balance at the end of a quarter will be the sum of ten percent of the sales of first month, 40 percent of the sales of second month and 90 percent of the sales of the third month. The daily sales are calculated by considering a period of 30 days, 60 days and 90 days. The end of quarter receivables, the DSO and the behavior of Ageing Schedule at the end of the quarter, for the three periods chosen for averaging, are calculated by using the formula stated earlier.

The daily sales with an average period of 30 days is obtained by dividing the sale of the most recent month i.e., during the second quarter for a 30 day average period daily sales of Rs.3,000 are calculated by dividing Rs.90,000 (sale of the most recent month i.e. September) by 30.

For a 60 day average period during the same quarter daily sales are Rs.2,500 [i.e., (90,000 + 60,000)/60].

**Table 5: Behavior of Ageing Schedule**

Month	Sales	End of quarter receivables	Age group	Percent of total	Daily sales if average period is			DSO if average period is		
	(Rs. '000)	(Rs.'000)	(Days)		30 days	60 days (Rs.'000)	90 days (Rs.'000)	30 days (Rs.'000)	60 days (Rs.'000)	90 days (Rs.'000)
April	60	6	61-90	7.1	2	2.0	2	42	42	42
May	60	24	31-60	28.6						
June	60	54	0-30	64.3						
		84		100						
July	30	3	61-90	2.8	3	2.5	2	36	43	54
August	60	24	31-60	22.2						
September	90	81	0-30	75.0						
		108		100.0						
October	90	9	61-90	15.0	1	1.5	2	60	40	30
November	60	24	31-60	40.0						
December	30	27	0-30	45.0						
		60		100.0						

It can be noticed from the table that during the first quarter when the sales are uniform the DSO is also uniform at Rs.2,000 and during the second quarter when the sales are exhibiting an increasing trend, the daily sales decrease and DSO increase with an increase in the averaging period. During the third quarter when the sales are decreasing the daily sales increase and DSO decrease with an increase in the average period.

As far as the Ageing Schedule is concerned it can be noticed from the table that in a period of increasing sales (Quarter July-Sept) a larger proportion of current receivables i.e., receivables belonging to the lowest age group emerged during the third quarter, a relatively low percentage 45 as compared to 75 of quarter II belonging to the age group 0-30 days. This need not imply that liquidity of receivables is higher in quarter II as compared to quarter III. It so happens that because of the increasing pattern of sales in quarter II, a larger percentage of sales is billed during September and exactly the opposite situation prevailed in quarter III.

### Collection Matrix

In order to study correctly the changes in the payment behavior of customers, it is helpful to look at the pattern of collections associated with credit sales. Table 16.6 below shows an illustrative collection matrix. For example, the credit sales during the month of January are collected as follows: 10 percent in January (the month of sales), 42 percent in February (the first following month), 36 percent in March (the second following month), and 12 percent in April (the third following month).

From the collection pattern, one can judge whether the collection is improving, stable, or deteriorating. A secondary benefit of such an analysis is that it provides a historical record of collection percentages that could be useful in projecting monthly receipts for each budgeting period.

**Table 6: Collection Matrix**

Percentage of receivables collected during the	January sales	February sales	March sales	April sales	May sales	June sales
Month of sales	10	14	15	12	9	13
First following month	42	35	40	38	35	31
Second following month	36	40	21	26	26	26
Third following month	12	11	24	19	25	25
Fourth following month				5	5	5

Though various techniques have been discussed here for the management of accounts receivables, in practice very few Indian companies have a stated and

systematic credit policy. Companies have to strengthen their management of receivables by having explicit and articulate credit policies, an efficient collection program and better co-ordination between production, sales and finance departments.

## **SUMMARY**

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- Any business firm operates by selling goods on credit. Thus, finished goods sold on credit become receivables, which again form a major part of the current assets of a firm. The main objective of receivables management is to boost sales to a point where the returns that the company gets from the receivables is less than the cost that the company has to incur in order to fund these receivables.
- Maintaining receivables is no free job. The cost of maintaining receivables includes the additional funding required by the company, administrative costs, collection costs and default costs. Every company requires a proper credit policy to make sure that the cost of maintaining receivables is minimum.
- The credit policy looks at ways for a trade-off between increase credit sales leading to increased profits and the cost of having a larger amount of cash locked up in receivables as well as the losses due to bad debts. The variables associated with credit policy include credit standards, credit period, cash discount and collection program. While application of stiff credit standards might lead to lower receivables, it also reduces sales. On the other hand, liberal credit standards increase sales, but also have a high incidence of bad debts.
- Credit period refers to the time period allowed for customers to pay for their purchases. Increasing the credit normally increases sales as well as the incidence of bad debts and vice-versa. Cash discounts are the discounts offered by companies to induce customers to pay much earlier than the normal credit period. A liberal cash discount policy involves increasing the discount percentage or lengthening the period of discount period.
- Collection program is the efforts made by a company to collect its payments that are due. This includes monitoring the state of receivables, dispatching letters reminding customers of their due dates, telegraphic and telephonic advice to customers, threat of legal action against overdue payment.

## **Chapter VI**

# **Financial Markets and Instruments**

## **Lesson 1**

# **Financial Systems and Financial Markets**

**After reading this lesson, you will be conversant with:**

- Functions of the Financial System
- Constituents of the Financial System
- Need for Various Financial Markets
- Role of Financial Assets and Financial Intermediaries in the Financial System



## FINANCIAL SYSTEM

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The economic development of a nation is reflected by the progress of the various economic units, broadly classified into corporate sector, government and household sector. While performing their activities these units will be placed in a surplus/deficit/balanced budgetary situations.

While the corporates will have a surplus arising from the retained earnings, their need for funds will be for investment in new projects, for expansion/diversification/modernization, etc. On the other hand, the government which is always in a deficit budgetary situation will be in need of funds for public expenditure, to finance its developmental projects and other PSUs, etc. Apart from these two economic units, even the household sector will require funds for varied purposes for example, for acquiring assets. However, the surplus funds of the households will normally be more when compared to the other units.

Hence, it can be observed that, at any given point of time there would be some units having idle funds and a few others which would be in need of funds. The volume of funds required for the investment activity of the corporates and for the public expenditure of the government is very large when compared to the household requirements. And if funds are not provided for these activities, it will hinder economic progress. On the other hand, there are surplus budget units which have excess funds in the form of savings.

Mere act of saving will, however, not guarantee economic progress. This is due to the fact that savings and investments will usually be carried out by different groups, savings come from the household sector and the investments are being made by the corporate sector. Hence, there should be a mechanism to ensure that savings flow from those who save to those who wish to invest. This process would enable the utilization of excess idle funds, thereby enhancing their value.

Enabling such a transfer of funds from the savers to the borrowers is the Financial System. The financial system represents a channel through which savings are mobilized from the surplus units and routed to the deficit units. The role of the financial system can be broadly classified into the following:

**Savings Function:** Mobilize savings in a way to provide a potentially profitable and low risk outlet.

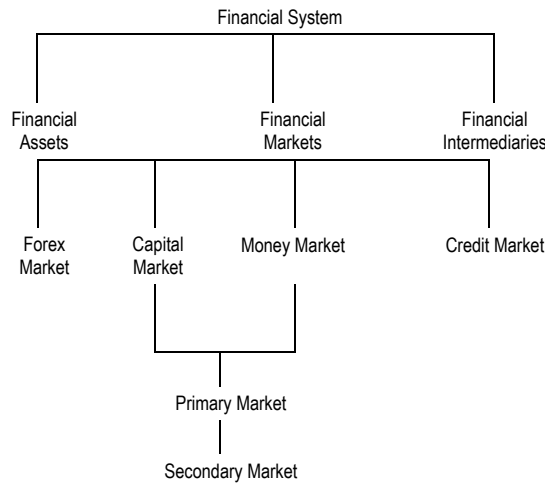
**Policy Function:** Through the policy function, the government ensures a smooth flow of funds from savings into investments in order to stabilize the economy.

**Credit Function:** After mobilizing the savings and laying down the necessary policies for the transfer of these funds, the credit function of the financial system, will then ensure that these savings will transform into the necessary credit for investment and spending purposes.

Complexities may arise while performing these functions, especially when the requirements of the savers and those of the borrowers do not match. The main considerations of the savers will be with regard to the safety of funds, returns and liquidity. On the other hand, the needs of the borrowers will be relatively diversified. Their concerns will relate to the term for which the funds are available and the cost of funds.

These varied requirements of the lenders and the borrowers will lead to a mismatch in periods – lending period may differ from the needs of the borrower. Similarly, the risk exposure and the corresponding returns may not suit the lender. Due to these factors there arose a need to develop the financial system in such a way that it matches the requirements of the borrowers and lenders. This led to the evolution of the financial system thereby widening its scope of operations.

**Figure 1: Constituents of a Financial System**



Proper allocation of funds is essential for the transactions taking place in the financial system to have a developmental impact on the economy. And to enable proper allocation of resources, various financial markets are being developed. Accordingly, to match the transactions taking place in these financial markets, various financial instruments were born. Over time, these developments have made the operations of the financial system complex. Specialized services were offered in these markets with newer and better instruments. And this further enhanced the necessity of specialized intermediaries to perform the various financial transactions. Thus, evolved the various market intermediaries.

Yet, another feature of the financial system that needs to be understood is the manner in which the flow of funds takes place. In an environment where the borrowers and lenders are easily accessible to each other, the financial system will be in a disintermediation stage, i.e., there will not be any intermediary involved for the funds to flow from the saver to the ultimate borrower. Contrary to such a situation will be the intermediation stage where the financial system will have a few specialized intermediaries enabling the transfer of funds from the savers to the borrowers. However, now-a-days the financial requirements are so varied and large that the system generally operates through both intermediation and disintermediation mechanisms. Irrespective of how the transfer of funds takes place, it is the central bank of the country along with the government which generally regulates the financial system by regulating the markets, instruments and players operating in it.

With such revolutionary changes taking place in the financial system and with the broadening of its operations, the impact of the same on the economy will be tremendous. This enhances the need for a closer examination of the networking taking place between the various financial markets, intermediaries and the financial assets available in these markets.

## **FINANCIAL MARKETS**

Being entrusted with different functions having macro level implications on the nation's economy, the financial system tries to fulfill its role through the financial markets. The financial markets channelize the savings of the households and other surplus budget units to those individuals and institutions that need funds. While performing this role, the financial markets aid in increasing production and income for the various units. The importance of these markets to the financial system can be understood from the quantum of funds that are made available to the borrowers.

## Types of Markets

The financial markets that are present today have come a long way from the informal markets that have existed earlier. According to the changing and increasing needs of the lenders and borrowers, the financial markets have also developed. These markets have witnessed remarkable changes in the nature of transactions, the type of participants, the magnitude of operations and various other characteristics. And depending on the differing requirements, various sub-markets have developed. The main segments of the organized financial markets are as follows:

**Money Market:** The money market is a wholesale debt market for low-risk, highly-liquid, short-term instruments. Funds are available in this market for periods ranging from a single day up to a year. This market is dominated mostly by government, banks and financial institutions.

**Capital Market:** The capital market is aimed at financing the long-term investments. The transactions taking place in this market will be for periods over a year.

**Forex Market:** The forex market deals with the multicurrency requirements which are met by the exchange of currencies. Depending on the exchange rate that is applicable, the transfer of funds takes place in this market. This is one of the most developed and integrated market across the globe.

**Credit Market:** Credit market is a place where banks, FIs and NBFCs purvey short-, medium- and long-term loans to corporates and individuals.

Such a segregation of the financial market into various sub-groups has enhanced the efficiency of resource allocation. Each market is unique in terms of the nature of participants, instruments, etc. An insight into the operations of these markets can be obtained in the subsequent chapter of this book. Table 1 briefly explains the characteristics of the markets.

**Table 1: Characteristic Features of the Financial Markets**

	Purpose	Players	Regulator
Money Market	Short-term rupee finance	Banks, Government, FIs, Corporates, FIIs, MFs, Individuals	RBI
Capital Market	Long-term rupee finance	Corporates, Banks, FIs, Individuals, MFs, FIIs	SEBI
Forex Market	Short/long-term foreign currency finance	Banks, Corporates, Forex Dealers	RBI
Credit Market	Short/long-term rupee finance	Banks, FIs, NBFCs	RBI

Within the above mentioned sub-markets, based on the transactions, the financial markets can further be distinguished into an **Open Market** or a **Negotiated Market**. The basic distinction between these two types of markets is based on how the securities are bought and sold. In an open market, the securities will be offered to a large number of investors who can buy and sell them any number of times before the maturity period. The public issue of securities takes place in an open market. On the other hand, the negotiated market will have only a selected group of investors to whom the securities are offered and sold. It will generally be a private contract between the seller and the buyer. A bought-out deal and a car loan are good examples of the negotiated market.

Yet another useful and important distinction between markets in the financial system is the **Primary Market** and the **Secondary Market**. The primary market is a place for the fresh issue of securities. Corporates, banks, FIs and government can issue new securities and raise funds for investment purposes.

The transactions involving the securities issued in the primary market take place in the secondary market. Thus, secondary market deals in securities previously issued in the primary market and thereby provides liquidity to the investors. Investors can either buy securities that are already issued or sell securities held by them in the secondary market on a continuous basis. Due to this, the volume of transactions taking place in the secondary market are far greater than those taking place in the primary market. Except for the capital market, the other sub-markets present in the financial system either do not have a secondary market or their operations in the same are negligible. The secondary market transactions of the capital market take place at the stock exchanges. All securities that are issued in the primary market will have to be listed on the stock exchanges to enable trading activity. The secondary market helps in undertaking 'Maturity Intermediation', by bringing together savers and users with conflicting maturity targets.

Unlike the open and negotiated markets, the primary and secondary markets complement each other. The primary and secondary markets are so closely interlinked that the level and the nature of operations taking place in one market affect the other. For instance, if the price of a security issued by a particular company is high in the secondary market, its impact will be felt on the primary issues of that company.

### **Market Efficiency**

Though there are various markets present in the financial system, the ease with which the transfer of funds take place depends on the level of efficiency present in the financial markets. A market is considered as perfect if it has the following characteristics:

- All players in the market are price takers,
- No significant regulations on the transfer of funds exists,
- Very low/insignificant transaction costs.

The first situation will be possible when all the players in the market have all the information relating to the security and the market price of the security reflects all the available information.

The flow of funds within the market and between the markets should not be restricted by government regulations. There should be free flow of funds from one market to the other.

Finally, transaction costs will depend on the trading and settlement processes. Transparency in the trading mechanism and shorter settlement periods are critical for low transaction costs.

However, most of the financial markets are still imperfect and are yet to be developed. The imperfections present in the markets may have an adverse impact on the players of these markets. Further, due to the interlinkage of the financial markets, the factors affecting one market may have a direct or indirect impact on the others also.

### **Interlinkage in the Financial Markets**

The interlinkage present in the financial markets is essentially due to the fact that all these markets are in the process of assisting the flow of funds. Some of the commonalties are:

#### **CREDIT**

One of the prime unifying factor of the various financial markets is credit. Since all markets provide credit, borrowers and lenders can switch from one market to another seeking the most favorable credit terms. Such shifting of borrowings from one market to another may take place to reduce the credit costs.

## **SPECULATION**

Yet another common feature present in these markets relates to speculation. Investors in securities will get returns in the form of interest or capital gains in the long-term. Speculators in securities are always on the look out for speculative gains that can arise either due to certain market sensitive information or through their forecasts on certain future market developments. Such forecasts may be about interest rate movements, security prices, government policies, etc.

## **ARBITRAGE**

Arbitrage is the other unifying factor of the financial markets. Arbitrageurs take advantage of the price differentials existing between the markets. When the prices of securities in one market appear to be out of line with the other markets, arbitrageurs switch over to that market offering the best of prices. Thus, arbitraging enables transfer of funds from one market to another.

In spite of such linkages, the guidelines regulating the various sub-markets in few economies, however, insulate them to a certain extent from the influence of the other markets. Contrary to these economies are the free economies where the financial markets are freely accessible.

## **Globalization of the Financial Markets**

There are many economies in the world that have opened their gates for foreign participants and companies. Trading takes place not only in the securities of domestic companies, but also in securities of foreign companies that are listed in these markets. There will also be multiple listing of the same securities on all major stock exchanges. Due to these reasons, financial markets witness non-stop activity with transactions taking place round the clock. Financial markets in the US, the UK, Tokyo and Sydney are examples of such markets.

However, for a financial market to globalize its operations, its level of efficiency has to meet the global standards. For the foreign companies and investors to operate, there should be a level playing field for foreigners as well as domestic investors. Open access to membership on all exchanges and suitable technology that ensures transparency in transactions, efficient payment and settlement system, easy flow of information are some of the features which help globalization of markets.

Irrespective of being a national or a global market, the suppliers of funds in these markets will essentially look for adequate returns, high safety and high levels of liquidity while lending their funds. Thus, the borrowers of funds will have to design suitable financial instruments that meet the requirements of the lenders. It is based on such features of the financial assets that the transactions taking place in the financial markets are grouped.

## **FINANCIAL ASSETS**

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Financial assets/instruments represent the financial obligations that arise when the borrower raises funds in the financial market. In exchange for the funds lent, the supplier will have a claim on the income/wealth of the borrower which may be a corporate, a government body or a household. This financial claim will be packaged in the form of a certificate, receipt or any other legal document.

Financial assets play a key role in developing the financial markets in particular and the financial system in general. Their importance to the system can be understood while distinguishing these assets from the real assets. All assets are financed by liabilities as the accounting concept advocates. While the assets can be either financial or real assets, the liabilities will be either in the form of savings or financial liabilities. Financial assets represent the obligations on the part of the issuer of such financial asset. Hence, all financial assets will be equal to the financial liabilities. The funding of assets will be done either by using savings or by borrowing.

Since borrowings represent financial liabilities, the accounting equation can be altered as follows:

Assets = Liabilities

Financial Assets + Real Assets = Financial Liabilities + Savings

Since financial assets equal to financial liabilities, the real assets will be financed by savings. This relationship has the following implicit assumptions:

- i. There are no external borrowings in the system.
- ii. Financial liabilities include stock issued to the outsiders.

From the above equation, it can be understood that the surplus funds of an economic unit will either be used by the saver to purchase a real asset or will be lent to other economic units to buy real assets. Thus, all real asset purchases within the system will be made from the savings in the system.

An important aspect that is to be noted here is the process through which the savings are transformed into real assets since it has an important bearing on the economic progress. This can be explained by the fact that savings can be transformed into real assets for consumption purpose or they can also be transformed into real assets through the investment channel. Though these two activities, i.e. consumption and investment are essential for the economy, using excess of savings for consumption purpose will be detrimental for the economic progress since it will result in scarcity of funds for investment purpose. While both demand and supply are necessary for economic growth, the deployment of savings should be such that it ensures equilibrium.

It thus implies that stimulating savings into financial assets for ultimate purchase of real assets promotes the role of the financial markets in the system.

## **Types of Financial Assets**

Majority of financial assets used worldwide are in the form of deposits, stocks and debt.

### **DEPOSITS**

Deposits can be made either with banking or non-banking firms. In return, the lender will receive a certificate in case of a fixed deposit and a checking account in case of a savings/current deposit. These serve as payment mechanism to the supplier of funds. Interest will be earned on such deposits.

### **STOCKS**

When financial assets are in the form of stock, they represent ownership of the issuing company. Due to this right to ownership, the holder of the stocks will have a share in the firms' profits.

### **DEBT**

Unlike the stocks, financial assets in the form of debt raise an obligation on the borrower to repay the amount borrowed. The debt instrument will be a contract entered into by the borrower of funds with the lender of funds, to repay the amount borrowed after a predetermined period and at a certain rate of interest. If there is an asset serving as a collateral to the borrowing, then the holder of the debt instrument will have a priority claim on the asset.

Within this broad classification, financial innovations have brought about a variety of instruments. In stocks, there are preferred stocks and common stocks, with the latter having voting rights. In case of debt instruments, the classifications are much more varied depending on the issuer of securities and other terms and conditions present in the contract e.g., gilt-edged securities are the debt instruments issued by the government. Other classifications of the debt instruments are made as follows: fixed/floating rate bonds, negotiable/non-negotiable instruments, redeemable/irredeemable bonds, convertible/non-convertible, etc. Further, these instruments, both stock and debt, enable the issuer to raise funds in domestic and foreign currencies.

There will be a certain amount of uncertainty attached to future cash flows. This makes lending a risky business. To compensate for this risk and the uncertainty attached to future cash flows, suppliers of funds will be provided income in the form of dividends, interest, etc. Thus, issuers of the financial assets can mobilize the requisite funds from the financial markets by promising future income to the subscribers of the financial assets issued by them.

The ability of an issuer to fulfill the promise of future cash flows depends mainly on the inherent financial strength of the issuer. The financial assets are rated to indicate the safety levels (levels of risk) by specialized rating agencies.

Apart from the safety, suppliers of funds also expect to earn good returns. And since risk and return are positively correlated, financial assets having greater risk generally carry higher yields and vice versa. With this basic understanding, the suppliers will deploy their funds into the financial markets by selecting the financial asset that matches their risk-return preferences.

Liquidity is also an important criteria for asset selection. Suppliers of funds generally deploy their surplus funds into such financial assets until the time the requirement for these funds arises. And when the need arises, the lenders of funds should be able to liquidate the financial assets held by them whenever they intend to do so.

These three basic features of the financial instruments: returns, risk and liquidity – have a major impact on the financial system. Firstly, the variety of financial assets with varying risk-return profiles influence the interest rate structure of the economy. Secondly, the liquidity offered by these financial assets will influence the amount of funds that can be mobilized from the markets.

In addition to these features, instruments are being designed with various other features to suit the issuer as well as to attract the investor. Listed below are the considerations of the issuer while designing the instrument and that of the investor while investing in the financial instrument.

## **Issuer's Considerations**

**Cash Flows:** Issuers may consider the period for which the funds are required and try to spread the borrowings in a way to minimize the costs. Generally, the requirements of funds will depend on the purpose for which the funds are raised.

**Taxation:** Issuers may have to assess the tax liability of the company and try to design the instrument in order to get the benefit of certain tax incentives for the company and to the investors. The attempt would be to minimize the tax liability of the issuer.

**Leverage:** Issuers may assess the debt to equity ratio of the company since excess of debt may burden the company with debt servicing. Further, in a falling interest rate scenario a debt contracted for a long-term will increase the cost of funds for the company.

**Dilution of Control:** Likewise, excess of equity will dilute the control over the company and this will be a disincentive especially if the promoters prefer the company to be closely held.

**Transaction Costs:** The instrument should have adequate liquidity so that investors costs while transacting are minimal.

**Quantum of Funds:** Issuers may target the investors based on the quantum of funds required and the time within which the funds are to be raised.

**Maturity Plan:** Depending upon the future requirement of funds and also on the availability of funds to repay the lenders, the repayment schedule of the instrument has to be designed.

**Market Conditions:** One of the important considerations for the issuer will be the environment, both economic and political. Notwithstanding the credibility of an issuer, it is important that the market should be conducive to facilitate raising of funds. The market experiences cyclical trends of boom and depression even if the long-term trend is of growth. While it is easier to raise funds in a booming market, the same becomes extremely difficult in a depressed market.

**Investor Profile:** Instrument design should necessarily suit the target investors for the issue. For instance, if the retail investor is targeted, then the minimum subscription is generally kept low.

**Past Performance:** The performance of the previous issues of the same company or performance of the previous issues of companies in the same industry will have to be considered before designing the instrument.

**Cost of Funds:** Raising funds is a costly affair, so based on the above factors the company should ensure to choose an option which minimizes its cost of funds.

**Regulatory Aspects:** Finally, creation of the instrument after considering all the possible factors, will have to be done in the light of the regulatory aspects. For example, rating has to be done for debt instruments, capital adequacy norms have to be met, etc.

## **INVESTOR'S CONSIDERATIONS**

**Risk:** The primary consideration for the investor will be the safety of the funds lent. Every investment option will have an element of risk.

**Liquidity:** The investor will also give due consideration to the liquidity of the instrument, which depends mainly on the secondary market.

**Returns:** The investor generally expects to earn a return that compensates for the risk exposure taken by investing in the security. Unorganized sector generally offers high returns, but the associated risks are also high. Investors generally stick to the risk-return preferences since multiple investment options are available.

**Tax Planning:** To get certain tax benefits, investors can invest in those securities that offer tax incentives, as the post-tax returns are of significance to an investor.

**Cash Flows:** The investment decision of the investor will also depend on the period for which the surplus funds are available for investment. The investor will, therefore, consider the repayment schedule by way of interest and principal.

**Simplicity:** The salient features of the instrument should be easily understood by the investor in order to take the investment decision.

While it may not be possible to get the best of all the above in a single instrument, issuers and investors consider those which are of more priority to them. However, these considerations keep changing depending on the changing environment. In such a scenario, instrument designing itself becomes a subject of specialization.

## **FINANCIAL INTERMEDIARY**

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Having designed the instrument, the issuer should then ensure that these financial assets reach the ultimate investor in order to garner the requisite amount. When the borrower of funds approaches the financial market to raise funds, mere issue of securities will not suffice. Adequate information of the issue, issuer and the security should be passed on to the supplier of funds for the exchange of funds to take place. There should be a proper channel within the financial system to ensure such transfer.

To serve this purpose, Financial Intermediaries came into existence. In the initial stages, the role of the intermediary was mostly related to ensure transfer of funds from the lender to the borrower. This service was offered by banks, FIs, brokers,



and dealers. However, as the financial system widened along with the developments taking place in the financial markets, the scope of its operations also widened. Major changes were witnessed in the type of issuers and investors participating in the markets. Financial innovations, technological upgradations and most importantly changing regulatory mechanism made the process of raising funds from the market place a complex task. Investors’ preferences for financial assets have also changed. Designing instruments that catch the investors’ attention has now become a specialized service. Likewise, proper expertise is also necessary for establishing transactions in the financial markets. Large volume of transactions taking place in the markets will have to be recorded promptly and accurately. Finally, since the money raised through these markets comes from various sectors including the individual investors, there is a need to ensure that these funds flow into proper investment channels.

Change has become a constant phenomena of a financial system as it has to relate to the shifting demands of the lenders and the borrowers, the technological developments etc. Due to this, the dynamics of the financial system keep changing, thereby requiring the services of specialized agencies to operate in the market. Some of the important intermediaries operating in the financial markets include: investment bankers, underwriters, stock exchanges, registrars, depositories, custodians, portfolio managers, mutual funds, financial advertisers, financial consultants, primary dealers, satellite dealers, self-regulatory organizations, etc.

**Table 2: Intermediaries Operating in Financial Markets**

Intermediary	Market	Role
Stock Exchange	Capital Market	Secondary market to securities
Investment Bankers	Capital Market, Credit Market	Corporate advisory services, Issue of securities
Underwriters	Capital Market, Money Market	Subscribe to unsubscribed portion of securities
Registrars, Depositories, Custodians	Capital Market	Issue securities to the investors on behalf of the company and handle share transfer activity
Primary Dealers Satellite Dealers	Money Market	Market making in government securities
Forex Dealers	Forex Market	Ensure exchange in currencies

Though the markets are different, there may be a few intermediaries offering their services in more than one market for example, underwriters. However, the services offered by them vary from one market to another.

Intermediaries do ease the funds flow process taking place in the financial markets. But, there are costs associated with these intermediaries. Firstly, the cost of lending and borrowing in the market may rise due to the presence of these intermediaries. Secondly, in a market that is not well regulated these intermediaries increase the risks for the investor. Technological developments and proper infrastructure facilities may help in bringing down the increase in costs. However, to prevent any misappropriation of the lenders funds and reduce the risks of the investors, a well regulated environment has to be developed. Generally, these regulations also keep changing according to the changes taking place in the markets.

With markets in various countries harmonizing their regulations, these financial intermediaries are now becoming global players. While competition has intensified with such globalization, these intermediaries are also honing their skills. Some of them are becoming specialized agencies while the others are diversifying depending on the requirements of various markets.

## SUMMARY

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- The economic development of a country depends on the progress of its various economic units, namely the corporate sector, government sector and the household sector.
- The role of the financial sector can be broadly classified into the savings function, policy function and credit function.
- The main types of financial markets are: money market, capital market, forex market and credit market.
- The financial markets are further sub-divided into the primary market and the secondary market.
- A market is considered perfect if all the players are price takers, there are no significant regulations on the transfer of funds and transaction costs, if any, are very low.
- The accounting equation  $\text{Assets} = \text{Liabilities}$ , can be altered as  $\text{Financial Assets} + \text{Real Assets} = \text{Financial Liabilities} + \text{Savings}$ .
- The main types of financial assets are deposits, stocks and debt.
- While designing a financial instrument, the issuer must keep the following in mind: cash flows required, taxation rules, leverage expected, dilution of control facts, transaction costs to be incurred, quantum of funds sought, maturity of plan required, prevalent market conditions, investor profile targeted, past performance of issues, cost of funds to be borne, regulatory aspects to abide by.
- While investing in a financial instrument, the investor must keep in mind the following: risk involved, liquidity of the instrument, returns expected, possible tax planning, cash flows required and simplicity of investment.
- Various financial intermediaries came into existence to facilitate a proper channel for investment. The main ones are: stock exchanges, investment bankers, underwriters, registrars, depositories, custodians, primary dealers, satellite dealers and forex dealers.

## **Lesson 2**

# **Credit Market**

**After reading this lesson, you will be conversant with:**

- The Role of Credit Market in the Financial System
- Credit Facilities in the Credit Market
- Risks Involved and Pricing Decisions
- Role of Indian Credit Market

The financial system enables supply of funds to support purchase of goods and services and to finance capital investments. In this way, it provides funds both to the demand side (consumers) and the supply side (manufacturer) of the economy. In a well-developed market with adequate infrastructural facilities, transfer of funds takes place directly from the savers of funds to the users of funds. Thus, the transfer takes place either through the disintermediation or the reintermediation processes.

When the market allows direct flow of funds, it is known to be in disintermediation stage. Such direct flow of funds will be made by the issue of financial assets in the form of securities. Differentiating itself slightly from the disintermediation process is the reintermediation process, where the funds flow to an intermediary which invests in the securities issued by the corporates. For instance, individuals invest in mutual funds, which in turn invest in the securities issued by the corporates.

However, in economies where there is no adequate infrastructural support for such direct flow of funds to take place, they generally operate through the intermediation process. Operating in an intermediation stage to fulfill the credit requirements of the different sectors of the economy is the Credit Market. Intermediaries like banks, financial institutions and Non-Banking Finance Companies (NBFCs) provide credit for the varying requirements of the consumer and corporate sectors of the economy. This credit extension will mostly be in the form of loans.

### **Need for Credit**

On the demand side of the economy are the consumers of goods and services who require funds basically for acquiring certain consumer durables. The credit facility offered to the households will generally be in the form of auto-finance, educational loans, credit card loans, housing loans and for the purchase of other consumer durable items. Loans will also be provided to individuals against other financial and real assets. Except for the housing loans all the other types of individual loans range from short- to medium-term.

Similarly, on the supply side also, the credit market provides funds to the corporates, though for entirely different purposes. Corporates basically require funds for project finance while initiating an investment plan and working capital finance for their day-to-day operations.

Credit extended for project finance would enable the corporates to acquire real assets, plant and machinery, technological expertise, etc. required for expansion/modernization/diversification purposes. It can be observed that the funds required for these purposes will be large in amount and for periods ranging from medium to long-term.

In certain cases, where the project is very large and the funds cannot be provided by a single institution, consortium lending will be resorted to. In this facility, two or more intermediaries will join together to finance large project proposals. Such funding requirements will generally arise while financing large infrastructure projects, petroleum projects, etc.

In addition to the long-term requirements, firms would also require short-term funds for meeting their working capital requirements. Firms require these funds to meet their day-to-day operational requirements and for maintaining adequate levels of current assets. Since these funds support the daily operations of the firms, they are required on a continuous basis. The financial assistance for the working capital requirements is generally provided by banks in the form of Cash Credit (CC), Over Draft facility (OD) and bill finance.

Under the cash credit facility, limits are set based on the requirements of the firm and the CC is sanctioned for one year. The CC limits sanctioned for a year, in

practice, will generally be renewed after assessing the working capital requirements for the following year. Thus, the cash credit has a permanent feature, though, technically the funds are repayable on demand. The CC limit sanctioned based on the working capital estimates will have the combined features of a loan and a current account. Funds will be made available through an account of the firm from which the firm can withdraw (within the sanctioned CC limits) when funds are required and deposit when funds are in excess. The interest charged will be on the daily outstanding (net debit balances) in this account and will generally be paid on a quarterly basis.

In the overdraft facility, the bank will allow the firm to overdraw from its current account to a predetermined level of credit. This credit limit will be set based on the security offered by the firm. Such type of credit facility will generally be short-term in nature, not exceeding a year.

The other type of short-term credit will be in the form of bill financing. Here, the intermediary will finance the trade bills of the firm for a period ranging up to 6 months. The overdraft facility is either clean or against some security such as real estate whereas cash credit account is invariably secured by inventory.

While the short-term and the long-term credit facilities mentioned above appear on the balance sheet of the firm, there are a few contingent credit facilities which do not appear on the balance sheet. These off balance sheet activities are generally in the form of letter of credit or a standby facility or guarantees. The contingent claim is transformed into a credit claim when the contractual obligation is activated. The returns on such off balance sheet transactions are high, but so are the risks.

Apart from the above, the credit market in a few economies also facilitates priority sector lending. As per the regulations of these economies, a prescribed percentage of the total loanable funds of the intermediaries will have to be utilized to fund the priority sector. In India, banks are required to allocate 40 percent of the total funds provided as loans in that year towards the priority sector lending. For a developing economy such selective credit control becomes essential to ensure the proper use of institutional credit since a major portion of the savings lie with these intermediaries as loanable funds.

Most of the credit facilities that are offered in the credit market are in the form of loans. A loan is a broad term used to explain the different types of credit facilities extended in the credit market. Irrespective of their type, all loans are contractual agreements entered into by the borrower of the funds with the lender of the funds. The agreement states the terms and conditions of repayment of the loan over a predetermined period of time at a predetermined rate of interest.

While a variety of loan facilities are present in the credit market, the business firms will have to, however, select the type of loan that suits their cash flow requirement and is a profitable option when the expected rate of return is compared to the cost of the loanable funds.

## **LENDING RATES IN THE CREDIT MARKET**

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One of the crucial decisions involved while extending loans is the lending rate. Intermediaries will base their lending rate decisions on three important criteria – their cost of funds, transaction costs and the required spreads. The sources of funds will determine the cost of funds for the intermediaries. The major sources of funds to banks and NBFCs are public deposits. Other than this, the intermediaries can also raise funds from the other financial markets. Transaction costs will depend mostly on the efficiency with which the transfer of funds is enabled. All costs incurred in the decision-making process while approving a proposal and in maintaining the clients' accounts throughout the loan repayment period constitute

the transaction costs. Apart from ensuring that these costs are fully covered, the lending rate fixed by the intermediaries will also include a certain percentage as a spread for making the lending activity profitable.

Though this method of pricing seems to give the lender adequate returns for the funds lent, it may not happen in all cases. In reality, the cost of lending may actually rise based on the prevailing market conditions. For instance, the transaction costs for the loan may rise during the repayment period. Further, lending is a risky business. To ensure that the profits earned by way of interest income sustains the risk exposures, the price should include a premium for the risks involved in this business.

Thus, apart from satisfying the three basic criteria for fixing the lending rates, intermediaries should also consider all the risk exposures. First and the most important risk exposure in the lending activity relates to the credit risk. Proper credit analysis of the client and the proposal is essential to counter such risks. Based on the assessment of the creditworthiness, the lending rate should be fixed in such a way that it reflects the credit risk present in the transaction.

In addition to this, lenders may also perceive an interest rate risk. In an administered interest rate environment, the scope to manage interest rate risk will be negligible/nil since the regulator fixes the rates leaving little scope for market determination. However, in a free economy, where the market forces decide the rates, the uncertainty relating to the movement in the rates will be high thereby increasing the risk and along with this comes the scope to manage it.

The lending rate can be either fixed rate or a floating rate. Generally, short-term loans have a fixed rate, while loans for longer tenure may have a floating rate. Further, fixed rate is preferred in a declining interest rate scenario, while the floating rate would be more suitable when the interest rates are sloping upwards. The floating rate will also enable the intermediary to hedge against rate fluctuations to a certain extent. However, to use the same, there has to be a proper benchmark/reference rate. Internationally, the London Inter Bank Offered Rate (LIBOR) is used as a reference rate for Euroloans, etc. In the Indian market, the Bank Rate (BR) and the Prime Lending Rate (PLR) of the banks and the financial intermediaries are used as a reference rate for loans and advances. Of these two reference rates, PLR will be the most preferred reference rate since it is market determined. The bank rate is given by the Central Bank and is not market determined.

The lending rate should thus reflect the risk exposures present in the credit disbursement. Apart from adjusting the rate charged to the risk perception, intermediaries may sometimes, based on the creditworthiness of the client, demand a collateral/security in the form of an asset/guarantee/co-obligation. The arrangement of a collateral/security is generally made to minimize loss due to default of loans. Sometimes, the amount of loan extended and the rate of interest charged will depend on the security offered for the loan.

However, in spite of credit assessment and proper pricing, if the borrower defaults, the intermediary has the option of altering the repayment schedule and make it flexible enough for the borrower to repay. Such facility is generally not available in other financial markets.

Since a major portion of the savings in the economy will be routed to the intermediaries, it will be the responsibility of these intermediaries to ensure that efficient transfer of funds takes place. Over the years, credit market has gained tremendous importance as a place for raising funds. There has been an increase in the quantum of credit extended by this market. Accordingly, there is also a rise in the number of borrowers and lenders. Both these parties look for certain issues while operating in this market.

The borrowers generally prefer to have the following features while entering into a deal:

- Low rates of interest
- Minimum lead time when money is required
- Access to funds up to the desired period of time
- Minimum terms and conditions attached with the usage of funds
- Minimum monitoring and interference from the lender
- Freedom to set the repayment schedule according to the convenience of the borrower.

On the other hand, the lender of funds in the credit market would generally aim to meet the following objectives:

- Maximum spreads
- Adequate coverage for the various risk exposures
- Satisfy the statutory reserve requirements and the capital adequacy norms.

Maintaining adequate spreads is essential for these financial intermediaries, since their sustenance depends on these spreads. Spreads can be enhanced by accepting risky lending propositions. However, such risky loans may not always contribute to the long run sustenance of the intermediary. To ensure that these intermediaries operate within adequate risk levels, prudential norms have been set for their operations. By conforming to these prudential norms, the intermediaries should be able to fully meet the requirements of the productive sectors of the economy so that the growth of the economy is not hindered by inadequate credit nor by misuse of the same.

## **INDIAN CREDIT MARKET**

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Credit market plays a significant role in the Indian financial system. Banks play a critical role in the Indian market by mobilizing the small savings and routing them for corporate investment by extending working capital finance and other term loans. A major portion of the individual loans are also catered to by the banks. Sharing the corporate finance activity along with banks are the financial institutions which cater to the long-term financial requirements of the business firms. NBFCs also provide credit both to consumers and corporates but, their level of participation is comparatively lower than that of other intermediaries.

Apart from this broad classification, there are a few institutions offering certain sector-specific credit facilities. Various types of credit facilities and the varying credit demands have led to the development of a plethora of financial institutions. The institutions operating in the Indian credit market can be classified as follows:

- Developmental Financial Institutions  
IDBI, IFCI, etc. – Industrial Credit.
- Specialized Sector-Specific Development Banks/ Apex Institutions  
Exim Bank – Export finance  
SIDBI – Small industries development  
NABARD – Agro-based project finance.
- Agricultural and related activities predominantly in rural and semi-urban areas:
  - Regional Rural Banks
  - Cooperative Banks.

With the varied credit facilities available in the credit market, the intermediaries have the option to operate in niche areas. However, if regulations set up rigid

institutional boundaries and cause segmentation, it would not be of much benefit as there may not be a level playing field for all the players. Segmentation should thus, evolve as a natural process as per the requirements of the markets.

Giving due importance to such process of evolution, the Indian financial sector is also being liberalized. Few measures that were taken to enhance the level of efficiency of the credit market are listed below:

- Withdrawing the government funds as a source of funds to FIs
- Restricting the dependence of NBFCs on public deposits
- Setting prudential norms for the intermediaries
- Deregulating the interest rate environment
- Allowing private sector banks to operate
- Widening the scope of the financial institutions
- Adopting newer technologies
- Permitting access to overseas funds
- Permitting offshore banking.

Due to the various measures taken, the Indian credit market has witnessed a qualitative and quantitative upgradation. This process of upgradation has further increased the competitive forces in the market. In the present credit market scenario, the intermediaries will have to hone their skills so as to increase spreads, while watching their risk exposure levels.

## **SUMMARY**

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- Credit market plays a significant role in the Indian Financial system. Intermediates like banks, financial institution and non-bank finance companies provide credit for the varying requirements of the consumer and corporate sectors of the economy. This credit extension will mostly in the form of cash.
- Lending rate is one of the important criteria while extending loans. Intermediaries base their lending rate decision on three important criteria – their cost of fund, transaction cost and required spread.



## **Lesson 3**

# **Money Market: Introduction to Money Markets**

**After reading this lesson, you will be conversant with:**

- The Role of Money Market in the Financial System
- The Money Market Instruments
- Various Intermediaries and their Role
- Influence of Monetary Policy on Money Markets
- Regulatory Framework in the Indian Money Market
- Recent Developments in the Monetary and Credit Policy

The market that deals with short-term fund requirements is called the money market. The funds are available for the period of a single day to one year. The government, banks and the financial institutions are main players in the money market. The instruments in the money market are of short-term nature and highly liquid.

## **THE NEED FOR A MONEY MARKET**

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The evolution of different financial markets has been mostly due to the varied financial requirements. Business units in their day-to-day operations will be placed generally in a surplus or a deficit position in terms of liquidity or cash. This liquidity mismatch is inevitable in the short-run since the timing of the cash outflows rarely synchronizes with that of the inflows. For instance, when the statutory reserve requirements are increased, banks may experience a short-term funds deficit to meet the requirements while the accumulated funds for paying tax liability by the corporate suggests a short-term cash surplus position. Since this short-term liquidity mismatch is a regular feature of the business activity, it is all the more important for corporates to manage the same. Any delay in taking timely and appropriate action in managing the mismatches may seriously impact on the business unit's liquidity and to a certain extent on its profitability also. When short-term deficits are not adjusted immediately, it may eventually lead to a liquidity crisis. The situation will be worse for financial institutions and banks since their transactions generally involve large sums of money. Further, if the deficit of funds is in large proportions and is not tackled properly, it will add on to the costs of the firm.

On the other hand, in a surplus short-term funds situation, the businesses will be left with idle funds for short periods of time making them non-interest bearing. This goes against the fundamentals of financial management, which does not suggest the maintenance of a high level of idle funds as they eat into the profitability of the firm. The effect of this will be felt greatly on banks/financial institutions and other finance companies, which earn profits through spreads. To avoid idle maintenance of funds, there should be proper avenues to deploy them. Similarly, funds should also be available to tackle short-term liquidity crisis. These short-term fund requirements of the individuals/corporate houses were initially met by small time lenders or consortium lenders. This transfer of short-term funds in the unorganized sector could not, however, meet the rising volume of transactions and also the quantum of funds required. This paved the way for the evolution of Money market, a formal financial market that deals with short-term fund management.

### **Money Market Players**

By nature, the transactions that take place in the money market are of high volumes, involving large amounts. Hence, the market is dominated by a relatively small number of large players. Given below is the list of intermediaries participating in the money market:

- Government
- Central Bank
- Banks
- Financial Institutions
- Corporate Units
- Other Institutional Bodies – MFs, FIIs, etc.
- Discount Houses and Acceptance Houses
- Market Makers (Primary Dealers etc.)

The role and the level of participation by each type of player in the money market differs greatly from that of the others. Further, the institutional nature of operators indicates that the money market is a wholesale market. Government is an active money market player and in most economies, it constitutes the biggest borrower in the money market. The government needs to borrow funds mainly when the budgeted expenditure goes beyond the budgeted revenue. To adjust this budget deficit, it generally issues securities in the money market and raises funds. Apart from this regular deficit adjustment, the government still has to make certain short-term adjustments. For instance, consider the advance tax receipts of the government. In anticipation of these cash inflows, it incurs expenses thus creating a deficit. This deficit will later be adjusted with the advance tax receipts.

The government issues other securities of varying maturities to adjust its deficit borrowings. The Central Bank of a country generally operates in the money market on behalf of the government. It issues government securities based on the present and future requirements of the government and the market conditions. In certain cases it also underwrites the issues of the government. Apart from functioning as a merchant banker to the government, the central bank also dons the role of a regulator in the money market and issues guidelines to govern the money market operations and operators. It is through these regulations, that the central bank keeps a vigil on the money market activities. Such regulatory mechanism becomes essential especially since the impact of the money market is felt on the economy as a whole and on money supply and interest rates in specific. One of the most significant segments of the money market players is the banking industry. Banks mobilize deposits and utilize the same for credit accommodation. However, banks are not allowed to use the entire amount of deposits received for extending credit. Most of the developed economies/markets, in order to promote certain prudential norms for healthy banking practices, require all banks to maintain minimum liquid and cash reserves. Thus, banks should first ensure that these reserve requirements are met before deciding on their credit plans. If banks fall short of these statutory reserve requirements, they can raise the same from the money market since it is a short-term deficit. Sometimes, it so happens that the banks receive certain attractive loan proposals but do not have the funds for immediate disposal. In such cases also, banks will tap the money market to make temporary adjustment of funds for the loan. Further, banks also lend their short-term surplus funds into the money market rather than keeping them idle. The collective operations of the banks on a day-to-day basis are particularly predominant and hence have a major impact on the interest rate structure and the money position. Like banks, financial institutions also undertake lending and borrowing of short-term funds. Due to the large volumes these FIs transact in, they have a significant impact on the money market.

Corporates also transact in the money market mostly to raise short-term funds for meeting their working capital requirements. This segment partly utilizes both the organized and the unorganized sector of the money market.

**Table 1**

<b>Player</b>	<b>Role</b>
Central Bank	Intermediary
Government	Borrower/Issuer
Banks	Borrowers/Issuers
Discount Houses	Market Makers
Acceptance Houses	Market Makers
FIs	Borrowers/Issuers
MFs	Lenders/Inventors
FIIIs	Investors
Dealers	Intermediaries
Corporates	Issuers

Money market operators also include other institutional players viz. Mutual Funds (MFs), Foreign Institutional Investors (FIIs), etc. The level of participation of these players varies largely depending on the regulations. For instance, the level of participation of the FIIs in the Indian money market is restricted to invest in government securities only. In addition to the various borrowers and lenders, few players act as intermediaries in the money market. Discount and Acceptance Houses and Market Makers/Primary Dealers/Satellite Dealers come under this category and have certain specific roles to play in the money market.

Discount houses perform the function of discounting/rediscounting the commercial bills and T-Bills. On the other hand, acceptance houses are specialized agencies which accept the bills of exchange on behalf of their clients for a commission. This service enhances the liquidity of the bill. However, an active bill market becomes a prerequisite for the services of the discount and acceptance houses. In addition, some of these intermediaries act as underwriters to the government securities and also have the option to be their market makers. The above mentioned various money market players, can be segregated into different categories based on their activity in the market, i.e. they can be only lenders, lenders and borrowers/issuers, investors or intermediaries. Certain players may have more than one role to play. The Table 1 defines the role of the various players in the money market.

## **MONEY MARKET INSTRUMENTS AND FEATURES**

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Just as any other financial market, money market also involves transfer of funds in exchange for financial assets. Because of the nature of the money market, the instruments used in it represent short-term financial claims. Though there is no statutory definition for the money market instruments, it is accepted that the maturity profile of money market instruments varies from one day to one year, thus enabling a short holding period between entrance and exit, paving the way for liquidity. At times, the liquidity of a security may make it a part of the money market even though the maturity may be beyond a year. With short-term liquidity being the main purpose of the money market, various instruments have been developed to suit these short-term requirements. For instance, the amount required of funds by banks to meet their statutory reserves will vary from one day to a fortnight. Similarly, corporates may require funds for their working capital purpose for any period up to a year. Given below is a broad classification of the money market instruments depending upon the type of issuer and the requirements they meet.

### **Government and Quasi-Government Securities**

- Treasury Bills (T-Bills)
- Government Dated Securities/Gilt-Edged Securities (covered in Debt Market)

### **Banking Sector Securities**

- Call and Notice Money Market
- Term Money Market
- Certificates of Deposit
- Participation Certificates.

### **Private Sector Securities**

- Commercial Paper
- Bills of Exchange (commercial and trade bills/factorization bills)
- Inter-Corporate Deposits/Investments
- Money Market Mutual Funds
- Bonds/Debentures by the corporate

Except for their debt nature, the securities listed above differ from each other in their characteristics relating to maturity, issuer, type of investors, the risk-return profile, liquidity, marketability, negotiability, transferability, etc. Money market instruments, however, do not include any equities. Given below is a brief discussion of various money market instruments.

### **Government Securities**

The RBI on behalf of the government issues all T-Bills and Government dated securities. Being risk-free securities, they set the benchmark for the interest rates of the other money market instruments. Though the government issues these two categories of securities, they serve different purposes while meeting the government's fund requirement.

### **Treasury Bills**

T-Bills are issued to enable the government to tide over short-term liquidity requirements with maturities varying from a fortnight to a year. These instruments are issued at a discount to the face value. Being issued by the government they are considered to be risk-free. Due to this, they are highly marketable. Investors in T-Bills generally include banks, and other institutional investors.

## **GOVERNMENT DATED SECURITIES**

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These are medium to long-term government securities. Unlike the T-Bills which are issued at a discount, these securities carry a coupon rate. In spite of being long-term instruments, these government securities form a part of the money market due to their liquidity. As mentioned earlier, the chief characteristic of the money market instruments other than enabling short-term fund management, is to provide liquidity. Being government securities, these dated securities have fairly high liquidity and hence form part of the money market. These instruments set a benchmark for the long-term interest rates. Issuers will clearly be the central/state government and other quasi-governmental bodies while the investors will be banks, FIs, other institutional investors and individuals.

### **Banking Sector Securities**

The banking system has a very vital and active role in the money market. The transactions taking place in these securities are large in size, both in terms of the volumes traded and the amount involved in the transactions. The short-term requirements of banks vary from a single day to up to a year to meet the reserves and accommodate credit. Based on this requirement, various instruments/markets with differing maturities have developed.

### **Call and Notice Money**

These funds represent borrowings made for a period of one day to up to a fortnight. However, the mechanism adopted to lend funds to the call and the notice money markets differs. In the call money market, funds are lent for a predetermined maturity period that can range from a single day to a fortnight. However, with identical range of maturity period, the funds lent in the notice money market do not have a specified repayment date when the deal is entered into. The lender simply issues a notice to the borrower 2-3 days before the funds are to be repaid. On receipt of this notice, the borrower will have to repay the funds within the given time. While both these funds meet the reserve requirements, banks, however, mostly rely on the call money market. It is here that they raise overnight money i.e., funds for a single day.

## Term Money

Short-term funds having a maturity of 15 days and over are categorized as term money. Banks access this term money route to bring greater stability in their short-term deficits. While making a forecast of the fund requirements, banks will be in a position to assess the likely surplus and deficit balances that are to occur during the forecasted period. In view of such forecast, banks assess the amount that needs to be borrowed/lent in order to prevent any severe liquidity mismatch.

## Certificates of Deposit (CDs)

Banks issue CDs to raise short-term funds having a maturity of 15 days to 1 year. These instruments are issued to individuals/corporates/institutions, etc. These are usance promissory notes which require the holder to establish his identity before redeeming the amount. Being negotiable instruments they are easily transferable. They are issued at a discount to face value. The funds raised through certificate of deposits form a part of the deposits and hence attract reserve requirements.

## Participation Certificates (PCs)

The major activity of a bank is credit accommodation. This service of the banks, apart from increasing the risks, may place them in a tight liquidity position. To ease their liquidity, banks have the option to share their credit asset(s) with other banks by issuing Participation Certificates. These certificates are also known as interbank participations (IBPs). With this participation approach, banks and FIs come together either on risk sharing or non-risk sharing basis. Thus, while providing short-term funds, PCs can also be used to reduce risk. The rate at which these PCs can be issued will be negotiable depending on the interest rate scenario.

## PRIVATE SECTOR SECURITIES

### Commercial Papers (CPs)

Commercial Papers (CPs) are promissory notes with fixed maturity, issued by highly rated corporates. This source of short-term finance is used by corporates as an alternative to the bank finance for working capital. Corporates prefer to raise funds through this route when the interest rate on working capital charged by banks is higher than the rate at which funds can be raised through CP. The maturity period ranges from 15 days to 1 year.

### Bills of Exchange

It is a financial instrument that facilitates funding of a trade transaction. It is a negotiable instrument and hence is easily transferable. Further, depending on the repayment period and the documents attached, these bills of exchange are classified into different types. The duration of these bills generally ranges between 1 to 6 months.

### Factorization Bills

This instrument was formed due to the factoring of the bills of exchange. Factors, who are generally banks or FIs, purchase the bills from the creditors with or without a recourse facility and collect the dues from the debtors. The market for factorization of bills depends on the level of activity in the bill market.

### Inter Corporate Investments/ Deposits (ICDs)

Corporates generally raise funds from the Inter Corporate Deposit (ICD) markets. These instruments generally carry interest rates higher than the other short-term sources since the risk is higher.

### Money Market Mutual Funds (MMMFs)

Since the operations in the money market are dominated by institutional players, the retail investor's participation in the market seems to be limited. To overcome this limitation, the Money Market Mutual Funds (MMMFs) provide an avenue to the retail investor to invest in the money market. Retail investors normally deposit short-term surplus funds into a savings bank account, the returns from which are relatively low.

The returns from MMMFs will be higher than the interest earned in a bank. Further, this provides adequate liquidity and the investor can plan for short-term deployment of funds. These funds have high safety levels since the investments are in high quality securities, i.e., government/bank/highly rated corporate securities. Thus, MMMFs represent a low-risk and high-returns avenue to the retail investor in the money market.

## **Bonds/Debentures**

Bond is a formal certificate issued by the companies or government agencies acknowledging the indebtedness. To the investor, it is a proof of investment. In the current scenario the words bond and debentures are being used interchangeably. The public sector enterprises, financial institutions and the private corporates approach the public to finance their requirements through loans. They can issue either short- or long-term bonds and debentures. The bond market consists of three different categories of issuers – government owned Financial Institutions (FIs), Public Sector Units (PSUs) and private corporates. Some examples of bonds are Regular bonds, Tax saving bonds, floating rate bonds by ICICI, priority sector bond by NABARD, capital gains bond by National Housing Bank, Deep Discount bonds by IDBI, etc.

### **Box 1: Money Market Mutual Funds**

**Money market mutual funds** invest in short-term debt obligations of corporations and governments. They bring these investments to the small investor. For a small initial investment as low as \$500 (depending on the fund), you can participate in money market investments. Money market instruments provide high-yields on short-term investments. Direct participation in the money market would require investments of \$10,000 or more. The funds pool money from large number of investors and use it to buy these securities.

The **net asset value** (the value of a single share, determined daily) of a money market fund is kept at \$1. Although not guaranteed to stay at \$1, money market fund NAVs have usually been kept at \$1 due to the stability of the underlying investments. This means that if you own 3,380 shares, your fund will be worth \$3,380. Fund managers have been able to maintain the \$1 per share value by allowing the dividend rate to fluctuate rather than the share price.

The returns on money market funds depend on the yields of their individual holdings and will fluctuate due to the short-term of money market instruments. This causes the overall yield of a money fund to fluctuate as well. Investors who hold money funds can track the funds' yield changes in the financial pages of most major newspapers.

Money market funds invest in Treasury bills, commercial paper, banker's acceptances, negotiable certificates of deposit, repurchase agreements and short-term debts of the US Government agencies. A fund's prospectus or quarterly report will list the instruments it uses. Money market funds come in a variety of forms, described below.

**Tax-exempt money funds** invest in municipal securities with very short maturities (30-90 days). The interest they earn is free from federal tax and some state taxes. Because of the tax-free feature, however, their yields are comparatively lower than those of taxable funds. Over 300 tax-exempt money funds are available on the market.

**US Treasury funds** buy short-term US Treasury bills (T-bills). Their yields are also comparatively lower than those of other funds because their income is free from state and local taxes. These funds are considered very safe.

**US Government funds** buy T-bills, federal agency notes and repurchase agreements.

**Money market mutual funds** invest in a large pool of holdings made up of any of the investments listed above, concentrating on non-government securities.

You can learn more about each of these investments by consulting the individual tutorials on the money market, municipal bonds and government bonds.

#### **Safety concerns about money market funds**

The Federal Deposit Insurance Corporation (FDIC) insures bank deposits up to \$100,000, but does not cover money market mutual funds. This is a concern to some investors. You can, however, get a **money market deposit account** from a federally insured bank. This is a savings account that pays money market rates (usually higher than a passbook account). Initial deposits for these accounts start at \$5,000 or \$10,000.

Money market funds are considered very safe because of their low volatility and creditworthiness of the issuers. Money market mutual funds tend to have low overhead costs. These savings are ultimately passed on to investors in the form of yields that are higher than what money market deposit accounts, CDs and savings accounts pay.

A second concern with these funds is inflation risk. Real returns are affected or even overcome by inflation. Because returns in a money fund fluctuate greatly, inflation can chip away at returns that happen to be low in a given year.

Money market funds do not just sit idle. Learn about the things you can do with them below.

Ways you can use money market funds.

Money market funds come with some privileges that most other mutual funds do not have.

You can write checks from your money market fund without charge. Most funds, however, will require that checks be written for a minimum amount of \$250 or more.

You can use a money market fund for business purposes. You can deposit checks from customers and pay bills out of your account.

A fund can be used as a temporary place to park money that is awaiting investment in another security. Some investors place large sums into these accounts and then withdraw them gradually for placement into stocks and bonds. Many investors also keep cash in their money market funds for emergency use.

Some funds, for a fee, will allow you to withdraw cash from ATMs.

Once you have established a money market fund, you can invest in other funds within the same family without filling out an application.

*Source: [www.ameritrade.com](http://www.ameritrade.com)*

### **Repo Transactions**

Apart from the above mentioned instruments that enable short-term fund management, another popular mechanism to deploy/borrow short-term funds in the money market is known as the repo transaction. It is basically a contract that is entered into by two parties which may include the RBI, a bank or an NBFC. As per this contract, one party sells certain securities to the second party with an agreement to buy them back on a predetermined future date at a predetermined rate. This transaction raises short-term funds to the party selling the securities. From the purchaser's angle, the same repo transaction becomes a reverse repo transaction. The reverse repo transaction enables one party to purchase securities with an agreement to sell them at a later date. Thus reverse repo helps adjust the short-term surplus. The underlying securities that are bought and sold are generally government securities. The nature of the transactions and the time involved in the repo/reverse repo transaction generally varies depending upon the regulations. The Indian money market repos/reverse repos are for a minimum period of one day.



While there is no statutory limit to the maximum period, it normally does not exceed 3 months. Repos with RBI, can be for the minimum period of one day at the discretion of the RBI. Money market instruments, have been designed generally to manage short-term mismatch, meet the reserve requirements and enable credit extension with short-term funds. With instruments of varying features, players can lend using one type of money market instrument while at the same time borrow using another type of money market instrument. Thus, during a particular period, institutions can play on both sides of the market.

### **Maturity of the Instruments**

Selection of the right instrument, however, depends on the prudence of the player. Mere deployment and raising of funds does not suffice. What also matters is the ease with which the firm can get in and out of the market. To explain further, consider a firm that has a surplus in its short-term funds for a period of 3 months and hence deploy the same into the money market. However, if at the end of 3 months, the firm is not able to liquidate its investments from the money market, it will have to borrow the same. And if these funds are borrowed at a rate higher than the yields on the investments either due to an increasing interest rate scenario or other market conditions, the entire spread will be wiped off. Thus, to appropriately select the instrument, it is essential to distinguish the original maturity from the actual maturity. Original maturity refers to the period between the date of issue of the security and the redemption date, while actual maturity refers to the time interval between the date of investment in the instrument and the date of disposing/redeeming the same. For example, if a firm issues CPs having 3 months maturity, then it will remain the same for all investors who have subscribed to that particular instrument. However, the actual maturity reduces as the instrument approaches the date of redemption. This implies that the actual maturity represents the remaining term to maturity/outstanding period of the security.

Further, the presence of a secondary market will result in varied actual maturities for different investors since it enables the purchase and sale of instruments within the redemption period. With this basic understanding of the different maturities, the money market players can make their investment decisions depending on the period for which the short-term funds management is required.

One important point to make note of regarding these maturities, is their impact on the yields of the instruments. The outstanding/actual maturity of government securities enables price setting. Thus, if the original maturity of a money market instrument is similar to the actual maturity of a G-Sec, then the rate of the government security forms the base price for that money market instrument. In this regard it is also essential to note that the yields on securities are higher for longer actual maturities because the prices of instruments with longer actual maturities will fluctuate more in response to changes in interest rates. This enhances the price risk for the investors.

### **Risk Exposure in Money Market Instruments**

Apart from ensuring appropriate liquidity, investors should also consider the risks present in the money market investments. Investments in the money market are basically unsecured in nature. While the unsecured nature does indicate a higher risk, the risks associated with money market, however, are not necessarily due to the unsecured nature but more due to the fluctuations in the rates. The level and the type of risk exposures that can be associated with money market instruments/investments are discussed below.

**Market Risk/Interest Rate Risk**

These risks arise due to the fluctuations in the rates of the instruments, and are of prime concern in money market investments. Due to the large quantum of funds involved in the money market deals, and the speed with which these transactions are executed, the value of the assets are exposed to fluctuations. Further, if these fluctuations are wide, it may lead to a capital loss/gain since the price of the instruments, including the government securities, declines. This risk can be minimized by enhancing liquidity since easy exit can help curb the capital loss.

**Reinvestment Risk**

Reinvestment risk arises in a declining interest rate scenario. Investors who park their funds in short-term instruments will, at the time of redemption, have to reinvest these funds at a lower rate of interest. And since the existing securities will be having higher coupons/YTMs, their value generally rises in such situations to bring down the yields. All money market instruments are exposed to this risk.

**DEFAULT RISK**

Lending decisions primarily focus on assessing the possibility of repayment since the first risk that the lender will be exposed to is the default risk. Except for the sovereign securities, all other investment/lending activities have the probability of default by the borrower in the repayment of the principal and/or interest. It is due to the absence of the default risk, that the government securities are considered as risk-free securities.

**INFLATION RISK**

Due to inflation, the average prices for all goods and services will rise thereby reducing the purchasing power of the lender. The risk that arises due to the inflationary effect is known as inflation risk/purchasing power risk. All money market instruments are exposed to this risk. Lenders will generally ensure that their contractual rate of interest offsets this risk exposure. Though the capital market has designed instruments to hedge against this risk, they are yet to be introduced into the money market. However, considering the short-term nature of the money market instruments, their level of exposure to this inflation risk can be minimal when compared with other long-term instruments. The Capital Indexed Bonds (CIBs) issued by RBI is an instrument designed to minimize/eliminate the inflation risk. With a maturity of 5 years, these CIBs earn a 6 percent return on the investments. The principal amount is adjusted against inflation for each of the years and the interest is then calculated on this adjusted principal. Further, upon repayment, the principal amount is adjusted by the Index Ratio (IR) as announced by the RBI.

**CURRENCY RISK**

A risk of loss is inherent in the multi-currency dealings due to the exchange rate fluctuations. Currency risk refers to this type of risk exposure. The money market players operating in overseas money market instruments will be exposed to this risk. Also, when the institutional investors like banks sell foreign currencies to play in the money market, they may be exposed to currency risk.

**POLITICAL RISK**

Most of the measures adopted to bring economic stability will have a direct/indirect implication on the money market instruments and operations. This is due to the fact that the money market activity reflects the money supply position in the economy, the interest rate and the exchange rate structures, etc. Thus, any policy decisions adopted by the Central Government will have an impact on the money market. In the Indian context, it is the policy measure taken by the RBI, and sometimes the Ministry of Finance (MoF) that have an

impact on the money market. For instance, in order to build up forex reserves, the government may prevent repatriation of investments made by FIIs/NRIs in the money market. This measure will have a definite impact on the operations of these players in the money market. Depending on the guidelines issued by the government, all or few of the instruments will be affected. Though the above mentioned risks that the money market instruments are exposed to, seem to be similar to the risk profile of other financial markets, their level of exposure, varies. For instance, due to the short-term nature of the market, reinvestment risk and default risk will be minimal.

<b>Box 2: Money Markets</b>
The money markets provide the funds for market participants with maturity starting from one day to one year. The RBI, Commercial Banks, Financial Institutions and the Primary Dealers are prominent players in this market, each operating for a specific purpose. The Call/Notice money market makes available funds for banks with a maturity range of 1 to 14 days. The market with a maturity of 15 days to one-year is the Term money market. Following are some features of the money market.
<ul style="list-style-type: none"> <li>• The working of the money market off sets the demand supply imbalances of short-term funds.</li> </ul>
<ul style="list-style-type: none"> <li>• The money market is a hub of activities, which influences the liquidity and general level of interest rates in the economy.</li> </ul>
<ul style="list-style-type: none"> <li>• The money markets enable the lending/ borrowing activities at fair and competitive rates.</li> </ul>
<b>Evolution of Money Markets in India</b>
The Vaghul Committee, a working group on Money market appointed by RBI under the Chairmanship of N Vaghul, had suggested measures to develop the money market in India. The following are some initiatives taken up by the RBI as a follow up of those recommendations.
<ul style="list-style-type: none"> <li>• DFHI (Discount and Finance House of India) was formed in March 1988, to enable liquidity of the money market instruments.</li> </ul>
<ul style="list-style-type: none"> <li>• Widening the range of money market instruments; introduction of the new instruments like CP, CD and Interbank participation Certificates during 1988-89.</li> </ul>
<ul style="list-style-type: none"> <li>• Interest rate regulations in call money markets were gradually removed to make it a market determined one.</li> </ul>
The Bank Rate has become the reference rate in the money market and the minimum limit is set usually by the call rates and the Repo rates and the Bank Rate acts as a ceiling. The other benchmark instruments are Government Securities and the Treasury Bills.

*Source: ICFAI Research Center.*

There is yet another important and rather interesting feature of the money market that explains the lower level of the default risk. Money market players have to honor obligations as a universally accepted code of conduct. Irrespective of the volume of transactions in the market, the quantum involved in such transactions, and the mode in which these transactions take place, this code of conduct will be strictly adhered to by the participants in the money market. Since defaulting in the money market virtually expels the player from the market, in spite of being unsecured transactions, the obligations are definitely met. However, as observed earlier, the money market players are mostly large institutional players, having a good standing in the market with a good rating. Of the risks that the money market instruments are exposed to, the volume and the quantum of transactions generally put the market/interest rate risk at a higher level.

### Integration in the Money Market

Presenting itself as the market for short-term funds, money market should essentially incorporate features of adequate liquidity and minimum price fluctuation. These can, however, be attained when the market is wide enough and there are a large number of transactions taking place to ensure adequate liquidity and price stability. In addition to the volumes of the transactions, the pace with which they are entered into also is of utmost importance especially to attain greater depth in the market. To understand this concept better, consider the following features that are reflected by a developed money market.

- Sub-markets within the money market are well integrated to ensure free flow of funds. Such integration also extends to the various instruments within the sub-market.
- Specialization has essentially become a feature of the money market operators and instruments.

Thus, it can be observed that integration and specialization should necessarily be the features of a developed money market to provide adequate depth for its operations. As mentioned above, integration results in a free and quick flow of funds between markets/sub-markets/segments within the sub-market. This flow of funds is, however, possible when there is no gap between the various markets. To eliminate/reduce the gaps present between the various segments, specialized agencies/operators are being introduced into the money market. These operators, who are generally registered dealers with the central banks, maintain continuous contacts with other market players and ensure a spillover of funds from one sub-market to another due to their access to various markets. Further, by bridging the gaps and increasing the volume of transactions a single price (not considering the variances due to brokerage charges, taxes, etc.) can be set for each asset category. Thus integration coupled with specialization will enhance the volumes of transactions taking place in the money market and ensure greater depth for the same. One major advantage of such integrated markets is that it enables a better control/supervision by the regulator. However, such integration is possible only when all the money market operators have a level playing field. In the Indian markets a few players enjoy a special standing when compared to the rest, for example, DFIs (Development Finance Institutions), Public Sector Banks, etc. With such drawbacks, the Indian money market is yet to be integrated.

Before considering the structure of the Indian money market and the operations taking place in the same, it would be useful to have a brief roundup of the overseas money markets.

### Overseas Money Markets

In the global scenario, few money markets have been operating since a long time, while the others are of recent origin. The money market evolved during the 19th century in London. In the US regulations prohibited interstate and intrastate branching of banks. This led to a fragmented banking system which had no proper funds transmission process. To satisfy the credit requirements, the money market was developed initially in the call loan market and commercial paper market. Later due to changing regulations in the US, call loans were not much active. However, the CP market was quite active. London also had a thriving bill market. Discount houses have played a major role in developing the sterling money market.

The growth of these two money markets, i.e., the US and the UK was restricted for sometime due to the depression of the 1930s and the deregulation in the banking system. However, today these two markets being the oldest, have become global markets offering a variety of instruments.

Most of the other money markets have developed based on UK and US lines. In the Paris money market, discount houses played an active role in developing the bill market. Money Market Mutual Funds (MMMFs) have gained greater momentum. The Japanese money market also has developed its bill market on the lines of the London market. Interbank loans play a key role in this market. Due to an increase in the pressure for developing the Euroyen market, the Japanese had deregulated their money market. Based on the requirement and the regulatory

structure, various instruments have been developed in these overseas money markets. The stock in trade of these markets include Government Securities, Municipal Notes, Federal Agencies Securities, Repos, CDs and Deposit Notes, Eurodollars, Eurodollar CDs, Yankee CDs, Bankers' Acceptances, Short-term Loan Participations, CPs, Commercial Bills, etc. A few of these instruments are discussed below.

## **Government Securities**

The treasury securities issued by the US Treasury can be classified into T-Bills and treasury notes. T-bills which are issued at a discount to the face value have maturities extending up to 3 months, 6 months and 1 year. The discount on these T-Bills is not set by the Treasury. The Federal Reserve auctions each of the new bill issued to investors and dealers and bills are sold to those bidders offering the highest price. This reduces the interest cost to the Treasury. It also enables the current prevailing market conditions to establish the yield for the new issue.

Other securities of the US Treasury include interest bearing notes. The original maturity of these discount treasury notes can be anywhere beyond 2 years and their prices and yields are decided by the auction mechanism. Subscribers to these Treasury securities are FIs, insurance companies, pension funds, corporates, foreign central banks, and other foreign institutions. These markets also have dealers who act as market makers for governments by actively trading in huge volumes of these securities. These dealers trade with investors and also with each other. With high liquidity, low credit risk and tax exemptions, these government securities set the base for money market yields.

In addition to the above Treasury securities, the Thirty-Year Bills or STRIPs are also permitted. STRIPs are created out of the standard T-Bills, Treasury notes and bonds that are issued in bearer form after delinking the coupon on these instruments. These bearer bonds are then sold at a discounted price as non-interest bearing securities with a fixed maturity. These stripped instruments are known as zero-coupon bonds. Due to the demand for the Treasury securities, these STRIPs have become popular among the dealers who act as market makers of the regular Treasury notes, bonds and bills. The volume of transactions taking place in these US Treasuries has enhanced the depth of the US money market. It has literally become a 24 hour international market with active markets for these Treasuries existing in Tokyo, London and to a lesser extent in other foreign financial centers.

## **Municipal Notes**

Municipal Notes or Muni Notes are issued by state and local governments and their authorities. These interest-bearing securities are generally issued with maturities ranging from three months to a year. Sometimes they may also be issued for periods beyond a year.

## **FEDERAL AGENCIES SECURITIES**

Earlier, all the federal agencies used to raise funds by selling their own securities in the open market. This process has, however, changed with most of the agencies borrowing from the Treasury through an institution called the Federal Financing Bank. Larger agencies which still borrow from the market do so by issuing notes and bonds. These federal agencies securities are known as Agencies. They are interest bearing and are issued at a discount to the face value. These federal agencies price their securities after assessing the best yield the market would determine for its new issue. The agency securities are less liquid than the Treasury securities since the agency issues are smaller than the Treasury issues. Further, unlike all Treasury securities, all agencies do not have the de facto backing from the federal government and they may not be entitled to any tax exemptions. All these reasons, make the yields of the federal agencies securities slightly higher than the Treasury securities. After deciding on the yield for the issue, the securities are sold through a syndicate of dealers.

## Call Loans Market

The surpluses of the small local banks are absorbed by the large banks. These large banks with their presence in major financial centers viz., New York and London extend call loans. However, unlike in India, these call loans are routed to the capital market for stock transactions rather than the money market. The reason for this is explained by the large volumes involved in the call loans and the inability of the money market to absorb the same.

## REPOS AND REVERSES

Repo financing facility is mostly resorted to by bank and non-bank dealers to raise overnight funds. The underlying securities are generally, government securities and Bankers' Acceptances. The overnight repos are more popular since their rates are generally less. Apart from the overnight repos, there are repos for 30 days and longer which enable the dealer to take a speculative position. Such agreements are known as Term Repos. In addition to this, dealers in a market for reverse repos buy the securities from the investor with an agreement to sell them back.

## Certificates of Deposit (CDs)

In US, Certificates of Deposits (CDs) are available for terms ranging from 30 days to 5 years or 10 years at different competitive rates. Interest on CDs start accruing on the 1st business day after the banking day of deposit. The investor will have the option to compound his interest back into the CD, have the interest placed into his checking or savings account, have a cheque sent to him each month, or one cheque at maturity for the interest. The minimum amount to purchase a CD is \$1,00,000 although a \$1 million denomination is more common. Unlike in India, the investor can close the CD before its maturity but with substantial penalty. The money garnered by the bank by issuing these notes is not considered as a deposit and hence is exempted from the insurance premiums of the Federal Deposit Insurance Corporation (FDIC).

## Eurodollars

A Eurodollar deposit is a deposit denominated in dollars in a bank/bank's branch outside the US. Most of these Eurodollar deposits are for large sums and are made by corporations – domestic, foreign and multinational, foreign central banks and other official institutions, the US domestic banks and wealthy individuals. These Eurodollar deposits have a fixed term ranging from overnight to 5 years.

## Eurodollar CDs

To enhance the liquidity of the Eurodollar time deposits, banks in London that accepted such deposits began to issue Eurodollar CDs. These resemble domestic CDs except that instead of being the liability of a domestic bank, they are the liability of the London branch of a US bank or some other foreign bank with a branch in London. With lower levels of liquidity as compared with domestic CDs, these Eurodollar CDs offer higher returns. Eurodollars are issued in London and are purchased by banks operating in the Euromarkets, US corporations and other US institutional investors. They are generally issued through dealers and brokers who constitute a secondary market.

## Yankee CDs

These refer to the issue of dollar denominated CDs by foreign banks not only in the Euromarket but in the domestic market through branches established there. These have a higher yield due to lower liquidity and higher risk.

## **Loan Participations**

Banks sometimes distribute loans extended by them. Loans sold by banks are categorized into two types. The first type represents high quality, short-term loans extended to issuers of CPs. These loans are sold to traditional money market investors as a substitute for CPs. The second type involves selling participations in large but lower credit quality loans that banks extend to customers doing leveraged buyouts (LBOs). These have a maturity ranging up to 7 years and actually cannot be considered as money market instruments. The buyers include domestic banks and foreign banks.

## **Bankers' Acceptances (BAs)**

These instruments come into existence when a bank accepts a trade bill. These are short-term, non-interest bearing notes sold at a discount and on maturity are redeemed at face value by the accepting bank. BAs are highly liquid since they have an active secondary market. Japanese banks are major issuers of BAs in the US money market.

## **Commercial Papers (CPs)**

CPs in the US have a maximum maturity of 270 days and a minimum maturity of one day. CPs with a higher maturity than this need to be registered with the Securities and Exchange Commission. The most popular CPs are, however, for 30 days and less. The minimum denomination of a CP is usually \$100,000. The typical denominations are in multiples of \$1 million. Due to the short-term nature, these CPs are generally rolled over by issue of new CPs to meet the maturing CPs.

## **Euro Commercial Papers in Europe**

These instruments are issued in London. However, their growth is restricted by the tight spreads maintained by the London banks while extending loans. These securities are traded mostly in Europe and the US.

## **Commercial Bills**

London had a thriving bill market which was initially organized by bill brokers who brought the buyers and sellers together without taking any position themselves. These brokers evolved into dealers who purchased the bills themselves to resell them to others. These dealers were later transformed into discount houses which apart from functioning as dealers also invested in bills on their own account. Funds for such activity were raised by way of call loans from banks. The excess funds available with these banks were thus used to extend call loans instead of directly purchasing the bills. However, with the banking system being deregulated, the excess funds available with the small banks were absorbed by large banks. The larger banks transferred these funds internally thus, drying up the funds for the commercial bills and call loans. With the decline in the funds for money market, the discount houses moved into the government securities and the acceptance houses into the capital market. One feature of these overseas money markets, that is essential to take note of, is their global presence. The US money market is increasingly becoming an international short-term financial market. Oil imports of French companies, other trades of Japan and a lot of other non-US trades are financed through this market. This activity can also be witnessed in the London market. With the opening of the economies, all financial markets including the money market are becoming closely related. This expansion of the market has also witnessed a growth in the number of players and instruments.

While money markets worldwide, differentiate themselves based on the features like the instruments offered, players, interest rate structure, etc. a universally common aspect relating to these markets, however, is the inter-linkage they have with the prevailing economic conditions. Tables 2 and 3 show the risk characteristics of money market instruments in the American market.

**Table 2: Money Market Instrument Risk Characteristics**

Money Market Instruments	Duration (Common Maturities)	Convexity	Credit Risk	Liquidity	Timing of Payments Risk	Taxability
Treasury bills	3, 6 and 12 months	Low, positive	Assumed to be none	Very active Secondary market	Known	Discount is fully taxable as interest income; exempt from state and local tax
Federal agency discount notes	1-12 months	Low, positive	Assumed to be none	Limited secondary market	Known	Discount is fully taxable as interest income; exempt from state and local tax
Municipal notes	1-12 months	Low, positive	Rated by credit agencies	Moderately active secondary market for large issuers	Known	Interest is exempt from federal income tax and state and local taxes of issuing local price appreciation is subject to tax
Fed funds	1-7 days	None		Very low		No secondary market
Negotiable certificates of deposit				Active secondary market	Known	
Commercial paper	1, 2, 3, and 6 months	Low, positive	Low to high; not guaranteed against default by FDIC	Limited secondary market	Known	Interest and price appreciation are subject to income tax
Repurchase agreements			Medium to very low rated by credit agencies	High liquidity but no secondary market		
Bankers' acceptances	20-45 days	Negligible	Low risk, collateralized by Treasury securities; collateral price risk	Active secondary market	Flexible	discount is fully taxable as interest income
Money market mutual funds	1 day, 1 week, 3-6 months, flexible terms	None	Very low; major banks are guarantors	Easy liquidation	Known	Price differences taxed as interest income
	1-9 months	Negligible	Little		Known; depends on type	
	1-180 days	Negligible				

Source: *Financial Markets, Instruments & Institutions*, by Santomero and Babbel, McGraw Hill Int'l Edition 2nd Edition, 2001, page 242.



**Table 3: Money Market Instruments and Characteristics**

Money Market Instruments	Principal Borrowers	Principal Investors	Common Denominations
Treasury bills	Federal government	Individuals, non-financial and financial corporations, money market funds, foreign and domestic governments	\$10,000 and higher
Federal agency discount notes	Federally sponsored agencies	Individuals, money market funds, governments	\$10,000, \$25,000, \$50,000, and higher, depending on the issuing agency
Municipal notes	State and local governments	Insurance companies, individuals	\$5,000 for interest-bearing notes, \$50,000-\$100,000 for discount notes
Fed funds	Banks	Depository institutions	Flexible
Negotiable certificates of deposit	Large banks and thrifts	Non-financial corporations, money market funds, individuals	\$100,000 and higher
Commercial paper	Financial and non-financial corporations	Non-financial corporations, money market funds	\$25,000 minimum
Repurchase agreements	Banks, securities dealers, other owners of government securities	Non-financial financial institutions	\$10 million and higher
Bankers' acceptances	Financial and non- financial corporations	Non-financial and financial corporations, money market funds, governments	\$100,000 minimum
Money market funds	Financial and non-financial corporations	Corporations and individuals	\$1,000 retail, \$100,000 wholesale

## MONETARY POLICY

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Due to the mutual dependence of the economic environment and the money markets, the policies adopted by the government/central bank are of utmost importance to the money market. The fiscal and the monetary policies announced by the government/central bank constitute the major economic policies. Of these two policies, the fiscal policy focuses on the structural changes in the economy through a proper budget planning mechanism. It is through this policy that the government aims to maintain economic activity and employment, which enable it to take long-term investment decisions especially in infrastructural areas. Distinguishing itself from the fiscal policy is the monetary policy which concentrates on issues that are contemporary to the economy in nature. Relating itself to the short-term economic adjustments, the monetary policy has greater flexibility and ability to respond to the conditions that affect the economic factors. The roles of the monetary and the fiscal policies can thus be regarded as complementary in nature. While both the policies enable government intervention in the economic process, it is the monetary policy which is more critical to the money market operations. The measures taken to meet the monetary policy objectives have a definite and immediate impact on the money market. Thus, an insight into the monetary policy objectives, the various tools used to attain them and the implications of the same would enable a better understanding of the money market.

Most of the changes that the monetary policy intends to bring about in the economic conditions relate directly or indirectly to the interest rate structure and the availability of credit. Due to this, the impact of these measures will be transmitted to the money market thereby affecting both, the volumes in the money market and the interest rates of the instruments. The overview obtained on the overseas money markets and the factors influencing them, can help assess the role played by the Indian money market in economic development and the scope for improving its efficiency. Since liberalization, the Indian money market has actually begun to grow. Characterized by limited number of players and instruments, it had been operating in a strict regulatory environment.

The developments taking place in the Indian money market, the regulatory environment, its role in the economic progress, the players operating in it and the instruments it offers are discussed below.

## INDIAN MONEY MARKET – REGULATORY FRAMEWORK

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The Reserve Bank is the monetary authority of the country and the public debt manager of the Government. The development and regulation of money markets in the Indian financial system is an important function of the Reserve Bank. In the context of regulatory powers of the RBI, amendments to the Securities Contract (Regulations) Act (SCRA) that were introduced from March 1, 2000 have significant importance because they have defined the regulatory jurisdiction of the Reserve Bank over activities in the Government securities market, money market, gold related securities transactions, derivatives market and ready forward contracts in all debt securities.

For the past few years the RBI has been trying to develop a proper short-term rupee yield curve with deep liquidity in the money markets. The strategy thus passes through the following stages.

- Introduction of LAF (Liquidity Adjustment Facility) to control the short-term interest rates within a certain range.
- Making the call money market as a pure interbank market by gradually withdrawing the non-bank participants.
- Rationalizing of the traditional sector-specific refinance schemes and introducing of market based recourse to RBI's standing liquidity facilities.

- Broadening the other segments of the money market, especially the repo market by allowing the non-banks to participate in the lending and borrowing activities.

Originating as an informal market for the short-term requirements, the Indian money market has come a long way by adding greater dimensions to operations/transactions. Like the other overseas markets, the Indian money market is affected by the various policy decisions taken by the Government/RBI. The fiscal and the monetary policies announced by the Ministry of Finance (MoF) and the RBI respectively, constitute the major economic policies formulated in India. The focus is on the monetary policy since it has a significant role in the development of the Indian money market.

The Indian economy having been historically an agrarian economy, the agricultural output has an important bearing on the price situation in India. Due to this, a distinct aspect of seasonality can be observed in the demand for funds in the Indian markets. The May-October period is considered as the slack season since the demand for funds reduces when compared to the period between November-April. This seasonality has a major impact on the economy and to adjust to the consequent implications, the RBI issues its monetary policy twice a year – The Slack Season Monetary Policy for the period May-October and the Busy Season Monetary Policy for the period November-April. Though the monetary policy has been a constituent of the economic policies since a long time, it was only during the early 1970s that it assumed greater role/significance in achieving economic growth. Since then, the policy measures have aimed at controlling inflation and enhancing economic growth while at the same time mobilizing savings for productive investments. To attain these objectives the RBI has various tools at its disposal. However, the most important and widely used relate to the interest rate structure, foreign exchange reserve position and money supply position. Through the various policy measures, the interest rates which were tightly regulated till recently are being freed. While some rates have been totally deregulated, a few others are still in the process of being deregulated. For instance, while the deposit rates have been totally deregulated, the advance rates have been only partially deregulated.

Alternatively, RBI also aims to regulate the capital inflows and outflows to attain the monetary policy objectives. This is mostly done by revising the guidelines relating to FCNR (Foreign Currency Non-Resident) accounts, NRE (Non-Resident External) accounts, etc. Any change in the guidelines relating to these foreign currency denominated deposits may have an impact on the capital inflows and outflows thereby affecting the money supply position. While these measures aid in adjusting the money supply position to the policy target, there are various other measures that are more widely adopted to adjust the money supply position. The RBI can alter the statutory reserve requirements, can resort to the open market operations to buy/sell government securities or enter into repo/reverse repo transactions to make desired changes to the liquidity position in the system. The RBI, as the chief monetary authority, will regularly examine the liquidity present in the system. Further, it will also study the behavior of interest and the exchange rates and accordingly adopt suitable policy measures.

These monetary policy measures taken by the RBI may either have an indirect impact on the money market operations or may directly affect its operations/players/instruments. Discussed below are the measures that may indirectly affect the money market.

**Changes in CRR:** A cut in the CRR enhances loanable funds with the banks and reduces their dependence on the call and term money market. It also brings down the call rates. On the contrary, when the CRR is increased, the liquidity in the system comes down. Consequently, the banks have to reduce their credit operations. And those banks which do not have enough funds to meet the CRR either have to borrow from the market or raise additional deposits. It is difficult to raise funds during a liquidity crunch. Hence there may also be an increase in the interest rates.

**Changes in SLR:** The changes in SLR will have to be examined in two different situations:

- i. Banks maintain SLR investments just up to the amount necessary,
- ii. The SLR securities that are maintained are in excess of the statutory prescriptions.

Consider the first case along with an increase in the SLR. This will reduce the liquidity of the banks since there will be transfer of assets in the form of cash into securities. And as the demand for the SLR securities increases, their prices will increase thereby reducing the yields earned on them. Now, if the first case exists and there is a decrease in the SLR requirement, then the banks will have an excess investment in the SLR securities.

Disinvesting the same may not be profitable since there will be more sellers. This will bring down the prices of the securities while increasing its yields. In the second case, when the banks maintain excess of SLR securities, an increase in SLR will not have a significant impact on the liquidity, prices and yields of the instruments. Likewise, when there is a decrease in the SLR, there might not be much effect on the liquidity, prices and yields of the instrument since banks tend to keep excess SLR securities. However, in the long run, there may be an increase in the liquidity. Excess SLR investments will enable the banks to present better capital adequacy ratios and also since the government securities are now market determined, the yields offered by them would be encouraging.

## The Open Market Operations (OMO)

The RBI can also adjust the liquidity in the system by its open market operations. OMO involves the sale and purchase of government securities by RBI through its open window. While the open market purchase of gilts will ease the liquidity of banks, the open market sale of the same will contract their liquidity. Apart from this, the RBI may also alter the interest rate structure using these OMOs. This can be possible through RBI's pricing policy for its open market sale/purchase.

For instance, if the interest rate structure is to be moved upwards, the prices of securities in the OMO can be set at higher levels thereby signalling an upward movement in the interest rates. Likewise, if the RBI decides to cool the rising interest rates, its open market operations should indicate a downward movement in the rates. However, this effort to cool the interest rate volatility through OMOs may sometimes lead to an interest differential loss to the RBI.

**Bank Rate:** Bank rate is the rate at which the banks get finance or refinance facility from the RBI. Prime Lending Rate or PLR is the rate at which the banks will lend to the public. A cut in the bank rate will eventually be followed by a cut in the PLR by banks. This will tend to move down the interest rate structure. Thus, the yields offered on the short-term instruments traded in the money market also will be affected. For instance, if the PLR is reduced, the CP rate may also come down, IBPs and CDs may also be affected.

**REPOs:** A cut in the repo rates will result in bringing down the call rates and also other term money rates. The various monetary policy measures mentioned above can be classified into those measures which have a direct impact on the liquidity/interest rates/exchange rates and others which indirectly affect them. The direct measures mostly act as regulations imposed by the governing bodies and such measures go against the free economic policy, which suggests regulations coming from within the market. In order to minimize control and make the financial sector more market driven, direct measures are paving the way for indirect measures.

Few measures taken in this direction are as follows:

- Administered structure of interest rates is paving the way for a deregulated interest rate regime.
- Auction based pricing mechanism of the gilts.
- Reduction on the dependence of SLR and CRR for fiscal deficit.
- Progressive elimination of capital controls.

Other measures taken by the RBI, which have a direct impact on the money market are aimed to develop it and bring it in line with the liberalization process. They are aimed to enhance the depth in the existing market and further provide an active secondary market. Towards this end, RBI's policy measures are effectively resulting in financial innovation. They are also broadening the spectrum of players in the market and widening their scope of operations. Most importantly primary dealers have been introduced in the market.

### **Primary Dealers**

The Reserve Bank of India introduced a system of Primary Dealers (PDs) in government securities market in 1995. One of the prime characteristics of any financial market is liquidity. And in case of the money market, which provides short-term funds there should be greater levels of liquidity. As the various instruments traded in the Indian money market did not have an active secondary market, Primary Dealers (PDs) were introduced into the market to develop the same.

### **OBJECTIVES OF PDS**

1. Strengthen the infrastructure facilities of the money market in order to enhance its liquidity and to broad base its operations.
2. To gradually take up the role of the RBI as an underwriter and market maker to the G-Secs.
3. To activate the secondary market for G-Secs and thereby enable price discovery and enhance liquidity and turnover. These operations should widen the investor base by encouraging voluntary holding of government securities.
4. To aid the RBI in conducting OMO.

### **Eligibility Criteria**

1. All subsidiaries of schedule commercial banks and all India financial institutions and companies incorporated under the Companies Act, 1956, which are predominantly engaged in the securities business and in particular in the government securities market are eligible to apply for primary dealership.
2. The above mentioned classes of institutions should have net owned funds of a minimum of Rs.50 crore. Net owned funds will be owned funds, represented by paid-up capital, free reserves, balance in share premium account and capital reserves (surplus arising out of sale proceeds of assets but not reserves created by revaluation of assets), less accumulated loss balance and book value of intangible assets, if any.
3. Subsidiaries/joint ventures set up by entities incorporated abroad under FIPB (Foreign Investment Promotion Board).

List of some major Primary Dealers in India

- Discount and Finance House of India
- Securities Trading Corporation of India Ltd.
- ICICI Securities and Finance Co. Ltd.

- Gilt Securities Trading Corporation Ltd.
- PNB Gilts Ltd.
- SBI Gilts Ltd.
- Ceat Financial Services Ltd.
- ABN AMRO Securities (India) Pvt. Ltd.
- J P Morgan Securities India Pvt. Ltd.
- Tata TD Waterhouse Securities Ltd.
- Deutsche Securities (India) Pvt. Ltd.
- DSP Merrill Lynch Ltd.
- Kotak Mahindra Capital Co. (Unlimited)
- IDBI Capital Market Services Ltd.
- Corpbank Securities Ltd.

### **Role and Obligations of PDs**

The PDs should have a standing arrangement with RBI based on the execution of an undertaking and the authorization letter issued by the RBI covering the following aspects:

1. The aggregate bid commitment for the GOI dated securities and auction T-Bills on an annual basis should not be less than a specified amount, which would be separately indicated for each of these securities.
2. The minimum success ratio for the PDs should be 33.33% for G-Secs and 40% for T-Bills.
3. Primary dealers underwrite a portion of the issue of government security that is floated for a predetermined amount. Normally primary dealers are collectively offered to underwrite up to 100 percent of the notified amount in respect of all issues where amounts are notified. The underwriting commitment of each primary dealer is broadly decided on the basis of its size in terms of its net owned funds, its holding strength, the committed amount of bids and the volume of turnover in securities.

A primary dealer can, however, offer to underwrite an amount not exceeding five times of its net owned funds or the balance liquidity support available from the Reserve Bank at the time of making commitment for underwriting, whichever is higher. The amount so arrived at should not exceed 30 percent of the notified amount of the issue. If two issues are floated at the same time, the limit of 30 percent is applied by taking the notified amounts of both the issues together.

<b>Balance Maturity (as on the date of reporting)</b>	<b>Risk-weights (percent of market value)</b>
Up to one year	15
Over one year and up to five years	20
Over five years and up to ten years	25
Above ten years	30

Table 4: The Annual Report on the Working of the Reserve Bank of India

Item	STCI	DFHI	GSTC	PNB GILTS	SBI GILTS	I-SEC							
		T-Bills	GDS	T-Bills	GDS	T-Bills	GDS	T-Bills	GDS	T-Bills	GDS	T-Bills	GDS
1		2	3	4	5	6	7	8	9	10	11	12	13
I. Government Securities													
a. Primary Market													
	i. Bidding Commitments	1,500	1,000	1,250	300	600	400	180	150	180	220	400	500
	ii. Bids Tendered*	7,863	2,113	3,220	326	2,354	1,628	4,423	1,575	2,686	1,938	3,684	1,695
	iii. Bids Accepted*	3,572	1,523	1,623	240	1,041	1,147	2,761	1,509	1,539	1,513	1,931	1,597
	iv. Success Ratio	45.43	72.08	50.40	73.62	44.22	70.45	62.42	95.81	57.29	78.04	52.42	94.22
	v. Devolvments	76	156	195	41	76	60	38	30	60	42	38	30
	vi. Total Purchases (iii+v)	3,648	1,679	1,818	281	1,117	1,207	2,799	1,539	1,599	1,554	1,969	1,627
b. Secondary Market													
	i. Purchases	...	...	2,625	8,264	150	1,328	4	909	243	568	967	3,019
	ii. Sales	...	...	3,864	8,396	1,316	2,418	2,802	2,327	1,747	1,961	2,433	3,963
1.	Purchases are inclusive of primary market purchases and sales are inclusive of redemption of maturities.												
	Item	STCI	DFHI	GSTC	PNB GILTS	SBI GILTS		I-SEC					
		T-Bills	GDS	T-Bills	GDS	T-Bills	GDS	T-Bills	GDS	T-Bills	GDS	T-Bills	GDS
1		2	3	4	5	6	7	8	9	10	11	12	13
	Total (i+ii) of which: Outright	10,579	30,571	6,489	16,660	1,466	3,746	2,806	3,236	1,990	2,528	3,400	6,982
	Purchases	971	2,071	1,372	86	130	1,174	-	736	179	477	865	2,281
	ii. Sales	3,918	3,705	2,630	393	1,223	2,126	2,798	2,154	1,683	1,870	2,405	3,471
	Total (i+ii)	4,889	5,776	4,002	479	1,353	3,300	2,798	2,890	1,863	2,346	3,270	5,752
c. Turnover Ratio													
	i. Overall	36.99	56.84	17.19	29.27	49.69	28.24	342.80	45.00	28.78	32.56	48.92	29.84
	ii. Outright	22.19	17.19	12.51	2.03	45.85	24.87	342.30	47.00	27.76	31.39	47.04	24.58
II. Call/Notice Money													
	i. Borrowing	1,80,404		6,17,672		21,109		17,736		19,185		36,106	36,106
	ii. Lending	93,940	4,27,958			1,037		2,365		1,272		1,751	1,751

T-Bills – Treasury Bills. GDS – Central Government Dated Securities

\* Includes subscriptions in fixed-coupon issues.

... Not available.

**Note:**

STCI Securities Trading Corporation of India Ltd., DFHI Discount and Finance House of India Ltd.

GSTC Gilt Securities Trading Corporation Ltd., I-SEC ICICI Securities and Finance Company Ltd.

Source: Annual Report of RBI, 2000-2001

4. Devolvement securities will be allotted at the competitive cut-off price/yield decided at the auction or at par in the case of predetermined coupon flotation. Initially, the collectively underwritten portion by all PDs will be fixed at a level not exceeding 25 percent of an issue in the case of dated securities and 20 percent in the case of T-bills. The RBI will underwrite the remaining 75 percent and 80 percent respectively. The total underwritten portion by PDs will be progressively raised over a period as the market further develops and attains sophistication.
5. A primary dealer shall offer a firm two-way quote either through over the counter telephone market or through a recognized Stock Exchange of India and deal in government securities in the secondary market and take principal positions.
6. A primary dealer shall maintain the minimum capital standards at all points of time.
7. A primary dealer shall achieve a sizable portfolio in government securities before the end of the first year of operations after authorization.
8. The annual turnover of a primary dealer in a financial year shall not be less than 5 times in government dated securities and 10 times in Treasury Bills. Of the total, turnover in respect of outright transactions shall not be less than 3 times in respect of government dated securities and 6 times in respect of Treasury Bills. The turnover will be calculated as under:
  - Total purchases and sales during the year/Average of month-end stocks during the year.
  - The target should be achieved by the end of the first year of operations after authorization by RBI.
9. A primary dealer shall maintain physical infrastructure in terms of office, computing equipment, communication facilities like Telex/Fax, Telephone, etc., and skilled manpower for an efficient participation in primary issues, trading in the secondary market and to provide advice and education to investors.
10. A primary dealer shall have an efficient internal control system for fair conduct of business and settlement of trades and maintenance accounts.
11. A primary dealer will provide access to RBI to its records, books, information and documents.
12. A primary dealer shall subject itself to prudential and regulatory guidelines by RBI.
13. A primary dealer shall submit periodic returns prescribed by the RBI.
14. The primary dealers should adhere to all prudential and regulatory guidelines prescribed by Reserve Bank from time to time.
15. Authorized primary dealers should form a Self-Regulatory Organization (SRO) which would evolve a code of conduct and a system securities transactions.
16. In respect of transactions in government securities, a primary dealer should have a separate desk and should maintain separate accounts for himself and customers and have external audit of annual accounts.
17. The primary dealer should bring to the attention of the Reserve Bank any major complaint against him or action initiated/taken against him by authorities, such as the Stock Exchanges, Securities and Exchange Board of India, Central Bureau of Investigation, Enforcement Directorate, Income Tax, etc.



(Rs. cr.)

	Shares Ltd.	TSS Ltd.	GHN Ltd.	KLN Ltd.
G-Secs	600	700	300	450
Auction T-Bills	800	1000	2300	1800
G-Secs:				
Tendered	700	900	250	500
Accepted	350	225	80	230
Auction T-Bills				
Tendered	900	700	2200	1900
Accepted	275	350	900	700

18. The primary dealers should determine prudential ceilings, with the prior approval of their board of directors.

### Capital Adequacy Standards

Currently, the capital adequacy requirements for PDs for credit risk are based on the same norms as applicable to NBFCs. Market risk, has separate requirements as given in the “Guidelines for the PDs in the Government Securities Market”. As these do not still adequately address the risks being faced by the PDs in the market, comprehensive capital charges on the portfolio risks are considered essential. Taking into account the principles for capital adequacy for market risk evolved by regulatory bodies such as the International Organization of Securities Commissions (IOSCO) and the Bank for International Settlements (BIS), fresh guidelines for capital adequacy standards for PDs are being evolved, which will be finalized in consultation with PDs.

(Rs. cr.)

	Shares Ltd.	TSS Ltd.	GHN Ltd.	KLN Ltd.
G-Secs				
(commitment x 33.33%)	200	233	100	150
Auction T-Bills				
(commitment x 40%)	320	400	920	720

A primary dealer shall maintain capital adequacy standards as prescribed by RBI for Non-Banking Financial Companies and Residuary Non-Banking Companies subject to the following requirements:

(Rs. cr.)

	Adherence to commitments			Adherence to successful bids				
	Bids	Commitments	Adhered	Bids	Required Commitment	Adhered(Y/N)		
	Tendered		(Y/N)	Accepted				
	(A)	(B)	(C)	(D)				
Shares Ltd.	700	>	600	Y	350	>	200	Y
TSS Ltd.	900	>	700	Y	225	<	233	N
GHN Ltd.	250	<	300	N	80	<	100	N
KLN Ltd.	500	>	450	Y	230	>	150	Y

	Adherence to commitments			Adherence to successful bids				
	Bids Tendered	Commitment s	Adhered (Y/N)	Bids Accepted	Required Commitment	Adhered (Y/N)		
	(A)	(B)	(C)	(D)				
Shares Ltd.	900	>	800	Y	275	<	320	N
TSS Ltd.	700	<	1000	N	350	<	400	N
GHN Ltd.	2200	<	2300	N	900	<	920	N
KLN Ltd.	1900	>	1800	Y	700	<	720	N

1. The following risk-weights will apply to government and other approved securities as defined in the Banking Regulation Act, 1949 in the portfolio of PDs:
2. The risk-weight applicable will be zero in respect of balances held with banks as cash and other bank balances including fixed deposits and money at call and short notice.
3. In the case of all other assets including Public Sector Unit (PSU) bonds, other debt instruments (corporate bonds, debentures, commercial paper, etc.) equity and all off-balance sheet items, the risk-weight applicable will be 100 percent.

(Rs. cr.)

	Bids received	Competitive bids accepted at cut-off price		
	G-Secs	91 day T-Bills		G-Secs
				91 day T-Bills
Case 1	1000	400		700
Case 2	1000	400		600*

(\* include non-competitive bids)

### Facilities to Primary Dealers

The Reserve Bank extends the following facilities to PDs to enable them to effectively fulfill their obligations.

Primary dealers are provided with one current and two Subsidiary General Ledger (SGL) accounts for government securities. One SGL account can be used by the primary dealer for its own operations and the other for operations on behalf of its constituents. These accounts can be availed at any office of the Reserve Bank.

### Repos and Refinance

Primary dealers can access finance through Repos operations/refinance with the Reserve Bank of India in Central Government dated securities and Auction Treasury bills up to a limit fixed by the RBI.

### Permitted to Raise Funds through CPs

Primary Dealers (PDs) can raise funds through commercial papers. Further they can also access finance from commercial banks as any other corporate borrower.

### Transfer of Funds

Primary dealers can transfer funds from one center to another under the Reserve Bank's Remittance Facility Scheme. Further they have the facility to clear cheques arising out of government securities transaction, tendered at Reserve Bank's counters. Furthermore, they are proposed to be given favored access to the Reserve Bank's open market operations.

(Rs. cr.)

	G-Secs	91 day T-Bills
Notified amount	700	300
Bids accepted	700	300

**Liquidity Support**

Presently the RBI extends the liquidity support to the PDs against the collateral of government securities. This is classified as Level I and Level II support. For Level I, the quantum of liquidity support is provided at the bank rate. In general, each drawal is subjected to be repaid within 90 days. The liquidity support decided by the RBI for Level II is extended at the bank rate plus two basis points. However, the repayment period is not more than two weeks at a time.

(Rs. cr.)

	<b>G-Secs</b>	<b>91 day T-Bills</b>
Notified amount	700	300
Bids accepted	600	250

(Rs. cr.)

		<b>G-Secs</b>	<b>91 day T-Bills</b>
Amount of shortfall		100.00	50.00
a.	Devolvement on PDs	$100 \times 0.25 = 25.00$	$50 \times 0.20 = 10.00$
b.	Devolvement on AHB Ltd.	$25 \times 0.10 = 2.50$	$10 \times 0.05 = 0.50$
c.	Devolvement on RBI	$100 \times 0.75 = 75.00$	$50 \times 0.80 = 40.00$

The standing liquidity facilities by the RBI in the form of liquidity support to PDs come in addition to the facilities through LAF as also outright sales/purchases of the government securities as part of Open Market Operations (OMO). However, the LAF is superior in moderating liquidity in the financial system and PDs rely mostly on LAF. Hence the RBI may consider phasing out the Collateralized Liquidity Facility (CLF) with effect from the fortnight beginning October 5, 2002. The RBI will have the option to reintroduce CLF in the future for a temporary period, if it feels so keeping in view the changes in the monetary situation. The RBI is also considering review to the apportionment of liquidity facilities to PDs.

**Permission to Borrow and Lend in the Call Money Market**

Presently the Primary Dealers (PDs) are allowed to borrow and lend in the money market that includes call money market and to trade in all money market instruments. Recently the working group constituted by the RBI to examine the necessity of prudential regulations on exposure to call/notice money market in a symmetric way so as to preserve the integrity of the financial system has suggested fixing limits for transactions of Primary Dealers (PDs) in call/notice money market as also the roadmap for phasing them out from call/notice money market. It may be recalled that the annual policy Statement of April 2001 highlighted the intention to move towards a pure interbank call/notice money market in four stages by gradually phasing out non-bank participation. In stage I, non-bank participants were allowed to lend, on average in a reporting fortnight, up to 85 percent of their average daily lending during 2000-01. The implementation of stage I has not caused any strain on the market or created undue volatility in call/notice money rate. Except for the Life Insurance Corporation of India, which has large liquid funds and is also subject to certain prudential constraints in investing its large surpluses in other non-bank institutions, by and large, most non-bank institutions have not faced any difficulty in adhering to the stage I guidelines.

Subsequently, in the annual policy Statement of April 2002, it was stated that RBI would announce the date of effectiveness of stage II, wherein non-bank participants would be allowed to lend, on average in a reporting fortnight, up to 75 percent of their average daily lending in call money market during 2000-01, depending on the date when NDS/CCIL becomes fully operational. In view of the encouraging developments in NDS/CCIL, it would be desirable to accelerate the

process of moving towards a pure interbank call/notice money market and facilitate further deepening of repo market. Accordingly, it is proposed that stage II of the transition to a pure interbank call/notice money market will be effective from the fortnight beginning June 14, 2003, wherein non-bank participants would be allowed to lend, on average in a reporting fortnight, up to 75 percent of their average daily lending in call/notice money market during 2000-01.

However, in case a particular non-bank institution has genuine difficulty in developing proper alternative avenues for investment of excess liquidity because of its size, the RBI may consider providing temporary permission to lend a higher amount in call/notice money market for a specific period on a case by case basis.

**Illustration 1**

The commitment for aggregative bidding for G-Secs and Auction T-Bills of 4 PDs are as follows:

Based on the data provided above, answer the following:

1. Assess the required amount of successful bids for the year for these PDs in each of the instruments.
2. State whether the PDs have adhered to the commitment to go for aggregative bidding and achieve the required amount of successful bids during the year.

**Solution**

1. The success ratio to be maintained by PDs in G-Secs = 33.33%  
The success ratio to be maintained by PDs in auction T-Bills = 40%
2. G-Secs.

From the above table it can be observed that GHN Ltd. and TSS Ltd. did not adhere to the commitment on aggregative bidding or on the required amount of successful bids.

**Auction T-Bills**

Thus, it can be observed from the table that Shares Ltd., and KLN Ltd., have adhered only to their commitment on aggregative bidding but not to the required amount of successful bids. However, GHN Ltd. and TSS Ltd. have not adhered to either their commitment on aggregative bidding nor to the required amount of successful bids.

**Illustration 2**

AHB Ltd. is a PD in the Government Securities. During the auction of dated securities and 91 day T-Bills, AHB Ltd. has, in agreement with the RBI, given an underwriting commitment of 10% of the shortfall in case of government dated securities and 5% of the shortfall in case of the 91 day T-Bills. The amounts notified for the bids were Rs.700 cr. for the dated securities and Rs.300 cr. for the 91 day T-Bills. From the various cases given below, identify those cases where development has occurred and assess the amount devolved on (a) all PDs (b) AHB Ltd. and (c) RBI.

**Solution**

**Case 1:**

There is no shortfall in the subscription of G-Secs and 91 day T-Bills since the bids received for G-Secs and the T-Bills are equal to the notified amount. Hence there is no devolvement.

**Case 2:**

It can be observed that the bids accepted for the G-Secs and 91 day T-Bills fall short of the notified amount by Rs.100 cr. and Rs.50 cr. respectively. Hence there is a devolvement in the issues.

The devolvement on PDs, AHB and RBI will be assessed based on the following.

Devolvement on RBI in case of G-Secs = 75% of the devolvement

Devolvement on RBI in case of T-Bills = 80% of the devolvement

Devolvement on PDs in case of G-Secs = 25% of the devolvement

Devolvement on PDs in case of T-Bills = 20% of the devolvement

Devolvement on AHB Ltd. in case of G-Secs = 10% of the amount devolved on PDs

Devolvement on AHB Ltd. in case of T-Bills = 5% of the amount devolved on PDs.

### **Satellite Dealers (SDs)**

Satellite Dealers support the operations of the primary dealers. The SDs are introduced to enable better trading and distribution of the government securities. The objectives with which the SDs were introduced are:

1. To further strengthen the infrastructure in the government securities market by including intermediaries that have good distribution channels and thereby increase the depth of secondary market trading and widen the investor base.
2. To enhance liquidity and turnover in government securities.
3. To strengthen the distribution channels and provide a retail outlet for government securities, thereby encouraging voluntary holding of government securities amongst a wider investor base.

The SDs had a standing arrangement with the RBI based on the execution of an undertaking and the registration letter issued by the RBI which describes the role and responsibilities of SDs.

A satellite dealer was also required to maintain capital adequacy standards as prescribed by RBI for Non-Banking Financial Companies and Residuary Non-Banking Companies subject to the requirements.

### **Facilities from the RBI to SDs**

The Reserve Bank has extended the following facilities to SDs to enable them to effectively fulfill their obligations:

1. Access to Subsidiary General Ledger (SGL) Account facility (for government securities) for their own transactions (Account - I) as also for clients' transactions (Account - II).
2. Access to Current Account facility for the sole purpose of putting through government securities transactions only.
3. Permission to borrow and lend in the money market including call money market and to trade in all money market instruments, subject to the condition that the outstanding net borrowing in call and notice money market, shall not exceed, at any time an amount equivalent to their holdings of government securities.
4. Recommendation to Government of India for entering into ready forward transactions in eligible securities and with eligible institutions.
5. Facilities to Satellite Dealers: Liquidity support through reverse repos. Reverse repos are allowed to satellite dealers up to 50 percent of the outstanding stock (face value) of the central government dated securities and auction treasury bills at the end of the previous working day. The procedure for submission of application and drawal of the liquidity support is similar to the procedure applicable to gilt funds.

As mentioned above, the aim of the PDs and SDs is to develop the government securities market and provide enough depth to the market. The effectiveness with which these intermediaries discharge their duties will have major implications.

The RBI, in the mid-term review of monetary policy in October 2001, announced its decision to undertake a review of the Satellite Dealer (SD) system in consultation with market participants. After consultations with the Primary Dealers Association of India (PDAI) and Technical Advisory Committee the RBI had decided to discontinue the system of Satellite Dealers considering their role in the present conditions. Accordingly the RBI decided that no new SDs will be licensed and the existing SDs were asked to terminate their activities.

A well-developed sovereign bond market will provide an efficient yield curve that represents the interest rate structure in the economy. The development of a proper yield curve, however, depends on the depth of the sovereign bond market. Unless the market has highly liquid financial instruments of varying maturities, the formation of a representative yield curve will not be possible. And to evolve these features into the Indian market, government securities of varying maturities have been introduced into the market. Apart from this, to enhance the liquidity of these instruments, institutions like the PDs will have to enable better participation of corporates and individuals. Presently, the short-term government securities of varying maturities offered in India include 14 day T-Bills, 28 day T-Bills, 91 day T-Bills, 182 day T-Bills and 364 day T-Bills. Of these instruments, only the 91 day T-Bills and 364 day T-Bills are being issued and traded in the market.

(Note that the monetary policy announced by the RBI has discontinued the 14-day and 182-day T-Bill auctions from May 14, 2001.)

Though the gilt-edged securities are risk-free and set the floor for the interest rate structure, they do not give any specific reference rate. Such rates have to be market determined. The measures that are being introduced to deregulate the Indian interest rate structure may lead to the emergence of the reference rate. In the overseas markets, a few economies adopt the reference rate used in other markets. For example, the London Inter Bank Offered Rate is widely used by most of the other markets (a swap premium over and above LIBOR is used as a reference rate for the forex transactions taking place in the Indonesian market).

However, it is essential for a growing economy to have a domestic reference rate since it assumes the domestic economic factors influencing the interest rate structure. The prerequisites for a reference rate are a deregulated interest rate environment and wide and deep market.

### **Interest Rate Structure in the Indian Money Market**

The underlying strength that rules the money market is its ability to transfer temporary cash surplus of one party to the other party, which has a temporary cash deficit. This process, is helped by a variety of instruments having varying risk profiles and maturities. The yields for these instruments are determined based on their maturity and the risk level.

The pricing mechanism of these instruments is critical not just for the individual securities but for the interest rate structure in the economy. The money market rates affect and are affected by the liquidity in the system. This is due to the quantum of funds involved in transactions. A few factors play a significant role in setting the yields for the money market instruments.

Among the money market instruments, a few securities carry coupon rate while others are issued at a discount to their face value. Rates are determined by other factors, most importantly the rates of other closely related instruments.

To start with, consider the government securities comprising T-Bills and Government Dated Securities. Being risk-free instruments they set the base price of the other securities of the money market. Considering the original maturity and outstanding maturity periods, the government securities can give price range beginning from 1 day to 364 days. With such a wide range, these instruments set a benchmark for the various short-term instruments. They also enable the formation of a continuous yield curve for risk-free instruments.

Next in line are the securities of banks. Call/Notice money are the very short-term instruments used by banks to raise money. One major factor that determines the borrowing rates in the call/notice money market, is the demand-supply condition. Banks' liquidity depends on various factors that affect cash flows. Sudden increase in outflows tightens liquidity while a sudden increase in the inflows eases liquidity. An increase in reserve requirements, advance payment of tax, subscription to government securities, repayment of external obligation, forex outflows reduce liquidity. Similarly, a decrease in reserve requirements, payment of interest redemption of government securities, forex inflows, etc. will result in easing the liquidity position. A very tight liquidity position will increase the call rates while excess liquidity will give fairly low and stable rates. Further, if this liquidity crunch of the banks is passed on to the system, it may lead to a high volatility in call rates.

These call rates under normal liquidity conditions, are the floor rate for the term money market. And since the maturity of these instruments is similar to that of the CDs, their rates are closely related. The rates of Inter-Bank Participations (IBPs) are also influenced by the call rates. In a volatile call market situation, lending will return high yields, and by selling IBPs, the bank will have more money to play in the call market. To benefit from such a situation, banks may also offer rates that may be higher than the contractual rate of the underlying asset. On the other hand, banks, which have a conservative approach, would prefer to invest in these IBPs rather than in a volatile call market. In addition to this, the prevailing PLR will also influence the IBP rate since the underlying security is a loan asset.

Yet another short-term instrument issued by banks is the CD. The minimum maturity period being 15 days, the floor rate for these CDs is fixed by the short-term deposit rates. Low liquidity to the depositor and certainty in cash flows explain the higher rate of interest on CDs when compared to the term deposits.

The ceiling for these instruments is set by CPs. The money market instruments with highest risk levels are those issued by the corporates. And due to this nature, they certainly earn higher yields for the investors. CPs are issued by corporates to raise funds for working capital requirement. Generally corporates borrow these funds from the banks at the bank lending rates. However, due to higher rating, if the corporate is able to raise the amount from the market at a lesser rate, it opts to issue CPs. Hence, the PLR will set the cap for the CPs. On the other hand, considering the maturity, the yields on CDs will set the lower limit for the CPs.

A short-term instrument issued by banks is a derivative promissory note for the purpose of rediscounting the bills. Since these instruments are secured in nature due to the presence of underlying securities which are bills of exchange drawn by business entities and discounted with the bank, the rate should be lower than other instruments having a corresponding maturity period, i.e. call and term money. However, with the perceived risk of the call money and the term deposits being lower, the difference in yields between the call/term rates and the bills of exchange cannot be observed. Hence, the minimum and maximum rates for the bills of exchange are set by call/notice and term deposit rates respectively.

The above mentioned phenomena is applicable to the repo transactions that take place in the money market i.e. in spite of having an underlying security, the repo rates are in line with the call and term deposit rates. These two rates set the lower and the higher limits for these repos.

Finally, the two important features relating to the yields of the money market instruments can be listed as follows:

- The government securities set the benchmark for other money market instruments, i.e. given the yields on government securities, there will be higher yields on the other instruments.
- The rates of interest of the various money market instruments are generally linked to each other either due to their risk profile or due to maturity periods.

Thus, as the maturities of the money market instruments increase, the yields also rise indicating an upward sloping yield curve. However, in a declining interest rate scenario, there may be an inverted yield curve since borrowers prefer to borrow short-term funds while lenders tend to offer long-term securities. This clash between the supply and demand will shoot up the short-term rates above the long-term rates resulting in an inverted curve. This does happen predominantly when the market experiences a liquidity crunch.

### Interlinkages in the Markets

All financial markets have a definite interlinkage. And since the money market allows short-term parking of funds, there is scope for money from all the other markets, i.e. the capital market, credit market and forex market to find their way into it. This flow of funds, however, depends to a considerable extent on the liquidity it offers. To be more specific about the interlinkages, consider the money market and the forex market. These two markets influence each other to a greater extent since both markets involve trading in funds. Besides, banks are the major players in both these markets and act as a balancing force. Banks may use their forex deposits to lend in the call money market by converting the foreign currency. Due to this activity, banks develop an exposure for their forex deposits. To overcome this, the bank will have to cover the same through forward purchases at a premium. If this process of routing money into the call market continues, it might lead to higher premiums in the forex market. The link between the money and the capital market seems to be limited mainly because the players in the capital market are large in number when compared to the money market and establish the only link with large organizations operating in both the markets. These inter linkages within the markets may also lead to fluctuations in the money market.

### SUMMARY

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- Liquidity mismatch often occurs in the short run as cash inflows and outflows rarely synchronize.
- It is important to manage the same carefully, to avoid liquidity crisis in case of deficit and idle funds that do not bear interest in case of surplus.
- The money market is a formal financial market that deals with short-term fund management.
- The money market involves high volumes and is dominated by a relatively small number of players, namely: Governments, central banks, banks, financial institutions, corporates, mutual funds, foreign institutional investors, discount houses, acceptance houses and market makers (primary dealers).
- The main money market instruments are: Government and quasi-Government securities, banking sector securities and private sector securities.
- Government and quasi-Government securities include Treasury bills and Government dated securities or Gilt-edged securities.
- Banking sector securities include call and notice money market securities, term money market securities, certificates of deposit and participation certificates.
- Private sector securities include Commercial paper, Bills of exchange, Inter-corporate deposits/ Investments and Money market mutual funds.
- Repo transactions are popular mechanisms to deploy/borrow short-term funds in the money market, by selling securities to another party with an agreement to buyback the same at a later date.
- The main risks associated with money market instruments/investments are: market risk, interest rate risk, reinvestment risk, default risk, inflation risk, currency risk and political risk.



- The main money market securities in the US market are: Government securities (T-bills), municipal notes, federal agency securities, call loan market, repos and reverses, certificates of deposit, Eurodollar deposits and Eurodollar CDs, Yankee CDs, loan participations, bankers' acceptances, commercial papers, Euro commercial papers in Europe and commercial bills.
- The main objectives of the monetary policy are: price stability and economic growth.
- The most critical factors in a monetary policy are: money supply, interest rate stability and exchange rate stability.
- Monetary contraction can be resorted to control inflation, by adopting one of the following measures: increase the statutory reserves (CRR and SLR), undertake repo transactions or go in for open market operations.
- The RBI controls the money market in India by adopting the following measures: changes in CRR, changes in SLR, open market operations, reduction in bank and repo rates.
- There are two types of dealers in the Indian money markets, namely, primary dealers and satellite dealers.
- The main objectives of the primary dealers are: enhance liquidity of the money market, become underwriters and market makers for government securities, activate the secondary market for government securities and aid the RBI in open market operations.
- Subsidiaries of nationalized banks, FIs and security business companies can become primary dealers, if they have a minimum of Rs.50 crore as net owned funds. Subsidiaries of FIIIs can become primary dealers subject to permission from the FIPB.
- The RBI extends the following support to the PDs: liquidity support, permission to borrow and lend in the market, access to current and subsidiary general ledger accounts, repos and refinance, permission to raise funds through commercial papers and permission to transfer funds from one center to the other.

## **Lesson 4**

# **Call Money**

**After reading this lesson, you will be conversant with:**

- Features of Call Market
- Developments in Indian Call Markets
- Movements of Call Rates
- Role of Reserve Bank of India
- Call Markets in Other Countries

The call money market is a part of the money market, where, day-to-day surplus funds, mostly of banks, are traded. The call money market is most liquid of all short-term money market segments and it is also the most sensitive barometer measuring the liquidity conditions prevailing in financial markets. The call money is the money repayable on demand. The maturity period of call loans varies between 1 to 14 days. The money that is lent for one day in call money market is also known as 'overnight money'. The number of days (i.e. between 1–14) are specified and the call money has to be repaid on the due date. The term 'notice money' also refers to the money lent in the call market, but a notice is served by the lender for payment in a day or two before payment date. The intimation for repayment enables the borrower to arrange the money on the due date and the duration of notice money is similar to that of call money i.e. up to 14 days. Therefore, the notice money is not seen in the market. The Indian call money market deals only with call money. The money that is lent for more than 14 days is referred to as 'term money'. In call money market, any amount could be lent or borrowed at an interest rate, which is acceptable to both borrower and lender. These loans are considered as highly liquid; as they are repayable on due date which is usually the next day. Initially, banks were only permitted to deal in this market; it was then referred as 'Inter bank market'.

## **Participants**

All scheduled commercial banks (private sector, public sector and cooperative banks), can operate in this market.

Intermediaries like Discount and Finance House of India (DFHI) and Securities Trading Corporation of India Limited (STCI) and Primary Dealers (PDs) are the participants in the local call money markets. There is no corporate who plays continuously in this market. This is either due to lack of surplus funds or surplus only for a short period. Hence, the corporate participation in Indian call money market is virtually nil.

Previously the non-bank participants like the financial institutions and the mutual funds were also allowed to participate in the call market. The banks and primary dealers (PDs) can borrow and lend money in this market but the non-bank participants such as financial institutions, mutual funds and select corporates can participate only in lending money. But the predominant lending of the non-bank participants is found to impede the development of a risk free short-term yield curve and thereby affecting the pricing decisions in other parts of the debt market. Therefore, Committee Report on Banking Sector Reforms (1998), suggested that a "basic restructuring of call money market" is to be carried out to make it a pure inter bank market.

Hence based on the recommendation of the Technical Group on Phasing Out of Non-banks from Call/Notice Money Market a complete withdrawal of non-bank participants from the call/notice money market was taken up by the RBI simultaneously operationalizing the Clearing Corporation. Their operations were phased out in a gradual manner so as to cause no disruption in the call money market.

The intermediaries like DFHI and STCI and Primary Dealers (PDs) namely, SBI Gilts, Punjab Gilts, Gilt Securities Trading Corporation (GSTC) and ICICI Securities and Finance Corporation Ltd. are the only institutions besides commercial banks which have been permitted to operate both as borrowers and lenders in this market. Those who form a part of the market by being borrowers as well as lenders are collectively referred to as the "banking system".

## **Purpose**

In India, call money is lent mainly to even out the short-term mismatches of assets and liabilities and to meet CRR requirements of banks. Some banks may borrow and lend simultaneously from the market if they find an opportunity to arbitrage.

Firstly, the short-term mismatches arise due to variation in maturities i.e., the deposits mobilized are deployed by the bank at a longer maturity to earn more returns and duration of withdrawal of deposits by customers vary (since it is effectively a demand liability). Thus, banks borrow from call money markets to meet short-term maturity mismatches such as large payments and remittances.

Secondly, the banks borrow from this market to meet the Cash Reserve Ratio (CRR) requirements, which they should maintain with RBI every fortnight. Cash Reserve Ratio (CRR) represents the balances to be maintained by banks with the RBI, which is computed as a percentage of the Net Demand and Time Liabilities (NDTL).

Thirdly, money is borrowed in the call/notice market for short periods to discount commercial bills. The volume of call loans is thus very small in India, due to underdeveloped bill markets. Thus, the utility of the call money to meet short-term mismatches forms a significant volume when compared to other purposes.

### **Call Rates**

The interest paid on call loans is known as the call rates. Though the rate quoted in the market is annualized one, the rate of interest on call money is calculated on a daily basis. The call rate is expected to freely reflect the day-to-day market scarcities or lack of funds. These rates vary from day-to-day and within the day, often from hour-to-hour. High rates indicate a tightness of liquidity in the financial system while low rates indicate an easy liquidity position in the market. The rate is largely subjected to influence by the forces of supply and demand for funds. In India, rates in the call market are prone to fluctuations, which are unidirectional. This is due to limited number of players with similar needs.

### **Operational Mechanism**

Once the deal is struck the funds are immediately available to the borrowing bank and are repaid with interest on the next/due date. The funds are lent and paid back through a banker's pay order, which is cleared by the special high value clearing cell in the RBI.

### **LOCATION**

In India, call money markets are mainly located in main commercial and big industrial centers such as Mumbai, Kolkata, Chennai, Delhi and Ahmedabad. This is due to the existence of stock markets at these places. Mumbai and Kolkata play a significant role in trading as compared to the other places. Due to the location of the biggest stock exchange, various head offices of RBI and many other banks, Mumbai plays a predominant role in determining the call rates based on demand and supply volumes of call loans.

### **ROLE OF PRIMARY DEALERS IN THE CALL MARKET**

Primary Dealers have a significant role in the call market. Some commercial banks including co-operative and regional rural banks, which are not allowed to participate directly in the call market can access the market through Primary Dealers. The Primary Dealers offer a two-day quote, take spread and allow the banks to participate in the call money market. The call rates can be "spot rate" or the "weighted average rate". As the Indian call market usually opens high and closes low, the average rate received by the lender will be normally lower than the middle rates.

Recently the working group constituted by the RBI to examine the necessity of prudential regulations on exposure to call/notice money market so as to preserve the integrity of the financial system has suggested the limits for transactions of Primary Dealers (PDs) in call/notice money market as also the roadmap for phasing them out from call/notice money market. The notification issued by the RBI "Access to Call/Notice Money Market for Primary Dealers: Prudential Norms" on July 31, 2002 states the prudential limits as following:

- With effect from October 5, 2002, PDs are permitted to lend in call/notice money market up to 25 percent of their Net Owned Funds (NOF).

- Access of PDs to borrow in call/notice money market would be gradually reduced in two stages:
  - In Stage I, PDs would be allowed to borrow up to 200 percent of their NOF as at March end of the preceding financial year. However, this limit would not be applicable to the days on which government dated securities are issued to the market. Stage I would be operational upon the finalization of uniform accounting and documentation procedures for repos, allowing rollover of repos, introduction of tripartite repos or Collateralized Borrowing and Lending Obligation (CBLO) to the satisfaction of the RBI and permitting repos out of Available For Sale (AFS) category.
  - In Stage II, PDs would be allowed to borrow up to 100 percent of their NOF. Days on which government dated securities are issued to the market will continue to be exempted from this limit. The implementation of Stage II will commence from one month after permitting sale of repoed securities.
- On implementation of the Real-time Gross Settlement (RTGS) system, the above exemptions would be reviewed.

## **DEVELOPMENTS OF CALL MONEY MARKETS**

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### **Characteristics of Indian Call Markets in 1970s**

A closer look into the early workings of this market reveals the following salient features:

- The Indian call market was a restricted market with a narrow base and limited number of participants. Banks and a few all India Financial Institutions participated in the market and the entry of others into the market was tightly regulated.
- The existing participants, lacked an active market as there were few lenders and a large number of borrowers.
- Another feature was that the market was considerably organized with a large part of the dealings taking place in Mumbai and Kolkata. Chennai and Delhi played a secondary role in this activity.
- There was no ceiling on the call money rates and the movements were quite erratic.

The forces of supply and demand for funds largely influenced the call rates. In India, call rates are prone to fluctuations, which are unidirectional, due to the presence of a large number of players with similar needs. The call loans were also subjected to seasonal fluctuations, and the call rates usually climbed high during busy seasons than in slack seasons. The seasonal ups and downs were reflected in the volume of money at call and short-notice, at different periods of time in a year. These seasonal variations were high due to a limited number of lenders and many borrowers.

### **THE FOLLOWING WERE THE FACTORS ATTRIBUTED FOR THE HIGH VOLATILITY**

1. Large borrowings by banks to meet the CRR requirements on certain dates cause a great demand for call rates. These rates usually go up during the first week when banks borrow mostly to meet CRR requirements and subside in the second week once the CRR requirements are met.
2. Due to over-extension of loans in excess of their own resources, the banks depend on call market. They use the call market as a source of funds to meet structural disequilibria in their sources and uses of funds. No bank may continuously rely on call market for funding credit since it attracts adverse comments from the RBI. However, the market may experience the presence of a few at any point of time.

3. The withdrawal of funds to meet business requirements by institutional lenders and payment of advance tax by the corporate sector leads to increase in call money rates in the market.
4. The banks invest funds in Government securities, units of UTI, public sector bonds in order to maximize the earnings from their funds management. But with no buyers in the market, these instruments tend to become illiquid which leads to the liquidity crises. Call money being highly liquid, banks use it to pool the funds from the call market, significantly pushing up the call rates.

Thus, liquidity crisis or illiquidity in the money markets also contributes to the volatility in call market.

As discussed above, the Indian call money market consists of a few large lenders and a large number of borrowers. The absence of participants who alternate between borrowing and lending activity has, in some way, inhibited the active development of this market. The year 1970, emerged as a remarkable year in the history of Indian call money market when the term lending institutions like LIC and UTI were allowed to lend in the market. The SBI which was away from the market till '70s entered as a major lender and a small borrower.

LIC and UTI were considered to be institutions with a sizable short-term float which could usefully augment the supply of funds. Deployment of funds in the call market helped UTI to maintain its liquidity, i.e., to meet its short-term commitments such as, large repurchases from unit holders as and when necessary. The entry of SBI, UTI and LIC, as lenders, has pumped the funds, which activated the call market. The movement of call rates in the market was quite volatile till 1973. It was quite difficult to tap the money in call market for needy banks at a reasonable cost as the call rates were reaching dizzy heights. Up to December, 1973, there was no ceiling on the call money rate. After observing the high rates for relatively prolonged periods, the Indian Banks Association (IBA) intervened and fixed a ceiling of 15% on the call money rates. The ceiling was reduced gradually over the years and in March, 1978, it was reduced to 8.5%. Later in April, 1980, it was increased to 10% and since then it remained around the same till 1988.

### **Post-1985 Scenario**

Several significant efforts were made to develop money markets after 1985. Two committees were set up to review the working of the Monetary System and Money Market, which provided fresh insights to improve the working of the call money market. In 1985, the Sukhmay Chakravarthy Committee which was set up to review the working of the Monetary System, suggested that additional non-bank institutional participants should be brought into the call money market. In 1987, the Vaghul Committee, set up to review the money markets in India, suggested that the discount house should be set up and ceiling on the interbank call money rate should be removed to activate the money market. The RBI had taken few steps following the Vaghul Committee recommendations:

- In May, 1988, the interbank rates both on the call money and term money were freed/deregulated.
- In October, 1988, Discount and Finance House of India (DFHI) was set up. It was permitted to borrow/lend and also arrange funds in the call money market.
- In May 1990, the RBI allowed all the financial institutions such as GIC, IDBI and NABARD, etc. to operate as lenders in the overnight call and notice money market.
- In April, 1991, the RBI permitted corporate entity with surplus lendable resources to access the call money through the DFHI. It set a minimum size of Rs.5 crore for each transaction and, further, the lender had to give an undertaking that he had no outstanding loans from the banking sector to operate in this market. The entry of financial institutions, permitting of public sector and private sector mutual funds, money market mutual funds, primary dealers and others into the market, channelized the funds flow into call markets, thereby reducing the demand-supply gap in the recent years.

The few significant changes initiated by the Central Bank brought greater integration of the various segments of the money market. The base of call market has been widened by selective increase in the participants as lenders, especially, led to an increase in supply of funds in the call money market. The entry of DFHI and STCI and primary/satellite dealers promoted an orderly development of the call market.

### Volume of Activity in the Call Market

The volume of activity and the size of the call money market in India can be assessed by looking at the turnover of the market. Looking at the call market turnover it can be said that size appears to be very large considering the basic objective of the call market, which is to offset the momentary imbalances in the banking sector.

The average daily turnover (borrowings) of the call markets as on the fortnight ended March 29, 1996 was Rs.9,465 crore and Rs.10,203 crore during the fortnight ended March 28, 1997 and Rs.18,217 crore for the week ended March 1, 2002.

The following reasons can be ascribed to the small size of the Indian call market compared to the American and UK markets.

**Table 1: Call Loans by Types of Institution, 1955-56 to 2001-02**

Year	Scheduled Commercial Banks	State Co-operative Banks	Other Institutions (LIC, UTI, etc)	Total
	1	2	3	4
1955-56	6.31	2.99	–	9.3
1960-61	20.78	10.15	–	30.93
1965-66	57.58	13.71	–	71.29
1970-71	27.00	10.96	–	37.96
1975-76	214.0	11.00	54	279
1980-81	544.0	62.0	96	702
1985-86	2,486	70.0	168	2,724
1990-91	1,053	498	470	2,021
1992-93	3,632	757	111	4,500
1993-94	3,068	1,198	8	4,274
1994-95	3,327	1,294	201	4,822
1995-96	5,154	1,406	587	7,147
1996-97	7,959	–	937	–
1997-98	8,861	2,736	1,279	12,876
1998-99	18,172	3,972	1,140	23,284
1999-2000	21,680	5,087	2,734	29,501
2000-2001	35,628	4,080	2,566	42,268
2001 April	41,326	4,221	5,814	51,361
May	37,846	4,068	4,185	46,099
Jun.	37,018	3,910	2,225	43,153
July	24,071	4,518	2,187	30,776
Aug.	33,481	4,018	4,195	41,694
Sep.	30,867	4,017	6,137	41,021
Oct.	33,286	–	5,348	–
Nov.	25,436	–	1,881	–
Dec. (P)	24,576	–	3,332	–
Jan. 02 (P)	24,081	–	2,190	–
Feb. 02 (P)	24,447	–	2,816	–

Source: RBI, RCF, various issues; and RBI Bulletin.

- The volume of activity in the bill market is directly related to the call market activity. Because the bill market is small in India the size of call market borrowings to the bill market is also small.
- Secondly, the banks can approach the central bank as a lender of last resort and the availability of the direct discounting facilities with the RBI implies little need for borrowings from the markets. Also the large cash holdings of the Indian commercial banks show a lesser need for loan in a call market.
- Various regulations prevent the banks from advancing loans against shares. Hence the sources for securities trading are mostly private. Therefore, advances to the security dealers are much less when compared with the US market.

**Institutional Participation in the Call Money Market**

Table 1 gives an overview of the average turnover of the call loans for a fortnight according to the type of the institution. The supply of loans in the call money market has increased due to the entry of other institutions like LIC, GIC and UTI, etc. This has also enabled those institutions to have more choice in investing their funds and have more return on the investments. Another advantage is the integration of the financial markets in the economy.

There are some critical issues in this regard. One is whether the long-term funds can be allowed in the short-term market. It becomes tough to match maturities when the participants having short-term liabilities create long-term assets. Another issue relates to the impact on the effectiveness of the monetary policy due to direct participation of these institutions in the market. Because these institutions are outside the banking system they can weaken the controls laid down by the RBI. Consequently the working group on the money market has advised that the ceiling on call rates should be removed and the call money market should be exclusive to only commercial banks. The RBI has regulated other institutions like LIC, GIC, UTI to participate in the call market as lenders only. The minimum size of operations is Rs.20 crore per single transaction. Later it was gradually reduced to Rs.3 crore. Prior permission of the RBI is compulsory to participate in the market and they have to participate through the DFHI only. A critical view of the call market holds is that the lenders are less and borrowers are many.

**Table 2: Number of Participants in Call/Notice Money Market**

Category	Bank	PD	FI	MF	Corporate	Total
I. Borrower	154	19	–	-	–	173
II. Lender	154	19	20	35	50	277

*Source: Report of the Technical Group on Phasing Out of Non-banks from Call/Notice Money Market, March 2001.*

At present there are 277 participants in the call markets. Out of these, 105 are the participants like mutual funds, corporates and financial institutions and they operate only on the lending side. Banks and PDs are 173; they can operate in both lending and borrowing functions of the call market but in fact, only the authorized PDs are allowed to borrow and lend in the call markets. The participants under the category of banks can be divided into two types: pre-dominant lenders (mostly the public sector banks) and pre-dominant borrowers (foreign and private sector banks).

**Movement of Participants from Call to Repo Markets**

The RBI has initiated the measures to make the call money market a pure interbank market including PDs by gradual elimination of non-bank participants from the call markets. This was announced by the RBI in “Mid-Term Review of Monetary and Credit Policy for 1998-99” announced in October, 1998. It was also proposed that measures would be taken simultaneously to ensure the development



of repo market and enhance the participation of non-banking institutions in various other financial instruments. And consequently the non-bank participants were not allowed to participate in the call markets, through PDs, after June, 2001.

Following are the recommendations of the Technical Group on Phasing Out of Non-banks from Call/Notice Money Market:

- The participation of non-bank participants like financial institutions and mutual funds in the call money market may be eliminated gradually in three stages by restricting their average daily lending in the period April, 2000 – March, 2001.
- For an initial period of three months, each non-bank participant should lend only up to 70% of their average daily lending in call money market during 2000-01. Later, in the second stage it should be further reduced to 40%.
- After a period of three months from the conclusion of the second stage or the establishment of a Clearing Corporation, latest of these two, the final stage would commence. It should last for a period of three months. The access was reduced up to 10% of their average daily lending during 2000–01. This process helped the non-bank participants as they could familiarize with the operations of the Clearing Corporations. After this stage, no non-banking entity is permitted to lend in the call money market.

The RBI announced the following permissions in the Monetary and Credit Policy 2001-02 in view of the recommendations of the Group and the feedback:

- Permission to incorporate to route their call transactions through PDs was made available up to June 30, 2001, as announced in the mid-term review of October, 2000.
- A four stage gradual phasing out of non-bank institutions from the call market was introduced as follows:
  - Stage I Commencing from May 5, 2001; access to non-banks would be reduced to 85% of the average daily lending in call market during 2000-01.
  - Stage II Commencing from the date of operationalization of Clearing Corporation; access will be reduced to 70% of the average daily lending in call market during 2000-01.
  - Stage III Commencing three months after stage II and the access is further reduced to 40%.
  - Stage IV Commencing three months after stage III; only 10% access.

The process was gradually phased out over a period of time to allow the market participants in both the lending and borrowing functions to adjust themselves to the new system without any disturbances in the market activities. Clearing Corporation was established to improve the repo market and make the repo operations efficient and also to introduce the non-government securities in repo transactions. It is also predicted that finally all the segments of the money market like call money market; repo/reverse repo market; term money, Commercial Paper (CP), Certificates of Deposit (CDs) and Treasury Bills would form a part of an integrated market resulting in an effective channelization of funds.

### **Stance of Recent Monetary Policy on Phasing Out Process**

The RBI is strictly monitoring the limits prescribed for the non-bank participants. By any means if a non-bank participant could not divert its funds into other avenues of investment, the RBI can permit that institution to lend more than the limit for a certain period with appropriate limits. A review by the RBI found that phasing out of non-banks was going on smoothly without any strain on the market. There is a reduction in the volatility of call rates and an increase in the average daily turnover of the market. At the same time the non-banking financial institutions and mutual funds have increased their net lending through the repo market. In the light of these improvements and the NDS and CCIL, the RBI has

felt the need to accelerate the progress of phasing out so as to facilitate further deepening of the repo market. Hence the RBI has decided to move to the second phase of the process wherein the non-bank participants would be allowed to lend, on average, in a reporting fortnight up to 75 percent of their average lending in call market during 2000-01. The date of moving to the second phase will be announced in future by the RBI. This will depend upon the complete operationalization and wide access of NDS/CCIL.

### **Efficient Call Money Market**

An efficient call money market should be less volatile and provide an opportunity to its players to transact at comparatively stable rates of interest. In such a market, players (i.e. both lenders and borrowers) would resort to certain amount of self-regulation bringing discipline into the market in their own interest. A call market being the nerve center of the financial system has its direct linkages with other money market segments and indirect linkages with credit, capital and forex markets should make it possible for the monetary authority to instantaneously identify areas where corrective actions are required and act upon without delay.

## **ROLE OF RESERVE BANK OF INDIA**

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The Reserve Bank of India (RBI) functions as a market regulator and it does not lend or borrow funds in the call market, but it intervenes in the call market when the market is overheated. It adopts 'Repos' and 'Open Market Operations' to cool the heated market. Intermediaries such as DFHI, STCI and Primary Dealers in the money markets play an active and vital role in maintaining the liquidity in primary as well as secondary markets in call money market.

### **Liquidity Adjustment Facility**

Important signals for the interest rate changes and the prominent tools useful for the liquidity management in the Indian money market are the bank rates, CRR and repo rate changes. In this direction the Liquidity Adjustment Facility (LAF) by the RBI has been an effective mechanism in the RBI's liquidity management scheme where it can absorb or inject liquidity on a day-to-day basis in a very flexible way, which in turn provides a passage for the call money market. The RBI in its monetary and credit policy of April, 2000 announced the introduction of the LAF (Liquidity Adjustment Facility). The Scheme of Liquidity Adjustment Facility (LAF) will include (i) Repo Auctions and (ii) Reverse Repo auctions.

As per the scheme, Repo and Reverse Repo auctions will be conducted on a daily basis except for Saturdays. The Repo tenor is one day except for the holidays and the Fridays. To account for the following Saturday and Sunday the maturity of auctions on Friday will be three days. The funds available to the banks under the facility are supposed to be used by them to even out the day-to-day imbalances in liquidity.

As per the policy statement the RBI has taken the launch of LAF in three convenient and progressive stages so as to ensure a smooth transition. In the first stage variable rate Repo auctions with the same day settlement were introduced replacing the Additional Collateralized Lending Facility (ACLF) to banks and Level II support to Primary Dealers (PDs). In the second stage of the scheme Collateralized Lending Facility (CLF) to banks and Level I support to PDs is to be replaced by variable rate Repo auctions. It was indicated that the effective date for the second stage would be decided in consultation with banks and PDs.

As the market developed most of the constraints in the operations of the LAF were removed. Hence the RBI is trying to make LAF much more efficient. On the basis of the previous LAF operations and also on long discussions with the market participants the RBI has revised the earlier LAF Scheme, dated May 29, 2000. The new features of the LAF Scheme 2001-2002 are excerpted here from the RBI circular number 4376/03.75.00/2000-01.

## **The Scheme**

Under the scheme, (i) Repo auctions (for absorption of liquidity) and (ii) Reverse Repo auctions (for injection of liquidity) will be conducted on a daily basis (except Saturdays). But for the intervening holidays and Fridays, the Repo tenor will be one day. On Fridays, the auctions will be held for three days maturity to cover the following Saturday and Sunday. The funds under LAF are expected to be used by the banks for their day-to-day mismatches in liquidity.

## **Fixed Rate Repo Auction**

The RBI will henceforth have an additional option to switchover to fixed rate Repos on overnight basis; but this option is expected to be sparingly used. For the purpose of such Repos, the rates of interest intended to be offered would be announced as part of auction announcement on the previous evening or before 10 a.m. on the day of auction, if necessary.

## **LONG-TERM REPO**

In addition to overnight Repos, the RBI will also have the discretion to introduce longer-term Repos up to 14 day period as and when required.

## **RATE OF INTEREST**

At present, auctions under LAF are conducted on “uniform price” basis. It has been decided to introduce “multiple price” auction, in place of existing uniform price auction on an experimental basis for one-month period during May 2001. Interest rates in respect of both Repos and Reverse Repos will be, accordingly, based on the bids quoted by participants and subject to the cut-off rates as decided by the Reserve Bank of India, at Mumbai. The Repo/Reverse Repo rate in percent per annum expected by the tenderer will be expressed up to two decimal points rounded off to the nearest 5 basis points. As there will be no adjustment for accrued coupon, the cash flow will depend upon the Repo rate emerging on a day-to-day basis.

## **MECHANICS OF OPERATIONS**

- i. The LAF auction timing is being advanced by 30 minutes. Bids will be received in tender forms at IDM Cell before 10.30 a.m., as against 11 a.m. at present. A separate box for the purpose will be kept at the reception on the Ground floor of the Central Office Building, the RBI, and Mumbai. Processing of the bids will be done at IDMC. The auction results will be displayed by the Mumbai Office by 12 noon as against 12.30 p.m. at present.
- ii. The Repo will be conducted as “Hold in Custody” type, wherein the Reserve Bank of India will act as a custodian for the participants and hold the securities on their behalf in the Repo/Reverse Repo Constituents’ Accounts. In pursuant to this, the participants will have to give an undertaking as given in the respective tender forms authorizing the RBI to act on behalf of them. The Reserve Bank of India shall not, however be responsible for any loss, damage or liability on account of acting as the custodian on behalf of the participants. A Repo Constituents’ SGL Account (RC SGL Account) and Reverse Repo Constituents’ SGL Account (RRC SGL Account) will be opened and held in the Securities Department in Mumbai Office for this purpose which will have institution-wise subsidiary records of the securities sold under Repo and securities bought under Reverse Repo. The RBI will have Subsidiary Accounts in the case of both of these Accounts.
- iii. Upon successful auctions in Repos, the tenderer’s RC SGL Account will be credited with the required quantum of securities debiting the Bank’s Subsidiary Account/Investment Account. Likewise, the tenderer’s Current Account will be debited for the resultant cash flows and credited to the Bank’s Account. The transaction will be reversed in the second leg.

- iv. In the case of Reverse Repos, on acceptance of bid, the tenderer's SGL account/RRC SGL Account will be debited with the required quantum of securities and credited to Bank's Investment Account/Subsidiary RRC SGL Account. Accordingly, the tenderer's Current Account will be credited with the Reverse Repo amount, debiting the Bank's account. The transactions will be reversed in the second leg.
- v. Transactions between the RBI and the counterparties including operation of the RC SGL Account and RRC SGL Account would not require separate SGL forms as provision will be made in the application form for the purpose. Likewise, transfer of securities from/to the RBI's Investment Account and Subsidiary Accounts in the Repo and Reverse Repo SGL account will not require signing of SGL transfer forms. However, transfer from tenderer's SGL Account to the RRC SGL Account will require completion of SGL form. In the case of Reverse Repos, tenderers will have the option to either use the RRC SGL Account route or get their SGL Accounts debited for the purpose of transferring securities to the RBI.
- vi. All securities including Treasury Bills will be priced at face value for Repo/Reverse Repo operations by the RBI. Accrued interest as on the date of transaction will be ignored for the purpose of pricing of securities. Coupon, if any, will be transferred to the RBI in the case of Repos, and the RBI will collect the coupon, if any, on the due date and credit the same to the party's Current Account in the case of Reverse Repos.

### **Eligibility**

All Scheduled Commercial Banks (excluding Regional Rural Banks) and Primary Dealers (PDs) having Current Account and SGL Account with the RBI, Mumbai will be eligible to participate in the Repo and Reverse Repo auctions.

### **Minimum Bid Size**

To enable participation of small level operators in LAF and also to add further operational flexibility to the scheme, the minimum bid size for LAF is being reduced from the existing Rs.10 crore to Rs.5 crore and in multiples of Rs.5 crore thereafter.

### **Eligible Securities**

Repos and Reverse Repos will be undertaken in all transferable Government of India dated Securities/Treasury Bills (except 14 days Treasury Bills).

### **Margin Requirement**

A margin will be uniformly applied in respect of the above collateral securities comprising the Government of India dated securities/Treasury bills. The amount of securities offered or tendered on acceptance of a bid for Rs.100 will be Rs.105 in terms of face value.

### **Settlement of Transactions**

The settlement of transactions in the auction will take place on the same day.

### **SLR and Securities Held in Repo SGL Account**

Securities held by the RBI on behalf of banks' Repo Constituents' SGL account and credit balance in the RRC SGL Account will be counted for SLR purpose and a certificate will be issued to banks by the RBI on a fortnightly basis. As far as valuation etc., for SLR purpose is concerned, extant DBOD instructions will apply.

### **Dissemination of Information**

For a smooth transition to full-fledged operation of LAF, banks and PDs are being provided a back-stop facility at variable rate of interest, as a cushion over the normal liquidity facility at Bank Rate. Along with the auction results, the rate of interest applicable to the back-stop facility for the concerned day will also be announced for the benefit of the participants who wish to avail of such facility. Further, to facilitate better bidding by the participants, additional information on

the aggregate cash balances of scheduled commercial banks maintained with the RBI, during the fortnight, on a cumulative basis with a lag of two days as also weighted average cut-off yield will also be released as a part of the press release on money market operations.

### **Term Money Market**

Term money market is the interbank market of more than 15 days maturity. The RBI has reduced the minimum number of days to 7 from 15. This market is also affected by the reserve requirements of the banks. The RBI has taken two initiatives to develop the market.

The All India Financial Institutions can take loans from the permitted lenders. The criteria of the banks and financial institutions, which participate in this market is such that there are no defaults in the market. The deposits are non-transferable and non-negotiable and the interest rate on the deposits is settled by the participants. These deposits improve the depth of the market and increase the scope of the banks to invest their short-term money in the market.

The removal of reserve requirements on the interbank borrowings except a minimum CRR of 3% has enabled the banks to finance their requirements up to a period of 3 months. The Inter Bank Deposit rates are determined after comparison with other market rates and adjusted to the CRR factor.

With these two initiatives the call market was stabilized as the fund requirements for more than 15 days are financed through the Inter Bank Deposits in this market.

## **CALL MARKETS IN OTHER COUNTRIES**

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Two markets which form the call money market in the USA: (a) Federal funds market (b) Call money market.

### **Federal Funds Market**

Federal funds are defined as money available for immediate payment. The principal source of immediately available money is the reserve balance. This is the balance which each bank maintains at the Federal Reserve Bank in its region of the United States. Hence, this market was termed as federal funds market. Funds are transferred from one bank to the other only through the Federal Reserve Bank. These funds are readily transferred into the appropriate reserve account immediately through the computer. The duration of a federal funds transaction is usually one day (overnight) and it is extended if necessary.

### **PARTICIPANTS**

Savings and loan associations, credit unions, and savings banks maintain deposits with commercial banks or with the Federal Reserve banks, which are made available for immediate transfer to a customer or to another financial institution on need basis. Business corporations and state and local governments lend federal funds by executing repurchase agreements with securities dealers, banks and other funds traders.

Borrowers of federal funds include securities dealers, corporations, state and local governments and non-bank financial intermediaries such as savings and loan associations and insurance companies.

### **PURPOSE**

Banks and other depository institutions must hold liquid assets in a special reserve account, equal to a certain fraction of the funds with Federal Reserve Bank. Supply of federal funds arises because some member banks have reserves on a given day in excess of reserve requirement. Demand for funds arises as other member banks on the same day have reserve deficits, which are generally transferred from one depository institution to another when required. Apart from the commercial banks, the savings and loan associations, credit unions, savings banks, securities dealers and non-bank financial intermediaries borrow from this market. Though the fed funds are borrowed by many other users, this instrument is mainly used by commercial banks to maintain legal reserves with Federal Reserve Bank.

**OPERATIONAL MECHANISM**

The funds are transferred readily by telephone, online computer or by wire, from one account to the other after securities are purchased or whenever a loan is granted.

Federal funds transactions take the following forms. If both institutions have Federal Reserve (lender and the borrower) bank accounts, they may instruct the Federal Reserve to transfer funds from the account of the lender to the account of the borrower over Fedwire, the wire-transfer system of the Federal Reserve. Either of the party may initiate the transaction. Alternatively, another institution (respondent) may maintain an account with an institution, which acts as a federal funds broker (correspondent). In such a case, the respondent bank informs the correspondent of its desire to sell federal funds, at which point the correspondent reclassifies the respondent's balance from demand deposits to federal funds purchased. The correspondent frequently resells the funds to a third party in the market. At times, if the transacting institutions/banks, both are not located within the same Federal Reserve district, then, the two Federal Reserve banks are involved in the transfer of funds. In such a case, loan transaction proceeds in much the same way except that two Federal Reserve banks are involved.

**INTEREST RATES ON FEDERAL FUNDS**

The federal funds interest rate is highly volatile every day; it tends to be most volatile towards the close of the reserve maintenance period, depending on whether larger banks are flush with or short of reserves. There are no seasonal patterns/fluctuations with which the funds rate tends to rise or fall.

**GOVERNMENT POLICY TOWARDS FEDERAL FUNDS MARKET**

This market is riskless and it is easy to invest excess reserves for short periods and still earn some interest income. It is basically a daily management of daily bank reserves, and credit can be obtained in a matter of minutes to cover emergency situations. Fed funds serve the principal means of payment for securities and loans, and the funds market transmits the effects of Federal Reserve Monetary Policy quickly throughout the banking system.

**Call Money Market**

The call money market comprises an interbank call market, and the market between banks on the one hand and security brokers and dealers on the other hand. Call money in the US market performs a different function. The call loans represent short-term loans by banks to security brokers and dealers for the purpose of financing their customers' purchases of common stock. Bank loans to dealers in government securities also form part of the call loans. These loans are secured loans and the call provision allows the termination of the loan by either the lender or the borrower on one day's notice. Similarly, dealers in securities obtain loans from non-financial corporations, miscellaneous lenders such as state and local governments, foreign institutions, and insurance companies. This type of call money market does not exist elsewhere except in the US. This market forms a part of capital market rather than money market, as the money that is pooled here is lent to invest/purchase the common stock. Since the money does not roll into money markets, federal markets in international markets are known for high liquidity and returns.

In the UK, the call money market consists of interbank loans, loans by the clearing banks to the discount house (given on call basis) and surplus/deficit positions between the clearing houses before approaching for final settlement with the Bank of England (central bank of the country). This market is more similar to the American market than to the Indian market.

## **SUMMARY**

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- The call money market is the part of the money market where the surplus funds of the banks are traded on a daily basis. Borrowers use funds to match short-term mismatches of assets and liabilities and to match the CRR requirements. This market is a measure of the liquidity of the overall money market.
- Maturity period varies from 1 to 14 days.
- Money that is lent for a day is called overnight money.
- All private sector, public sector and co-operative banks, term lending institutions, insurance companies and mutual funds participate in this market. Primary dealers, DFHI and STCI can participate only in the local call money markets.
- Interest paid on call loans is known as call rates and is calculated on a daily basis.
- Call money markets are located in the cities that have the major stock exchanges in India, namely Mumbai, Kolkata, Delhi, Chennai and Ahmedabad. Mumbai has the largest market in India.
- The RBI acts as a regulator of the call money market, but neither borrows from nor lends to it. It uses repos and open market operations to control the market.
- An efficient call money market should be less volatile and provide an opportunity to the players to transact at comparatively stable rates of interest.

## **Appendix**

### **Report of the Technical Group on Phasing Out of Non-banks from Call/Notice Money Market (March 2002)**

#### **Introduction**

The call/notice money market is the most important segment in the Indian money market. In this market, while banks and Primary Dealers (PDs) are allowed to both borrow and lend, non-bank participants such as financial institutions, mutual funds and select corporates are permitted to only lend. Though non-bank participants holding current account and SGL account with the RBI are permitted to undertake both repo and reverse repo, the ease of transactions as well as low transaction costs arising from least documentation and same day settlement of funds in call/notice money market act as strong incentives for non-bank participants to prefer the latter to the former. This is impeding the development of a risk-free short-term yield curve and, hence, the pricing in other segments of the debt market. Therefore, a “basic restructuring of call money market” to make it a pure interbank market, as put forward by the Report of the Committee on Banking Sector Reforms (1998), was considered necessary. Towards this end, the Reserve Bank of India (RBI) has already initiated a number of steps to widen the repo market in terms of increasing the eligible securities and participants. While there is a consensus that complete withdrawal of non-bank participants from the call/notice money market (henceforth, only call money market for convenience) should be co-terminus with full fledged operationalization of the Clearing Corporation, it is felt that during the intermediate period, their operations should be phased out in such a manner that their migration to repo/reverse repo market becomes smooth and there is no disruption in the call money market. In order to accomplish this restructuring process, the mid-term review on Monetary and Credit Policy in October 2000 indicated that a Technical Group comprising officials from both banks and non-banks should be constituted in order to suggest ways for planned reduction in access by non-bank participants to call money market such that their transition to repo market become smooth. Following this, a Technical Group was constituted by Dr. Y.V. Reddy, Deputy Governor with appropriate representations from banks, non-banks and the RBI on December 9, 2000.

The Report is organized in four Sections. While Section I discusses recommendations of the three committees with regard to participation of non-banks in call money market followed by international experiences in this regard, Section II analyzes the typical characteristics of Indian call money market. Section III delineates the circumstances in which the non-bank participants were allowed entry into the call money market during 1990s despite recommendations to the contrary by the Working Group on the Money Market (Chairman : N. Vaghul) in 1987 as discussed in Section I. This Section also discusses the shift in stance of the RBI during the later part of 1990s and the efforts made by it to phase out non-bank participants from the call money market since then. Finally, Section IV presents policy perspectives and recommendations of the Technical Group.

#### **Section I**

##### **Recommendations of Three Committees**

The issue of whether non-bank participants should constitute part of call/notice/term money market could be traced to the Report of the Committee to Review the Working of the Monetary System (Chairman: S. Chakravarty) in 1985. Since then, the Report of the Working Group on the Money Market (Chairman: N. Vaghul) in 1987 and the Report of the Committee on Banking Sector Reforms (Chairman: M. Narasimham) in 1998 had also deliberated on this issue. It needs to be appreciated that the particular set of recommendations from these three Committees have to be assessed against the specific objectives for which these Committees had been constituted as well as the differing initial conditions reflecting the state of Indian financial market which were prevailing at that particular point of time.



The Chakravarty Committee (1985) viewed this issue essentially from the angle of efficacy of monetary regulation by the Central Bank. It felt that allowing additional non-bank participants into the call market would not dilute the strength of monetary regulation by the RBI as resources from non-bank participants do not represent any additional resource for the system as a whole and their participation in call money market would only imply a redistribution of existing resources from one participant to another. Therefore, the monopoly power to affect the system's reserves continues to rest with the RBI. In view of this, the Chakravarty Committee recommended that additional non-bank participants may be allowed to participate in call money market.

The Vaghul Committee (1987) on the other hand suggested that call money market should be purely an interbank market and therefore, the restrictions on entry into call market prevailing at that point of time should continue. The essential rationale for such recommendation was that freedom to enter into the call market coupled with allowing call money rates to be determined entirely by market forces at a time when deposit rates of banks were administered would lead to, substantial diversion of funds from the bank deposit segment to the call money market segment. This could markedly raise the cost of funds to banks. Therefore, while the Vaghul Committee decided in favor of making the call money market a pure interbank market, it felt that LIC and UTI which had been permitted to operate as lenders in the market would gradually come out of the market as other money market instruments developed with wider array of maturities.

The Narasimham Committee II (1998) concurred with the Vaghul Committee that call/notice/term money market in India, like in most other developed markets, should be strictly restricted to banks. It, however, felt that exception should be made for Primary Dealers (PDs) who have been acting as market makers in the call money market and are formally treated as banks for the purpose of their inter-bank transactions and, therefore, they should remain as part of the call money market. With regard to non-banks, it expressed concern that these participants "are not subjected to reserve requirements and the market is characterized by chronic lenders and chronic borrowers and there are heavy gyrations in the market". It felt that allowing non-bank participants in the call market "has not led to the development of a stable market with liquidity and depth ..... and the time has come to undertake a basic restructuring of call money market". Like the Vaghul Committee, it had also suggested that the non-bank participants should be given full access to bill rediscounting, Commercial Paper (CP), Certificates of Deposit (CDs), Treasury Bills (TBs) and Money Market Mutual Funds (MMMFs) for deploying their short-term surpluses.

## **International Experiences**

### **USA**

Federal funds market in USA is the counterpart of the call/notice money market in India. In this market, only those depository institutions that are required by the Monetary Control Act of 1980 to hold reserves with the Federal Reserve Banks are permitted to borrow. These include commercial banks, savings banks, savings and loan associations and credit unions. Non-bank participants such as corporates, state and local governments are prohibited from participating in the federal funds market directly. They supply funds to the overnight market through repurchase agreements (RPs) with their banks. Banks' borrowings from federal funds market as well as from RPs are free of reserve requirements. It is found that RP rates closely follow the federal funds rate with the former being lower than the latter as RP market is collateralized and, therefore, safer than the federal funds market and RP involves additional transaction costs in the form of documentation.

It was found that as resources raised under RPs were free of reserve requirements, banks attempted to minimize their burden of reserve requirements by raising more resources through the RP avenue vis-à-vis deposits thereby reducing the volume of required reserves that banks had to hold with the Federal Reserve Banks. This in turn reduced the size of the Federal Reserve Banks' balance sheet and, therefore, reduced the interest payments that it could transfer to the US Government. In order to obviate this situation, the Federal Reserve Board passed a resolution in 1969 restricting the collateral to be used for RPs to only direct obligations of the US Government or its agencies. This somewhat offset the revenues that are likely to be lost due to reduced volume of reserves held by banks.

## France

Initially, some non-bank entities were allowed in the money market which were able to obtain a market rate of return on their investments. These non-bank entities included insurance companies, pension funds, stock brokers' boards, etc. In order to encourage the spread of negotiable securities among the public as well as to restrict the access to the market (for "central bank money") the authorities favored the creation of a pure interbank money market accessible only to credit institutions. The non-bank entities who are no longer part of the interbank money market have moved to the repo market as well as sales of negotiable securities as part of their short-term liquidity management. The authorities felt that this sort of restructuring of the market should help in fostering development of short-term securities in the economy.

Among emerging economies also, overnight money markets in countries like Singapore, Malaysia and Thailand have only banks as participants.

## Section II

### Characteristics of the Indian Call Money Market

As indicated above, call money is the most important segment of the Indian financial system. It consists of overnight money and money at short notice for a period of up to 14 days. The call money market essentially serves the purpose of equilibrating the short-term liquidity position of banks and other participants. It is also the focal point through which the RBI attempts to influence the short-term interest rates. Its average daily turnover at more than Rs.40,000 crore in recent period is the highest among all money market instruments including Government securities market. In this market, while banks and Primary Dealers (PDs) are allowed to both borrow and lend, non-bank participants such as financial institutions, mutual funds and select corporates are permitted to only lend. The demand for funds in this market is mainly governed by the banks' need for resources to meet their statutory reserve requirement; it also offers some participants a regular funding source to build up short-term assets. It is, however, felt that the demand for funds for reserve requirements dominates any other demand in the market. Viewed from this angle, it may be noted that total reserves transacted (i.e., aggregate borrowings) in the call money market as proportion of aggregate cash balances maintained by commercial banks with the RBI, on average, ruled around 32 percent in the recent period.

As regards the number of participants, apparently the market is very broad based as on the borrowing side, there are as many as 169 participants (banks – 154 and PDs – 15) while on the lending side, apart from these 169 participants, there are additional 105 participants taking the total to 274 (Table A1).

**Table A1: Number of Participants in Call/Notice Money Market  
(as on March 12, 2001)**

Category	Bank	PD	FI	MF	Corporate	Total
I. Borrower	154	15	-	-	-	169
II. Lender	154	15	20	35	50	274

A typical characteristic of this market is that except PDs who are participating in both sides of the market, there is hardly any bank that operates both as a borrower and lender simultaneously on any given day. It is generally found that public sector banks with their vast branch network in the country are generally the supplier of funds in the market while foreign and private sector banks with their urban-centric structure coupled with their relatively advanced treasury operations are regular borrowers in the market.

Keeping this in perspective, the overall shares of various constituents based on their daily transactions during the last two years are as follows:

**Table A2: Market Shares of Constituents in Call/Notice Money Market**  
(In Percent)

Year	Borrowings	Lendings			
	Banks	PDs	Banks	PDs	Others
1999	68	32	52	11	37
2000	66	34	45	11	44

- Note:
- Figures do not include operations of co-operative banks.
  - “Others” constitute financial institutions, mutual funds and select corporates.

An analysis of participant-wise shares in both borrowings and lendings in call/notice money market reveals a highly skewed nature of the market. On the lending side, State Bank of India (SBI) is the largest participant accounting for as much as 15 percent in 1999 which, however, declined to 13 percent in the following year (Table A3). On the whole, four public sector banks and five Financial Institutions (FIs) supplied to the tune of 38 percent of the aggregate supplies of funds in the market in 1999 which dropped to 31 percent in 2000. What is important to note here is that though there are as many as 274 participants (Table A1) who are eligible to lend in the market, there are only 9 participants as indicated above who control about one-third of aggregate lendings in the market.

**Table A3: Shares of Select Participants in Call/Notice Money Market : Lending**

(In Percent)

Year	Banks	FIs	Total
1999	20 (15)	18	38
2000	17 (13)	14	31

Banks : Canara Bank, Central Bank, PNB and SBI

FIs : ICICI, IDBI, LIC, SIDBI and UTI

Parenthetic figures relate to those of the SBI.

Similarly, on the borrowing side, the shares of only ten foreign and private sector banks accounted for as much as 36 percent of aggregate borrowings in 1999 which increased further to 39 percent in the following year (Table A4).

**Table A4: Shares of Select Banks in Call/Notice Money Market : Borrowings**

(In Percent)	
Year	Banks
1999	36
2000	39

Select banks include ABN-AMRO Bank, Bank Nationale De Paris, Centurion Bank, Citi Bank, Deutsche Bank, Grindlays Bank, HDFC Bank, Hongkong Bank, IDBI Bank and Standard Chartered Bank.

From this analysis, it needs to be noted that though apparently the market is quite broad based, in reality, it is quite lopsided in both borrowing and lending segments. In other words, despite the market having the highest turnover in Indian money market, it lacks depth and liquidity as absence of one or two major participants in either of the segments may have the potential to cause sharp volatility in the market. This not only impairs efficient price discovery process in the market, but also necessitates more active liquidity management practices by the RBI in order to keep interest rates within a reasonable corridor.

## Section III

### Position since 1990s

Following the freeing of interest rates in call money market in June 1989, there had been bouts of extreme volatility in call rates on many occasions during 1989-90. Despite the Vaghul Committee recommendation that call money market should be made purely an interbank market, with a view to reduce volatility and widen the market, the policy relating to the entry into the call/notice money market was gradually liberalized since 1990. In May 1990, three more financial institutions (viz., GIC, IDBI and NABARD) besides LIC and UTI were permitted to participate in the call/notice money market as lenders. In October 1990, with a view to further widen the call/notice money market and to bring about a greater integration in various segments of the money market, all the participants in the Bills Rediscounting Scheme who were not operating in the call/notice money market till then, were granted entry as lenders. Subsequently, eight mutual funds sponsored by public sector banks/financial institutions were also permitted to participate in the call/notice money market as lenders.

In April 1991, the policy relating to entry in the call/notice money market was further liberalized and it was decided to provide access as lenders to such entities as were able to provide evidence to the RBI of bulk lendable resources. Such entities were required to observe a minimum size of operations of Rs.20 crore per transaction and such transactions were to be routed through Discount and Finance House of India (DFHI) only. Furthermore, such entities were also required to give an undertaking that they had no outstanding borrowings from the banking system. In April 1997, the facility of routing transactions by these entities was extended to all the PDs as against only DFHI earlier. The minimum size of operations was also reduced from Rs.20 crore to Rs.10 crore and ultimately to Rs.5 crore and finally to Rs.3 crore in October 1997 and in May 1998 respectively. Consequent upon the relaxations granted to entities for routing call transactions, the number of entities routing their call transactions through PDs rose sharply. At present, there are 50 such entities.

Earlier only the public sector mutual funds were allowed to operate as lenders in the call/notice money market but with a view to facilitate a level playing field, it was decided in April 1995 to provide access to mutual funds set up in the private sector and approved by the Securities and Exchange Board of India (SEBI) also as lenders in the call/notice money market after these entities obtained specific permission from the Reserve Bank. In 1996, 4 primary dealers, in addition to DFHI and STCI were permitted to operate both as lenders as well as borrowers in the call/notice money market. As of now, the number of PDs has increased to 15.

As on March 12, 2001, there were 55 financial institutions and mutual funds operating in the market as lenders, besides all scheduled commercial banks, co-operative banks and primary dealers which operate as both lenders as well as borrowers.

### **Shift in Stance in the RBI**

There has been a change in policy stance regarding permission to non-bank participants to operate in the call/notice money market. This issue was also examined by the “Internal Group to Examine the Development of Call Money Market” in 1997 which had observed that the call money market was an interbank market the world over. Furthermore, when non-banks are allowed to participate in the call money market, it partly distorts the signals of liquidity conditions in the system. Analysis done by the group revealed that intermediate lenders in call money were in a position to exploit the situation of tight money conditions and dictate terms to the banking system thereby causing undue volatility in the call/notice money market. The view was that non-bank institutions should instead be allowed to deploy their short-term funds in alternative money market instruments like Repos, Money Market Mutual Funds (MMMFs) and Certificates of Deposit (CDs), etc. and until these markets develop, the existing non-bank participants may be allowed to continue in the call money market.

Similarly, following the recommendations of the Narasimham Committee II (1998), the general consensus of members of the Standing Committee on Money Market (which was since reconstituted as Technical Advisory Committee on Money and Government Securities Markets) was that ultimately we should move towards a pure interbank market along with only primary dealers, and in the meantime steps should be taken to widen the repo market and increase non-bank participation in other money market instruments.

Accordingly, in the “Mid-Term Review of Monetary and Credit Policy for 1998-99” announced in October 1998, the Reserve Bank indicated its intention to ultimately move towards a pure inter-bank call/notice/term money market including PDs. It was indicated that measures would be taken simultaneously to widen the repo market and improve non-bank participation in a variety of other instruments and this would be implemented in a manner that existing lenders in the market would have operational flexibility to adjust their asset-liability structures.

It was decided, as a first step, that permission only to non-bank participants for routing their call transactions through PDs be withdrawn and other non-bank institutions (financial institutions and mutual funds) be allowed to continue in the call/notice money market until such time the other avenues for short-term deployment of funds are available. Accordingly, in April 1999, it was indicated that permission given to non-bank entities to lend in the call/notice money market by routing their transactions through PDs would be available only up to end-December 1999. This permission was, however, extended in stages up to June 2001.

Simultaneously, the Reserve Bank has taken several steps to widen the participation in repo market as indicated below:

- i. Following the amendment to the Securities Contract (Regulations) Act, 1956 (SCRA) in March, 2000 delegating regulatory powers to the RBI to regulate, inter alia, dealings in Government securities and money market securities, all those non-bank entities maintaining current account and SGL account with the RBI, Mumbai had been permitted to undertake both repo and reverse repo.
- ii. Minimum maturity for repo transactions was reduced to 1 day.
- iii. State Government securities have been made eligible for undertaking repos.
- iv. The RBI also opens its purchase window to impart liquidity to Treasury Bills whenever the situation warrants.
- v. Clearing Corporation is being set up for money and securities settlement.

In addition to the above, the minimum period for transferability in case of Certificates of Deposit has recently been abolished. This would provide an additional avenue to non-banks to lend short-term funds to the banking system.

## Section IV

### Policy Perspective and Recommendations

The Technical Group appreciated the need for non-banks to be phased out of the call/notice money market in the interest of development of a risk-free short-term yield curve in the economy. Towards this end, the Group concurred fully with the view expressed by Dr. Y.V. Reddy, Deputy Governor of the RBI that complete withdrawal of non-banks from call money market should be co-terminus with the full fledged operationalization of the Clearing Corporation. Keeping this in perspective, the Group deliberated on various suggestions in order to achieve a smooth transition to the repo/reverse repo market. These suggestions broadly relate to call money market and Government securities market including repo market.

#### Call Money Market

With regard to gradual phasing out of access to call money market by such non-bank participants as financial institutions and mutual funds, the Group recommends that such access may be reduced in three stages by placing cap in relation to their average daily lendings during April 2000 – March 2001. In the first stage, each such non-bank participant should be allowed to lend only up to 70 percent of their average daily lendings in call money market during 2000-2001 for a period of three months which should come into effect at the earliest after March 31, 2001. In the second stage, access should be reduced further to 40 percent of their average daily lendings during 2000-01. The final stage should commence with the setting up of Clearing Corporation or after a period of three months from the conclusion of the second stage whichever is later. The final stage by which time the Clearing Corporation is expected to be established should last for a period of three months. During this phase, the Group feels that access to call money market should be permitted to these participants to the extent of 10 percent of their average daily lending during 2000-01. This is considered necessary to enable these particular classes of non-bank participants to be familiar with the operations of the Clearing Corporations. After the end of this stage, these entities would not be permitted to lend in call money market at all.

The Group appreciates that there is a strong need to gradualize the process of phasing out non-banks from the call money market for ensuring their smooth transition to the repo market as has been indicated above. However, there is a consensus that among the non-bank participants, select corporates who route their funds through PDs may be withdrawn immediately as these entities could always place their funds with PDs through the inter-corporate deposits (ICDs) route. Accordingly, the Group recommends that corporates lending in call money market should not be permitted to lend after end-June 2001.

#### Government Securities/Repo Market

With the phasing out of non-bank participants from call money market to repo/reverse repo market, it is expected that the latter would emerge as a vibrant short-term money market for both banks and non-banks. In fact, it is envisaged that in future, both call money market and repo/reverse repo market would constitute a unified market to equilibrate short-term funds positions for both banks and non-bank participants because repo/reverse repo (henceforth, it is indicated as repo market for convenience unless otherwise stated) market would afford both borrowing and lending facility to non-bank participants. However, during the intermediate period, it is apprehended that funds flow between these two markets may not be as smooth as one expects it to be eventually. This is because distribution of surplus liquidity and that of surplus securities over Statutory Liquidity Requirements (SLR) in the banking sector are such that those who are persistent borrowers in the market (i.e., foreign and private sector banks) do not maintain sufficiently large volume of surplus securities in their portfolio (Table 5) so as to enable them to borrow easily from the repo market.

**Table A5**  
**Distribution of Excess SLR Securities among Categories of Banks**  
(Rupees crore)

Group of Bank		Average holding of Excess SLR Securities		Percentage share in total	
		1999	2000	1999	2000
1.	SBI Group	28,324	35,703	36.4	37.3
2.	Nationalized Banks other than SBI Group	39,355	46,455	50.6	48.5
3.	Private Sector Banks	6,054	8,749	7.8	9.1
4.	Foreign Banks	4,219	4,819	5.4	5.0
	Total	77,952	95,726	100	100

**Note:** For this purpose, required SLR investments have been worked out as 25 percent of “Liability to Others” for the category of banks concerned. Excess SLR securities have been defined as “Investments in Government and other Approved Securities” less required SLR investments.

It may be worthwhile to note that while the average daily aggregate lending in call money market by non-bank participants stood at Rs.7,672 crore during the years 1999 and 2000, average net borrowings by banks and PDs were Rs.3,488 crore and Rs.4,184 crore, respectively, during the period. As against this, the average surplus securities available with the foreign and private sector banks were at Rs.11,920 crore of which the average volume of surplus securities with foreign banks was at Rs.4,519 crore during the period. Moreover, a part of securities held by PDs would also be available for undertaking repo transactions. Again, since these classes of entities are also more active in trading in Government securities market, the effective volume of surplus securities available for repo for borrowing of funds would be lower for them. While the Group is aware that chronic borrowers should need to reduce their call money borrowing keeping in view the asset-liability management (ALM) guidelines, it is generally perceived that these borrowers could face some transition problems. However, considering the fact that non-bank participants such as financial institutions and mutual funds would be permitted to lend up to 70 percent of their average daily lending during 2000-2001 for three months in the first phase, it is expected that market participants on both lending and borrowing sides would have sufficient time to adjust their portfolios accordingly without any disruption in the market. Moreover, with the establishment of Clearing Corporation, repo operations would not only become more efficient and the need for securities would be relatively less, it would also be possible to undertake repo transactions in non-Government securities. Non-bank participants under the new set up may also like to build up a portfolio of repoable securities for meeting their occasional short-term borrowing needs over time. This may represent an additional demand in the debt market including Government securities. Eventually, it is envisaged that since call money rates would be higher than the repo rates, banks with surplus SLR securities may act as conduits for funds from the repo market to call market.

Under the ambit of the Clearing Corporation, rollover of securities in repo transactions would also become possible (provided it is not considered a short sale). Similarly, the Group feels that securities obtained under reverse repo may be allowed to be used for undertaking repo. These apart, at present repo is permitted

only at Mumbai. Such activities may be allowed in other centers as well. The Group feels that since repo market will attract larger volume of transactions in the wake of phasing out of non-bank participants from the call money market, there is a strong need to introduce a master repo agreement with uniform documentation and accounting standards. The Group, however, appreciates that such an effort is underway under the aegis of the Fixed Income Money Market and Derivatives Association of India (FIMMDA). Though non-bank participants are allowed to invest in all other money market instruments with a much wider array of maturities, the Group has suggested that floating stock of Treasury Bills particularly at the shorter end may be increased for providing an additional avenue to non-bank participants for deploying their short-term surplus funds.



## **Lesson 5**

# **Treasury Bills**

**After reading this lesson, you will be conversant with:**

- Features of Treasury Bills
- Types of Treasury Bills
- Issuing Procedure of Treasury Bills
- Primary Market and Settlement Procedures
- Features of Treasury Bills Abroad

Corporate short-term requirements are met through raising short-term funds with various instruments like CPs, discounted bills, ICDs, etc. and long-term needs through equity and long-term debt. Similarly, government issues Treasury bills (T-bills) and dated securities as a means to raise funds, in short-term and long-term markets respectively. T-Bills constitute a major portion of short-term borrowings by the Government of India.

T-bills are issued in the form of promissory notes or finance bills (a bill which does not arise from any genuine transaction in goods is called a finance bill) by the government to tide over short-term liquidity shortfalls. These short-term instruments are highly liquid and virtually risk-free as they are issued by the government.

They are the most liquid instrument after cash and call money, as the repayment guarantee is given by the central government.

Treasury bills do not require any grading or further endorsement like ordinary bills, as they are claims against the Government. These instruments have distinct features like zero default risk, assured yield, low transactions cost, negligible capital depreciation and eligible for inclusion in SLR and easy availability, etc. apart from high liquidity.

## **Issuer**

The Reserve Bank of India acts as a banker to the Government of India. It issues T-bills and other government securities to raise funds on behalf of the Government of India, by acting as an issuing agent.

## **Investors**

Though various groups of investors including individuals are eligible to invest, the main investors found in treasury bills are mostly banks to meet their SLR requirements. Other large investors include:

- Primary Dealers
- Financial Institutions (for primary cash management)
- Insurance Companies
- Provident Funds (PFs)(as per investment guidelines)
- Non-banking Finance Companies (NBFCs)
- Corporations
- Foreign Institutional Investors (FII), and
- State Governments.

NRIs and OCBs are also allowed to invest but only on non-repatriable basis. The RBI issues both bids on competitive and non-competitive basis. Eligible Provident Funds (i.e. the non-government provident funds governed by the Provident Fund Act, 1925 and employees PFs and Miscellaneous Provisions Act, 1952 whose investment pattern is decided by Government of India), State governments, and the Nepal Rastra Bank can participate in the auctions on 'non-competitive' basis. The scheme of non-competitive bidding to encourage mid-segment investors like individuals, HUFs, PFS, UCBs, NBFCs, Trusts, etc. to participate in the primary market of government securities, were operationalized in January 2002.

All other participants excepting above mentioned investor classes participate in competitive bidding.

## **Purpose**

Treasury bills are raised to meet the short-term requirements of Government of India. As the Government's revenue collections are bunched and expenses are dispersed, these bills enable the Government to manage cash position in a better way. T-bills also enable the RBI to perform Open Market Operations (OMO) which indirectly regulate money supply in the economy.

Investors prefer treasury bills because of high liquidity, assured returns, no default risk, no capital depreciation and eligibility for statutory requirements.

**Form**

T-bills are issued either in the form of promissory note (or scrip) or credited to investors' SGL account. For every class, a standardized format is used.

**Size**

The treasury bills are issued for a minimum amount of Rs.25,000 and in multiples of 25,000. T-bills are issued at a discount and are redeemed at par.

**Types**

Treasury bills are issued at various maturities, generally up to one year. Thus, they are useful in managing short-term liquidity. At present, the GOI (Government of India) issues 2 types of T-bills viz., 91-day and 364-day. In 1997, in order to enhance the depth of the money market in India, the RBI decided to introduce 14-day and 28-day T-bills. However, so far, only 14-day T-bills have seen the light. The RBI had withdrawn the 14-day and 182-day T-bills with effect from May 14, 2001.

**Yield**

T-bills do not carry a coupon rate, but they are issued at a discount. Though the yields on T-bills are less when compared to other money market instruments, the risk averse investors and banks prefer to invest in these securities.

Yields on T-bills are considered as benchmark yields. It is considered as a representative of interest rates in the economy in general, while arriving at an interest rate or yield on any short-term instrument.

Considering the risk-free nature of T-bills all other instruments in money market will have to provide for higher yields.

**Illustration 1**

The yield is calculated on the basis of 365 days a year. If the face value of a 364-day T-bill is Rs.100, and if the purchase price is Rs.88.24 for a Treasury Bill, then the yield is calculated as below:

$$\left( \frac{\text{Days} \times \text{Yield}}{365} + 1 \right) = \frac{\text{Face Value}}{\text{Price}}$$
$$\text{Yield} = \left( \frac{100}{88.24} + 1 \right) \times \frac{365}{364} = 13.36\%$$

The T-bills can be categorized into three types based on the nature of issue.

**Ad Hoc Treasury Bills**

Ad hoc T-bills are issued in favor of the RBI when the Government needs cash. They are neither issued nor available to the public. These bills are purchased by RBI on tap and are held in its Issue Department and the RBI issues currency notes against these bills to the Government if required, and bills are renewed at maturity.

Ad hoc T-bills are issued to serve two purposes. Firstly, to replenish cash balances of the Central Government and secondly, to provide a medium of investment for temporary surpluses to State Governments, semi-government departments and foreign central banks.

The RBI acts as a banker to the Central Government, hence, the Government needs to maintain a minimum balance of Rs.50 crore on Fridays and Rs.4 crore on other days free of obligation to pay interest thereon and further whenever the balance in the account of the Government falls below the minimum agreed amount, the account will be replenished by the creation of ad hoc Treasury Bills in favor of Bank. Ad hocs have maturity period of 91-day and carry a discount rate of 4.6 percent. These bills can be extinguished before maturity.

The maximum incremental outstanding limit of T-bills at the end of the year should be Rs.5,000 crore and within the year, the incremental ad hoc T-bills cannot exceed Rs.9,000 crore for a period greater than ten consecutive days. In case this is not adhered to, the RBI would automatically reduce the level of ad hoc T-bills by auctioning them or selling fresh Government of India dated securities in the market thereby, bringing down the level of ad hocs to the maximum level permitted. This is essentially an arrangement between Central Government and RBI and the actual operational aspects may vary from time to time. It is adequate to state that this is essentially a mechanism through which the Central Bank (RBI) funds the government.

T-bills have to be repaid by the government when it has adequate cash flows. However, there was no compulsion that they have to be repaid. When they were outstanding for more than 90 days, the RBI used to convert them into dated securities. As the expenditure of the government always exceeded its income, some amount of T-bills remain unpaid at the end of the year thus becoming a permanent source to finance the budget deficit, which can lead to fiscal indiscipline resulting in serious imbalances in the economy. As there was no limit on the amount that can be raised by the government on its own, the government itself decided to put a cap on it.

Consequently, the Union Budget 1994-95 stated that automatic monetization of budget deficit through creation of ad hoc T-Bills would be phased out completely over three years period with an objective to reduce inflation. Subsequently, a limit on the issue of ad hocs was imposed under an agreement between the Union Government and the RBI. The Union Government and the RBI have, therefore, entered into an agreement to change the way the budget deficit is financed. The agreement was signed in March 1997, bringing into existence the new system of Ways and Means Advances (WMA) – replacing the system of ad hoc treasury bills.

WMA is not a permanent source of financing government deficit. But, this is likely to provide greater autonomy to RBI in conducting monetary policy. According to the agreement, the RBI will no longer monetize the fiscal deficit and the government should borrow from the market to finance the fiscal deficit. But, the RBI will extend the advances to the Central and State governments to tide over temporary or short-term finance requirements which needs to be repaid in three months. Drawals in excess of the WMA limit will be allowed for a maximum of ten consecutive days. The RBI allows for three types of ways and means advances: the clean WMAs (unsecured), the secured WMAs (which are secured against central government securities) and the special WMAs which are allowed in exceptional circumstances against the pledge of government securities.

**The system of WMA broadly works as follows:**

- The limit of WMA is decided in terms of mutual consultations between RBI and the central government.
- The interest charged up to the WMA limit would be three percent less than the average implicit yield at the cut-off prices of 91-day T-bills in the previous quarter and for the amount in excess of WMA limit, it is two percent more than the normal rate.
- The interest rate is decided on, and can be altered by mutual agreement between the RBI and the government.

The outstanding balance of WMA at the end of the year should be repaid by the central government (it should be brought down to zero). If the balance remains unpaid for more than two weeks after the end of year, the RBI converts the amount into dated securities at the market rate of interest.

If 75 percent of limit is utilized, the RBI should initiate a fresh flotation of central government securities.

### **On Tap Treasury Bills**

The RBI issues on tap T-bills to investors on any working day. There is no limit to the amount of investment in these types of securities. These types of T-bills have a maturity of 91 days. The discount rate is around 4.6 percent and they are redeemable at face value on maturity. These bills can also be rediscounted after a minimum period of 14 days with the RBI. Generally the state governments, banks and provident funds use these T-bills as a liquidity management tool as the RBI is willing to rediscount at any point of time for any amount. These treasury bills are discontinued with effect from 1st April, 1997 along with the ad hoc T-bills.

### **Auctioned Treasury Bills**

The Government of India has decided to move towards a weekly auction system for 91-day T-Bills from January, 1993. Auctions in respect of 14-day and 91-day treasury bills are held on Fridays and payments in respect of allotments made on Saturdays. In October, 2000, considering the request from the market participants, the day of payment has been changed from Saturday to the next working day in respect of both 14-day and 91-day Treasury Bills. However, this will be reviewed after six months. On the other hand, 182-day and 364-day T-bills are auctioned every alternative week on Wednesdays. The RBI issues a calendar of T-bill auctions. Further, the RBI, by issuing press releases prior to every auction, also announces the exact dates of auction, the auction amount and dates of payment. The bids are tendered and accepted at the auction. As the participants in the auction are the players in the market, the market perceptions about an acceptable yield get reflected in this process. Then the yield on T-bills becomes more a market determined one rather than a regulated one. The unsubscribed portion is subscribed by RBI at a cut-off rate, that is evolved in the process of auction. The issuing procedure of auctioned T-bills are discussed below.

### **Issuing Procedure**

As discussed above, the RBI on behalf of central government, announces the auctioning of T-bills by tender notification through the press. The bills are sold by the RBI, Public Accounts Department (PAD), Mumbai, on an auction basis. The date of auction and notified amount are announced by RBI from time to time. Though the tender is invited for competitive bids, bids will be allotted to both competitive and non-competitive bids. Non-competitive bidders such as State Governments, PFs and Nepal Rastra Bank etc. will advise the Manager, RBI, Mumbai directly by Telex\Facsimile the amount of tender before the day of auction or on the day of the auction before the close of banking hours. A non-competitive bidder will submit only one bid. There is no need for bidding in case of non-competitive bids. These bids are accepted at the weighted average of the successful bids if the notified amount is not fully subscribed to.

Eligible investors intending to procure the instruments need to submit their tender for the issue of bills in the form as prescribed for the purpose, which can be obtained from RBI, PAD, Mumbai. An investor can submit multiple tenders filling separate forms stating different prices. Successful competitive bids will be accepted up to the minimum discounted price called 'cut-off' price determined at the auction. Partial pro rata allotments are common for bids submitted at cut-off price. The bids above the cut-off price are accepted completely and other bids at offer prices lower than cut-off price are rejected.

Result of the auction is displayed at RBI, PAD, Mumbai. Reserve Bank has the full discretion to accept or reject any or all the bids, both competitive and non-competitive bids either wholly or partially if deemed fit without assigning any reason. The tenderer needs to check for himself the result of the auction and if successful, should collect the letter of acceptance of the tender from RBI. The bidders will be allotted the Treasury Bills at the respective prices at which the bids have been made. For 91-day T-bills, the successful bidders at the auction have to make the payment on the next working day following the Friday auction; and for 364-day T-bills, the payment has to be made by successful bidders on Thursday

following the Wednesday auction. Successful bidders at the auction are required to make the payment by cash/cheque drawn in favor of the Reserve Bank of India or by Banker's Pay Order. Payments by competitive bidders are effected by debiting their current account with PAD, Mumbai, if RBI is authorized to that effect.

If the day of payment falls on any public holiday, the payment is made on the day after the holiday. Otherwise, the required amount shall be deposited with RBI, PAD, on the following working day of the announcement either in cash or through crossed Banker's cheque.

In case of State Governments, the payment would be effected by debiting their account with the CAS, RBI Nagpur.

**Payment**

On expiry of the tenure, the bills are presented at RBI, PAD, Mumbai for payment.

**Development of the Market**

Until 1950s T-Bills were issued by both the Central and State Governments and from 1950s, it is only the Central Government that is issuing Treasury bills. Up to 1965, the mode of issue of T-bills to the public were through bi-weekly auctions or tenders. In 1965, the concept of 'intermediate' T-bills were introduced and were sold for few years. According to this mode, T-bills had a maturity of 91 days and the rates were fixed by RBI. The day succeeding the day of the usual weekly auction till the day preceding the next auction, was fixed for receiving the tenders for the next auction. The mode of issuing T-bills has changed from 12th July, 1965. Instead of inviting tenders, the T-bills were made available throughout the week at specified rates from time to time. This change in issuance has facilitated an increase in selling of T-bills (as the commercial banks were investing their short-term surpluses in these instruments). As the government raised its finances by issuing ad hoc T-bills to RBI, which is technically a short-term source, but, in practice, it is long-term in nature. In the sense, the ad hoc treasury bills are notionally discharged and renewed on maturity. Therefore, finance raised by the government in this form is technically short-term finance, but in reality ends as a long-term finance.

**Primary Market in India**

In India, till April, 1992, T-bills of 182 days maturity were issued along with 91-day T-bills. These have since been phased out in favor of 364-day T-Bills. There are five types of treasury bills based on maturity dates but the 28-day bills have not yet been launched as stated below and the development of each maturity dated T-bill is as follows:

**91-Day T-Bills**

Starting from July, 1965, 91-day T-bills were issued on tap basis at a discount rate ranging from 2.5-4.6 percent per annum. Till July, 1974, the discount rate was 4.6 percent. Even later, the discount rate hovered around the same. The extremely low yield on these bills was totally out of alignment with the other interest rates in the system. Moreover, the Central Bank readily rediscounted these bills due to which the yield for these bills remained more or less artificial. The banks used these instruments to park their funds for a very short period of 1-2 days. This resulted in violent fluctuations of volumes of outstanding T-bills. The RBI had introduced two measures in order to cope with the situation. Firstly, to recycle the T-bills (from October, 1986) under which the bills are rediscounted by the RBI and are resold to the banks. Secondly, an additional early rediscounting fee was imposed, if the banks rediscounted the T-bills within 14 days of purchase. Although this resulted in a decline in weekly fluctuations, the T-bills market did not become an integral part of the money market and the interest rates did not rise considerably as the bulk of T-bills continued to be held by the RBI. The weekly auctions of 91-day T-bills were started in January, 1993, which in due course resulted in gradual decline of the T-bills outstanding with the RBI.

### **182-Day T-Bills**

Following the Sulchmay Chakravarty Committee recommendations, in November, 1986, 182-day T-bills were introduced in order to develop the short-term money market and also to provide an additional avenue for the Government to raise financial resources for its budgetary expenditure. Initially, these were the first type of treasury bills to be auctioned on monthly basis without any rediscounting from RBI. Thus, the first step of market oriented discount rate has come into existence. The state governments and provident funds were not allowed to participate in these auctions. To impart an element of flexibility, the Central Bank was not announcing the amount in advance. The market participants were allowed to bid the amount and price of their choice. The authorities would determine the cut-off discount rate and the amount of T-bills sold in an auction. They were issued with a minimum lot size of Rs.1 lakh and multiples thereof. These auctions were monthly in the beginning but later in 1988, they were made fortnightly. These bills were eligible securities for Statutory Liquidity Ratio purpose and for borrowing under standby refinance facility of the RBI. The 182-day T-bills had an interest rate that was relatively market determined and this made it possible for the development of a secondary market for it. Nevertheless, till 1987, 182-day T-bills market could not emerge as an integral part of the money market. These bills were discontinued and in place of which 364-day T-bills emerged.

In April, 1998, these bills were reintroduced in order to obtain a continuous yield curve for a period of one year. However, these bills were again discontinued from May, 2001.

### **364-Day T-Bills**

The Government considered that it is important to develop government securities market for monetary control. It also had an intention to ensure that government's credit needs are met more and more directly from the market instead of pre-emption of deposit resources. With this view, treasury bill was developed as a monetary instrument with market related rates. As a part of the overall development of Government securities market, the Government of India proposes to float treasury bills of varying maturities up to 364 days on auction basis.

The Government, with an intention to stabilize the money market in the country, introduced the 364-day T-bills on 28th April, 1992. The RBI neither discounted these bills nor participated in the auction. 364-day T-Bills are auctioned fortnightly, but the amount, however, is not notified in advance. These T-bills have become popular due to their higher yield coupled with liquidity and safety. The yield on 364-day T-bills is used as a benchmark by the financial institutions such as IDBI, ICICI, etc. for determining the rate of interest on floating bonds/notes. These bills widened the scope of money market and provided an innovative outlet for surplus funds. The introduction on treasury bills of varying maturities would offer investors a wider choice for investing in different instruments and thereby foster the development of Government securities market.

### **14-Day and 28-day T-Bills**

The presence of 91-day, 182-day and 364-day T-bills provided an opportunity for investors to choose varying maturities either from the primary market or from the secondary market. However, an investor who is interested in a maturity less than 91 days had to necessarily look for secondary market. In order to enhance the breadth of the market, RBI decided to introduce 14-day, 28-day T-bills in 1997. However, till now RBI has introduced 14-day Treasury Bills only. In accordance with monetary and credit policy of April, 2001, the 14-day T-bill and 182-day T-Bill auctions has been discontinued and instead, the notified amount in the 91-day T-bill auctions has been increased with effect from May 14, 2001.

## Clearing and Settlement

The Treasury Bills are available in physical form if an investor desires so. The market is mostly dominated by institutional players who have a facility to hold the T-bills in scripless form. For this purpose, the investor opens an SGL Account (Subsidiary General Ledger) with RBI who credits the accounts with T-bills subscribed. When a transaction of sale is undertaken between two institutional players, the seller issues an SGL (Subsidiary General Ledger) transfer form specifying the details of the transaction. The SGL transfer form is then lodged by the buyer with the Public Accounts Department of RBI to credit its account by debiting the value of the securities to the seller's account. Usually, interbank trades are settled on the same business day, whereas trades with non-bank counterparties are settled either on the same day or 1 business day after trade date.

Commercial Paper, Certificates of Deposits, short-term debentures and inter-corporate deposits are alternatives to T-bills. In spite of the low returns, T-bills constitute a viable investment opportunity for cash rich PSUs and corporates due to their liquidity, eligibility for SLR, nominal risk weightage. The scope for capital erosion is almost insignificant. Hence, it is essential to develop treasury bill market as it would provide appropriate ancillary facilities to foster the development of money market instruments.

### Box 1: Retailing – The Gilt Edge

The Advantages G-Secs and T-Bills enjoy a zero default risk since they are sovereign paper. There is no deduction of tax at source. Besides, there is a rebate of Rs.3,000 per annum on interest income derived from G-secs and T-Bills under Section 80L of the Income Tax Act. Both these instruments enjoy a high level of liquidity and can be sold in the market. Primary dealers offer quotes to buy T-bills and G-secs and could be sold to them easily before maturity.

That apart, an investor can earn much better returns in the short run. An individual or a corporate enjoying a short-term float, even for four to five days, can earn decent returns. And if one is a frequent trader, he can earn yields as high as 15 to 16 percent, as good bargains are available.

Moreover, with the increase in Bank Rate, yields on G-secs and T-bills are expected to improve from the current levels. But, as banks are surplus with deployable funds, deposit rates are unlikely to go up in the near future. This makes gilts more attractive compared to bonds or bank deposits.

Once an investment in gilts or T-bills is made, there is no change in the YTM, even if there is change in the interest rate during the tenure of the instrument.

It means, if a security is bought for a certain yield, it will remain the same if the security is held till maturity, even if interest rates go up or down during the intervening period. Thus one is protected from price risk as well. However, if one trades in gilts, the downward risk in yields is limited to 100 to 200 (at the maximum) basis points while the opportunity for higher returns is quite good.

*Source: Investment Banking and Financial Services Book of Readings, August 2001, page 19.*

## State Government Securities

Like other government securities, the issues of state government securities are also managed and serviced by the RBI.

In general, the tenure of state government securities is 10 years. These securities are available for a minimum amount of Rs.1,000 and in multiples thereof. State government securities are available at a fixed coupon rate. However, at present, some state governments have started auctioning their own securities. These securities can be brought through a wide network of offices of both, the RBI and the SBI and its associate banks.



## T-BILLS ABROAD

### Primary Market

T-bills are important money market instruments in the US. In US, the minimum denomination of T-bills is \$10,000 and thereafter in multiples of \$5,000.

They are debt obligations of the US government and constitute almost 20% of the marketable debt of the country.

In UK the treasury bills are called gilts and they are issued in the market by the government through the debt Management Office. The gilts are marketable and fall into three types viz, conventional, index-linked and rump stocks. The bank of England holds the gilts on its behalf and on behalf of its clients. The bank also acts as a registrar for gilts and started postal buying and selling of the securities in 1998.

#### Box 2: T-Bills: The Specs

Like G-Secs, T-Bills are also issued by the RBI on behalf of the Central Government to finance its borrowing program. The difference is that T-Bills are issued to meet the short-term borrowing program of the government. They do not carry a coupon rate but are issued at a discount and redeemed at par. T-Bills are issued for a period of less than one year. Currently, there are T-Bills of 91 days, 364 days maturity. Minimum investment required in case of T-Bills is Rs.25,000.

Source: ICFAI Research Center.

## TYPES OF T-BILLS

In the US markets, though there are many types of T-bills, they can be broadly classified into two types – regular-series bills and irregular-series bills.

Regular-series bills are issued routinely by competitive auctions, either on a weekly or on a monthly basis. These bills are issued in regular series. They are issued by Federal Reserve district banks and their branches with different maturities of 3 months (13 weeks), 6 months (26 weeks) or 12 months (52 weeks). New issues of three or six month bills are auctioned weekly; whereas, new issues of one year bills are normally sold once in each month.

Irregular-series bills are issued when a special cash need arises for the Treasury. These T-bills are of two types – strip bills and cash management bills. Strip bills are nothing but a package of bills requiring investors to bid for an entire series of bills with different maturities. Investors who bid successfully must accept bills at their bid price each week for several weeks running. Cash management bills, on the other hand, consist simply of reopened issues of bills that were sold in prior weeks. The reopening of a bill issue normally occurs when there is an unusual or unexpected treasury need for more cash.

### Issuing Procedure

Treasury bills are sold using the auction procedure. The Treasury entertains both competitive and non-competitive tenders for T-Bills. Government securities firms, individuals, financial and non-financial companies usually participate in the bidding. In competitive bids, the quantity of desired T-bills are specified with lowest interest rates which the buyer is willing to accept. (However, treasury rules prohibit any single bidder from obtaining more than 35 percent of any new issue.) The competitive tenders are typically submitted by large investors, banks and securities dealers. The non-competitive bids are submitted by small investors and their bidding amount is limited to \$1 million or less. A non-competitive bidder accepts the weighted average interest rate of the competitive bids and these bids state only the quantity of bills desired.

In UK, all new issues are scheduled and are made through auctions with the details being announced in advance. Private investors may bid for gilts at auctions on a non-competitive basis and receive the gilt at the weighted average of the price paid by successful competitive bidders. The minimum for this type of application is 1000 nominal of the gilt and the maximum is 500,000. Investors making non-competitive bids at the auction are asked to enclose a cheque for a specified amount per 100 nominal bid for. If the eventual price is less, the difference is refunded – if greater, a further payment will be asked for.

## Discount Pricing

The T-bills are issued at a discount to face value and hence have no coupon.

Commission rates on round lots generally range from \$12.50 to \$25.00 per \$1 million of T-Bills, depending on the maturity of indebtedness is issued with the T-Bill and there is no engraved matter on the T-Bill specifying the terms. The purchase is simply recorded by a book-entry system by the Federal Reserve Bank.

Interest earned is the difference between the price paid to purchase the instrument and the amount received upon maturity. The value of T-bill price is face value less discount at a given interest rate. The discount is based on a 360-day year and the number of days between date of purchase and maturity date and is quoted per \$100 of face value.

T-bill purchases are maintained electronically by the Treasury and the Federal Reserve System. As there is no physical delivery, transaction costs are significantly reduced, thereby, eliminating the need to handle, ship and store physical documents.

### Box 3: Non-competitive bidding

With a view to encourage wider participation and retail holding of government securities, a scheme for non-competitive bidding was introduced with the auction of a 15 year stock in January 2002. Under the scheme, the investors who do not maintain current account or SGL account with RBI are eligible to bid; the minimum amount of bid is Rs.10,000 and thereafter in multiples of Rs.10,000 and the maximum amount of each bid is Rs.1 crore; bids are placed through a bank or PD; the total amount under the scheme does not exceed 5% of the notified amount; and allotment to non-competitive bidders are made at the weighted average rate of successful competitive bidders.

Source: Debt market, [www.nseindia.com](http://www.nseindia.com)

## Secondary Market

The major participants in secondary market are banks, brokerage firms and bond houses. They buy and sell T-bills on behalf of customers and themselves. The customers include depository institutions, insurance companies, pension funds, non-financial firms, and state and local governments.

Government dealers help to maintain an orderly market mechanism through trades of T-bills for their own accounts. They are the market makers for these instruments by providing Bid-Ask quotes. The US Treasury Bill market attracts both domestic and international investors because of the perceived strength of the US\$ apart from the liquidity, maturity profile and the risk-free nature which are true for most of the sovereign securities.

The Fed (Federal Reserve Bank) usually holds more than \$100 billion worth of T-Bills at any given point of time and buys large quantities of bills from the dealers in the secondary market when it wants to inject more money in the economy.

In UK, Gilts are traded in a very active market centered on a group of firms known as 'Gilt-Edged Market Makers' (GEMM). The GEMMs deal continuously with major professional investors life pension funds and insurance companies, across the entire list of gilts. GEMMs, along with institutional investors and custodians who may hold stock on behalf of private investors, hold gilts in computerized form using the CREST settlement system (The CREST system is a computerized system to settle the registration and transfer of dematerialized securities including UK and Irish corporate securities, UK government securities and international securities). Some of the GEMMs make special provision for deals in small amounts.

## **SUMMARY**

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- Treasury bills are issued by the government to raise short-term funds in the money market. They are a major portion of the borrowings of the government of India.
- The RBI acts as the banker to the government of India to issue the T-bills.
- The investors in T-bills include: Banks (to meet their SLR requirements), primary dealers, financial institutions (for primary cash management), insurance companies, provident funds (as per the investment guidelines), non-banking finance companies, corporations, FIIs, state governments and individuals (to a very minor extent).
- T-bills are issued in the form of promissory notes or credited to the SGL account. They are for a minimum of Rs.25,000 and multiples thereof, issued at a discount and redeemed at par and do not carry any yield.
- There are five types of T-bills : 14-day, 28-day, 91-day, 182-day and 364-day, out of which the 28-day T-bills have not yet been launched. 14-day and 182-day T-Bills were discontinued from May, 2001. The bills are available in paper as well as in scripless form.
- Ad hoc T-bills are issued in favor of the RBI when the government needs to replenish the cash balances and to provide temporary surpluses to state governments and foreign Central Banks. These are not available to the public.
- On tap T-bills were issued by the RBI to investors on any day and with no limit on investment. They were for a minimum of 91 days and the discount rate was around 4.6% redeemable at par. They were discontinued from April 1, 1997.
- 91-day T-bills are auctioned weekly on Fridays and payment in respect to the allotments is made on Saturdays.
- The auction for and 364-day is held weekly on Wednesdays and payment in respect to the allotments is made on Thursdays.
- T-bills are important market instruments in the US, where the minimum denomination is \$10,000 and in multiples of \$5,000 thereof. The American T-bills are mainly classified as 'regular-series T-bills' and 'irregular-series T-bills'.
- Regular-series of 13-week, 26-week and 52-week maturities are issued weekly or monthly while irregular-series are issued for a special cash need of the treasury.
- The US T-bills are sold in auctions and issued at a discount to face value.

## Appendix

### Auction Procedure

Let us consider an example to understand the process of bidding in treasury bills. Say on 2nd November, RBI issued a tender notification for 91-day T-bill for Rs.500 crore. There were 4 competitive bidders namely, A, B, C and D who responded to the notification of T-bills, and submitted sealed tenders to the RBI. The overall amount quoted through the tender is Rs.1,900 crore. A General Manager from Public Debt Office (Mumbai) opened the tenders, and compiled the following information to determine the cut-off point.

Sl. No.	Name of the Bidder	Price (Rs.)	Amount (Rs. in cr.)	Cumulative Amount (Rs. in cr.)
1	B	98.95	50	50
2	A	98.90	40	90
3	A	98.80	60	150
4	C	98.80	80	230
5	B	98.75	50	280
6	C	98.65	120	400
7	C	98.50	200	600
8	A	98.50	100	700
9	B	98.50	100	800
10	A	98.45	200	1000
11	B	98.40	120	1120
12	C	98.35	280	1400
13	D	98.45	70	1470
14	D	98.35	120	1590
15	D	98.30	150	1740
16	D	98.25	160	1900

Based on the above information, the GM needs to decide the cut-off price and allocate the T-bills to bidders at respective rates. The GM decides an optimal cut-off price as Rs.98.50. Below this point, amount of bids is short by Rs.100 crore and at this point, it has a surplus of Rs.300 crore. The first six bids given by A, B and C are accepted completely, and the next quote given by the three bidders being the same, RBI allots T-bills proportionately. The fully accepted bids are:

Name of the Bidder	Price Quoted	Approved Amount
A	98.90	40
A	98.80	60
B	98.95	50
B	98.75	50
C	98.80	80
C	98.65	120
	Total	400

The RBI allots the three bidders proportionately in the following manner:

Name of the Bidder	Price	Amount	Proportionate Amount Allotted (cr.)
A	98.50	100	25
B	98.50	100	25
C	98.50	200	50
		400	100

$\frac{100}{400} \times 100 = 25$ . Thus, a proportionate allotment is made to the three bidders.

The yield is calculated as

$$\text{Yield} = \left[ \frac{\text{Face Value}}{\text{Price}} - 1 \right] \times \frac{365}{\text{Days to Maturity}}$$

**Weighted Average Yield for the Issue**

Name of the Bidder	Price (i)	Amount (ii)	Proportion (iii)	Wt. Price (i x iii = iv)	Yield (v)	Wt. Yield (vi)
A	98.90	40	0.08	7.904	0.0446	0.00356
	98.80	60	0.12	11.856	0.0487	0.00584
	98.50	25	0.05	4.925	0.0610	0.00305
B	98.95	50	0.10	9.895	0.0425	0.00425
	98.75	50	0.10	9.875	0.0507	0.05078
	98.50	25	0.05	4.925	0.0610	0.00305
C	98.80	80	0.16	15.808	0.0487	0.00779
	98.65	120	0.24	23.676	0.0548	0.00131
	98.50	50	0.10	19.700	0.0610	0.00610
			1.00	98.722		0.051876

The non-competitive bidders would have to pay weighted average cut-off price which is obtained by taking the average of prices, which works out to be 98.72 in this particular issue. The non-competitive bidders would get an yield of 5.1876 percent.

Let us calculate the yield based on the above inputs for each of the bidders:

a. **Average Yield for A:**

$$(98.90 \times 40/125 + 98.80 \times 60/125 + 98.50 \times 25/125) = 98.77$$

$$\text{Yield} = \left[ \frac{100}{98.77} - 1 \right] \times \frac{365}{91} = 4.99\%$$

or

$$(0.0446 \times 40/125 + 0.0487 \times 60/125 + 0.0610 \times 25/125) = 4.984\%$$

b. **Average Yield for B:**

$$(98.95 \times 50/125 + 98.75 \times 50/125 + 98.50 \times 25/125) = 98.78$$

$$\text{Yield} = \left[ \frac{100}{98.75} - 1 \right] \times \frac{365}{91} = 4.95\%$$

$$(0.0425 \times 50/125 + 0.0507 \times 50/125 + 0.0610 \times 25/125) = 4.948\%$$

c. **Average Yield for C:**

$$(98.80 \times 80/250 + 98.65 \times 120/250 + 98.50 \times 50/250) = 98.668$$

$$\text{Yield} = \left[ \frac{100}{98.668} - 1 \right] \times \frac{365}{91} = 5.414\%$$

$$\text{Or } (0.0487 \times 80/250 + 0.0548 \times 120/250 + 0.0610 \times 50/250) = 5.41\%$$

As per the RBI guidelines issued on November 6, 1998 the 91-day T-bills only would follow uniform price auction method, instead of multiple price auction method. In uniform price auction method, all successful bidders would pay a uniform cut-off price that would emerge in the course of auction. In this example, all the bidders would be paying a price of Rs.98.72 uniformly. This would avoid price discrimination among the successful competitive bidders.

## **Lesson 6**

# **Commercial Paper (CP)**

**After reading this lesson, you will be conversant with:**

- Features of Commercial Paper
- Issuing Procedure
- Evolution and Development of Commercial Paper Market
- Commercial Papers Abroad
- Innovations of Commercial Paper

The money market is relevant to the corporate world in terms of short-term surplus or deficit of funds, which it experiences. If a corporate has a short-term surplus, it invests and if it faces deficit, then it borrows. A corporate needs short-term funds to manage its working capital requirements, pay taxes and meet other short-term commitments. These needs are fulfilled, usually, by obtaining short-term finance from banks, trade credit from creditors, loans from Inter Corporate Deposits (ICDs) market, bill discounting and factoring, etc. Corporates are always in search of new instruments to raise funds that provide them with an optimal combination of low cost, flexible and desired maturity. One such instrument allowed by RBI in the early '90s is the Commercial Paper.

## **Definition**

Commercial Paper (CP) is a short-term, unsecured usance promissory note issued at a discount to face value by well-known or reputed companies, who carry a high credit rating and have a strong financial background. It is an unsecured obligation issued by a bank or a corporation to finance its short-term credit requirements like accounts receivable and inventory. In other words, the Commercial Paper is an unsecured, short-term loan issued by a corporation typically to finance accounts receivable and inventories and it is usually issued at a discount reflecting the prevailing market interest rates.

## **Participants**

### **ISSUERS**

Any private sector company, public sector unit, non-banking company, Primary Dealers (PD), Satellite Dealers (SDs), etc., can raise funds through the Commercial Paper. But, the company has to satisfy the eligibility criteria prescribed by RBI as discussed later. The conditions laid by RBI restrict the entry of issuers into the CP market.

### **INVESTORS**

CPs are generally open to all investors – individuals, banks, corporates and also Non-Resident Indians (NRIs). But, NRIs can only invest on a non-repatriable and non-transferable basis. SEBI has permitted Foreign Institutional Investors (FIIs) also to invest in corporate debt instruments like CPs. FIIs were allowed to invest their short-term funds in such instruments too. Within a ceiling of the \$1.5 billion of the total FIIs were inflows for debt funds set down by the RBI.

Though the market is open to the above segments, usually, banks, large corporate bodies, public sector units with investible funds function in the market.

### **FEATURES**

Commercial Paper favors both borrowers and investors. It is considered as an optimal combination of liquidity and returns in the short-term market. To borrowers, it implies low cost of funds, and to investors it implies liquidity, marketability and returns.

- Commercial paper does not originate from a specific self-liquidating transaction like normal commercial bills, which generally arise out of specific trade transactions.
- CPs are backed by the liquidity and earning power of the issuer, but are not backed by any assets, and hence they are unsecured.
- The CP market provides the borrower (i.e., highly rated corporates) a cheaper source of funds with less paperwork/formalities when compared to bank finance. Corporates prefer this mode of finance as they can determine the cost and maturity. Similarly, CP involves less paperwork/formalities, as it is an unsecured liability, unlike bank finance, which is secured.
- Investors prefer to invest in CPs due to high liquidity, varied maturity and high yield (when compared to bank deposits). The liquidity is high because it can be transferred by endorsement and delivery.



## **MATURITY**

Commercial paper has a minimum maturity period of 15 days and a maximum of one year. Unlike CD, the issuer can buy-back his CP.

## **DENOMINATION AND SIZE**

CPs are issued in multiples of Rs.5 lakh and the minimum size of each issue is Rs.5 lakh. A single investor willing to enter this market needs to invest Rs.5 lakh as minimum investment.

## **ISSUE PRICE**

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The CPs are issued to the investors at a discount to the face value. The discount actually is the effective interest rate. The Issue Price is determined by the corporate issuing it in the following manner: Generally, the merchant banker/IPA (Issuing and Paying Agent) on behalf of the corporate client, approaches various investors and takes quotes, and expected amount of investment for the proposed CP for various maturities. After obtaining the quotes, the merchant banker and issuing company compile the data and arrive at an optimal discount rate with a feasible maturity date of the paper. While determining a discount rate, it considers factors such as – prevailing call money rates, Prime Lending Rate, T-bill rate, maturity of the paper and other relevant expenses (such as brokerages, rating agency fees, stamp duty, etc.). Once the issue price and maturity are decided, the IPA places the CP with the investors. The Issue Price is calculated as below:

$$P = \frac{F}{1 + \frac{(I \times N)}{100 \times 365}}$$

Where,

F = Face/Maturity Value

P = Issue Price of CP

I = Effective Interest p.a.

N = Usance Period (No. of days)

For example, a corporate issues a CP at an effective rate of 10.00% for 90 days. This is a discounted instrument and hence is actually issued at Rs.97.5936 per Rs.100. This means that the corporate gets Rs.97.5936 on issuance and has to redeem Rs.100, on the maturity date after 90 days. This is calculated as follows:

$$\text{Rs.}100 / (1 + 10.00\% \times 90/365) = \text{Rs.}97.5936$$

Interest is calculated on an actual/365-day year basis. Typically CPs are issued for periods of 15/30/45/60/90/120/270/360 days.

## **Factors affecting the Pricing**

CP being a short-term instrument, its primary and secondary market determination of the interest rate, i.e. the discount rate, depends upon conditions in short-term money market. The following are the principal factors in pricing the CPs.

**Interbank Call Rates:** Since call rates affect all the other short-term rates and banks are the most important investors in CPs, its pricing is affected very much by call rates. Also, as the lenders in the CP market are predominantly banks, call markets affect the CP market rate; lower call rates mean cash surplus. Banks thus view CPs as an alternative investment route.

**Competing Money Market Investment Products:** Interest rates on CPs are determined by the demand and supply factors in the money markets and the interest rate on the other competing money market instruments such as Certificates of Deposit, Commercial Bills, Short-term Forward Premia and Treasury Bills. The investments in CPs give comparably higher yields than those obtained in bank deposits of similar maturities.

**Liquidity:** Pricing and availability of funds under CPs are determined by the liquidity amongst banks and mutual funds, which are the principal investors.

**Credit Rating:** Most of the secondary market investment in CPs are done only in P1+ (highest CRISIL rating for short-term credit instruments). However, two P1+ companies may not attract the same rate, due to relative credit perception by the public and also, to an extent, the company's long-term credit ratings.

### Rating Notches for CPs

The 5-notch scale on which the credit rating agencies rate the CPs is given below:

- P1:** The degree of safety regarding timely payment is strong.
- P2:** The degree of safety is strong, but relatively lower than that of P1.
- P3:** An adequate degree of safety regarding timely payment; but the adverse affects due to the unforeseen circumstances will have more impact on the instrument than on the instrument rated as P1 and P2.
- P4:** The degree of safety regarding timely payment on the instrument is minimal and the effect of unfavorable conditions may be adverse.
- P5:** The instrument is expected to be in default on maturity or is in default.

By adding "+" and "-" symbols after the rating, it is further fine-tuned.

### Types of Papers

Commercial paper can be issued either directly or through a dealer. If the company issues the paper directly to the investors without dealing with an intermediary, it is referred to as direct paper. The companies going for direct paper will announce the current rates of CPs with various maturities so that the investors can choose the CPs based on the requirements. If a CP is issued by an intermediary (i.e., dealer/merchant banker) on behalf of its corporate client, it is known as dealer paper. The role of dealer in the CP market is to arrange for the private placement of the instrument. Generally, dealers also play advisory roles in timing the issue, determining discount rate and appropriate maturity period.

In India, the CPs are usually placed with the investors with the help of Issuing and Paying Agents. Market making in CPs has not reached the desirable levels. However, it is possible for any dealer to pick up the entire issue of CP of a company and then sell it in the market.

### ISSUING PROCEDURE

A corporate planning to issue CP requires to fulfill the eligibility criteria prescribed by RBI, then it needs to select a merchant banker and an Issuing and Paying Agent (IPA) (mandatory) and obtain a resolution from the company board to issue the commercial paper. After the resolution is passed, the company needs to get the CP credit rated by one of the approved credit rating agencies like CRISIL/ICRA/CARE/DCR, as prescribed by RBI. The company then has to approach its principal banker with a proposal (in the form of schedule-II given in Appendix II) along with the credit rating certificate for approval. The banker will, then, scrutinize the same and verify whether all conditions stipulated by RBI are met, and forward the application to the RBI for intimation (as the approval from RBI is no longer required).

On the other hand, the Merchant Banker or Issuing and Paying Agent (at times, company appoints IPA as a dealer) will locate the clients and get their quotes for different maturity periods as discussed above. Then the company and merchant banker/IPA decide the maturity, discount rate and the quantum of the issue. A company can opt for various maturity periods within the stipulated span, i.e., if a company plans to issue a CP for a span of 6 months, it can raise the money in tranches with different maturity periods of either 1 month, 2 months or 3 months, etc. based on the market quotes. If a company decides on a 2 month CP, it can raise the finance within a period of 2 weeks from the date on which the proposal is taken on record by the bank and it can issue the paper on a single day or in parts on different dates (but the whole issue should be redeemed on the same date).

The issue proposed should be completed within a span of 2 weeks and the company should intimate the banker to reduce the working capital limit to the extent of the amount raised. The company should pay the applicable stamp duty based on the maturity. After the issue is completed, within 3 days, the company needs to intimate the RBI the actual amount raised through CPs. The CP is not allowed to be underwritten. On maturity the holder of the CP presents the instrument to the paying agent, who arranges the payment. The agent will receive the amount and brokerage for the services provided (the brokerage fee charged by them is given below). No grace period is allowed for the repayment of the paper. If the maturity date falls on a holiday, the issuer is supposed to make the payment on the following working day. Every issue of CP is treated as a fresh issue (including roll over) and the issuer needs to intimate RBI while doing so.

### The Role of Issuing and Paying Agent

Generally, banks act as Issuing and Paying Agents (IPA). The role of IPA becomes mandatory while issuing CP. Apart from the above discussed functions, it holds CP notes, safeguards on behalf of the issuer, delivers the notes to the investor and arranges for redemption on behalf of the corporate client.

### Issue Expenses

The issue expenses of the CP include payment of stamp duty, brokers' fees or issuing and paying agents' fees, rating agencies fees and other expenses like charges levied by the banks for providing redemption facilities, etc. All the expenses related to the issue of CPs are borne by the issuers. The brokerage varies depending on the size of the issue and the maximum prescribed brokerage is as follows:

Fees charged (% on the issue amount)	Period of CP
0.025	3 months
0.050	6 months
0.100	6 months and above

The other charges borne are as follows:

### Stamp Duty on Commercial Paper

The stamp duty payable by the issuer on CP is based on the period for which the CP/UPN is issued.

There is certain concession in stamp duty applicable under Art.12 of Indian Stamp Act, 1899 available to certain class of investors (Commercial and Co-op Banks and specified FIs like IFCI, IDBI, SFCs) as per Central Government Notification dt: 16.05.1976.

Where an eligible class of investor is the 1st subscriber, then the applicable stamp duty structure is given below.

- If the CP is issued for a period up to 3 months – Rs.0.50 per Rs.1,000 or each part thereof of (Maturity Value).
- If the CP is for above 3 months up to 6 months – Rs.1.00 per Rs.1,000 or each part thereof (Maturity Value).
- If the CP is for above 6 months up to 9 months – Rs.1.50 per Rs.1,000 or each part thereof (Maturity Value).
- If the CP is for above 9 months up to 12 months – Rs.2.00 per Rs.1,000 or each part thereof (Maturity Value).
- In other class of investors stamp duty applicable would be Rs.1.25, Rs.2.50, Rs.3.75, and Rs.5.00 per Rs.1,000 (MV) for respective slabs stated above.

Every renewal is considered as a fresh issue and it involves expenses. Hence, a company needs to optimize between the interest cost and issue cost while deciding the terms of maturity, i.e., if an issue is raised for a long period, the company may have to pay more interest and if it raises for a short period, it has to incur issue expenses each time. Hence, a company must consider interest paid and issue expenses borne while determining the duration of CP.

## Underwriting and Standby Facility

From the beginning, the RBI did not permit underwriting of CPs. However, it allowed banks to sanction standby arrangement to the company issuing a CP. As the amount raised by CP is utilized to reduce the working capital finance, a company may experience a liquidity crunch when the CP matures. In such instances, banks provide standby facility to redeem the sum at maturity. When such a facility is provided by the banks the instrument is secured indirectly. The real risk associated with corporates was not assessed properly, as the banks indirectly assured repayment of the CPs to the investors. Hence, RBI attempted to rectify this anomaly by abolishing standby facility in October, 1994, to make the CP market more realistic.

## Secondary Market and Trading

The transactions in secondary market take place in lots of 5 lakh each. Banks trade in secondary market as CPs are generally placed with them. The secondary market transactions do not attract stamp duty. The CP being a discount paper does not attract income tax, but the trading income, which is the difference between the cost of acquisition and resale value, attracts income tax. There are very few market makers who offer two-way quotes in Commercial Paper. For the intermediary market deals, the brokerage charged is in the range of 0.05%-0.20%.

## Settlement

The transfer is done through endorsement and delivery. On maturity the instrument is presented to the paying agent for receiving payments. The company cannot have any grace period and it is liable to make payment whenever the paper matures. As there is no roll over, every issue of commercial paper including renewal is treated as a new/fresh issue.

## Taxation

**For the Corporate:** The discount is treated as an interest expense, deductible for tax purpose.

**For the Investor:** *Profit/loss on sale of investment* – Income is taxed under the head “Profits and Losses from Business and Profession”. Losses are allowed as business losses for banks and investment companies. For, corporates that invest in other company CPs, this would amount to other Income/Interest Income.

### Box 1: Tax Deducted at Source

The Central Board of Direct Taxes vide Circular No.647 dated 22nd March, 1993 clarified that the difference between the issue price and the face value of the Commercial Papers and the Certificates of Deposits is to be treated as ‘discount allowed’ and not as ‘interest paid’. Hence, the provisions of the Income Tax Act relating to deduction of tax at source are not applicable in the case of transactions in these two instruments.

Source: [www.incometaxindia.gov.in](http://www.incometaxindia.gov.in)

## ADVANTAGES OF COMMERCIAL PAPER

The paper work involved in raising the funds through the Commercial Paper is very less because more funds can be procured without any underlying transaction. The flexibility provided by the instrument enables the company to raise additional funds especially when the market is favorable. The cost of funds for the company is reduced because it can raise 75% of its working capital through the Commercial Paper issue, at an interest rate lower than the interest rate on borrowings from the banks. In the cash credit system of lending, the borrower can reduce the outstanding amount as and when he gets surplus funds. This results in a reduced effective interest cost.

The companies, which borrow funds through the issue of CP, can take advantage of a situation by following the money market rates. This is because of the administrative lag in aligning the bank’s lending rates with the overall interest

rates. The company's image will be improved, casting a positive effect on the long-term borrowing program of the company. The level of access to the national by banks gives CP market is considered as a key factor to accept the issues in the international market.

From the investor's point of view, the CPs yield relatively higher returns than a similar maturity bank deposit. Though these securities are unsecured, the standby facility its holders confidence to get the return on the due dates. The holders can get quick payments from the company's banker on its behalf as soon as the permissible working capital limit is achieved.

## **EVOLUTION AND DEVELOPMENT OF COMMERCIAL PAPER MARKET**

The concept of raising funds through commercial paper is new to Indian corporates. The introduction of CPs is a result of the suggestions of the Working Group on Money Market in 1987. The working group was of the opinion that the CP market had the advantage of giving high-rated corporate borrowers cheaper funds than they could obtain from banks, while providing the investors higher yields than they could obtain from the banking system.

In 1989, the RBI announced its decision to introduce CPs. It was launched "with a view to enable highly rated corporate borrowers to diversify their sources of short-term borrowings and also provide an additional instrument to investors", by which certain categories of borrowers could issue CPs in the Indian Money Market. It was also allowed because the RBI desired to discourage the practice of lending in the Inter Corporate Deposit (ICD) market. As ICDs were unsecured and the transactions were not transparent, the RBI felt that CPs may serve as a good substitute for such funds. Initially, RBI issued guidelines on issue of CPs in January, 1990, and these guidelines later were revised many times to facilitate the growth of the market.

It was indicated in April, 2000 policy statement that the current guidelines to issue the CPs would be modified in the light of recommendations made by an Internal Group. Accordingly, a draft of the revised guidelines as also the Report of the Internal Group was circulated in July, 2000. Taking into account the suggestions received from the participants, the guidelines have now been finalized.

The new guidelines are expected to provide considerable flexibility to participants and add depth and vibrancy to the CP market while at the same time ensuring prudential safeguards and transparency. In particular, the guidelines will enable companies in the services sector to more easily meet their short-term working capital needs. At the same time, banks and FIs will have the flexibility to fix working capital limits duly taking into account the resource pattern of companies' finances including CPs. The changes in the guidelines originally issued are summarized hereunder.

Earlier, a company was eligible to issue CP only if it had a tangible net worth of Rs.10 crore as per the latest balance sheet. In April, '90, it was reduced to Rs.5 crore and, further to Rs.4 crore in October, '93.

Similarly, the working capital requirement limit, which was Rs.25 crore, was reduced to Rs.15 crore and later to Rs.4 crore in October '93. The minimum credit rating required was A1 and P1 and the same was reduced to A2 and P2 in October '93. The amount a company was allowed to raise through CP was limited to 20 percent of its Maximum Permissible Bank Finance (MPBF) and the same was raised to 75 percent in October, '93. Since the concept of MPBF was abolished recently, now a corporate can raise up to 100 percent of its fund-based working capital (without increasing its overall short-term credit). The RBI initially stipulated that the company should be listed on one or more of the stock exchanges. Later, it permitted even unlisted companies to issue CPs.

According to the initial guidelines, the maturity period of CP was a minimum of 3 months and a maximum of 6 months from the date of issue. The maximum limit was extended to 1 year in October, 1993 and the minimum was reduced to 30 days in 1997. However, in later guidelines, the minimum was further reduced to 15 days. Earlier, the denomination was Rs.10 lakh and the minimum size of an issue to a single investor was Rs.50 lakh (face value). In October, 1993 the minimum amount for a single investor was reduced to Rs.25 lakh in multiples of Rs.5 lakh. At present, it is Rs.5 lakh in multiples of Rs.5 lakh. Earlier, the company which was listed on a stock exchange was eligible to issue a CP; later this condition was relaxed. Similarly, the company willing to raise CP had to take prior approval from the RBI which is not essential now. The standby facility which was allowed to facilitate redemption has now been abolished to activate the market. Though the above conditions were relaxed/modified for the growth of CPs, the growth was not as appreciable as expected. The RBI had taken further steps to activate the market for CPs as there were hardly any market makers offering two-way quotes in CPs. The Discount and Finance House of India (DFHI) was expected to be a market maker by giving two-way quotes. The RBI permitted the Primary Dealers (PDs) to raise the funds for their operations by issuing CPs hoping that this would, in turn, enable the PDs to access greater volumes of funds thereby enhancing the level of activity in the secondary market.

### Market Potential and Interest Rates of Commercial Paper

The following table presents an overview of the outstanding amounts and the effective interest rates for CPs in the years from 1999 to February 2002. It can be observed that the size of the market is very small. Also, there were many inter year and intra year fluctuations on the amount of CPs.

Table 1: Issue of Commercial Paper\* By Companies

(Amount in Rs. crore)								
Fortnight ended	Total Amount Outstanding	Rate of Interest (percent) @	Fortnight ended	Total Amount Outstanding	Rate of Interest (percent) @	Fortnight ended	Total Amount Outstanding	Rate of Interest (percent) @
1999-00			2000-01			2001-02		
1	2	3	4	5	6	7	8	9
Apr. 15	5,028.55	9.15 - 12.00	Apr. 15	5,633.50	9.58 - 12.25	Apr. 15	6,294.75	9.30 - 12.00
	5,833.05	9.10 - 12.75	30	5,606.20	9.35 - 11.00	30	7,033.75	9.10 - 11.50
May 15	6,589.84	9.33 - 12.50	May 15	6,598.70	9.00 - 11.50	May 15	6,981.50	9.10 - 10.75
	6,898.84	9.00 - 12.50	31	7,232.20	8.20 - 12.50	31	7,313.50	8.80 - 11.03
Jun. 15	7,363.34	9.00 - 12.50	Jun. 15	7,484.70	8.90 - 11.50	Jun. 15	7,984.50	8.65 - 10.25
	7,679.34	9.00 - 12.38	30	7,626.70	9.25 - 11.75	30	8,566.00	8.49 - 10.40
Jul. 15	6,311.34	9.00 - 12.00	Jul. 15	7,126.70	9.35 - 11.85	Jul. 15	8,019.30	8.19 - 9.80
	7,239.09	9.00 - 12.10	31	7,324.70	9.50 - 12.25	31	7,274.85	8.01 - 11.50
Aug. 15	7,418.54	9.05 - 12.25	Aug. 15	6,405.70	9.25 - 12.00	Aug. 15	7,270.85	7.90 - 10.35
	7,677.54	9.10 - 12.50	31	5,671.70	9.71 - 12.80	31	6,982.40	7.75 - 13.00
Sep. 15	7,292.54	9.61 - 12.70	Sep. 15	5,577.20	10.05 - 12.75	Sep. 15	7,012.90	7.55 - 9.85
	7,658.04	10.00 - 13.00	30	5,931.20	11.24 - 12.75	30	7,805.40	7.40 - 10.00
Oct. 15	6,688.84	9.91 - 11.75	Oct. 15	5,573.50	10.30 - 12.50	Oct. 15	8,659.75	7.73 - 10.25
	6,160.70	10.20 - 12.50	31	5,633.20	10.14 - 13.50	31	8,806.50	7.50 - 11.80
Nov. 15	6,153.20	9.40 - 12.50	Nov. 15	6,317.20	10.45 - 12.00	Nov. 15	8,912.55	7.48 - 9.80
	6,523.70	10.00 - 12.80	30	7,364.00	10.00 - 12.07	30	8,506.55	7.48 - 9.35
Dec. 15	7,564.70	10.00 - 12.40	Dec. 15	8,040.40	9.93 - 13.00	Dec. 15	8,610.20	7.33 - 9.81
	7,803.20	9.90 - 12.27	31	8,342.90	9.75 - 12.25	31	8,383.60	7.20 - 11.65
Jan. 15	7,747.00	9.05 - 11.65	Jan. 15	7,796.10	10.00 - 11.98	Jan. 15	8,644.45	7.40 - 9.75
	7,814.00	9.00 - 13.00	31	7,188.10	10.04 - 11.50	31	8,822.40	7.35 - 9.80
Feb. 15	7,693.20	9.25 - 12.05	Feb. 15	7,295.60	10.05 - 11.40	Feb. 15	8,494.40	7.10 - 9.81
	7,216.00	9.20 - 11.00	28	7,246.35	9.15 - 11.15	28	8,401.85	7.20 - 10.00
Mar. 15	6,436.20	9.85 - 12.25	Mar. 15	6,990.45	9.25 - 11.50			
	5,662.70	10.00 - 12.00	31	5,846.45	8.75 - 11.25			

\* : Issued at face value by companies.

@ : Typical effective discount rate range per annum on issues during the fortnight.

Source: RBI, Bulletin April 2002

With stable and comfortable market conditions in the first quarter of 2001-02, there was an increase in the outstanding amount of Commercial Paper (CP) from Rs.6,295 crore as on April 15, 2001 to Rs.8,566 crore as on June 30, 2001. There was only a marginal decline in the outstanding amount of CPs during the first fortnight of May, 2001. The average discount rate decreased from 9.98 percent to 8.88 percent during the first quarter of 2001-02. As the introduction of norms relating CP issuance in dematerialized form became effective only from June 30, 2001, the CP market was subdued. The outstanding amount of CPs declined to Rs.6,982 crore as on August 31, 2001. As the market adjusted to the new dematerialized issuance norms, the total outstanding amount of CPs generally showed an increasing trend and aggregated Rs.7,224 crore as on March 31, 2002. The average discount rate also declined from 8.51 per cent as on August 31, 2001 to 8.12 per cent as on March 31, 2002.

The CP market showed a downward trend after the introduction of norms relating CP issuance in dematerialized became effective from June 30, 2001. The outstanding amount of CPs declined to Rs.6,982 crore as on August 31, 2001. As the market adjusted to the new dematerialized issuance norms, the total outstanding amount of CPs generally showed an increasing trend and aggregated Rs.7,224 crore as on March 31, 2002. The average discount rate also declined from 8.51 percent as on August 31, 2001 to 8.12 percent as on March 31, 2002.

### **Reasons for Underdevelopment**

The experts attribute the following reasons for underdevelopment:

- Restricted entry of corporates into this market. The stringent conditions laid down by the RBI have made entry of good but small companies difficult.
- A company is prompted to issue a CP if the cost of funds is lower than the PLR of the banks, which is usually the rate the top class companies will be obtaining. Since the cost of CP includes rating charges, stamp duty, IPAs' fee in addition, to the discount, the effective cost should be lower than the PLR. Otherwise, it will not be prudent for a corporate to issue CP. All these costs have to be incurred each time a company issues a CP thus increasing the effective cost. Hence, a company may not be able to come out with a CP issue if the difference in the effective cost and PLR is marginal.
- The minimum size of investment for an individual investor is too high, there are no tax benefits. Hence, the individuals and other small investors are away from this market.

### **Scheduled Commercial Bank's Investments in Commercial Papers**

The outstanding amounts of scheduled commercial banks and their investments in the commercial paper, bonds, debentures, shares, etc. are given in the following table. The outstanding amount as on March 27, 1998 was Rs.2,443 crore and Rs.9,022 crore as on January, 24, 2002. When compared with the investments in other instruments like bonds – debentures by private and public sector – the investment in the commercial paper is very less.

### **Future Outlook**

The RBI is constantly watching the growth of the CP market, and it is modifying/relaxing the guidelines for the enhancement of the same. While doing so, RBI can consider the following measures to facilitate the growth of the market:

- Relax stringent conditions to reduce the overall cost of a CP. For example, the rating fees charged by rating agencies is relatively high, in spite of which RBI insists upon a fresh rating (less than 2 months old) every time a CP is issued; this in turn pushes up the cost of issue to the issuer.
- Banks were earlier permitted to sanction standby facility to the companies issuing CPs so that upon redemption the working capital limits would be automatically restored. While RBI disallowed sanction of standby facility, it

has not delinked the amount to be raised from fund-based working capital limits. As the concept of MPBF has also been abolished, the limit to raise funds under CP may be delinked from the fund-based working capital limits.

- The validity of the credit rating may also be extended beyond two months.
- If the CP is allowed to be underwritten, it can facilitate more corporates to issue CPs thereby widening the market.
- The scope to develop the CP market is high in view of the flexibility a corporate enjoys and the liquidity available in the system.

**Box 2: Commercialization of Commercial Paper**

There are no hard and fast rules regarding the means and methods of finance for a corporate; all are meant to keep the wheels of the industry moving. However, there are established usages of a means of finance and any remarkable deviation from the erstwhile norms merits discussion.

As we all know, a corporate gets working capital limits sanctioned by his banker or consortium of bankers and draws credit as and when required. The cost of this cash credit or overdraft is the bank's PLR at the minimum or anything over and above the PLR, depending on the credit rating, fundamentals and negotiating powers of the corporate. The PLR as of now is say, 11.5 percent. *Vis-à-vis* CC/OD, the cost of a CP is much lower, ranging between 7.40 to 9.75 percent. It makes perfect commercial sense to raise money through CPs, saving approximately 4 percentage points in cost of funds.

Though as a matter of policy CPs are not part of working capital limits, very few corporates get the facility of standalone CPs. According to guidelines, a CP can be issued as a 'standalone' product and banks have the flexibility to fix working capital limits taking into account the resource pattern of the company's financing including CPs. However, from the issuer's perspective as well, it is better to have a fallback, as market conditions may turn averse at the time of maturity of the CP. As a matter of trade usage, the investor, particularly the subsequent investor, needs the comfort of fallback on the working capital limits. Optionally, banks may provide standby credit facility, for which they are entitled to charge fees; but corporates would not like to increase the cost of funds.

Many issuers issue CPs 'perpetually', i.e. with a revolving facility at maturity. This way, through a short-term instrument, the corporate gets access to long-term funds. If the existing investor is not interested in re-investing, the corporate can get another investor to continue with it. There is a typical set of investors: banks, mutual funds and financial institutions, who invest in CPs. Even if there is a problem in negotiating with the existing or prospective investor, it is a matter of a few days only. The corporate can resort to CC/OD during the interlude. The higher cost of CC/OD would be incurred only for a few days during the negligible period. In this fashion, short-term funds can be used for long-term purposes. Conventionally, for project financing, a corporate would approach a term-lending institution or bank, which would entail a lot of paraphernalia and higher cost.

It is a win-win situation. For the company, it means lower cost of funds. Even if the savings is not 4 percentage points as discussed above, it is substantial. In this age of competition, it renders the bank able to keep the corporate within the consortium. Though it leads to a deliberate asset-liability mismatch, by funding long-term projects through short-term means, the objectives of a corporate are different from those of a bank; the basic objective of a business enterprise is to produce goods and services in the most efficient manner with resources at the lowest cost. In the bargain, the market for CPs is getting expanded; which is beneficial both to the issuer as well as to the investor.



The data published by RBI shows a major development in the outstanding CP amount. The rise in volume of CP issuances can be traced to the profile of investors, apart from the advantages discussed above. Nowadays, the major chunk of inflows in mutual funds is in liquid/money market schemes, income schemes and gilt schemes. A major avenue of investment for mutual funds is commercial papers, apart from call and call-linked instruments, and corporates would be happy to oblige by supplying papers, thereby saving cost vis-à-vis regular working capital. Banks and financial institutions are happy to invest in CPs even at a lower rate, as there is a dearth of good quality borrowers and it is important to keep them within the consortium. Of late, insurance companies, i.e. LIC and GIC, who are sitting on surplus cash, are investing extensively in CPs.

Source: [www.debttonnetindia.com](http://www.debttonnetindia.com)

## **COMMERCIAL PAPERS IN OTHER COUNTRIES**

The concept of raising money through Commercial Papers has been known to the US markets since the 18th century. Other nations came to know of it only in the earlier part of the 19th century. The US firms started selling open market paper as a substitute to the customary bank loan that was required for working capital.

Commercial Papers (CPs) are defined as short-term, unsecured usance promissory notes issued at a discount to face value with fixed maturity by well-known companies that are financially strong and carry high credit ratings. They are referred by different names such as Industrial Paper, Finance Paper and Corporate Paper depending on the nature of the issuing firm.

### **Issuers and Buyers**

Commercial paper is the second largest money market instrument in the US, after Repos, surpassing T-bills, with a total value exceeding \$1.4 trillion, by the end of 1999. American commercial paper is rated by one or more credit rating agencies and as such the credit risk on it is perceived to be low, but existent. The liquidity of the instrument is also very low. The CPs are generally issued by the public utilities, bank holding companies (corporations organized to acquire and hold the stock of one or more banks), insurance companies, transportation companies, and finance companies. Banks, liquid business concerns, insurance companies, state and local governments and non-banking financial institutions mostly buy CPs.

By the end of 1998, the investors in commercial paper were

Investment Companies	47%
Insurance Companies	11%
Cities, State Governments and Municipal Boards	8%
Banks	15%
Companies	3%
Others	16%
Total	<u>100%</u>

### **PURPOSE**

The funds raised by means of CPs by corporates are used for current transactions – such as purchase of inventories, payment of taxes, meeting payrolls and to meet other short-term rather than long-term obligations.

### **FEATURES**

- CPs are regarded as highly safe, liquid and quality instruments for investment in private sector.
- They are negotiable by endorsement and delivery.

- They are generally issued in multiples of \$1000 and in denominations designed to meet the needs of the buyer.
- They are normally issued in a bearer form at a discount to face value. But, the issues of CPs on a fixed interest basis are also seen in the market.
- CPs are unsecured; and they are backed by the general credit standing of the issuing companies and by the lines of credit they might be in a position to obtain from banks.
- CPs are considered to be more flexible in terms of maturity, i.e. they can be tailored to the user requirements. The maturity period varies from 1 to 270 days; but, it should not exceed more than 270 days.

## **TYPES OF COMMERCIAL PAPER**

There are two major types of commercial paper – direct paper and dealer paper. The direct paper is issued by large finance companies and bank holding companies deal directly with the investor rather than use a dealer as an intermediary.

Though the issuers of direct paper do not have to pay any dealers’ commission, these companies must operate a marketing division to maintain constant interaction with active investors. And also these companies need to pay fees to banks for supporting lines of credit, to the rating agencies and to agents (i.e. bank trust departments). Hence, this paper must be sold in large volumes to cover the substantial costs of distribution and marketing.

The dealer paper is issued by dealers on behalf of their corporate customers. It is mainly issued by non-financial companies and finance companies. The issuing company sells the paper directly to the dealer at a discount and commission. The dealer will resell it at the highest possible price in the market. Companies using dealers to place their paper are generally smaller, less frequent borrowers than issuers of direct paper. An open rate method is followed by which the company receives some money in advance but the balance depends on the performance of the issue in the open market.

### **Rate of Return**

The rate of return on a commercial paper is computed by using the following formula in a secondary market transaction:

$$D = \frac{\text{Par Value} - \text{Purchase Price}}{\text{Par Value}} \times \frac{360}{\text{Days to Maturity}}$$

This could be well understood by the following example.

#### **Illustration 1**

Mr. A purchased a commercial paper of Maxwell Inc., issued for 3 months in the market for \$976,000. The company issued CP with a face value of \$1,000,000. Determine the rate of return which A earns.

$$\begin{aligned} DR &= \frac{\text{Par Value} - \text{Purchase Price}}{\text{Par Value}} \times \frac{360}{\text{Days to Maturity}} \\ &= \frac{1,000,000 - 976,000}{1,000,000} \times \frac{360}{180} = 0.048 \text{ or } 4.8\% \end{aligned}$$

### **Commercial Papers in UK**

Various aspects relating to the issue, regulatory, accounting and tax matters are provided in the London Market Guidelines on commercial paper issued by the BBA (British Bankers Association) in April, 2000. Some aspects of these regulations were modified when the FSMA (Financial Services and Markets Act, 2000) came into force in December, 2001.

In UK the Commercial Paper (CP) is regarded as a flexible short-term instrument through which a cost-effective funding of requirements can be done. The markets for Euro Commercial Paper (ECP) emerged in the early 1980s as a derivative of underwritten Note Issuance Facilities (NIFs), which resulted in the development of uncommitted US Dollar based ECP programs. One important feature of ECP was that it did not meet the terms of Securities Exchange Commission in the US and hence could not be sold to US investors. Since then the ECP market is being transformed into the only truly multi-currency short-term market, encompassing a number of currencies, including Sterling, Swiss Francs, Japanese Yen and the Euro.

The London Market Guidelines for the Commercial Paper market issued by the BBA in April, 1999 altered the earlier CP issuance guidelines made in 1997. These guidelines stood as the standard practice in Europe's most active CP market.

## **INNOVATIONS OF COMMERCIAL PAPER**

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Master note is a new financial paper issued by finance companies to bank trust departments and other permanent money market investors. In an arranged agreement, the investing firm notifies the issuing company as to how much paper it will purchase on that particular day, and the issuing company in turn issues a paper on the maximum agreed amount. The interest on daily papers is pooled and taken by the investors during the current month.

Medium-term notes are unsecured obligations, papers with a maturity period of 9-10 months. These are issued by investment grade corporations at a fixed interest rate. These papers suit companies with substantial quantities of medium-term assets as they have longer maturities when compared to conventional CPs and IOUs. Asset-backed commercial paper gives credit at a lower interest rate to the corporates. This paper is nothing but, a pool of loans or credit receivables made into packages. These packages are issued in the form of a paper, and these loans or receivables are removed from the issuing companies' balance sheet and are placed in a Special-Purpose Entity (SPE). SPE issues the commercial paper to cover discount price and uses the proceeds for purchase of the receivables. The issuing customer usually services the underlying receivables, collects interest and principal payments and passes the funds to SPE. In the process a bank is chosen to service the receivables supporting the paper issue. CPs are likely to have good future so long as they can be tailored to meet the needs of both the buyers and issuers in terms of maturity, liquidity and returns.

### **Commercial Paper – Latest Developments**

- i. Preference for Dematerialized Holding – As part of the new guidelines to issue CPs released in October, 2000, banks, FIs, PDs and SDs were advised to invest and hold CP only in dematerialized form, as soon as arrangements for such dematerialization are put in place.

As the existing arrangements for dematerialized holding for CP are now considered adequate and satisfactory, banks, FIs, PDs are permitted to make fresh investments and hold CP only in dematerialized form. Similarly they are also permitted to make fresh investments and hold bonds, debentures, privately placed or otherwise only in demat form. As regards the equity instruments they are permitted to be held by the above mentioned institutions only in dematerialized form, from the date notified by SEBI.

- ii. Documentation and Procedure – As part of the new guidelines on issue of CP released in October, 2000, FIMMDA was entrusted with the task of prescribing standard procedures and documentations that are to be followed by the participants, in consonance with the international best practices. In this regard, FIMMDA has been in dialogue with RBI and in the process of devising such standard procedures and documentation. Before finalization, FIMMDA would circulate a draft of these guidelines among its members and other market participants.

## SUMMARY

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- Commercial Papers (CPs) are short-term unsecured usance promissory notes issued at a discount to face value by reputed corporates with high credit rating and strong financial background.
- CPs are open to individuals, corporates, NRIs and banks, but the NRIs can invest on non-repatriable/ non-refundable basis. FIIs have also been allowed to invest their short-term funds in CPs.
- The features of CPs are: They do not originate from specific trade transactions like commercial bills. They are unsecured, involve much less paper work and have very high liquidity.
- CPs have a minimum maturity of 15 days and a maximum maturity of 1 year. They are available in denomination of Rs.5 lakh and multiples of Rs.5 lakh and the minimum investment is Rs.5 lakh per investor.
- CPs can be direct paper if issued directly to the investors by the corporate or dealer paper if issued through an intermediary/merchant banker. CPs are usually placed with the investors by issuing and paying agents.
- Secondary market trading takes place in lots of Rs.5 lakh each usually by the banks. The transfer is done by endorsement and delivery.
- The main reasons for poor development of the CPs market are: restricted entry of corporates, tendency to issue CPs only if the total cost is lower than the PLR of banks, high minimum investment of individual investors and no tax benefits.
- In the US markets, CPs are defined as short-term, unsecured usance promissory notes issued at a discount to face value with fixed maturity by financially strong companies with high credit ratings.
- The main purpose of issuing CPs in the US is to finance current assets.
- The main features are: high liquidity and safety, high quality instruments negotiable by endorsement and delivery, issued in multiples of \$1,000 as bearer documents at a discount to the face value. They are unsecured by nature and tailored to the user requirement as far as maturity period is concerned.
- Two types of CPs exist in the US: direct paper (issued directly by the corporates and large banks) and dealer paper (issued by the dealers on behalf of their corporate clients).
- The innovations in the American CP market are: master note (financial paper issued by finance companies to bank trust departments with interest pooled by the investors), medium-term notes (unsecured obligation papers with maturity of 9-10 months issued by investment grade corporations at fixed rate) and asset-backed commercial papers (packages of pooled loans or credit receivables with lower rates of interest and placed with a special purpose entity).

## **Appendix 1**

### **Guidelines for Issue of Commercial Paper (CP)**

#### **INTRODUCTION**

Commercial Paper (CP) is an unsecured money market instrument issued in the form of a promissory note. CP, as a privately placed instrument, was introduced in India, in 1990 with a view to enable highly rated corporate borrowers to diversify their sources of short-term borrowings and to provide an additional instrument to investors. Subsequently, primary dealers and satellite dealers were also permitted to issue CP to enable them to meet their short-term funding requirements of their operations. Guidelines for issue of CP are presently governed by various directives issued by the Reserve Bank of India, as amended from time to time. In pursuance of the Statement on Monetary and Credit Policy for the Year 2000-2001, to keep pace with several developments in the financial market, it has been decided to modify the guidelines in the light of recommendations made by an Internal Group. Now, the Reserve Bank in exercise of the powers conferred by Sections 45J, 45K and 45L of the Reserve Bank of India Act, 1934 (2 of 1934) issues the following guidelines replacing all earlier directions/guidelines on the subject.

#### **Who can issue Commercial Paper (CP)**

Corporates, Primary Dealers (PDs) and Satellite Dealers (SDs), and the all-India Financial Institutions (FIs) that have been permitted to raise short-term resources under the umbrella limit fixed by Reserve Bank of India are eligible to issue CP.

A corporate would be eligible to issue CP provided –

- a. the tangible net worth of the company, as per the latest audited balance sheet, is not less than Rs.4 crore;
- b. company has been sanctioned working capital limit by bank/s or all-India financial institution/s; and
- c. the borrowal account of the company is classified as a Standard Asset by the financing bank/s/institution/s.

#### **Rating Requirement**

All eligible participants shall obtain the credit rating for issuance of Commercial Paper from either the Credit Rating Information Services of India Ltd. (CRISIL) or the Investment Information and Credit Rating Agency of India Ltd. (ICRA) or the Credit Analysis and Research Ltd. (CARE) or the FITCH Ratings India Pvt. Ltd. or such other Credit Rating Agency (CRA) as may be specified by the Reserve Bank of India from time to time, for the purpose. The minimum credit rating shall be P-2 of CRISIL or such equivalent rating by other agencies. The issuers shall ensure at the time of issuance of CP that the rating so obtained is current and has not fallen due for review.

#### **MATURITY**

CP can be issued for maturities between a minimum of 15 days and a maximum up to one year from the date of issue.

#### **DENOMINATIONS**

CP can be issued in denominations of Rs.5 lakh or multiples thereof. Amount invested by single investor should not be less than Rs.5 lakh (face value).

#### **Limits and the Amount of Issue of Commercial Paper**

CP can be issued as a “stand alone” product. The aggregate amount of CP from an issuer shall be within the limit as approved by its Board of Directors. Banks and FIs will, however, have the flexibility to fix working capital limits duly taking into account the resource pattern of companies’ financing including CPs.

An FI can issue CP within the overall umbrella limit fixed by the RBI i.e., issue of CP together with other instruments viz., term money borrowings, term deposits, certificates of deposit and inter-corporate deposits should not exceed 100 percent of its net owned funds, as per the latest audited balance sheet.

The total amount of CP proposed to be issued should be raised within a period of two weeks from the date on which the issuer opens the issue for subscription. CP may be issued on a single date or in parts on different dates provided that in the latter case, each CP shall have the same maturity date.

Every CP issue should be reported to the Chief General Manager, Industrial and Export Credit Department (IECD), Reserve Bank of India, Central Office, Mumbai through the Issuing and Paying Agent (IPA) within three days from the date of completion of the issue, incorporating details as per Schedule II.

Every issue of CP, including renewal, should be treated as a fresh issue.

**Who can act as an Issuing and Paying Agent (IPA)?**

Only a scheduled bank can act as an IPA for issuance of CP.

**Investment in Commercial Paper**

CP may be issued to and held by individuals, banking companies, other corporate bodies registered or incorporated in India and unincorporated bodies, Non-Resident Indians (NRIs) and Foreign Institutional Investors (FIIs). However, investment by FIIs would be within the limits set for their investments by Securities and Exchange Board of India (SEBI).

**Mode of Issuance**

CP can be issued either in the form of a promissory note (Schedule I) or in a dematerialized form through any of the depositories approved by and registered with SEBI. As regards the existing stock of CP, the same can continue to be held either in physical form or can be dematerialized, if both the issuer and the investor agree for the same.

CP will be issued at a discount to face value as may be determined by the issuer.

No issuer shall have the issue of Commercial Paper underwritten or co-accepted.

**Preference for Dematerialized Form**

While option is available to both issuers and subscribers, to issue/hold CP in dematerialized or physical form, issuers and subscribers are encouraged to prefer exclusive reliance on dematerialized form of issue/holding. Banks, Financial Institutions, PDs and SDs are advised to invest and hold CPs only in dematerialized form, as soon as arrangements for such dematerialization are put in place.

**Payment of Commercial Paper**

The initial investor in CP shall pay the discounted value of the CP by means of a crossed account payee cheque to the account of the issuer through IPA. On maturity of CP, when the CP is held in physical form, the holder of the CP shall present the instrument for payment to the issuer through the IPA. However, when the CP is held in demat form, the holder of the CP will have to get it redeemed through the depository and receive payment from the IPA.

**Standby Facility**

In view of CP being a 'stand alone' product, it would not be obligatory in any manner on the part of banks and FIs to provide standby facility to the issuers of CP. Banks and FIs would, however, have the flexibility to provide for a CP issue, credit enhancement by way of standby assistance/credit backstop facility, etc. based on their commercial judgment and as per terms prescribed by them. However, these should be within the prudential norms as applicable and subject to specific approval of the Board.

**Procedure for Issuance**

Every issuer must appoint an IPA for issuance of CP. The issuer should disclose to the potential investors its financial position as per the standard market practice. After the exchange of deal confirmation between the investor and the issuer,

issuing company shall issue physical certificates to the investor or arrange for crediting the CP to the investor's account with a depository. Investors shall be given a copy of IPA certificate to the effect that the issuer has a valid agreement with the IPA and documents are in order (Schedule III).

### **Role and Responsibilities**

The role and responsibilities of issuer, IPA and CRA are set out below.

a. **Issuer**

With the simplification in the procedures for CP issuance, issuers would now have more flexibility. Issuers would, however, have to ensure that the guidelines and procedures laid down for CP issuance are strictly adhered to.

b. **Issuing and Paying Agent (IPA)**

i. IPA would ensure that issuer has the minimum credit rating as stipulated by the RBI and amount mobilized through issuance of CP is within the quantum indicated by CRA for the specified rating.

ii. IPA has to verify all the documents submitted by the issuer viz., copy of board resolution, signatures of authorized executants (when CP in physical form) and issue a certificate that documents are in order. It should also certify that it has a valid agreement with the issuer (Schedule III).

iii. Original documents verified by the IPA should be held in the custody of IPA.

c. **Credit Rating Agency (CRA)**

i. Code of Conduct prescribed by the SEBI for CRAs for undertaking rating of capital market instruments shall be applicable to them (CRAs) for rating CP.

ii. Further, the credit rating agency would henceforth have the discretion to determine the validity period of the rating depending upon its perception about the strength of the issuer. Accordingly, CRA shall at the time of rating, clearly indicate the date when the rating is due for review.

iii. While the CRAs can decide the validity period of credit rating, they would also have to closely monitor the rating assigned to issuers vis-à-vis their track record at regular intervals and would be required to make its revised ratings public through its publications and website.

Fixed Income Money Market and Derivatives Association of India (FIMMDA), as a Self-Regulatory Organization (SRO) for the fixed income money market securities, may prescribe, for operational flexibility and smooth functioning of CP market, any standardized procedure and documentation to be followed by the participants, in consonance with the international best practices. Till such time, the procedures/documentations prescribed by IBA should be followed.

Violation of these guidelines will attract penalties prescribed in the Act by the RBI and may also include debarring from the CP market.

### **Non-applicability of Certain Other Directions**

Nothing contained in the Non-Banking Financial Companies Acceptance of Public Deposits (Reserve Bank) Directions, 1998 shall apply to any Non-Banking Financial Company (NBFC) insofar as it relates to acceptance of deposit by issuance of CP, in accordance with these Guidelines.

Definitions of certain terms used in the Guidelines are provided in Appendix 2.

## Appendix 2

### Definitions

In these guidelines, unless the context otherwise requires:

- a. “Bank” or “banking company” means a banking company as defined in clause (c) of Section 5 of the Banking Regulation Act, 1949 (10 of 1949) or a “corresponding new bank”, “State Bank of India” or “subsidiary bank” as defined in clause (da), clause (nc) and clause (nd) respectively thereof and includes a “co-operative bank” as defined in clause (cci) of Section 5 read with Section 56 of that Act.
- b. “Scheduled bank” means a bank included in the Second Schedule of the Reserve Bank of India Act, 1934.
- c. “All-India Financial Institutions (FIs)” mean those financial institutions which have been permitted specifically by the Reserve Bank of India to raise resources by way of Term Money, Term Deposits and Certificates of Deposit within umbrella limit.
- d. “Primary Dealer” means a financial institution which holds a valid letter of authorization as a Primary Dealer issued by the Reserve Bank, in terms of the “Guidelines for Primary Dealers in Government Securities Market” dated March 29, 1995, as amended from time to time.
- e. “Satellite Dealer” means a financial institution which holds a valid letter of authorization as a Satellite Dealer issued by the Reserve Bank, in terms of the “Guidelines for Satellite Dealers in Government Securities Market” dated December 31, 1996, as amended from time to time.
- f. “Corporate” or “company” means a company as defined in Section 45I(aa) of the Reserve Bank of India Act, 1934 but does not include a company which is being wound up under any law for the time being in force.
- g. “Non-banking company” means a company other than banking company.
- h. “Non-banking financial company” means a company as defined in Section 45I(f) of the Reserve Bank of India Act, 1934.
- i. “Working capital limit” means the aggregate limits, including those by way of purchase/discount of bills sanctioned by one or more banks/FIs for meeting the working capital requirements.
- j. “Tangible net worth” means the paid-up capital plus free reserves (including balances in the share premium account, capital and debentures redemption reserves and any other reserve not being created for repayment of any future liability or for depreciation in assets or for bad debts or reserve created by revaluation of assets) as per the latest audited balance sheet of the company, as reduced by the amount of accumulated balance of loss, balance of deferred revenue expenditure, as also other intangible assets.
- k. Words and expressions used but not defined herein and defined in the Reserve Bank of India Act, 1934 (2 of 1934) shall have the same meaning as assigned to them in that Act.



**APPENDIX 3**

**SCHEDULE I**

**NAME OF THE ISSUING COMPANY**

Stamp duty to be affixed as in force in the state in which it is to be issued.

Serial No.

Issued at: \_\_\_\_\_ Date of Issue: \_\_\_\_\_

(PLACE)

Date of Maturity: \_\_\_\_\_ without days of grace. (If such date happens to fall on a holiday, payment shall be made on the immediate preceding working day).

or value received \_\_\_\_\_ hereby promises to pay \_\_\_\_\_

(Name of the Issuing Company) (Name of the Investor)

or order on the maturity date as specified above the sum of Rs. \_\_\_\_\_ (in words) upon presentation and surrender of this Commercial Paper at \_\_\_\_\_.

(Name of the Issuing and Paying Agent)

For and on behalf of \_\_\_\_\_

(Name of the Issuing Company)

Authorised Signatory

Authorised Signatory

All endorsements upon this commercial paper must be clear and distinct. Each endorsement should be written within the space allotted

1. Pay to \_\_\_\_\_ or order the amount within named.  
(Name of the Transferee)

For and on behalf of \_\_\_\_\_  
(Name of the Transferor)

2. Pay to \_\_\_\_\_ or order the amount within named.  
(Name of the Transferee)

For and on behalf of \_\_\_\_\_.  
(Name of the Transferor)

## **CERTIFICATE**

We hereby certify that we have verified the signatures of the executants of the attached Commercial Paper bearing

Sr. No. \_\_\_\_\_ dated \_\_\_\_\_ for Rs. \_\_\_\_\_ (Rupees: \_\_\_\_\_) which tally with the specimen signatures filed by \_\_\_\_\_

(in words)

(Name of the Issuing Company)

(Authorised Signatory/Signatories)

Place: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_  
(Name of financing banking company)

**SCHEDULE II**

Confidential

Pro forma of proposal to be submitted  
by the issuing company (issuer) for  
issue of Commercial Paper.

To be submitted to  
financing banking company

To,

Dear Sir,

**Commercial Paper – Program of Issue**

In terms of the Directions issued by the Reserve Bank, vide Notification No. IECD.1/87(CP) – 89/90 dated 11th December, 1989, as amended from time to time, we propose to issue Commercial Paper as per details furnished hereunder:

- i. Name of the Issuer :
- ii. Registered Office and Address :
- iii. Whether Issuer is a FERA Company :
- iv. Business Activity :
- v. Name/s of Stock Exchange/s :  
with whom shares of the  
company are listed (not applicable  
to Government Companies)
- vi. Tangible net worth as :  
per latest audited balance sheet  
(copy enclosed)
- vii. a. Amount of Commercial :  
Paper proposed to be  
issued (Face value)
- b. Tenor (Period of issue) :
- viii. Rating obtained from the :  
Credit Rating Information  
Services of India Ltd. (CRISIL) or  
any other agency approved by the  
Reserve Bank (A copy of the  
rating certificate should be enclosed)

For and on behalf of  
(Name of Issuing Company)

Authorised Signatory

## **Lesson 7**

# **Certificate of Deposits (CDs)**

**After reading this lesson, you will be conversant with:**

- Features of CDs
- Purpose for which CDs are Issued
- The Issuing Procedure
- The Guidelines

The primary function of banks and financial institutions is to mobilize funds from the surplus economic units and lend them to the users or the deficit spending economic units. In the process, banks charge interest or brokerage based on the type of transaction. They pay interest to the saving public, and receive interest from the borrowers and in the process make a spread.

The depositors/savers maintain account with banks in the form of demand and time deposits. Savers (who need high liquidity) generally opt for demand deposits as they consider them to be as liquid as cash. Banks invest these deposits in short-term instruments to gain a return over them. Otherwise, they have to maintain idle funds losing the interest on those funds. The banks are exposed to interest rate risk when they deploy their demand liabilities in short- or medium-term investments/credit because of maturity mismatch.

In the early 90s, the RBI introduced an instrument called Certificates of Deposit (CDs), 'with a view to further widen the range of money market instruments and give investors greater flexibility in the deployment of their short-term surplus funds'. Recently the RBI had assigned FIMMDA (Fixed Income Money Market and Derivative Association for India), the task of framing standardized procedures and documentations for CDs in consultation with depositories and market participants. FIMMDA, after a detailed discussion with the market players and the RBI, has issued the final guidelines for the issue of certificate of deposit. This chapter discusses the features, purpose and market developments of Certificates of Deposit.

## **Definition**

Certificates of Deposit (CDs) are the instruments issued by banks in the form of usance promissory notes. These bank deposits are negotiable, and are in marketable form bearing specific face value and maturity. They are transferable from one party to the other unlike term deposits. Due to their negotiable nature, these are also known as Negotiable Certificates of Deposit (NCDs). A Certificate of Deposit can also be referred to as a money market instrument, a receipt for funds deposited in a financial institution for a specific time for a specific interest rate.

## **Issuers**

As per the latest guidelines issued by FIMMDA, CDs can be issued by all Scheduled Commercial Banks other than Regional Rural Banks. Select Financial Institutions (FIs) that have been permitted to raise short-term resources under umbrella limit fixed by the RBI, can issue CDs within the umbrella limit fixed by the RBI.

## **Subscribers**

CDs are available to individuals, corporations, companies, trusts, funds, associations, etc. for subscription. Non-resident Indians can also subscribe to these instruments, but only on non-repatriable basis, which cannot be endorsed to another NRI in the secondary market (if mentioned on the certificate).

## **FEATURES**

The distinct features of CDs are:

- CD is a document of title to a time deposit and is distinct from conventional time deposit with respect to negotiability and marketability.
- CDs are considered as virtually riskless instruments as the default risk is almost nil, and investors are sure of receiving the invested amount with interest.
- The liquidity and marketability features are considered as the hallmarks of CDs.
- CDs are issued at a discount to face value.

- CDs are maturity-dated obligations of banks forming a part of time liabilities, and are subjected to usual reserve requirements.
- CDs may be either registered or in a bearer form. The latter form, however, is considered better for secondary market operations.
- CDs attract stamp duty and there is no grace period, as in the case of bill financing.
- CDs are freely transferable by endorsement and delivery.
- The CDs issued are within the limit as specified by Reserve Bank of India (in case of FIs only).
- CDs are also issued in demat forms. Thus the various advantages of dematerialization can be availed.
- CDs held in the demat form can be transferred as per the procedure applicable to other demat securities.
- The trade settlement will take place on T + 1 day basis; however, the settlement period will be subject to the ceiling of T + 5 days or such period of settlement as specified by the exchanges, whenever the trade is done on a recognized stock exchange.

## **PURPOSE**

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CDs benefit both issuers and investors. From the issuers (banks) point of view, CDs are issued foreseeing the advantages over conventional deposits. The motives behind issuing CDs are control over cost of funds and assured availability of funds for specific period. The banks are constrained to define an interest rate structure for their customers across the board. It is operationally difficult to offer different rates of interest for different deposits, especially with a wide network as seen on the Indian scenario. Consequently, most of the depositors will be paid the same rate of interest. However, in case of Certificates of Deposit the interest is determined on a case-to-case basis. Since the volumes are large, the rates offered on CDs are more sensitive to call rates than the rates on term deposit. It is possible to discriminate between two customers and give different rates, which is not normally possible in case of term deposits. The conventional deposits though having a fixed maturity can be withdrawn prematurely; whereas, investors have to wait till the CDs mature or approach the secondary market to sell them. Issuance of CD helps banks to maintain the market share. From the investors' point of view, CDs form a better way of deploying their short-term surplus funds. CDs offer higher yields when compared to conventional deposits, while the secondary market offers liquidity. They can be assured of interest and principal payment normally.

### **Minimum Size and Denomination**

CD should be issued in denomination of Rs.1 lakh (1 unit) of Maturity Value (MV)/Face Value (FV). The minimum marketable lot for a CD, whether in physical or demat form will be Rs.1 lakh or multiples of Rs.1 lakh.

### **Term/Maturity**

Banks can issue CDs for a minimum period of 15 days to a maximum of one year, whereas a financial institution can issue it for a minimum of one year and a maximum of 3 years.

### **Discount**

CDs are issued at a discount to face value. Bank CDs are always discount bills, while CDs of DFIs (Development Financial Institutions) can be coupon bearing as well. The discount rate is freely determined by the issuing bank, considering the market conditions. While determining the discount rate of a CD, the issuing bank considers the prevailing call money rates, treasury bill rate, maturity of the CD, the amount of funds available, and its relation with the customer. The discount rate varies from one customer to the other, from time to time and even for the same customer based on the above factors.

The discount rate is calculated as follows:

$$DR = \frac{F}{1 + \frac{(I \times N)}{100 \times 365}}$$

Where

- DR = Discounted value
- N = Issuance period
- F = Face value
- I = Effective interest rate per annum.

**ISSUING PROCEDURE**

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**Brief Process of Issue of Certificates of Deposit**

The investor will make an application to the issuer for investing in the CD. CDs can be issued in the physical/demat form.

**In Case of the Demat Issue**

In case of a demat issue the issuer has to enter into an agreement with the depository. The depository will require an agreement to be executed with the issuer and its registrar. The issuer shall comply with the formalities of the depository. The investor will be required to fill the prescribed application form and submit it along with cheque/pay order for the appropriate amount to the issuer.

**Issue of CD in a Physical Form**

The issuer after receiving the money from the investor will issue the CD in a physical form directly to the investor. The physical form of the CD will bear a declaration that the CD has been adequately stamped. The eligible issuers can issue and accept the CD at any one of its branches.

**Stamp Duty**

CD being a usance promissory note is subject to stamp duty, which is paid by the issuer.

The applicable stamp duty structure will be as under:

Period	Stamp duty (Re. per Rs.1,000)
Up to 3 months	1.25
Above 3 months – up to 6 months	2.50
Above 6 months – up to 9 months	3.75
Above 9 months – up to 12 months	5.00

**Maturity and Payment**

Banks are not permitted to buyback their CDs prematurely, nor allowed to grant loans against CDs. On maturity the instrument is presented to the issuing bank, by the holder for receiving payments who receives the face value of certificate. As there is no provision for grace period, the bank has to redeem its CDs on the stipulated due date (and if the due date is a holiday, it redeems it on the next working day).

**Secondary Market and Trading**

CDs are freely transferable by endorsement and delivery, immediately after the date of issue and can be traded in secondary market from the date of issue unlike conventional deposits. In case the CD is issued in the Demat form, the seller would



promptly give a copy of the delivery instruction given to its DP to transfer securities and also the details of Issuer's CD Redemption A/C to enable the buyer to submit the CD for redemption.

In case of secondary market purchase of CD in physical form, the buyer is entitled to receive the duly endorsed original CD in his favor from the seller.

Unless otherwise mutually agreed upon by the buyer and seller, trade settlement will take place on T + 1 day basis; however, the settlement period will be subject to the ceiling of T + 5 days or such period of settlement as specified by the exchanges, whenever the trade is done on a recognized stock exchange.

### **Transfer of Certificates of Deposit**

CDs held in physical form are freely transferable by endorsement and delivery. CD held in the demat form can be transferred as per the procedure applicable to other demat securities.

### **Process of Redemption**

#### **For the Investors who are holding the CDs in the Demat Form**

Investors who are holding CDs in the demat form approach their respective DPs and give instructions to transfer the demat security to the CD redemption account, maintained by the issuer. It is important to note that this redemption account will be common for all CDs issued by the issuer. It is the responsibility of the holder to communicate to the issuer by enclosing a copy of the delivery instruction it had given to its DP and intimate the place at which the payment is requested to facilitate prompt payment.

Once the demat credit of CD, in the CD redemption account is received, the issuer, on maturity date, would arrange to repay to holder/transferor by way of Banker's cheque, etc. as the case may be, the FV of the CD.

After the payment of the CD to the transferor of the CD, the issuer should confirm to the depository that the payment has been made. The payment to the investors will be made on a first come first served basis. The issuer would co-ordinate with R&TA to extinguish the securities.

#### **If CD is in Physical Form**

In case the CD is in physical form, it should be presented by the holder to the issuer, at the specified place therein on the maturity date or on a working day before the maturity date, for payment on maturity date, along with payment instructions. The issuer will repay the CDs on the first come first served basis and would arrange to cancel the redeemed CDs with proper notings on it.

Both physical CDs and demat CDs shall be given equal treatment and the payment will be made on 'first come first served' basis.

### **Conversion of Physical to Demat**

The following is the procedure for the conversion of a physical CD into a Demat form:

#### **Step 1**

The holder of CD will fill up the Dematerialization Request Form (DRF), and submit it to the DP along with the original CD certificate/s to be dematerialized. Then the DP would give an acknowledgment to the client confirming the acceptance of the CD for dematerialization.

## Step 2

DP enters the ISIN of the CD in the 'DRF'. The DP stamps the certificate "Surrendered for Dematerialization" on the face of the CD and sends the certificate and DRF to the R&TA/issuer along with a covering letter for further processing.

It is important to note that the CD is a negotiable instrument. Hence the investor should see that proper notings have been made on the reverse of the CD so as to avoid any chance of its misuse in case of loss in transit.

## Step 3

The DP would send all the documents received to the issuer/R&TA at his address appearing on the face of the physical CD. Once the original CDs, DRF are received by the R&TA, arrangement is made for the credit of the Demat CD to the holder of the security. Then the electronic credit of CD would come to demat account of the holder, directly from the registrar in accordance with the normal depository procedure for demat.

The latest guidelines and developments in the market are given below:

Earlier, the banks were entitled to raise only 1 percent of their fortnightly average of aggregate deposits. This was raised to 2 percent in April 1990 and to 3 percent in December 1990, and to 5 percent in 1991-92. Subsequently, the limit was raised to 7 percent in May '92, then to 10 percent in October '92 of fortnightly average outstanding aggregate deposits in 1989-90. In April 1993, new limits were prescribed for each bank, which were equivalent to 10 percent of the fortnightly average outstanding aggregate deposits in 1991-92 (instead of 1989-90 earlier). However, with effect from October 1993, limits on issue of CDs were withdrawn to activate the primary market.

Similarly, according to the original guidelines, minimum size of each issue was Rs.1 crore and in multiples of Rs.25 lakh. In April '90, it was reduced to Rs.50 lakh and thereafter in multiples of Rs.10 lakh. It was substantially reduced to Rs.25 lakh and in multiples of Rs.5 lakh each in December '90. In April '97, it was further reduced to Rs.10 lakh and in multiples of Rs.5 lakh. With a view to widen the investor base, the minimum size of issue of CDs to a single investor was reduced to Rs.5 lakh and in multiples of Rs.1 lakh. Recently the minimum size of issue was further reduced to Rs.1 lakh and in multiples of 1 lakh.

The minimum lock-in period for transfer, initially, was 45 days from the date of issue. This was reduced to 30 days in August '96. Later, in April '98, the minimum lock-in period was reduced to 15 days. According to Section 22 of The Negotiable Instruments Act, 1881, instruments like bills and notes are eligible for a grace period of 3 days while making the payment after the specified date of maturity. Such a grace period is not allowed in case of CDs and CPs. In October 2000, with a view to provide flexibility and depth to the secondary market, RBI withdrew the restriction on transferability period for CDs issued by both banks and financial institutions.

### Box 1: The Evolution of CD Market in India

In the early 80s, the Tambe Working Group examined the feasibility of introducing CDs. The group did not recommend CDs because of the absence of a secondary market, and administered interest rate structure on bank deposits. Another reason was the scope for the misuse of CDs that might give rise to fictitious transactions. Later in 1987, the Vaghul Committee was set up to study the development of money markets in India, and this group recommended to introduce CDs, among others, as a money market instrument to enhance the development of the money market. The committee also opined that such introduction would not be appropriate unless short-term interest rates are aligned with other rates in the system, and a system for development of secondary market is in place.

Based on the recommendations of the Vaghul Committee, the interest rates on short-term deposits were rationalized, and then, RBI formulated a scheme in June 1989 for the scheduled banks (excluding RRBs) to issue Certificates of Deposit (CDs). The guidelines relating to CDs were as follows:

- All scheduled banks, other than Regional Rural Banks and Scheduled Co-operative Banks are eligible to issue CDs, and the total amount raised by commercial banks by means of CDs should not exceed 1% of aggregate fortnightly average outstanding deposits in 1988-89.
- CDs should be issued in the form of usance promissory notes with a fixed maturity date without any grace period.
- The size of the issue should be in multiples of Rs.25 lakh, subject to the minimum size of each issue being Rs.1 crore.
- The banks can issue CDs ranging from 3 months to one year, whereas financial institutions can issue CDs ranging from one year to 3 years.
- CDs become freely transferable by endorsement and delivery but only after a lock-in period of 45 days.
- All CDs are subjected to the usual CRR and SLR requirements.
- CDs are subjected to stamp duty.
- Premature payment or loans against CDs by the issuer is not allowed.

The RBI has modified the original scheme to enhance the growth of the market. Guidelines have been modified from time to time as per the requirements.

*Source: ICFAI Research Centre.*

In case the issuer defaults, then the investor can take the appropriate legal remedies available to him under the legal framework.

Unless otherwise mutually agreed upon by the buyer and seller, trade settlement will take place on T + 1 day basis subject to a sealing of T + 5 days.

It is important to note that with effect from June 30, 2002, banks and FIs are required to issue CDs only in the dematerialized form. Existing outstanding CDs will be converted into the demat form by October, 2002.

### **Development of the Market**

When CDs were first launched, they were expected to give banks an opportunity to mobilize high volume deposits. It was contemplated that corporate would deploy their short-term surpluses in CDs, as they were offering a high interest rate (around 15-16% initially) and were freely tradable. However, trading in CDs never caught up in a big way as 90% of the investors were holding the instrument till maturity.

DFHI was set up by RBI in 1989 to develop the money market. DFHI, being a discount house, was expected to play the role of a market maker to all the money market instruments including CDs. However, the secondary market in CDs remained more or less stagnant. As stated earlier, the maturity of a CD is mostly determined by the investor rather than the issuer since a bank has greater flexibility in managing the maturity profile of its assets and liabilities unlike the companies. Hence, most of the investors tend to hold the CDs till maturity. This has hindered the development of a secondary market. DFHI also has not been active in this area by choosing to remain a buyer rather than a seller of CDs.

The move to establish a discount house to activate the secondary market for money market instruments, however, was not successful. The following are certain impediments in the way of DFHI. First, the yield on CDs being high, the investors hold the instrument till the end of maturity to gain maximum benefit. Secondly, lack of information to the investors (to those outside Mumbai) regarding the facilities available with the DFHI.

Thirdly, when the banks have highly liquid funds at their disposal due to the prevailing economic scenario, they do not choose to issue CDs because they need to pay high interest when compared to conventional deposits. Hence, the primary market is also not very active in such a scenario. Lastly, CDs are issued by major banks to a few corporations/customers and hence, the primary market is not widely spread. Experts opine that there is still potential for their growth in spite of the weak secondary market, the reason being that Many PSUs and private sector corporate bodies are believed to have substantial floating cash flows due to prevailing inflationary environment in the country. Similarly, many financial institutions such as UTI, LIC, etc. are flooded with huge funds for investment and do not have ready outlets to invest (which were partly gathered from corporate funds and household savings).

These funds have to be deployed in money market till the final deployment takes place. Then, the inter-corporate funds which form a substantial amount could be invested in short-term liquid instruments. The ICD market never experienced any default for decades. However, the early '90s have witnessed defaults in ICD which made many cash rich corporates more cautious. Considering the high level of risk in ICD market, CDs form a suitable lucrative medium to meet the above requirements. Thus, there is scope for their growth. Given these demand supply conditions and the support of the RBI, and institutions like DFHI and PDs to the CD markets, the potential for growth in CD market cannot be ruled out.

### **CDs Market Size and Interest Rates**

The outstanding amount of CDs issued by scheduled commercial banks is greater than those issued by the FIs. The total amount outstanding has been subjected to various inter year and intra year fluctuations. The CD market is much bigger when compared to the CP market. The interest rates on CDs were higher than those on the bank deposits.

### **CDs in other Countries**

Different kinds of CDs are issued by banks and other depository institutions in the US. But, negotiable CDs are considered as true money market instruments. Negotiable CDs are issued in bearer form and are registered in the books of the issuing depository institution in the name of the investor. Since they are issued in bearer form, trading in the secondary market becomes more convenient for an investor. Negotiable Certificates of Deposit (NCDs) are tradable time deposits. Most NCDs carry a fixed rate of interest till maturity. However, a few NCDs are now being issued with variable interest rates, where the period of the instrument is divided into equal sub-periods and the rates are decided at the beginning of each sub-period.

### **Issuers**

Banks and depository institutions issue CDs. Depository institutions use CDs as a supplement to federal funds when additional reserves are needed.

### **Buyers**

Corporates, state and local governments, foreign central banks and governments, wealthy individuals, and financial institutions such as insurance companies, pension funds, investment companies, savings banks and money market funds, etc. are principal buyers of CDs.

### **Features of CDs**

- CDs are issued in bearer form, thus making it convenient for an investor to resell them in the secondary market.
- The discount rate on a negotiable CD is arrived at by negotiation between the issuing institution and the customer, and generally, the rate is based on the market prevailing conditions.
- CDs carrying a minimum denomination of \$1,00,000 are traded usually in the market.
- The maturity ranges from 30 days to 5 years, depending on the customer's needs. CDs with maturities beyond one year are referred as 'Term CDs'. They can be discounted any number of times before maturity.

## **CD Market in London**

For orderly trading and efficiency in the markets, The Bank of England and the British Bankers' Association (BBA) have issued guidance notices on CDs and the CD market in London. A notice given by the Bank on 1st November, 1996 gave guidance on the nature of such CDs and other matters relevant to orderly issuance and trading. Many issues like formats of CDs, security aspects, minimum London good delivery standards, tax and approved currency denominations were mentioned in the guidelines.

CDs are issued in London subject to some standard terms and conditions. They are issued by authorized institutions, issued and payable in the United Kingdom and primarily traded in London. London CDs are short-term marketable instruments with maturity up to five years. Minimum denomination is not less than £100,000 or its equivalent in foreign currency.

These CDs can also be issued at a discount. Subject to some terms and conditions, the CDs can contain put or call option. London CDs can also be guaranteed where the guarantor is an authorized institution in the United Kingdom issuing CDs or is a European authorized institution, eligible to issue guarantees in the United Kingdom. The name of the guarantor has to be clearly marked on the face of the certificate in the case of physical paper, and in the case of any other mode the name should be marked in the records of any clearing system or depository.

Any institution that is involved in the first issue of London CDs has to inform the Gilt-Edged & Money Markets Division of the Bank of England prior to such issue.

## **Innovations in CD Market**

Innovative CDs such as Asian Dollar CDs, Jumbo CDs, Yankee CDs, Brokered CDs, Bear and Bull CDs, Installment CDs, Rising Rate CDs, and Foreign-Index CDs have flooded the money market abroad.

- Asian Dollar CDs carry both fixed and floating interest rates based on the current level of the Singapore Interbank Offer Rate (SIBOR) and paid at the New York clearing house. Similar to domestic CDs, they are normally traded in \$1 million units but at higher yields.
- Jumbo CDs are issued by savings and loan associations in large volumes such as \$100,000 and above.
- Yankee CDs are issued by foreign banks such as Japanese, Canadian, and European institutions in the US who usually have offices in US cities.
- Brokered CDs are sold through brokers or dealers in denominations of \$100,000 (maximum) to qualify for federal deposit insurance. Many brokers participate in exchanges in which their investing customers can purchase packages of the highest yielding CDs issued by banks and thrifts.
- Return on Bear and Bull CDs are linked to stock market performance allowing depositors to seek variable equity like returns.
- In Installment CDs, target level for the amount is built-up in the account by allowing the customers to make a small initial deposit.
- In Rising Rate CDs, investors can withdraw the permitted amount of promised yields (which increases overtime) on selected yearly dates. These deposits are usually long-term in nature and withdrawals are penalty-free. Recently, Foreign-Index CDs were offering a return linked to fluctuations in foreign currency values and economic developments abroad.

- Thrift CDs are issued by large savings and loan associations. Usually, they are issued in denominations of \$100,000 so that they can be covered under the FDIC. Sometimes, a large thrift CD is made out of various CDs of \$100,000 or less packed into one, but as all of them are covered under the FDIC, the risk is minimal. More innovations in CDs are likely to emerge in the future since banks try to maintain/improve their market share in the face of increasingly stiff competition for funds. These instruments would be more lucrative when foreign interest rates rise significantly above the US interest rates.

## **SUMMARY**

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- Certificates of Deposit (CDs) are usance promissory notes, negotiable and in marketable form bearing a specified face value and number. Scheduled commercial banks and the major financial institutions can issue CDs.
- Individuals, corporates, trusts and NRIs are the main investors in CDs (on non-repatriable basis).
- The features of CDs are: it is a title document to a time deposit, riskless, liquid and highly marketable, issued at a discount to face value, being part of the time liabilities of banks, either in registered or bearer form, freely transferable by endorsement and delivery. It does attract stamp duty.
- The benefits of issuing CDs to the banks are: interest can be determined on a case to case basis, there is no early maturity of a CD, rates are more sensitive to call rates.
- To the investors the benefits of subscribing to CDs are: it is a better way of deploying short-term funds as higher yield is offered, secondary market liquidity is available and repayment of interest and principal is assured.
- CDs are issued for a period of 15 days to one year (normally one to three years by the financial institutions) at a minimum amount of Rs.1 lakh and in multiples of 1 lakh thereafter with no upper limit.
- There is no specific procedure to issue the CDs. It is available, on tap, with the bankers.
- CDs are the largest money market instruments traded in dollars. They are also issued by either banks or depository institutions, mostly in bearer form enabling trading in the secondary market.
- Individuals, corporates and other bodies also buy the CDs in the US.
- The features of American CDs are: they are bearer instruments, negotiable, with a minimum denomination of \$100,000, maturity of 30 days to 5 years. CDs with more than one year maturity are known as term CDs.
- CDs have undergone various innovations: Asian dollar CDs, jumbo CDs, yankee CDs, brokered CDs, bear and bull CDs, installment CDs, rising rate CDs and foreign index CDs, all have different features. Many more innovations are expected in this upcoming market.

## **Lesson 8**

# **Bill Financing**

**After reading this lesson, you will be conversant with:**

- Concept and Features of Bills of Exchange
- Types of Bills
- Procedure of Bill Financing
- Discounting of Bills by NBFCs
- Commercial Bill Financing
- Rediscounting of Bills

Availability of finance in adequate quantity at the right time and at a reasonable cost helps to produce economic goods, either for immediate consumption or for capital formation and thus fosters economic development. Finance is made available by the financial system of the country which comprises financial institutions, financial markets and financial instruments created from time to time.

Money markets comprising banks and other financial institutions and government cater to the short-term credit requirements of trade, commerce and industry in the form of cash credits, overdrafts and purchase/discounting of commercial bills.

## **MONETARY POLICY AND BILL FINANCING**

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RBI, the central monetary authority of the financial system with its monetary policy regulates the credit creation of the financial institutions and ensures the availability of credit to the extent that is appropriate to sustain the tempo of economic development. Monetary policy refers to the use of the official instruments under the control of the Central Bank to regulate the availability, cost and use of money and credit.

The bank rate or the discount rate is the traditional weapon of the Central Bank, which operates on the cost of credit indirectly by altering the cost at which the central bank's facilities are available to the commercial bank. The bank rate or the discount rate, is the standard rate at which the bank is prepared to buy or rediscount bills of exchange or other commercial paper eligible for purchases. The effect of a change in the discount rate is to make the cost of securing funds from the central bank cheaper or more expensive and thereby bring about changes in the structure of market interest rates.

Out of the modes of financing, the banks and financial institutions rely mostly on cash credit form of lending. Up to the mid-eighties, the development of a bill market was not a reality despite its well known advantages to lenders and borrowers alike. The various impediments in the way of developing a bill market were payment of stamp duty, difficulty in obtaining supplies of stamp paper, reluctance on the part of government departments and other large buyers to accept bills, predominance of the cash credit system of lending and the administrative work involved in handling documents of title to goods. However, in comparison with other methods of supplying credit, the method of bill finance is believed to impart flexibility to the money market and balance liquidity within the banking system. Considering its importance, RBI has made efforts to enlarge the use of bills of exchange as an instrument of credit and develop the bill market. It introduced Bill Market Scheme in 1952, Bill Rediscounting Scheme in 1970. To provide a secondary market and to ensure and promote the extensive use of bills, Discount and Finance House of India (DFHI) was established.

## **CONCEPT AND FEATURES OF BILLS OF EXCHANGE**

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The origin and concept of bill can be traced back to the 4th century B.C., when the Greeks made use of bills. From times immemorial, banks and business houses have been using 'Hundi', the indigenous kind of bills of exchange. There were two kinds of hundis which were in vogue. Of the two, darshani hundi is similar to the bill of exchange of today with respect to the purpose for which it is drawn. Its place of origin may be quite different from the place of operation. In this context muddati hundi is quite different. It is confined to local limits in which it is drawn.

Section 5 of the Negotiable Instruments Act, 1881, defines Bills of Exchange as 'an instrument in writing containing an unconditional order, signed by the maker, directing a certain person to pay a certain sum of money only to, or to the order of, a certain person or to the bearer of the instrument'.



A bill attains the character of negotiability only if it contains the features of negotiable instruments. The specific features of a negotiable instrument are as follows:

1. Parties to a bill of exchange – drawer, drawee and payee. The maker of the instrument who directs to pay is the drawer, the person to whom the direction is given is the drawee (when he accepts the bill, he becomes the acceptor) and the person to whom payment is to be made is the payee. In some cases the drawer and the payee may be the same person.

The drawer or the payee who is in possession of the bill is called the holder. When the holder endorses it, he is called the endorser. The person to whom it is endorsed is called the endorsee. When in the bill or any endorsement thereon the name of any person is given in addition to the drawee (to be resorted to in case of need), such person is called a drawee in case of need. Drawee in case of need can be resorted to only when the bill is dishonored by non-acceptance or non-payment.

2. The instrument must be in writing.
3. It must contain an order to pay and not a request.
4. A bill of exchange cannot be drawn so as to be payable conditionally.
5. The sum payable must be certain.
6. The person to whom the direction is given or to whom the payment is to be made must be certain.
7. It must be signed by the drawer and presented to the drawee for acceptance.
8. The order to pay should be in legal tender money.
9. All other formalities like date, number, place and consideration are usually found in bills though not essential in law.

## **CLASSIFICATION OF BILLS**

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There are various types of bills of exchange in vogue today in the market: (a) They can be classified as 'demand' and 'usance' bills on the basis of when they are due for payment, i.e. immediately 'at sight' or 'on presentation', as in the case of demand bill or at a specified later date (usually three months) as in the case of a usance bill. (b) Bills again are classified as 'documentary' and 'clean' on the basis of whether they are accompanied by documents of title to goods such as railway receipts/lorry receipts/bills of lading, etc. or not accompanied by such documents. (c) Some bills are classified as 'D/A' and 'D/P' bills on the basis of whether the documents are deliverable just against acceptance (D/A) or deliverable only against payment (D/P) usually through a bank. A D/A bill, however, becomes a clean bill immediately after the delivery of the documents. (d) Bills are classified as 'Inland' and 'Foreign'. Inland bills must be drawn or made in India, and must be payable in India or drawn on any person resident in India. On the other hand, foreign bills are drawn outside India and may be payable in and by a party outside India or are drawn in India and made payable outside India. A related classification of bills is export bills and import bills. While export bills are those drawn by exporters on any country outside India, import bills are those drawn on importers in India by exporters outside India. The inland bills may be further divided into 'local' and 'outstation'. (e) Besides, there are what are known as 'Supply bills', 'Government supply bills' and 'Accommodation bills'. The supply bill arises out of supply of goods by manufacturing concerns and the government supply bills out of the supply of goods to the government or any of its departments. An accommodation bill is one accepted by the drawee to accommodate the drawer without having received any consideration. Banks have to be cautious while extending credit against accommodation bills as they are prone to frauds.

## STEPS IN BILL FINANCING

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How does a bill of exchange come into existence? Suppose seller A sells goods to the buyer B on credit but wants to have money immediately so he draws a bill of a given maturity on B and sends the bill to B. A is known as the drawer of the bill, and B the debtor acknowledges his responsibility for the payment of the amount on terms mentioned on the bill by writing on the bill his "acceptance". When B has "accepted" the bill, he is known as the acceptor or drawee of the bill. A, in need of immediate money, takes the "accepted bill" to a bank which exchanges it for ready money. This act of handing over of the endorsed bill in exchange for ready money is called "discounting the bill of exchange". The difference between the money paid to the seller or creditor or drawer of the bill and the amount of the bill is called the "discount" which is calculated at a rate percent per annum on the maturity value. In this context, we can draw a distinction among the following categories of bills:

- A. **Trader's Bill:** (a) Seller supplies goods and submits bill to the buyer for the value of goods supplied, (b) Buyer accepts the bill along with the goods supplied, (c) Seller receives the accepted bill from the buyer and discounts the bill with the seller's bank, and (d) Buyer makes the payment on due date.
- B. **Bills with Coacceptance:** (a) Seller supplies goods and submits bill to the buyer for the value of goods supplied, (b) Buyer accepts the bill along with the goods supplied, (c) Buyer's bank also coaccepts the bill, and (d) Seller receives the bill accepted by the buyer and coaccepted by the buyer's bank and discounts with the seller's bank.
- C. **Bills accompanied with Letter of Credit (LC):** (a) Seller supplies goods and submits bill to the buyer for the value of goods supplied, (b) Buyer accepts the bill along with the goods supplied, (c) Buyer's bank opens LCs in favor of the seller, and (d) Seller receives the accepted bill along with the LC opened by the buyer's bank in favor of the seller and discounts the same with the seller's bank.
- D. **Drawee Bills:** (a) Seller supplies goods and submits bill to the buyer for the value of goods supplied, (b) Buyer accepts the bill along with the goods supplied, and (c) Buyer's bank discounts the bill for the account of the buyer.

## BENEFITS AND COSTS OF BILL FINANCING

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### Advantages of Bills Finance

Following are some of the major advantages to the banks providing bills finance:

- Self liquidating mode of financing
- Liquidity management of the banks becomes easier
- Easy to monitor the genuineness of the transactions
- Monitoring of borrowers' receivables becomes easy
- Quality of receivables can be ascertained
- Bank has recourse, both to the drawer as well as the drawee
- Sale transactions are routed through the bank
- Effective yield is higher since discount is deducted upfront
- Bank earns fee-based income
- Facility of rediscounting
- Disciplined way of financing.

The usage of Discounting of Bills is not free of costs. The following are some of the costs associated with the discounting of bills.

1. **Operational and Procedural Constraints**

Some of the major difficulties faced while drawing usance bills on customers are:

- Wide geographical spread of the buyers
- Procedural delays on the part of both the drawer's and the drawee's banks
- Cumbersome documentation formalities
- The usual 90 days usance allowed by the banks is not sufficient
- Difficulties in submitting supporting documents
- Banks are hesitant to discount bills on new buyers.

2. **Difficulties Experienced in Getting Bills Accepted**

The difficulties in getting usance bills accepted by the customers could be classified into the following categories:

- a. **Cost related:** About 60% of the respondents said high cost was an important aspect coming in the way of their customers accepting usance bills.
- b. **Reluctance on the part of the buyers:** It was mainly due to the reasons such as commitment to pay the amount on due date, buyers themselves not realizing their due in time, government departments/PSUs and some multinationals not accepting bills as a matter of policy, etc.
- c. **Formalities involved:** The areas identified were stamping, requirement of board resolution, attested specimen signature, etc.
- d. **Delays:** They were mainly due to operational and logistical difficulties in sending and receiving the documents and delays in acceptance of bills by buyers.
- e. **Other difficulties:** They covered areas such as
  - Buyers' reluctance to accept bills for fear of problems in accounts reconciliation in case the materials were rejected
  - Banks insist upon production of original documents (e-mail or fax not accepted)
  - Buyers' reluctance due to general slow down in the economy.

3. **Discounting of Bills with Banks cumbersome**

The procedure for discounting of bills with banks was cumbersome. Some specific areas mentioned are

- Stamping of documents
- Banks not accepting bills of smaller values
- Non-acceptance by government agencies (as buyers) of power of attorney given by the seller to his bank
- Procedural delays
- Delays in receiving information from collecting bank regarding acceptance/non-acceptance of bills
- Banks not discounting bills without verifying the credentials of the buyers.

4. **Dishonor of Bills**

The major reasons for dishonor of bills are

- Buyers do not have funds
- Return of the materials

- Deliberate dishonor
- Adverse business conditions.

A majority of the respondents (56%) felt that the existing laws were not sufficient to deal with the defaulters. The main reasons attributed by them were – legal delays and high costs. Naturally, many of the respondents did not feel adequately secured legally in case of default.

#### 5. **Payment of Bills – Strengthening the Payment Mechanism**

The existing bank mechanism for payment of bills is considered inadequate by most of the bankers. Some suggestions for strengthening the payment mechanism are

- Speedy remittance of collected amounts
- Introduction of electronic clearing and settlement mechanism between banks.

#### 6. **Banking Practices**

The following are some of the practices being followed by most of the banks.

- Cash management services offered by some of the banks
- Use of courier services, telex, fax, e-mail for speedy clearance.

Some measures to bring the cost of bill financing at par with cash credit facility

- Handling charges may be reduced
- Stamp duty may be levied only for bills having usance period of more than 180 days
- Rate of penal interest on overdue bills may be reduced.

### **DISCOUNTING OF BILLS BY NBFCs**

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Quite a few such concerns throughout India are engaged in bill discounting activity on regional basis; Marwari Hundi at Kolkata, Delhi, Kanpur, Jaipur, Ahmedabad and even at Mumbai and Chennai is discounted by investment companies, provided the parties' drawer and drawee are acquainted companies to the investment companies. Similar is true with Chettiar Hundi at Chennai and other principal towns in southern states. Shroff Hundi is in vogue in entire Maharashtra and Gujarat. The discounting firm earns handsome income from discounts depending on case to case basis, the urgency of funds, the type of transaction and the financial risk involved therein.

### **REDISCOUNTING**

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Banks can rediscount the bills, which were originally discounted with them by their corporate clients, with eligible financial institutions. The only prerequisite is that the originally discounted bills should have arisen out of genuine trade transactions. Banks compute the total amount of eligible bills discounted by them after deducting the rediscounts already booked on the bills and approach the approved rediscounting institutions to verify the availability of funds and the prevailing rate.

The development of the money market is an important objective of monetary policy. Pursuant to this objective, the Reserve Bank of India, based on Vaghul Committee's recommendations has jointly set up with the public sector banks and other all India financial institutions, the Discount and Finance House of India (DFHI) to deal in money market instruments in order to provide liquidity in the money market.

DFHI commenced its business operations from April, 1988 with an authorized capital of Rs.250 crore and a paid-up capital of Rs.200 crore. Presently, it deals in money market instruments such as 182-day treasury bills, commercial bills, call

money, commercial papers and certificates of deposit. The aim of DFHI, as regards short-term commercial bills are concerned, is to provide liquidity to such bills which have already been discounted by banks and financial institutions and thus, generate 'bill culture' and 'bill discipline' amongst banks, financial institutions and corporate managements.

The objective of DFHI is to increase the transactions in secondary market and not to become a mere repository of money market instruments.

Right from the commencement of business, DFHI has been endeavoring to provide depth to the bill rediscounting market. It varied the bid and offered rediscount rates depending upon the cost of funds and conditions in the money market, and thereby, achieved a high turnover in this market.

After the scam on 27.7.1992, RBI instructed the banks to restrict bill discounting facility outside the consortium of banks and prohibited banks from rediscounting bills that were discounted by finance companies and merchant bankers. The basic objective behind the instruction was to stop the misuse of bill discounting facility by banks, by rediscounting bills arising out of share deals. Some of the instructions given by RBI are:

- No fund or non-fund based facilities should be provided by a bank outside the consortium arrangement.
- Bill finance should be a part of the working capital/credit limit.
- Only bills covering purchase of raw materials/inventory for production purposes and sale of goods should be discounted by banks.
- Accommodation bills should never be discounted.

### **Simplified Procedure of Rediscounting**

Owing to the administrative problems faced by banks in following the rediscounting procedure of lodging and endorsing bills (to be rediscounted) with the rediscounting banks/institutions, RBI has simplified the procedure. Under the new system, banks are permitted to issue usance promissory notes in convenient lots and maturities on the strength of genuine trade bills discounted by them and to rediscount these derivative notes with rediscounting institutions.

## **COMMERCIAL BILL FINANCING**

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Commercial Bill had its origin in Europe as an early medieval financial innovation evolved over centuries from a personal bond executed by debtor before a Court or a public notary to its present form of a commercial financial instrument, acquiring at various stages of evolution its distinctive characteristics of easy transferability and negotiability, and thus lending itself to discounting by banks to provide liquidity to the holder.

In India, too, indigenous bankers and other business houses have been historically using some kind of Bill-like instruments written in vernacular languages, known as 'Hundies' in their many variants to pay and receive the value of goods exchanged in the course of trade. However, with the development of organized financial markets over the years, and the spread of commercial banking, the role of indigenous bankers in the financial system diminished in importance and Hundies too gradually started losing their status as the principal instrument of credit and were replaced by Bill of Exchange in its present form.

With the dominance of cash credit system in financing domestic trade and industry, Bill Finance, despite its inherent advantages from the point of view of the lending banker, has been relegated to play only a marginal role in the credit delivery system of the country. The need for the development of Bill culture among borrowers was stressed by the various committees, appointed by the Government of India and the Reserve Bank of India, while examining certain aspects pertaining to bank lending/money market/banking sector reforms.

## Measures to Promote the Bill Market in India

The characteristic of easy transferability of the Bill was the key feature of the instrument, which really paved the way for its development as a full-fledged commercial and financial instrument. It enabled the Bill to be assigned to a bank for the drawer to obtain cash immediately and thus, evolved the practice of Discounting of Bills. A further landmark in the evolution of Bill was its being accorded the characteristic of negotiability. With the development of organized financial markets over the years, and the spread of commercial banking, the role of the indigenous bankers in the financial system diminished in importance and Hundies too gradually started losing their status as the principal instrument of credit and were replaced by Bill of Exchange in the present form.

With the dominance of cash credit system in financing domestic trade and industry, Bill finance despite its inherent advantages from the point of view of the lending bankers, has been relegated to play only a marginal role in the credit delivery system of the country. The need for the development of Bill culture among borrowers was stressed by the various committees appointed by the Government of India and the Reserve Bank of India, while examining certain aspects pertaining to bank lending/money market/banking sector reforms. The Committees, which had gone into the different aspects of working capital financing, stressed the need to promote the Bill culture, so as to inculcate some measure of financial discipline among borrowers. The Group was handicapped in its task of tracking the recommendations on Bill Financing by the various Committees. Therefore, it felt that it would be useful to capture below the key recommendations of such committees to serve as a single point referencer.

Even though the role of Commercial Bill Market as an important component of the money market was recognized as early as in the 1930s, concerted efforts were not made in this direction till 1952. In fact, the Bill Market Scheme of 1952 was floated in an altogether different context. The RBI's decision in November 1951 to hike the bank rate from 3% to 3.5% and to refrain from making open market purchases of government securities, sell in special circumstances and at its discretion, closed the liquidity window that was available to commercial banks, under Section 17 (4) (a) of the RBI Act, 1934, enabling them to tide over their seasonal liquidity pressures.

However, banks faced with seasonal stringency of funds in the busy season tapped the RBI window and hence RBI on January 16, 1952 introduced the first Bill Market Scheme under Sec. 17(4)(c) of the RBI Act, 1934; it enabled RBI to make advances to scheduled banks against the security of usance promissory notes or bills drawn on and payable in India, provided they arose out of bonafide commercial or trade transactions, bearing two or more good signatures, one of which shall be that of a scheduled bank, and maturing within 90 days from the date of advance. In order to avail of refinance under the above Section, the scheduled banks were required to convert a portion of the demand promissory notes obtained by them from their constituents in respect of loans, overdrafts and cash credits granted to them into usance promissory notes maturing within 90 days. The accommodation, which was initially restricted to licensed scheduled commercial banks having deposits (including deposits outside India) of Rs.10 crore or more, was later extended to all the licensed scheduled commercial banks, irrespective of the size of the deposits on the basis of a certification from the bank applying for accommodation to the effect that the paper presented by it as collateral arose out of bonafide commercial transactions and that the party was creditworthy. Later, in 1958, the RBI extended the Bill Market Scheme to export bills also to encourage banks to extend credit facilities to exporters on a more liberal basis. The Banks, however, could not avail of these facilities, as exporters were reluctant to draw usance promissory notes as required by the RBI, after having tendered to banks for purposes of negotiation, documentary usance export bills, which the banks sent abroad for acceptance and collection. The RBI, therefore, introduced in March 1963, a new Exports Bills Credit Scheme, whereby advances could be made by the

RBI to scheduled banks against their promissory notes only and upon their declaration of holdings of eligible usance export bills, drawn in foreign currencies or Indian Rupees and purchased or negotiated by them.

The next significant measure taken by the RBI for promotion of a Bill Market was in November 1970. Based on the recommendations of the Study Group on enlarging the use of Bill of Exchange as an instrument of credit and creation of a Bill Market chaired by Sri M Narasimham, the RBI introduced the New Bill Market Scheme (NBMS in short). The scheme was restricted to genuine trade bills only and provided for rediscounting of four types of bills having at least two good signatures, one of which had to be that of a licensed scheduled bank or a State Co-operative bank.

**The four types of eligible bills were**

- a. Bills drawn on and accepted by the purchaser's bank
- b. Bills drawn on the purchaser and the purchaser's bank jointly and accepted by them jointly
- c. Bills drawn and accepted by the buyer under an irrevocable letter of credit
- d. Bills drawn on and accepted by the buyer and endorsed by the seller in favor of his bank.

However, bills arising out of transactions in commodities covered under selective credit controls were kept outside the purview of the scheme.

The bills rediscounted by RBI under the above scheme were negotiable and marketable; in fact, their negotiability was an essential condition for the development of a sound bill market. The scheme was expected to impart flexibility to the money market, help in evening out surpluses and deficits in the banking system and thereby enable RBI to exercise an effective control over the money market, since recourse to the Central Bank would normally be only when the banking system, as a whole, was short of funds, rather than when a few banks alone were in need of funds. Thus, the Reserve Bank's role was designed to be a 'lender of the last resort' instead of first resort. Expansion and contraction of money by the Reserve bank as a result of rediscounting of such bills was also expected to be in relation to the needs of the economy.

Since the introduction of the New Bill market scheme, the RBI introduced several measures to encourage and widen the use of Bills such as

- Simplification of the rediscounting procedures by dispensing with the actual lodgment of bills in respect of bills below the face value of Rs.10 lakh and replacing it with derivative bills. The minimum amount of bill at Rs.5000 prescribed under the scheme was also done away with.
- Promotion of Drawee Bills Scheme, by making it mandatory for banks to extend at least 25% of the cash credit limit to borrowers in the form of bills and requiring banks to ensure that their corporate borrowers financed their domestic credit purchases from SSI units, at least to the extent of 25%, by way of acceptance bills drawn on them by their suppliers, and advising banks to monitor the compliance of this requirement through a suitable monitoring system. (These mandatory stipulations were subsequently withdrawn with effect from 2nd November, 1999.)
- Remission of Stamp duty by the Govt. of India on bills of exchange drawn on or made by or in favor of a commercial bank or a co-operative bank and payable not more than three months after date or sight.
- Permitting the licensed scheduled commercial banks to rediscount bills with a few financial institutions such as Life Insurance Corporation of India (LIC), General Insurance Corporation of India (GIC) and its subsidiaries and Unit Trust of India (UTI) and such other financial institutions, incorporated in India, as may be approved by the RBI on a reference made to it.

- Selectively increasing the participants in Bill Rediscounting Market in November 1981, to include all-India Financial Institutions and Mutual Funds, thus augmenting the supply of funds in the secondary market.
- Setting up of the Discount and Finance House of India (DFHI) by the RBI jointly with public sector banks and All-India Financial Institutions.
- Enabling multiple rediscounting of bills through introduction of a revised procedure, under which derivative usance promissory notes (which were exempted from payment of Stamp Duty) drawn by banks for suitable maturities up to 90 days on the strength of underlying bills discounted by the banks' respective branches could be rediscounted with other banks, approved financial institutions and DFHI.
- Delinking interest rates applicable on discounting of bills from the prime lending rates of banks thus giving the commercial banks freedom to charge market determined interest rate on bills.
- Neither the incentives like the remission of stamp duty on usance bills, simplification of procedures for rediscounting and strengthening of the institutional infrastructure, nor the mandatory prescription of fixation of Drawee Bills limit under cash credit gave the desired impetus to the bill market. The recent measure of delinking PLR with reference to bill financing, however, has made trade and industry evince interest in bill financing if sub-PLR interest were charged. In sum, bill financing has not so far taken off as the preferred mode of financing in any significant manner.

## **BILL MARKET RATES**

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The cost of bill finance was determined earlier by the following rates:

- a. bank rate,
- b. the SBI hundi rate,
- c. bazaar bill rate,
- d. commercial banks' bill finance rate, and
- e. the SBI discount rate.

The rate at which the RBI rediscounts eligible bills from commercial banks is known as bank rate. The SBI hundi rate is the rate at which the SBI discounted hundis of indigenous bankers. The bazaar bill rate was used by Shroffs in discounted bills of small trades. The commercial banks' bill finance rate is the minimum rate fixed by the RBI at which commercial banks can discount bills. The SBI discount rate is the rate at which the SBI discounts first class commercial usance bills.

## **Factors behind Underdevelopment**

In spite of the encouraging official policy, the bill market has not developed in India. The factors responsible for its underdevelopment are:

1. Borrowers have found other forms of financing such as cash credits, overdrafts, etc., cheaper to bill financing.
2. Bill markets were mostly established for the purpose of financing foreign trade and the share of foreign trade in the national income has remained quite small.
3. Participation of government in the economic activity has led to an increase in 'supply bills' but not that of genuine bills of exchange.
4. Bill market in India has been dominated by indigenous bankers whose funds were limited.

Cumbersome procedures of discounting and rediscounting, the absence of specialized credit information agencies, the growth of competing money market instruments, etc., are among other factors which have impeded the growth of bill market in India.



## MARKET FOR LONG-TERM BILLS

Bills of exchange are normally treated as short-term instruments. Long-term instruments in India have started their operations in India with the introduction of Bills Rediscounting Scheme of IDBI.

The Scheme was introduced in April 1965 by the Industrial Development Bank of India. The scheme covers bills/promissory notes arising out of the sales and purchases of indigenous capital equipment and machinery. Its objective is to enable the manufacturer get the value of the machinery within a few days of the delivery of the machinery by discounting with his banker the bills of exchange or promissory notes and also enable the purchaser – user of the machinery the facility to utilize the machinery acquired and repay its cost over a number of years. The bills/promissory notes to be eligible for rediscounting by IDBI must be drawn, made, accepted or endorsed by an industrial concern as defined by the IDBI Act, 1964.

The period of maturity of the bill should not be less than 6 months and not more than 5 years (7 years in certain cases). The minimum amount of a transaction covering a set of bills or promissory notes eligible for rediscounting has been fixed at Rs.10,000.

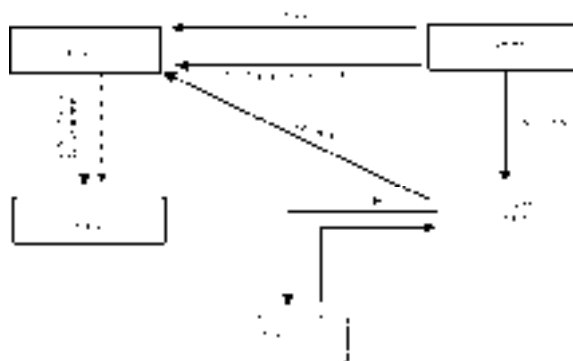
### Mechanism of the Scheme

The rediscounting facilities at the IDBI are available at rates of interest fixed by it. Different rates are fixed for bills of different maturities and different users of the scheme. Rates are usually lower for longer maturities, than for shorter maturities. IDBI's rediscount rate is lower than the RBI discount rate in absolute terms.

1. Buyer or user of the capital equipment/ machinery, not in a position to make full cash payment, approaches seller/manufacturer for deferred payment who agrees to supply.
2. Supplier, however, supplies the machinery subject to an advance payment and acceptance by the buyer for bills drawn for the balance amount and interest. Buyer makes the advance payment and delivers the accepted bills.
3. The supplier gets the bills discounted by his bank and realizes the cost of equipment.
4. Seller's bank in turn gets the bill rediscounted with the IDBI [in case of short-term or commercial bills the same procedure applies. However, the rediscounting institute in such a case may be the DFHI/other Commercial Banks/DFIs].
5. Three days to maturity, the seller's bank makes the payment and takes back the rediscounted bills.
6. Seller's bank, on the due date, obtains the payment from the acceptor.

Since the seller's bank is primarily responsible to IDBI, with a view to safeguard its own position, it generally requires that the bills be acceptable or guaranteed on behalf of the buyer by its banker. On the due date, it can obtain the payment either from the buyer or its banker.

Figure 1: IDBI Bill Rediscounting Procedure



**SUMMARY**

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- Monetary policy refers to the use of the official instruments under the control of the central bank of the country to regulate the availability, cost and use of money and credit.
- The bank standard rate is the rate at which the bank is prepared to buy or rediscount bills of exchange or other commercial paper eligible for purchases.
- A bill of exchange has been defined as an instrument in writing containing an unconditional order, signed by the maker, directing a certain person to pay a certain sum of money only to, or to the order of, a certain person or to the bearer of the instrument.
- The specific features of a negotiable instrument are: there must be three parties to the exchange, namely drawer, drawee and payee, the instrument must be in writing, containing an order (not a request) to a certain person to pay, unconditionally, a certain sum of tender legal money, duly signed by the drawer and presented to the drawee for acceptance. It should also have date, number, place and other considerations found in the bills of exchange.
- Bills of exchange can be classified as demand or usance bills, documentary or clean bills, D/A or D/P bills, inland or foreign bills, supply bills or government bills or accommodation bills.
- Bills can also be classified as traders bills, bills with co-acceptance, bills accompanied by letter of credit and drawee bills.
- Originally discounted bills can be rediscounted by banks for their corporate clients with financial institutions, as long as such bills arise out of genuine trade transactions.
- The RBI has instructed banks to restrain from rediscounting bills outside the consortium of banks and initially discounted by finance companies and merchant bankers. Further discounting should be only for the purpose of working capital/credit limits and for the purchase of raw materials/inventory. Accommodation bills are not to be discounted under any circumstances.

## **Lesson 9**

# **Debt Market: Gilt-Edged Securities**

**After reading this lesson, you will be conversant with:**

- Features of Government Securities
- Primary Market
- Trends in the Government Securities Market
- Issuing Procedures and Redemptions
- Role of RBI

Government securities are the most important and unique financial instruments in the financial markets of any economy. Government of India Securities (GOI Sec) include debt obligations of the central government, state governments and other financial institutions owned by central and state governments. As the repayment of principal as well as interest is secured by government or its guarantee, these instruments are usually referred to as 'Gilt-Edged Securities'. Literally, gilt means gold, therefore, a gilt-edged security implies 'security of the best quality'. As the government securities are loans floated by the government, they become a part of the national debt of the country and the payment of interest on them and also their repayment has a first charge on a nation's purse. Hence, it is an absolutely secured financial instrument, which guarantees the capital as well as the interest income. The central government securities are considered as the safest claims amongst stocks of local authorities and industrial debentures, etc. Thus, investors prefer to invest in these securities though the rate of interest is relatively low, when compared to other money market instruments. In the absence of default risk, they are regarded as risk-free investments.

## **FEATURES OF GOVERNMENT SECURITIES**

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### **Issuers**

The government securities are issued by the central government, state governments, and semi-government authorities like municipal corporations and municipalities, autonomous institutions like the port trusts, improvement trusts, state electricity boards, metropolitan authorities, public sector corporations, and government agencies such as the IDBI, SFCs, SIDCs, NABARD, housing boards, etc.

### **Eligible Investors**

Individuals, firms, companies, corporate bodies, institutions, state governments, provident funds and trusts are allowed to invest in government securities. The Non-resident Indians, Overseas Corporate Bodies and Foreign Institutional Investors (FIIs) registered with SEBI and approved by RBI are also eligible to invest in government securities. Though different segments are permitted to invest, commercial banks, insurance companies and Non-Banking Financial Companies (NBFCs) are the major buyers of gilts in the market.

### **Purpose**

Government securities play a vital role in the open market operations conducted by the Central Bank of the country. These instruments facilitate implementation of the fiscal policy of the government. The major investors such as commercial banks, NBFCs, insurance companies hold GOI securities to meet their statutory requirements. In spite of low yields, they are bound to invest in these bonds.

### **Minimum Subscription**

The minimum amount of investment in government securities for a single investor is Rs.10,000 (face value) and in multiples thereof.

### **Maturity**

The government securities are issued with various maturity periods. These were issued with maturities ranging from 2 to 31 years since independence. In the early 90s the average maturity period was shortened to 10 years by the RBI. At present, government securities run with a tenure upto 20 years in the market. They can be classified into three categories depending upon their maturities viz., long-dated, medium-dated and short-dated. Long-dated securities have maturities exceeding 10 years from the issue date, medium-dated securities have maturities ranging from 5 to 10 years and short-dated securities mature within 5 years.

## **Form of Security**

The Reserve Bank issues Government Stock to the investors by crediting their Subsidiary General Ledger Account maintained with it or in the form of Stock Certificate (if needed).

## **Yield**

Yield implies the actual return on the investments. Different types of yield are discussed below.

- *Coupon Yield:* The fixed interest rate on a government security or bond is called coupon yield. For example, 12.00% GOI 2008 implies that 12.00% is the coupon yield. Change in the interest rates, inflation rate or any other economic factor will not be represented by this yield.
- *Current Yield:* Current yield is the present return available on the government security or bond based on its purchase price. It is the ratio of annual interest payment to the current market price. This can be explained with an example; 'X' has purchased 12.00% GOI 2008 at Rs.100 and 'Y' purchased the same instrument at Rs.110. The current yield of 'X' = 12.00%, the current yield of 'Y' will be 10.91%.
- *Yield to Maturity (YTM):* Yield to maturity is the rate at which all the future cash inflows of the bond have to be discounted to equate the cost price of the bond. This can also be termed as the Internal Rate of Return (IRR) of the government security or bond.

These securities are essentially fixed income securities. They are mostly issued in the form of coupon bearing securities where the coupon may be determined by RBI or the market. At times they are also issued in the form of zero coupon securities and floating rate securities. The yield on these securities consists of coupon income and redemption yield. The coupon income is paid half-yearly in case of coupon bearing securities to the holder. The redemption yield is return on investment from discounted cash flows up to redemption.

The coupons offered on these securities were predetermined by the Central Bank until 1993 and were kept lower than market interest rates in order to minimize the cost of servicing public debt. From April 1993, the Reserve Bank has begun auctioning the securities competitively and since then the interest rates have been increasingly set at market determined levels. The weighted average yield offered on government securities which was 11.90% during 1994–95 rose to 13.75% in 1995–96. Then again it started falling. In 2000–01 it hovered around 10.95%. Thus it is observed that the yield curve for all maturities has shown subsequently a downward trend. In spite of moving away from the regulated and subsidized interest rates to market determined rates, it can be seen from the above data that the average yield moved in a narrow range over the last 12 years. While the government's decision to pay market determined yield should have increased the yields of the following factors which have worked in the opposite direction.

1. A decreasing level of inflation which in turn reduced the level of interest rates.
2. Introduction of prudential norms for banks which resulted in greater demand for gilts in view of the zero risk weightage assigned to them till the end of 1997–98.

## **Advantages and Disadvantages of Investing in Gilts**

### **Advantages**

1. As the security is issued by the GOI, it has a minimal default risk.
2. Investors have the opportunity to invest in very long-term debt sometimes up to 20 years because of the long maturity periods.
3. Almost all issues by the government have adequate liquidity except for a few. With the primary dealer authorized to deal in the buying and selling, he can take care of the liquidity.

**Tax benefits**

Tax benefits under Section 80L up to Rs.3,000 are available with no TDS (tax deducted at source).

**Disadvantages**

The inflation will decrease the real return on the security and the possibilities of higher interest rates erode the value of the bond.

**PRIMARY MARKET**

The Reserve Bank on behalf of issuers may issue different types of stocks from time to time depending on their requirements.

**Types of Government Stocks****Issue of Stock through Auction**

The RBI, on behalf of the government, issues notification to auction government securities, stating the amount and time. An applicant may submit more than one bid at different yields through separate applications for each bid. The aggregate amount of bids submitted by a person should not exceed the aggregate amount of Government Stock offered for sale. (The format of application form is given in the Appendix.) On the basis of the bids received, the Reserve Bank of India will determine the cut-off rate of yield at which offers to purchase the Government Stock will be accepted at the auction depending upon the notified amount. The coupon of the stock is decided in an auction. The successful bids offered at the cut-off rate of yield as determined by the RBI will be accepted at par. Other bids tendered at rates lower than the cut-off rate of yield determined by the RBI will be accepted at cut-off rates as quoted in the bid. The bidders will be issued these securities at a premium which will be determined in such a way that yield-to-maturity to the bidder will be equal to the rates at which they have put in their funds in the Government Securities. Bids quoted at rates higher than the cut-off rate of yield determined by the RBI will be rejected. The stock carries the same coupon till maturity.

**Issue of Stock with Pre-announced Coupon Rates**

The RBI also announces the coupon on stock before the date of floatation and the stock is issued at par. The interested bidders need to submit the application form to RBI (format of application is given in Appendix II). If the total subscription exceeds the aggregate amount offered for sale in respect of a fixed coupon stock, the RBI will make a partial allotment to all the applicants.

**Stock with Variable Coupon Rates, viz., Floating Rate Bonds, etc.**

In case of floating rate bonds, the stock will carry a coupon rate which will vary according to the change in the Base Rate to which it is related. The description of the Base Rate and the manner in which the coupon rate is linked to the Base Rate, floor and cap to the rate, if any, will be announced by RBI at the time of issue. The procedure for issuance is similar to that of pre-announced coupon rates.

**Zero-Coupon Bonds**

Zero-coupon bonds are issued at a discount and redeemed at par. No interest is paid on such bonds before maturity. Zero-coupon bonds are issued by means of auction, with a face value of say Rs.100. The bidders need to clearly specify the purchase price expressed up to two decimal points in the application. An applicant needs to submit more than one bid at different prices through separate applications for each bid (but, the aggregate amount of bids submitted by a person should not exceed the aggregate amount of bonds offered for sale). The RBI will determine the cut-off price at which tenders to purchase Zero-Coupon Bonds will be accepted at the auction. All the bids at prices lower than the cut-off price will receive full allotment, while the bids at prices higher than the cut-off price will be rejected. The bids at the cut-off price may receive full or partial allotment depending on the total amount of bids and the notified amount.

## **Stock on Tap**

Stock on tap is issued by the RBI with predetermined price, maturity and coupon with no aggregate amount indicated in the notification. Sale of such stock will be kept open so long as the RBI desires and closed at any time at its discretion.

## **Stock for Which the Payment is made in Installments**

The stock is issued either by auction or by pre-announcing a coupon rate. The special feature of the stock is that the payment can be made by the investors in installments. It means that the stock will be initially issued as partly paid stock which will become fully paid at the end of the last installment. The total amount is usually paid in four installments. The interest is paid on the paid-up value of the stock.

## **Issue of Government Stock in Conversion of Maturing Treasury Bills/Dated Securities**

In this mode, the RBI gives an option to the holders of the Treasury Bills of certain specified maturities, to convert the respective Treasury Bills at specified prices into a new stock offered for sale. The conversion prices are predetermined by RBI depending on the remaining term to maturity of the respective Treasury Bills.

## **Secondary Market**

Most of the players who invest in these securities are institutions and hence the volumes are high. Considering that these securities are the first choice for banks to comply with SLR requirements, the demand is continuous. As all the institutional players deal with these securities in the demat form, the settlement procedures are also simple and thus enhance the liquidity. The secondary market transactions are essentially negotiated transactions between the players and hence they can be classified as OTC transactions.

The secondary market transactions in government securities are given in Table 1 of Appendix I. It is also known as the telephone market. In addition, the National Stock Exchange (NSE) has a wholesale debt market segment on which all the government securities are traded. Trading on NSE is screen-based. This facilitates all the participants to have online information about the trading. A participant who wants to initiate a deal or respond to an offer displayed on the screen, contacts one of the brokers who through his system places the order to buy or sell. The terms of the deal specify the details of the security, price, volume and date of settlement.

There is no prescribed settlement period in case of debt market as in the capital markets. Hence the deals may be entered for settlement on the same day or 1 or 2 days after the date of trading. Often, interbank GOI Sec trades settle on the same business day, whereas trades with non-bank counterparties settle either on the same day or up to five business days after the trade. If both the parties to the trade do not have current account but only an SGL account with the RBI, then the seller gives an SGL note detailing the transaction to the buyer. An SGL note is lodged with the RBI who makes the entries in the accounts of the two parties. All the institutional participants such as banks, FIs, Mutual Funds have an SGL account and Current Account with RBI. Both the buyer and the seller execute an SGL form under Delivery Versus Payment (DVP) system which is presented to the RBI. The RBI ensures the availability of funds with the buyer and security with the seller and posts these transactions in the Current Accounts and SGL Accounts.

Transfer is done through book entry method in SGL account maintained at PDO<sup>1</sup>. If the investors do not have an SGL account, then they can open a constituent account with any registered bank authorized by the RBI for the purpose. The brokerage charged by the bank is around 0.01%, which is negotiable, i.e. it can be taken only from buyer, or seller or from both depending on whose SGL is maintained by the banks.

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1 RBI decided to limit SGL facility only to institutions who are also eligible to have Current Account with them. All others are advised to open SGL accounts in other banks. PDO: Public Debt Office.

## Payment of Interest and Redemption

The coupons are fixed and paid out semi-annually to the holder. Specified interest on government stock will be paid at the Public Debt Offices of RBI, branches of SBI and associate banks (conducting government business). If the investors are holding the securities in the SGL account, interest is credited by RBI to their Current Account with RBI on the due date. If investors are holding the securities in physical form then the securities are to be presented at the Public Debt Office, RBI for interest payment. The same procedure is applicable to redemption of securities.

## TRENDS IN THE GOVERNMENT SECURITIES MARKET

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### Volume of Issues of Central and State Government Securities

The growth of government securities market in India and the investor response to the government bond issues can be known from various indicators. One of such indicators is the volume and composition of the government securities. The volume of annual issues by the central government in 1960–61 was Rs.175 crore which increased to Rs.6,95,135 crore in 2000–01, registering a 30 percent increase as compared with Rs.5,35,602 crore in 1999–2000. This reflects increasing depth in the Government securities market. The deepening of the market was attributable to several factors such as generally stable call rates, favorable market expectations, more active trading by the new PDs, mutual funds and some traditional participants like banks and LIC and active open market operations by Reserve Bank. During 2000–01, the total outright transactions amounted to Rs.5,69,174 crore or 82 percent of the aggregate transactions and the balance of Rs.1,25,961 crore or 18 percent by way of repos. In respect of state governments it increased from Rs.75 crore to Rs.2,986 crore during the same period.

In the 1940s and 1950s the market was characterized by poor public response to the government issues. Issues were kept open for a long time and the public subscription always fell short of the required amount. But this changed, and with the absorptive capacity of the market being very high, the government oversubscribed. This trend continued almost every year till the beginning of the nineties. The state governments oversubscribed than the central government, which indicates the marketability and popularity of the state government securities over the central government securities.

Sometimes it is questioned whether the improvement in the G–Sec market is authentic or it is due to the support of the Central Bank. Earlier the RBI used to subscribe to a substantial part of the issues by the government. But in the recent years the share of RBI in the government securities has witnessed a decline.

Some important conclusions that can be drawn from the trends of the government securities market are given below:

- The government resorted to higher and higher loans every year and could not retire the issues as prescribed.
- There is a change in the method used to refund the securities. Previously new securities were given on the maturity of old securities but now the cash received from the sale of the issues is being utilized to retire the securities.
- Because of the rise in the cash needs, the government is increasingly focusing on the cash subscriptions.



**Table 1: Market Borrowings of Central and State Governments**

(Rupees crore)

Year	Centre		States		Combined (Centre & States)	
	Gross	Net	Gross	Net	Gross (2+4)	Net (3+5)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1980-81	2871	2605	333	206	<b>3204</b>	<b>2811</b>
1981-82	3191	2903	507	336	<b>3698</b>	<b>3239</b>
1982-83	4166	3800	556	399	<b>4722</b>	<b>4199</b>
1983-84	4345	4001	763	588	<b>5108</b>	<b>4589</b>
1984-85	4591	4100	1301	772	<b>5892</b>	<b>4872</b>
1985-86	5764	5101	1414	973	<b>7178</b>	<b>6074</b>
1986-87	6351	5300	1446	1163	<b>7797</b>	<b>6463</b>
1987-88	7821	7000	1789	1505	<b>9611</b>	<b>8505</b>
1988-89	7725	7251	2285	2002	<b>10010</b>	<b>9253</b>
1989-90	8044	7405	2555	2249	<b>10599</b>	<b>9654</b>
1990-91	8989	8001	2569	2569	<b>11558</b>	<b>10570</b>
1991-92	8919	7501	3364	3364	<b>12284</b>	<b>10865</b>
1992-93	13885	8461	3805	3471	<b>17690</b>	<b>11932</b>
1993-94	50388	28526	4145	3638	<b>54533</b>	<b>32164</b>
1994-95	38108	20074	5123	5123	<b>43231</b>	<b>25197</b>
1995-96	40509	26790	6274	5931	<b>46783</b>	<b>32721</b>
1996-97	36152	26356	6536	6536	<b>42688</b>	<b>32892</b>
1997-98	59637	40494	7749	7193	<b>67386</b>	<b>47687</b>
1998-99	93953	62903	12114	10700	<b>106067</b>	<b>73603</b>
1999-00	99630	73077	13706	12405	<b>113336</b>	<b>85482</b>
2000-01	115183	73787	13300	12880	<b>128483</b>	<b>86667</b>
2001-02	133801	92302	18707	17261	<b>152508</b>	<b>109563</b>
2002-03	151126	104118	30853	29064	<b>181979</b>	<b>133182</b>

Source: Reserve Bank of India Records.

### OWNERSHIP AND MATURITY PATTERN OF GOVERNMENT SECURITIES

The following categories are the major participants in the government securities market.

- Central and State governments
- Banking sector including the Reserve Bank of India
- Insurance companies
- Provident funds
- “Others” which include individuals, local authorities, financial institutions, non-residents, etc.

Earlier, the share of the institutions being very less the individuals had the largest share in the government securities markets. The lower interest rates on the securities made the interest of the individuals on the government securities to decline gradually.

Table 2 presents the ownership and maturity pattern of the central government securities.

**Table 2: Ownership of Central And State Government Securities \***  
(Outstanding at end-March)

(Rupees crore)

Category of Holders (1)	Central Government Securities					
	(1991) (2)	(1992) (3)	(1993) (4)	(1994) (5)	(1995) (6)	(1996) (7)
<b>Total (I to VIII)</b>	<b>70376.6</b>	<b>76908.7</b>	<b>81693.3</b>	<b>110581.3</b>	<b>137515.2</b>	<b>169525.9</b>
I. Reserve Bank of India (own account)	17450	17147	8643.1	3311.4	3447	15224.2
II. Commercial Banks	38802.9	46034.9	52806.3	79512.5	94588.6	109050.4
Of which:						
Scheduled Commercial Banks(i+ii+iii) **	38785.6	46017.3	52788.7	79493.2	94588.4	109050.1
i. State Bank of India and Associates	11418.8	14760.1	18872.8	26798.8	31815.7	35385.7
ii. Nationalised Banks	290	25412.9	27763.7	42460.7	49893.3	57919.5
iii. Other Scheduled Commercial Banks	3455.3	5844.3	6152.2	10233.7	12879.5	15745
III. Life Insurance Corporation of India #	9472.1	11294.2	13353.1	18634.8	23632.2	30216.6
IV. Unit Trust of India	.	.	.	6054.1	8562.8	6222
V. NABARD	.	.	1768.9	1685.5	1860.8	1416.9
VI. Employees Provident Fund Scheme	634.8	625.5	624.1	621.5	621.9	995.6
VII. Coal Mines Provident Fund Scheme	236.6	232.5	231.8	228.9	226.2	554.5
VIII.Others	3780.2	1574.6	4266	532.6	4575.8	5845.8

(Rupees crore)

Category of Holders 1	Central Government Securities					
	(1997) (8)	(1998) (9)	(1999) (10)	(2000) (11)	(2001) (12)	(2002) (13)
<b>Total (I to VIII)</b>	<b>192893.1</b>	<b>249023.6</b>	<b>311604.6</b>	<b>381881</b>	<b>453668</b>	<b>536324</b>
I. Reserve Bank of India (own account)	6666.4	31977.4	33949.8	31794.9	41731.7	40924.4
II. Commercial Banks	130210.9	143689.9	183609.7	231686	276707	325457.6
Of which:						
Scheduled Commercial Banks(i+ii+iii) **	130209.2	143687.6	183607	231686	276707	325457
i. State Bank of India and Associates	40101.5	40114.2	55981.1	75894	105217.9	124537.6
ii. Nationalised Banks	68374.5	76325.2	90857.6	110566	121639.9	137876.7
iii. Other Scheduled Commercial Banks	21733.2	27248.2	36768.3	45225	49851.1	63042.7

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III. Life Insurance Corporation of India #	38288.4	46514.3	56791	70391	84266.2	107137.7
IV. Unit Trust of India	2358.3	1944.5	400.2	665.7	4508.4	4716.1
V. NABARD	1335.5	1335.5	1305.5	1290.5	1211	1290.9
VI. Employees Provident Fund Scheme	1848.3	2782	4274	6072	8727.5	11368
VII. Coal Mines Provident Fund Scheme	753.5	971.7	–	–	–	–
VIII. Others	11431.8	19808.3	–	–	–	–

(Rupees crore)						
Category of Holders	State Government Securities					
	(1991)	(1992)	(1993)	(1994)	(1995)	(1996)
1	(14)	(15)	(16)	(17)	(18)	(19)
<b>Total(I to VIII)</b>	<b>15644.2</b>	<b>18970.7</b>	<b>23645.6</b>	<b>26087</b>	<b>31208.2</b>	<b>37931.4</b>
I. Reserve Bank of India (own account)	0	0	0	0	0	0
II. Commercial Banks	12290.2	15012.1	17181.8	19508.6	22796.8	25661.3
Of which:						
Scheduled Commercial Banks(i+ii+iii) **	12288.2	15009.7	17178.9	19505.1	22796.8	25661.3
i. State Bank of India and Associates	3470.1	4321.5	5309.5	6182.4	7155.8	7933.7
ii. Nationalised Banks	7706.3	9718.9	10935.4	12400.3	14412.5	16368.5
iii. Other Scheduled Commercial Banks	1111.8	969.3	934	922.4	1228.5	1359.1
III. Life Insurance Corporation of India #	1081.5	1484.4	2120.5	2895.7	3680.8	4616.9
IV. Unit Trust of India	.	.	.	1	1	1
V. NABARD	0	0	0	0	0	0
VI. Employees Provident Fund Scheme	403.8	432.4	461.7	533	617.2	833.6
VII. Coal Mines Provident Fund Scheme	161.3	187.2	207.3	218.9	258.1	669.8
VIII Others	1707.4	1854.6	3674.3	2929.8	3854.3	6148.9

(Rupees crore)						
Category of Holders	State Government Securities					
	(1997)	(1998)	(1999)	(2000)	(2001)	(2002)
1	(20)	(21)	(22)	(23)	(24)	(25)
<b>Total (I to VIII)</b>	<b>43581.6</b>	<b>50828</b>	<b>61531</b>	<b>73884.6</b>	<b>86765</b>	<b>104026</b>
I. Reserve Bank of India (own account)	0	0	0	0	0	0

**Financial Markets and Instruments**

II. Commercial Banks Of which:	28892	32922.7	38412.8	45713	52703.5	62723
Scheduled Commercial Banks(i+ii+iii) **	28891.9	32922.6	38412.7	45713	52703.5	62723
i. State Bank of India and Associates	8963.3	10119.5	11670.1	13568	15162.8	18603.2
ii. Nationalised Banks	18486.3	20955.2	24723.6	29462	34590.4	40966
iii. Other Scheduled Commercial Banks	1442.3	1847.9	2019	2682	2950.3	3153.9
III. Life Insurance Corporation of India #	5867.7	7395	9947	11932	14381	18329.4
IV. Unit Trust of India	0	0	1	16	16.3	19.5
V. NABARD	0	0	0	0	0	0
VI. Employees Provident Fund Scheme	1282.7	1738	2419.2	3235.9	4028	5273
VII. Coal Mines Provident Fund Scheme	659.1	826.6	—	—	—	—
VIII. Others	6880	7945.7	—	—	—	—

(Rupees crore)						
Category of Holders	Central and State Government Securities					
	(1991)	(1992)	(1993)	(1994)	(1995)	(1996)
1	(26)	(27)	(28)	(29)	(30)	(31)
<b>Total (I to VIII)</b>	<b>86020.8</b>	<b>95879.4</b>	<b>105338.9</b>	<b>136668.3</b>	<b>168723.4</b>	<b>207457.3</b>
I. Reserve Bank of India (own account)	17450	17147	8643.1	3311.4	3447	15224.2
II. Commercial Banks Of which:	51093.1	61047	69988.1	99021.1	117385.4	134711.62
Scheduled Commercial Banks(i+ii+iii) **	51073.8	61027	69967.6	98998.3	117385.3	134711.39
i. State Bank of India and Associates	14888.9	19081.6	24182.3	32981.2	38971.5	43319.3
ii. Nationalised Banks	31161.6	35131.8	38699.1	54861	64305.7	74288
iii. Other Scheduled Commercial Banks	5023.3	6813.6	7086.2	11156.1	14108	17104.1
III. Life Insurance Corporation of India #	10553.6	12778.6	15473.6	21530.5	27313	34833.5
IV. Unit Trust of India	.	.	.	6055.1	8563.78	6223.01
V. NABARD	.	.	1768.9	1685.5	1860.77	1416.91
VI. Employees Provident Fund Scheme	1038.6	1057.9	1085.8	1154.5	1239.1	1829.18
VII. Coal Mines Provident Fund Scheme	397.9	419.7	439.1	447.8	484.3	1224.24
VIII. Others	5487.6	3429.2	7940.3	3462.4	8430.1	11994.64

(Rupees crore)						
Category of Holders	Central and State Government Securities					
	1997	1998	1999	2000	2001	2002
I	32	33	34	35	36	37
Total(I to VIII)	236474.7	299851.6	373135.6	455765.6	540433	640650
I. Reserve Bank of India (own account)	6666.4	31977.4	33949.8	31794.9	41731.7	40924.4
II. Commercial Banks	159102.9	176612.6	222022.5	277399	329410.5	388180
Of which:						
Scheduled Commercial Banks(i+ii+iii) **	159101.1	176610.2	222019.6	277399	329410.5	388180
i. State Bank of India and Associates	49064.8	50233.7	67651.2	89462	120380.7	143140.8
ii. Nationalised Banks	86860.8	97280.4	115581.2	140028	156230.3	178842.7
iii. Other Scheduled Commercial Banks	23175.5	29096.1	38787.2	47907	52801.4	66196.6
III. Life Insurance Corporation of India #	44156.1	53909.3	66738	82323	98647.2	125467.1
IV. Unit Trust of India	2358.3	1944.5	401.2	681.7	4524.7	4735.6
V. NABARD	1335.5	1335.47	1305.5	1290.5	1211	1290.9
VI. Employees Provident Fund Scheme	3130.9	4519.9	6693.2	9307.9	12755.5	16641
VII. Coal Mines Provident Fund Scheme	1412.7	1798.3	—	—	—	—
VIII. Others	18312	27754.1	—	—	—	—

\*: Represent the face value of interest bearing outstanding rupee securities excluding Treasury Bills, Saving Deposit Certificates, Other postal Obligations, Prize Bonds, expired loans and interest free non-negotiable securities of Government of India.

\*\* : Excluding Regional Rural Banks.

# : Represents the Corporation's Investment of funds of Life Business and Capital Redemption Insurance Business in Government securities.

**Note:** Institutions under the category 'Others' also include : in 1995-96, EXIM Bank (Rs.229 crore), NHB (Rs.190 crore), SIDBI (Rs. 138 crore). In 1996-97, Assam Tea Plantation Fund (Rs.72 crore), IDBI (Rs. 170 crore), NHB (Rs. 190 crore), SIDBI (Rs. 254 crore). In 1997-98, Assam Tea Plantation Fund ( Rs.81 crore), IDBI (Rs. 245 crore), ICICI (Rs. 52 crore), SIDBI (Rs. 572 crore). In 1998-99, Assam Tea Plantation Fund (Rs. 89 crore), EXIM Bank (Rs. 306 crore), ICICI (Rs. 613 crore), IDBI (Rs. 131 crore), NHB (Rs. 207 crore ), SIDBI (Rs. 450 crore).

Source : Data are compiled from:

- 1 Reserve Bank of India records for holdings of Reserve Bank of India on its own account.
- 2 Returns filed by Commercial Banks with the Reserve Bank for holdings of commercial banks.
- 3 State Bank of India for Employees' Provident Fund Scheme.
- 4 Bank of India for Coal Mines Provident Fund Scheme.
- 5 Data received from various financial Institutions for their holdings.

Also it is evident that the share of state governments has declined over the time and the commercial banks are now the major investors in the G–Sec. The Share of the insurance sectors in the government securities has been increasing over the time. A sharp decline is observed in the portion of securities held by the other sectors.

The shares of financial institutions in the government securities has affected the operation of the market for government securities. One effect is that the government bond market has become narrow. Secondly, the institutional holding creates lesser activity in the secondary market because it tends to hold the securities till their maturity. So it is primarily the banks and corporates who are involved in the trading of the securities in the secondary market. This decreases the activity in the market and the major dealings are limited only to the Mumbai market.

Government securities usually have fixed maturities. Undated or perpetual securities are very rare and even if they exist they can be redeemable on three months prior notice at the government's option. One of the special features about government securities is that a major portion of the government debt securities does not mature because the securities are converted into new securities.

**Table 3: Maturity Pattern of the Government of India Rupee Loans**

(Rupees crore)

Year (end-March)	Undated	Under 5 years	Between 5 and 10 years	Over 10 years	<b>TOTAL Amount</b>
1	2	3	4	5	6
1970-71	258	1606	635	1886	<b>4385</b>
1971-72	258	1549	668	2309	<b>4785</b>
1972-73	258	1378	856	2872	<b>5363</b>
1973-74	258	957	1340	3380	<b>5935</b>
1974-75	258	1092	1436	3731	<b>6517</b>
1975-76	258	1161	1602	4084	<b>7104</b>
1976-77	258	1177	1672	4950	<b>8057</b>
1977-78	258	1413	1591	6078	<b>9340</b>
1978-79	258	1577	1694	7466	<b>10994</b>
1979-80	258	1762	1852	9049	<b>12921</b>
1980-81	258	1864	2583	10960	<b>15665</b>
1981-82	258	2458	3053	12810	<b>18579</b>
1982-83	258	3144	3076	15881	<b>22359</b>
1983-84	258	3282	3736	19113	<b>26389</b>
1984-85	258	3425	4544	22270	<b>30497</b>
1985-86	251	3601	5469	25983	<b>35304</b>
1986-87	0	4355	4793	30905	<b>40053</b>
1987-88	0	4685	4691	38454	<b>47830</b>
1988-89	0	5086	4968	45048	<b>55102</b>
1989-90	0	6891	3720	51909	<b>62520</b>
1990-91	0	6056	3928	60393	<b>70377</b>
1991-92	0	5654	12921	58333	<b>76908</b>
1992-93	0	6585	11571	63537	<b>81693</b>
1993-94	0	23703	24626	62252	<b>110581</b>
1994-95	0	34840	37661	65014	<b>137515</b>
1995-96	0	65010	51386	53130	<b>169526</b>
1996-97	0	87263	55873	49757	<b>192893</b>
1997-98	0	102041	101683	45300	<b>249024</b>
1998-99	0	129078	132272	50255	<b>311605</b>
1999-00	0	143041	147651	91189	<b>381881</b>
2000-01	0	158832	178072	116764	<b>453668</b>
2001-02	0	164169	190788	181367	<b>536324</b>

Also see Notes on Tables.

However, the maturity pattern of the government securities has undergone a great change. Government debt is shifting towards the short-term maturity securities. The central government debt maturities above 10 years formed 85.8 percent in 1990-91. Securities maturing within the next 5 years constitute nearly 45 percent of the marketable borrowings. The piling up of securities maturing at a time would necessitate corresponding gross borrowing and puts pressure on both resources and interest rates. Hence the central bank has been making efforts to lengthen the maturity profile since the year 1998-99, by issuing long-term loans of maturities ranging from 15 to 20 years. Regarding the maturity preferences it can be said that the insurance companies and provident funds prefer to hold the long-term government securities.

**PRICES AND YIELDS**

The face value of the government security is Rs.100 or Rs.1,000. Earlier, that is, before 1950s the government bonds were issued at a discount. There was no fixed relation between the maturity pattern and the discount offered. A discount was availed from the state government securities due to the great need for the funds. The minimum price of issue being 97 percent, the majority of the issues by the state government securities were below par. But after the 1980s all the issues were being made at par. Only in one instance, that is, in 1980 the bonds were issued above the par.

The coupon rate or the bond rate is the interest rate mentioned on the bond, and paid on its face value. If the value on issue and redemption are the same, the coupon rate is equal to the redemption yield. The redemption yield would be higher than the bond rate when the investor purchases the bond at a value lesser than the face value or the bond rate, that is, at a discount. Running yield is obtained by correlating the market price of the bond with the bond rate and the discount or premium. The redemption yield represents the return available to the investor if he retains the bond till maturity and the running yield is the return available when the investor sells it in the secondary market at the current price.

The behavior of the yields and prices can be observed from the Tables 4 and 5.

**Table 4**

Year	Government Securities Central Range	Central Weighted average	Government Securities State Range	State Weighted average
1	2	3	4	5
1980-81	5.98-7.50	7.03	6.75	6.75
1981-82	6.00-8.00	7.29	7	7
1982-83	6.25-9.00	8.36	7.5	7.5
1983-84	7.75-10.00	9.29	8.25-8.75	8.58
1984-85	7.75-10.50	9.98	9	9
1985-86	9.00-11.50	11.08	9.75	9.75
1986-87	10.00-11.50	11.38	11	11
1987-88	10.50-11.50	11.25	11	11
1988-89	10.00-11.50	11.4	11.5	11.5
1989-90	10.50-11.50	11.49	11.5	11.5
1990-91	10.50-11.50	11.41	11.5	11.5
1991-92	10.50-12.50	11.78	11.50-12.00	11.84
1992-93	12.00-12.75	12.46	13	13
1993-94	12.00-13.40	12.63	13.5	13.5
1994-95	11.00-12.71	11.9	12.5	12.5
1995-96	13.25-14.00	13.75	14	14
1996-97	13.40-13.85	13.69	13.75-13.85	13.82
1997-98	10.85-13.05	12.01	12.30-13.05	12.82
1998-99	11.10-12.60	11.86	12.15-12.50	12.35
1999-00	10.73-12.45	11.77	11.00-12.25	11.89
2000-01	9.47-11.70	10.95	10.50-12.00	10.99
2001-02	6.98-11.00	9.44	7.80-10.53	9.2

Source: Reserve Bank of India Records.

**Table 5: Prices and Redemption Yield on Central Government Securities (SGL Transactions)**

Sr.No.	Nomenclature of the loan	Annual Average Prices (Rs.)					Yield * ( % per annum )				
		1997-98	1998-99	1999-2000	2000-01	2001-02	1997-98	1998-99	1999-2000	2000-01**	2001-02**
1	2	3	4	5	6	7	8	9	10	11	12
<b>A) Terminable Under 5 Years</b>											
1	5.75% 2002	95.27	86.33	84.8	91.52	98.44	7.01	9.98	13.56	11.27	8.74
2	6.50% 2002	96.42	86.48	92.76	93.18	99.9	7.42	10.52	9.73	10.24	6.58
3	7.75% 2002	-	-	-	-	99.32	-	-	-	-	8.49
4	11.00% 2002	98.75	98.45	100.8	101.47	101.87	11.38	11.5	10.56	10.15	6.86
5	11.15% 2002	100.39	98.89	101.22	101.82	103.03	11.04	11.49	10.57	9.97	7.53
6	11.55% 2002	100.54	100.08	102.34	102.62	104.18	11.4	11.52	10.51	9.85	7.28
7	11.68% 2002	-	100.16	102.44	102.8	103.23	-	11.62	10.48	9.71	7.57
8	12.69% 2002	105.16	103.38	104.44	103.48	102.86	11.14	11.56	10.32	9.88	7.63
9	12.75% 2002	102.56	103.9	104.89	105.19	103.95	12	11.51	10.37	9.38	6.59
10	13.40% 2002	106.51	108.29	106.5	104.42	104.07	11.47	10.74	10.08	10.04	7.48
11	13.80% 2002	108.06	106.77	106.78	105.93	103.71	11.4	11.57	10.27	9.82	6.46
12	13.82% 2002	108.12	105.77	107.36	106.49	105.61	11.53	12.01	10.41	9.79	7.36
13	5.75% 2003	100	90.67	82.07	87.98	96.93	5.75	8.12	12.83	11.18	7.59
14	6.50% 2003	100	91.6	84.65	90.24	96.17	6.5	8.59	12.19	10.58	8.26
15	11.00% 2003	97.25	99.75	99.75	..	104.6	11.7	11.06	11.08	..	8.3
16	11.10% 2003	-	100.6	101.13	101.84	104.92	-	10.92	10.65	10.05	7.45
17	11.75% 2003	-	100.09	102.94	103.8	106.38	-	11.72	10.66	10.2	7.97
18	11.78% 2003	-	99.71	102.93	103.21	106.74	-	11.85	10.73	10.44	7.38
19	11.83% 2003	102.05	101.87	103.32	104.03	106.98	11.32	11.33	10.61	10.04	7.66
20	6.50% 2004	100	90.3	88.35	88.84	97.05	6.5	8.62	9.91	10.3	7.72
21	9.50% 2004	91.55	91.37	92.75	98.17	104.47	11.36	11.56	11.72	10.07	7.18
22	11.30% 2004	99.44	97.25	97.25	103.82	110.26	11.42	11.93	12.09	10.08	7.39
23	11.50% 2004	-	101.19	102.13	103.5	108.78	-	11.21	10.84	10.08	7.99
24	11.57% 2004	-	98.95	100.98	105.36	108.95	-	11.82	11.26	9.47	7.04
25	11.75% 2004	-	99.65	103.01	104.69	109.33	-	11.83	10.84	10.14	8.06
26	11.95% 2004	-	100.14	103.85	105.06	109.87	-	11.92	10.81	10.23	8.15
27	11.98% 2004	-	100.2	103.99	105.19	111.02	-	11.93	10.83	10.22	7.88
28	12.35% 2004	102.09	103.98	103.15	107.49	111.45	11.88	11.39	11.37	9.77	6.67
29	12.50% 2004	103.29	102.59	105.52	106.26	110.85	11.75	11.85	10.77	10.15	7.53
30	12.59% 2004	105.11	103.09	106.06	107.18	111.45	11.47	11.84	10.77	10.11	7.71
31	6.50% 2005	102.18	83.37	89.46	83.37	99.92	6.14	9.76	8.95	11.27	6.55
32	8.25% 2005	75.07	80.2	85.69	91.53	102.17	13.26	12.48	11.83	10.53	7.37
33	9.90% 2005	-	-	-	98.46	106.9	-	-	-	10.21	7.87
34	10.20% 2005	-	-	-	99.39	107.87	-	-	-	10.15	8.03
35	10.50% 2005	95.05	92.6	97.86	100.18	106.54	11.48	12.11	11.05	10.45	8.5
36	11.19% 2005	99.47	96.77	100.79	103.16	111.29	11.29	11.87	10.99	10.25	7.82
37	11.25% 2005	97.85	97.22	100.95	103.31	110.53	11.68	11.84	11	10.34	7.83
38	13.75% 2005	102.97	105.15	110.32	110.39	119.24	13.13	12.59	11.05	10.95	6.79
39	14.00% 2005	107.26	109.57	111.34	112.49	117.56	12.56	11.96	11.18	10.72	8.38
40	14.00% 2005 @	109.27	109.06	112.26	112.77	117.12	12.14	12.02	10.85	10.47	8.59
41	6.75% 2006	93.09	96	74.18	81.01	91.5	7.87	7.43	12.95	11.58	8.86
42	7.01% 2006	-	-	-	-	100.33	-	-	-	-	6.93
43	11.00% 2006	-	-	-	101.74	112.39	-	-	-	10.55	7.92
44	11.25% 2006	99.49	103.99	103.99	..	..	11.34	10.5	10.37	..	..
45	11.50% 2006	98.76	97.79	101.55	104.65	111.17	11.73	11.93	11.14	10.27	8.13
46	11.68% 2006	-	-	102.75	104.85	114.47	-	-	11.04	10.42	7.86
47	11.75% 2006	-	98.57	102.93	104.97	114.63	-	12.03	11.07	10.41	8.06
48	13.85% 2006	109.51	108.66	110.49	112.8	119	12.13	12.13	11.5	10.9	8.38
49	13.85% 2006 @	109.31	108.92	109.1	113.97	119.4	12.14	12.09	11.79	10.56	8.73
50	14.00% 2006	110.86	109.99	110.98	113.28	119.48	11.98	11.97	11.43	10.72	8.71



**Treasury Management: Theory and Practice**

Sr.No.	Nomenclature of the loan	Annual Average Prices (Rs.)					Yield * (% per annum)				
		1997-98	1998-99	1999-2000	2000-01	2001-02	1997-98	1998-99	1999-2000	2000-01**	2001-02**
1	2	3	4	5	6	7	8	9	10	11	12
<b>B) Between 5 and 10 Years</b>											
51	6.75% 2007	80.5	83.44	90.89	79.58	92	9.73	9.45	8.38	11.41	7.81
52	11.50% 2007	97.08	96.94	101.36	103.98	114.6	11.99	12.05	11.22	10.42	8.3
53	11.90% 2007	-	92.18	103.34	106.19	116.95	-	13.43	11.2	10.41	8.24
54	12.50% 2007	101.43	101.92	105.11	107.72	117.58	12.25	12.13	11.42	10.84	8.91
55	13.05% 2007	106.17	105.02	108.63	110.64	119.71	11.99	12.1	11.25	10.62	8.37
56	13.65% 2007	109.63	107.94	108.58	113.48	123.08	12.02	12.17	11.86	10.72	8.26
57	9.50% 2008	83.91	85.52	90.33	94.54	105.05	12.12	12.09	11.38	10.26	8.62
58	10.80% 2008	92.18	94.07	96.19	100.22	112.04	12.04	11.82	11.52	10.71	8.47
59	11.40% 2008	-	-	-	102.97	116.31	-	-	-	10.74	8.26
60	11.50% 2008	95.23	96.97	101.03	103.81	113.94	12.27	12.03	11.3	10.57	8.96
61	12.00% 2008	-	107.34	103.66	106.02	116.53	-	10.76	11.29	10.6	8.7
62	12.10% 2008	-	94.4	103.53	105.84	117.31	-	13.12	11.42	10.84	8.71
63	12.15% 2008	-	100.22	99.72	107.43	116.09	-	12.1	12.2	10.55	9.06
64	12.22% 2008	-	100.17	103.42	107.78	113.82	-	12.19	11.56	10.67	9.43
65	12.25% 2008	-	100.23	105	107.23	117.86	-	12.2	11.32	10.59	9.07
66	6.99% 2009	-	-	-	-	100.03	-	-	-	-	6.99
67	7.00% 2009	100	95.52	79.51	79.82	93.14	7	7.61	10.53	10.57	7.72
68	11.50% 2009	95.49	96.38	100.27	103.51	113.14	12.19	12.1	11.45	10.93	8.95
69	11.99% 2009	-	-	103.35	106.19	118.36	-	-	11.39	10.76	8.77
70	7.50% 2010	89.16	76.24	75.48	81.62	94.39	8.88	11.16	11.68	10.56	7.86
71	8.75% 2010	75.63	83.75	82.5	88.33	101.44	12.18	11.2	11.64	10.68	7.87
72	11.30% 2010	-	-	-	101.99	115.98	-	-	-	10.85	8.77
73	11.50% 2010	96.66	96.58	100.36	103.13	114.85	11.98	12.04	11.43	10.93	9.25
74	12.25% 2010	-	99.95	100.79	107.41	118.82	-	12.26	12.11	10.76	9.27
75	12.29% 2010	-	100.87	104.75	107.75	118.51	-	12.15	11.47	10.8	9.3
76	8.00% 2011	93.38	100	81.03	84.14	97.63	8.78	8	10.92	10.59	7.82
77	9.39% 2011	-	-	-	-	106.59	-	-	-	-	8.44
78	10.95% 2011	-	-	-	99.82	113.16	-	-	-	10.9	8.9
79	11.50% 2011	92.41	95.72	99.79	102.73	117.76	12.55	12.16	11.53	11	8.79
80	12.00% 2011	96.29	98.44	102.69	106.43	115.98	12.51	12.23	11.57	10.98	9.81
81	12.32% 2011	-	-	104.94	107.98	119.55	-	-	11.51	10.96	9.22
<b>C) Between 10 and 15 years</b>											
82	9.40% 2012	-	-	-	-	108.36	-	-	-	-	8.24
83	10.25% 2012	97.56	88.7	90.61	95.92	108.06	10.55	11.93	11.71	10.5	9.22
84	11.03% 2012	-	-	-	99.97	114.76	-	-	-	10.98	8.92
85	9.00% 2013	92.97	100.35	80.68	88.04	101.65	9.81	8.95	11.94	10.73	8.66
86	9.81% 2013	-	-	-	-	107.57	-	-	-	-	8.73
87	12.40% 2013	-	100.64	104.64	108.52	121.29	-	12.3	11.7	11.08	9.78
88	10.00% 2014	98.39	90.46	95.15	92.19	106.31	10.18	11.29	10.66	10.52	8.96
89	10.50% 2014	98.57	99.76	89.56	97.16	109.39	10.66	10.53	12.03	10.77	9.27
90	11.83% 2014	-	-	104.25	104.84	118.83	-	-	11.23	11.04	9.39
91	9.85% 2015	-	-	-	-	113.34	-	-	-	-	8.19
92	10.47% 2015	-	-	-	100.7	110.24	-	-	-	10.38	9.23
93	10.79% 2015	-	-	-	99.08	109.5	-	-	-	10.77	9.62
94	11.43% 2015	-	-	-	102.62	117.1	-	-	-	11.06	9.34
95	11.50% 2015	97.99	98.18	97.36	102.49	115.89	11.74	11.75	11.87	11.07	9.6
96	10.71% 2016	-	-	-	-	112.24	-	-	-	-	9.13
97	12.30% 2016	-	-	104.77	107.71	120	-	-	11.64	10.96	9.86
<b>D) Over 15 Years</b>											
98	8.07% 2017	-	-	-	-	104.21	-	-	-	-	7.55
99	10.45% 2018	-	-	-	-	110.23	-	-	-	-	9.35
100	12.60% 2018	-	100.4	105.31	110.08	124.75	-	12.54	11.88	11.22	9.95
101	10.03% 2019	-	-	-	-	110.76	-	-	-	-	9.02
102	10.70% 2020	-	-	-	96.58	111.12	-	-	-	11.02	9.48
103	11.60% 2020	-	-	-	-	117.97	-	-	-	-	9.81
104	10.25% 2021	-	-	-	-	109.37	-	-	-	-	9.22
105	10.18% 2026	-	-	-	-	112.91	-	-	-	-	8.91

\* : Based on annual average prices.

\*\* : Monthly redemption yield is computed from April 2000 as the mean of the daily weighted average yields of the transactions in each traded security. The weight is calculated as the share of the transaction in a given security in the aggregated value of transactions in the said security. Prior to April 2000, the redemption yield was not weighted and was computed as an average of daily prices of each security.

.. : Indicates that the relevant security was not traded during the year.

# : Compensation Bonds in respect of exports / project exports to Iraq.

@ : Security issued on an instalment basis.

Source: Reserve Bank of India

## Need to Widen and Deepen the Government Securities Market

The importance of the Government Securities markets can be evaluated,

- from the Government's point of view, which is the borrower;
- from their contribution to the financial markets especially debt markets; and
- from the working of monetary policy.

From the Government's viewpoint, a well-developed, broad and deep Government Securities market is vital to make public borrowings at reasonable costs and to avoid the automatic monetization of Government deficit by the central bank. This is essential in the case of secondary markets if the Government's borrowing needs are significant. The benefits of an efficient and well-functioning government securities market are optimization of maturity and interest costs, minimum affect of huge Government borrowings on the market and smooth co-ordination between monetary and public debt policy.

The Government Securities are taken as benchmarks for pricing various financial instruments and hence have become essential contributors to the fixed income markets all over the world. They facilitate proper risk evaluation in various debt instruments and uniformity of interest rates in several other markets. They help to integrate different markets in the financial system of a country and provide better inter linkage between the domestic and foreign financial markets. Countries where no funding requirements for the government are required, have evolved other standards. In such countries non-government markets have resorted to price discovery. Some examples of benchmarks in such markets are interbank repo rates, collateralized obligations, interest rate swaps and top rated corporate bonds.

Finally, several countries are now using indirect instruments such as repos and open market operations instead of direct instruments. A well-developed government securities market enhances the implementation of the monetary policy. Repurchase agreements in many developing economies are conducted through Treasury Bills and Government Dated Securities. Apart from generating finances for the government the T-Bills market also stimulates the money market. Also the development of money market depends upon the central bank's terms for liquidity adjustment. The banks may not transact with each other if there is a certain liquidity adjustment support leading to obstructions in the progress of the money market.

The Government Securities market occupies the major part of the debt market and as already cited the rates in this market are benchmarks for the whole system. The RBI is the regulator of the monetary system, Government securities market, manager of Government borrowings, and regulator of money markets and forex markets. Hence from the view point of regulation the development of the Government Securities market is in RBI's jurisdiction, whereas the regulation of the whole debt market in the context of public issues by corporates and trading in stock exchanges is regulated by the SEBI. Accordingly, RBI has initiated a number of measures for the development of the primary and secondary markets for Government Securities.

## Key Issues Relating to the Government Securities Market

The significance of the issues involved in the development of the government securities market by the central bank vary from one country to the other. The key issues are:

- The development of the money market,
- The primary market operations,
- Importance of secondary markets,
- Policy conflicts in debt and monetary management, and
- Dilemmas in market intervention.

## **RELEVANCE OF DEVELOPMENT OF MONEY MARKET**

The development of the money market is important for the debt market especially through the process of liquidity. The money market provides the required finances and enhances the liquidity in the market and leads to the short end of the yield curve. Various components of the money market foster the development in various ways. The repo market contributes to the development of an active Government Securities market and *vice versa* because the lending and borrowing processes are conducted safely through repos. There must be a necessary coordination between the Government Securities and money markets where the interest rates are market determined and the central bank manages the debt and monetary policy functions.

Many measures have been taken in recent years to develop a short-term yield curve with deep liquidity in the money market in India. The four important measures in this regard are as follows:

- First, a Liquidity Adjustment Facility (LAF) has been introduced, comprising repo and reverse repo operations through auctions conducted. This was done to equilibrate the liquidity and to control the short-term interest rates.
- Second, the non-bank participants in the call market who are currently lenders are withdrawn gradually so as to make the call money market a pure interbank market.
- Third, refinance support facility is being streamlined and a market-based approach is being brought in. Removal of system of liquidity support on fixed terms and shifting it to a full-fledged Liquidity Adjustment Facility (LAF), is being considered seriously.
- Fourth, the other parts of the money market, particularly the repo market is being broadened by allowing the players other than banks into lending as well as borrowing in these markets. For further assistance in this direction, a Clearing Corporation of India Ltd. (CCIL) was established.

## **THE PRIMARY MARKET OPERATIONS**

Prices of a financial product are discovered through trading activities among market participants. This process by which prices adjust to incorporate new information is referred to as the price discovery process. The basic and major aim of the operations in primary markets is to ensure the efficiency of the price discovery process. This requires credible systems and transparent mechanism in the market.

### **Auction Technique and Central Bank Participation in Auctions**

Auction is the most common method to sell Government Securities. Other methods include tap sales, syndication and book building process. Presently many countries do not allow the direct participation of all investors in an auction. Instead, they are permitted to participate in the auctions through authorized intermediaries like banks and (PDs) Primary Dealers. Actually the investor base that participates in the auction process is determined by the practical situation of the process and in some cases the controlled investor base determines the evenness in the auction techniques and combinations. Discriminatory price auction is one of the options due to which the investors keep away because of the winners curse. The disadvantage is that there is a danger of irresponsible bidding and uniform collusion.

One cannot say which is better: discriminatory or uniform price auction. A combination, that is, discriminatory auction with a ceiling can be considered as important in this context, as it reduces the winners curse.

Usually the central bank does not participate in auctions, but if the situation necessitates, it has to take part in the auctions without competing with other bidders. Sometimes the central bank is involved in buying Government Securities on its own and sometimes it is compelled to do so. In countries such as Indonesia and Peru, the laws eliminate the participation of central bank in primary auctions and in countries like Malaysia, Philippines and Hungary the central banks restrict themselves from participating in the primary market.

As already mentioned the auction method is the most common in India, and it can be based on yield, price or discount. The RBI underwrites the commitment of Primary Dealers at its discretion. Even though the auction is carried out through both the discriminatory and uniform price auction techniques, the former is most common. Multiple price auctions are largely used to issue the Government Securities and uniform price auction is used for 91-Day T-Bills. With the rising need for the retail investors, a cut off is determined at the weighted average yields derived in an auction for the bids received on non-competitive basis within the specified limits.

Since in India, the RBI itself conducts the auction, the issue of central bank participation as an outsider does not arise.

### **Instruments**

Different types of instruments are traded in different countries, so as to match their unique situations in the markets and to develop the broad markets. For example, Hungary has shifted to long-term Government bonds with fixed interest rates from short-term bonds, which enabled the economy to avoid hyperinflation. Similar is the case with Israel, which favors the plain vanilla bonds, though it has a wide variety of instruments. Inflation-indexed bonds are popular in Chile.

In India too many instruments are experimented which include fixed coupon bonds, zero coupon bonds, capital indexed bonds and more recently floating rate bonds. Most of them are like fixed coupon type and also the recent Floating Rate Bonds have proved to be attractive.

### **Maturity Profile**

Even though there is no ideal theory/concept of the maturity of the instruments, some important issues that should be considered while balancing the long-term and short-term maturities are: market preference, government costs, grouping of maturities, and development of yield curve. Benchmarking of the government securities is necessary considering its well-functioning market. This requires a careful approach to avoid disintegration and increase consolidation. The typical benchmark securities in our market are of 2, 3, 5 and 10 year's maturity, whereas in countries like the USA, the securities can have a maturity period upto 30 years.

When the government in 1992-93 revived the borrowings at market rates, the maturities of most of the securities were made below 10 years. High interest rate cyclic implementation of the auction system to achieve the market determined interest rates has made this compression necessary as it requires a market with short maturity structure. The result is the bunching of maturities with a tough task of managing liquidity. Since the last three years the RBI has made efforts towards longer maturities, and fixed rates to balance the maturity pattern. Some situations exist when the government does not confine to the perceived high rates of interest, and large mismatches occur between the asset liability of the banks and also greater risk of interest rates. The RBI has developed floating rate bonds and also taken steps to develop the STRIPS market in the Government Securities segment. To consolidate the maturity profile of the securities the RBI followed the method of re-opening the existing securities on price-based auction approach. Thus, the large borrowing (gross) program has proved advantageous to RBI to elongate and strengthen the profile.

### **Issuance Calendar**

Issuance calendar gives clear and timely information about the borrowing program of the government. It clearly conveys the maturity profile of outstanding stock, redemption schedule. It has to achieve balance between providing flexibility to the government and maintaining market certainty with regard to market timing.

The main constraint for the publication of issuance calendar is the fluctuating or uncertain trends in the returns pattern of the Government of India. In the case of Government Treasury Bills, the auction schedule is governed by a pre-notified issuance calendar. It was proposed by the Finance Minister that there would be a calendar of auctions of government securities beginning from the financial year 2002–03. The issuance calendar will help reduce volatility in the market with regard to speculation on government borrowings as the timings of the issuance will be intimated in advance.

#### **Box 1: Gilt Funds**

Gilt funds, as they are conveniently called, are mutual fund schemes floated by asset management companies with exclusive investments in government securities. The schemes are also referred to as mutual funds dedicated exclusively to investments in government securities. Government securities mean and include central government dated securities, state government securities and treasury bills. The gilt funds provide to the investors the safety of investments made in government securities and better returns than direct investments in these securities through investing in a variety of government securities yielding varying rates of return. Gilt funds, however, do run the risk. The first gilt fund in India was set up in December, 1998.

#### **Facilities from Reserve Bank of India**

The Reserve Bank provides liquidity support and other facilities, such as, SGL and current accounts, transfer of funds through the Reserve Bank's Remittance Facility Scheme and access to call money market to dedicated gilt funds. These facilities are provided to encourage gilt funds to create a wider investor base for government securities market. The facilities provided to gilt funds include:

- *Liquidity support:* The objective of extending liquidity support to dedicated gilt funds is to support short-term liquidity requirements of such mutual funds. The Reserve Bank of India provides liquidity support to gilt funds by way of reverse repurchase agreements (reverse repos). Reverse repos are done in government of India dated securities eligible for repo transactions and treasury bills of all maturities. The quantum of liquidity support on any day is upto 20 percent of the outstanding stock of government securities, including treasury bills, held by the gilt funds as at the end of the previous working day.
- *SGL and current accounts:* The Reserve Bank opens one subsidiary general ledger (SGL) account and one current account for gilt fund's own transactions at all centers of the Reserve Bank wherever desired by the gilt funds.
- *Funds transfer facility:* The gilt funds are given the facility of transfer of funds from one center to another under the Remittance Facility Scheme of the Reserve Bank. The gilt funds are also given the facility of clearing of cheques arising out of government securities transactions, tendered at the Reserve Bank counters.
- *Access to call market:* Gilt funds can access the call money market as lenders.
- *Ready forwards:* The Reserve Bank of India will also recommend to the Government of India to permit the gilt funds to undertake ready forward transactions in Government securities market.

#### **Liquidity Support**

##### **Eligibility**

All gilt funds – public and private sector, open-ended or close-ended – are eligible to avail liquidity support and other facilities from the Reserve Bank of India. The gilt funds schemes should, however, have the approval of the Securities and Exchange Board of India. It would be prudent for the gilt funds to submit an advance copy of the draft offer document to the Reserve Bank of India for preliminary scrutiny at the time of submitting the draft offer document to the

Securities and Exchange Board of India. This is to enable the Reserve Bank to satisfy itself that the scheme proposed to be floated by the gilt funds is in conformity with the Reserve Bank's guidelines for availing liquidity support from the Reserve Bank of India.

### Conditions

The Reserve Bank of India provides liquidity support by way of reverse repos subject to the following terms and conditions:

- Repurchase agreements (reverse repos) with the Reserve Bank are ineligible central government dated securities and treasury bills of all maturities.
- The prices of the securities for reverse repo transactions are determined by the Reserve Bank of India, at its discretion.
- The securities tendered by the gilt funds for reverse repos by the Reserve Bank are in multiples of Rs.10 lakh (face value).
- Gilt funds can avail the reverse repo facility for a maximum period of 14 days at a time.
- The repo rate is the Bank Rate.
- Liquidity support is made available at Mumbai only. The gilt funds, however, are free to transmit the funds to other centers of the Reserve Bank under its Remittance Facility Scheme.
- The gilt funds cannot use the funds raised through the reverse repos facility for on-lending in the call/notice money market.
- The Reserve Bank reserves the right to partially accept or reject any application for liquidity support without assigning any reason.
- The Reserve Bank can call for all relevant information from gilt funds in regard to their operations and the gilt funds are required to provide it.

### Drawal

For drawing the liquidity support from the Reserve Bank, gilt funds are required to:

- Make an application to the Chief General Manager, Internal Debt Management Cell, Reserve Bank of India, Central Office, Mumbai.
- Submit the filled up form to the Internal Debt Management Cell before noon on the day the liquidity support is desired to be availed.
- Return the duplicate copy of the acceptance-cum-deal confirmation advice issued by the Reserve Bank duly signed in token of having accepted the deal and also arrange to lodge the SGL transfer form with the Securities Department of the Reserve Bank, Mumbai Office.
- Authorize the Reserve Bank of India to debit its current account on the expiry of the repo period, by the amount indicated in the acceptance-cum-deal confirmation advice; and arrange to lodge SGL transfer form for repurchase of securities.
- Receive, the amount of liquidity support as direct credit to its current account maintained at the Reserve Bank, Mumbai, on the day of the drawal.

Source: [www.rbi.org.in/Notification](http://www.rbi.org.in/Notification).

### Role of Primary Dealers

To promote the investment activity in the Government Securities market, several countries have adopted licensed Primary Dealers (PDs) as important intermediaries in the market. The typical responsibilities of PDs are

- meeting the minimum bidding requirements,
- giving two-way quotes,
- providing information of the market activity to the central bank, etc.

In some instances PDs have special rights to different activities in the money market like primary auctions, or some special facilities in market operations, open market operations, underwriting commission, etc. PDs have an important role to play in the development of the secondary market for government securities. The prices of PDs account for all the available information, they trade in the market, and also provide the central bank with the latest market information, and design new instruments, etc. The vital role of PDs in the market requires some regulatory control and the central banks periodically review the performance of PDs and make their operations performance-based. Rating of PDs as established in Poland is a laudable feature.

The RBI designed the system of Satellite Dealers (SDs) from 1996 as a second player in the Government Securities market after the PDs. The specific objective of SDs is to promote retail investments. However, the system could not prove as useful as expected and was eliminated.

### **Gilt Mutual Funds**

Gilt Mutual Funds were established in India in April, 1996 and they invest only in government securities. At present, 13 gilt mutual funds operate in the country. SEBI is the regulator for the mutual funds. Currently the RBI is reviewing the working of the Gilt funds scheme in view of the developments in the debt markets since 1996. Because of the limited size of the repo market and the resulting uncertainty in the liquidity of the market during that period, RBI's liquidity support was very limited to the Gilt Funds. With the development of the repo market, and the liquidity support being made extraordinary, a review of the liquidity support by the RBI is being considered.

### **SIGNIFICANCE OF SECONDARY MARKETS**

High liquidity and constant demand in the market need a diversified investor base with different preferences of demand, maturity and risk. Apart from the present players like banks, PDs and mutual funds, if the retail investors and foreign investors are also allowed to enter, the investor base can be widened. One of the significant aspects of the overall plan to develop a more diversified investor base is to meet the needs of retail investors, as it often reduces volatility in the market and ensures stable demand.

The liquidity in the secondary market can be increased by developing the repo markets, the role of benchmarks in the market valuation, and short selling in the market, etc. Some markets have prohibited the short selling of securities and the rationale behind this act should be recognized. Though the short selling has a positive effect on the liquidity and price efficiency in the market it may also increase the market volatility and risks particularly so if the market takes larger position than what it is capable of handling.

The RBI has initiated many measures to better the secondary market liquidity in the Government Securities market. Some of them allow a variety of participants, like reopening of bonds, Liquidity Adjustment Facility (LAF), repo market, setting up of Clearing Corporation of India Ltd., negotiated dealing system for trading, Delivery vs Payment system for settlement of Government Securities in scripless form, and communication of information relating to all Government Securities traded in the market on a daily basis.

Initially the RBI was the announcer of the yield curve but now FIMMDA, a self-regulatory organization, announces the yield curve, based on a methodology that is approved by the RBI. Incidentally, banks are holding around 37% of their liabilities in Government Securities as against the Statutory Liquidity Ratio (SLR) of 25 percent. The Reserve Bank of India (RBI) has taken steps and given a direction to banks to achieve the targeted reserve created for investment fluctuation.

## POLICY CONFLICTS IN DEBT AND MONETARY MANAGEMENT

Co-ordination of operations is important so as to avoid differences in the policies of cash and debt management of the government and central bank. This is particularly required keeping in view the fact that the timing and volume of issues of Government Securities need not always coincide with the monetary regulations of the central bank. The central bank needs to consider the liquidity provision if the Government wants to issue securities at a time when the market is illiquid. In such cases the central bank can provide liquidity through the secondary market or through the primary market where the central bank manages both the debt and monetary policy.

At present it can be said that, almost in all countries the central banks are working in tune with the fiscal authority, both at the policy formulation and implementation levels of debt management. Generally it is said that being an agent to the fiscal authority can be problematic for central bank and this can be reduced if the debt management function is separated from the central bank. Such separation should be preceded by institutional and technological infrastructure, fiscal control and developing financial markets otherwise, high fiscal deficit could increase the risk of instability in the economy.

In its recent monetary policy statement, the RBI made its intentions clear about the separation of the debt management function in this regard and the conditions that have to be fulfilled to separate the debt management function. The conditions are: development of financial markets, adequate control over the fiscal deficit and necessary legislative changes. Also, institutional framework for setting up a separate Debt Office for managing the debt functions should be planned. The debt of both central and state governments can be managed by setting up an independent corporate structure.

## INTERFERENCE IN MARKETS

Some dilemmas exist in the issue of central bank intervention in the market to correct the volatilities in the prices. In some countries the central banks never interfere in the bond markets to even out the volatility in the bond market. Looking the other way, reduction of volatility in the market obstructs the progress of secondary markets as it rules out the development of hedging instruments, which in turn are used to offset volatility.

On the other hand, some instances justify the interference approach by central banks. For example, the incident on September 11, 2001 has sought the close intervention of the Federal Reserve in the market. India too, experienced many such circumstances and some as: border conflicts, US sanctions, and other exigencies where the RBI had shown its intent to intervene in the market. Hence the difference between the normal market conditions and external shocks should be taken into consideration while deciding about the interference of the central bank. If the exogenous shocks exist, interference or willingness to intervene may be required whereas in the normal market conditions the choice of intervention must be available, but the evolving forces in the market should guide its actual development.

Regarding the RBI's intervention policy, three important areas need mention. First, the liquidity management concern in the money market. The RBI does it through the Liquidity Adjustment Facility, operating an interest rate corridor in the rates of interest of the repo and reverse repo markets. Second, the RBI's responsibility of government debt makes the RBI intervene through private placement in the exceptional situations. That is, if RBI thinks that the market cannot provide entire borrowing without any disruption, it offers private placement. Third, if the auction bids of the treasury bills are unacceptable the RBI transfers to itself some amount of finance, which is called devolvement. Primary dealers underwrite the issues of government securities and receive commission. Thus, if the government requires funds due to high fiscal deficit and the market is not so liquid, the RBI intervenes to provide stability in the system. It is at its will to divest the securities it has taken through private placement.

The RBI also conducts operations to offset the external shocks in the forex markets, and also makes efforts to prevent the transmission of the effect to the bond market. Thus, whenever the RBI has taken monetary actions on the exchange market, expectations of liquidity action have risen in the bond markets.



## **ROLE OF RBI**

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The Reserve Bank of India undertakes multifarious activities and consequently plays a significant role in the GOI securities market. At the outset, it is a banker to the government and hence manages the finance of the central government. It floats the GOI securities and state government securities and hence plays the role of a merchant banker. It is the central bank for the country and has the responsibility to manage the economic health in general and monetary policy in particular. As a merchant banker it advises the timing of the GOI securities issues, coupon and maturity and type of instrument. The objective, here, is to raise funds for the government at the lowest possible cost with an eye on the maturity management so as to ensure smooth management of debt servicing by the biggest debtor. These activities have direct impact on the money supply and an indirect impact on interest rates and exchange rate. Considering the impact that money supply has on other macroeconomic variables the RBI attempts to regulate the same in such a way that it is conducive to achieve the desired economic growth. The large volumes of GOI securities can have an impact by increasing or reducing the money supply depending on whether they are redeemed or issued. In view of the same, RBI undertakes the following transactions mostly with banks:

- Open Market Operations
- Repo Transactions
- Switch Deals.

### **Open Market Operations**

As a part of the open market operations RBI may buy or sell specified government securities at prices determined by the RBI. The prices determined are usually at variance with the market rates, the direction depending on the objectives of the RBI. If the RBI wants to reduce the money supply it can offer yields on specified securities, which are higher than those prevailing in the market, which can be an incentive to buy securities from RBI, which in turn reduces the money supply. If the RBI wants to increase the money supply it can offer to buy securities at yields lower than the market related rates thus inducing participants to sell the securities to RBI, thereby increasing the money supply. Apart from the above objectives the open market operations coupled with the interest rates in the primary market can be used by RBI to signal changes in interest rates.

### **Repo Deals**

Repo transaction involves a simultaneous buying and selling of the same security at predetermined prices. This essentially results in cash moving from the buyer to the seller, at the beginning of the transaction which will be reversed at the end of the transaction. There are no regulations prescribing the minimum or maximum duration for a repo transaction. Hence the minimum period can be even a day, while the maximum period is normally 14 days though repos for longer-term are also seen in the market. When the RBI undertakes Repo transactions it will sell the securities in the first leg and buy them back later. In case RBI undertakes Reverse Repos it will be buying the securities, in the first leg, which will be sold back. Hence Repos will involve reduction in money supply for the period of repo while reverse repo will increase the money supply.

Hence RBI will use Repos as a means to influence the level of money supply when the objective is to make changes for a short-term unlike open market operations.

### **Switch Deals**

Switch Deals involve simultaneous purchasing and selling of different securities by a person so that the composition of the portfolio can be changed without significant costs. RBI used to provide an opportunity to the banks to reshuffle their portfolio by undertaking switch deals. Of late RBI has not been announcing such facility. However, these deals will not have any impact on the money supply though the same can be used by RBI in influencing the yields on the securities undertaking switch deals.

## Recent Developments

Continuous efforts have been taken by the RBI to deepen and widen the government securities market both in primary and secondary segments. Some of the significant steps taken by the RBI are as follows:

### Uniform Price Auction

The government securities auction is based on uniform price auction. This is done on experimental basis keeping in mind the uniform price auction in the issuance of 91-day T-Bills. The RBI has decided to continue the uniform price auction on an experimental and selective basis as considered necessary.

### Negotiated Dealing System

In a move to facilitate online electronic bidding, the Negotiated Dealing System has been introduced and operationalized, early this year. The following are the features of negotiated dealing system:

- i. It provides online electronic bidding facility in the primary auctions of Central/State Government securities, OMO/LAF auctions, screen-based electronic dealing and reporting of transactions in money market instruments including repo, secondary market transactions in government securities.
- ii. There is proper dissemination of information on trades with the least time lag.
- iii. It facilitates “paperless” settlement of transactions in government securities with connectivity to CCIL.

### Government Securities Act

A proposal to replace the existing Public Debt Act, 1944, by the government Securities Act was made by the Reserve Bank of India to simplify the procedures for transactions in government securities, allow lien-marking/pledging of securities and also electronic transfer in dematerialized form. This proposal was approved by the Government of India and requisite resolutions were passed, empowering the Parliament to enact the Government Securities Bill.

### Retailing of Government Securities through Non-competitive Bidding

The RBI had announced finalization of a scheme to encourage retail participation, in particular by mid-segment investors like UCBs, Non-banking Financial Companies (NBFCs), Trusts, etc. in the primary market of government dated securities. Accordingly, the scheme of non-competitive bidding facility with a provision for allocation upto 5.0 percent of the notified amount to retail investors at the weighted rate that evolves in the case of competitive bidding was announced on December 7, 2001.

Banks and PDs have taken useful initiatives to promote retail investment in government securities by offering these securities for sale at retail outlets with facility of holding investments and servicing thereof through existing demat account with depositories or in CSGL accounts. Banks also promote retail sale of government securities along with schemes to avail automatic finance against such investment at attractive rates, thereby providing ready liquidity.

### Floating Rate Bonds

In order to cater to the diverse needs of investors in government securities, various instruments, like Zero Coupon Bonds, Floating Rate Bonds (FRBs), Index Linked Bonds, etc. were issued in the past. It is important to note that currently all outstanding government market loans are in the form of plain vanilla fixed rate bonds. Keeping in mind the risk weight elements and the asset liability management needs of the major investors such as banks, two FRBs of 5-year and 8-year maturity were issued in December 2001, which were fully subscribed.

Floating rate bonds serve as a diversifying instrument in debt management as it takes advantage of the term premium while minimizing refinancing risk. However, FRBs are vulnerable to interest rate risks. Considering both the advantages and the risks, issue of further FRB's in the current year would be examined.

### **Calendar for Dated Securities**

Calendar for dated securities for the year 2002-03 has been announced by the government to enable both institutional and retail investors to plan their investments better. This calendar imparts transparency to the Government's borrowing program and is expected to bring stability in the government securities market.

### **Separate Trading for Registered Interest and Principal of Securities (STRIPS)**

A separate working group has been constituted to operationalize the scheme of STRIPS. The group comprises of banks and market participants to suggest operational and prudential guidelines with respect to STRIPS.

### **Satellite Dealer System**

The Reserve Bank of India had undertaken a review of the satellite dealer system. After obtaining the views of the Primary Dealers Association of India (PDAI) and after consultations with the market participants, it has been decided to discontinue the system. Accordingly:

- No new SDs will be licensed.
- Existing SDs were required to make action plans, satisfactory to the RBI and have terminated their operations from May, 2002 onwards.

### **Automatic Debit Mechanism**

In some cases, State Governments have given instructions to RBI to debit their accounts on specified dates either as a matter of course to meet certain obligations or in case of specified events. Such automatic debits carry an overriding priority over other payments. After examining the past experience with automatic debits, a Technical Committee of State Finance Secretaries on State Government Guarantees had observed that pre-emption through automatic debit mechanism runs the risk of resulting in insufficient funds for financing critical minimum obligatory payments such as salaries, pensions, amortization and interest payments. In view of the recommendation of the Committee, and keeping in view the need to maintain integrity of the public debt segment of debt markets, it is proposed that:

- In future, as a general policy, with prospective effect, to dispense with such automatic debits where there are no legal or other compulsions.
- Where there is a legal compulsion for creation of such mechanism, to suggest amendments to such provisions.
- To review all the existing automatic debits in consultation with State Governments and others concerned, with a view to dispense such mechanisms wherever feasible.

### **OTHER STEPS**

- Important developments like operationalization of NDS and CCIL in infrastructure facilitating trading and settlement in money and government securities markets have taken place.
- The market has also become more diversified with the entry of new participants such as high net worth individuals, co-operative banks, large corporates, mutual funds and insurance companies.
- The uniform valuation basis, as announced by FIMMDA, provides transparency to the market and facilitates active management of portfolios.

- The regulatory and supervisory framework for the PDs has been strengthened in accordance with the risks perceived in the market, in line with international practices.
- Development of new benchmark government securities by consolidating new issuances in key maturities.
- Enhancing liquidity through consolidation by reissuances of existing loans.

### **Statutory Provisions for Regulation of Government Securities Market**

The RBI manages internal debt and the issue of new loans on behalf of central government according to Sections 20 and 21 of the Reserve Bank of India Act, 1934. The bank also sees the matters relating to the public debt of state government as per the bilateral agreements entered into with the state governments. Also the Public Debt Act, 1944, delegates the administration of public debt to the bank. As a result, the Reserve Bank has been taking all efforts towards facilitating price discovery and liquidity to government securities. The efforts are mainly focused on the promotion of institutional infrastructure and legal framework regarding the manner of issue and trading of government debt instruments. All matters relating to the issue, interest payment, repayment, and the registration, custody, transfer, conversion, sub-division, etc. of government debt holdings are covered under RBI's public debt management. Further, Bank advises the government about the size and timing of the issue of borrowing. RBI has 15 public debt offices functioning at various centers.

In the process of developing the securities market and facilitating price discovery in the market, RBI daily discloses the prices of secondary market transactions in government securities that are settled through the SGL account. This has established sovereign yield curve, enhanced the market transparency and improved price discovery for government securities in the market. Still the RBI has to take measures to develop a deep and liquid secondary market through effective public debt management.

### **SUMMARY**

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- Gilt-edged securities mean securities of the best quality, where the government secures the repayment of principal and interest. They are risk-free investments.
- Government securities are issued by central and state governments, semi-government authorities and government financial institutions.
- Individuals, corporates, other bodies, state governments, provident funds and trusts are allowed to invest in government securities.
- Government securities play a vital role in the open market operations conducted by the central bank of the country.
- The minimum investment is Rs.10,000 and multiples thereof and they can be long-dated, medium-dated and short-dated, with maturities of 10-20 years, 5-10 years and less than 5 years respectively.
- In the primary market, government securities can be issued through auctions, pre-announced coupon rates, as floating rate bonds, as zero-coupon bonds, as stock on tap, as stock for which payment is to be made in installments or as stock on conversion of maturing treasury bills/dated securities.
- There is a huge demand for government securities in the secondary market as they are the first choice of banks to comply with the SLR requirements.
- The RBI usually undertakes the following transactions with banks: open market operations, repo transactions and switch deals.

**Appendix Table 1: Secondary Market Transactions in Government Securities**

(Amount in Rupees crore)									
	Item	Transaction in Government Securities							
		2002-03							
		April	May	June	July	August	September	October	November
1	2	3	4	5	6	7	8	9	
<b>I.</b>	<b>OUTRIGHT TRANSACTIONS</b>								
1.	Central Government Securities	96,545.28 (94.91)	60,086.47 (91.34)	58,422.91 (93.44)	1,17,792.82 (94.74)	1,22,358.49 (94.49)	85,172.37 (94.70)	1,24,018.97 (94.74)	1,67,302.50 (95.26)
2.	State Government Securities	1,031.81 (1.01)	338.86 (0.52)	276.61 (0.44)	408.22 (0.33)	542.95 (0.42)	1,080.59 (1.20)	679.38 (0.52)	985.63 (0.56)
3.	Treasury Bills (a+b)	4,148.42 (4.08)	5,360.70 (8.15)	3,826.10 (6.12)	6,132.90 (4.93)	6,596.96 (5.09)	3,690.81 (4.10)	6,207.98 (4.74)	7,336.87 (4.18)
	(a) 91 days	1,119.03 (1.10)	1,949.98 (2.96)	1,854.57 (2.97)	2,212.18 (1.78)	1,830.20 (1.41)	1,053.33 (1.17)	2,321.23 (1.77)	2,750.81 (1.57)
	(b) 364 days	3,029.39 (2.98)	3,410.72 (5.18)	1,971.53 (3.15)	3,920.72 (3.15)	4,766.76 (3.68)	2,637.49 (2.93)	3,886.76 (2.97)	4,586.05 (2.61)
	Total (1+2+3)	1,01,725.51 (100.00)	65,786.03 (100.00)	62,525.62 (100.00)	1,24,333.94 (100.00)	1,29,498.40 (100.00)	89,943.77 (100.00)	1,30,906.33 (100.00)	1,75,625.00 (100.00)
<b>II.</b>	<b>REPO TRANSACTIONS</b>								
1.	Central Government Securities	44,018.23 (93.62)	43,590.78 (98.11)	36,451.40 (96.31)	32,833.73 (96.09)	29,116.05 (87.49)	36,194.40 (86.66)	42,268.20 (90.71)	30,013.44 (86.99)
2.	State Government Securities	25.00 (0.05)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
3.	Treasury Bills (a+b)	2,977.24 (6.33)	840.11 (1.89)	1,396.75 (3.69)	1,336.30 (3.91)	4,164.95 (12.51)	5,573.63 (13.34)	4,327.21 (9.29)	4,489.21 (13.01)
	(a) 91 days	43.24 (0.09)	0.00 (0.00)	166.50 (0.44)	32.00 (0.09)	400.00 (1.20)	530.00 (1.27)	200.00 (0.43)	299.00 (0.87)
	(b) 364 days	2,934.00 (6.24)	840.11 (1.89)	1,230.25 (3.25)	1,304.30 (3.82)	3,764.95 (11.31)	5,043.63 (12.08)	4,127.21 (8.86)	4,190.21 (12.14)
	Total (1+2+3)	47,020.47 (100.00)	44,430.89 (100.00)	37,848.15 (100.00)	34,170.03 (100.00)	33,281.00 (100.00)	41,768.03 (100.00)	46,595.41 (100.00)	34,502.65 (100.00)
<b>III.</b>	<b>GRAND TOTAL (I+II)</b>	1,48,745.98	1,10,216.92	1,00,373.77	1,58,503.97	1,62,779.40	1,31,711.80	1,77,501.74	2,10,127.65
	I as percentage of III	68.39	59.69	62.29	78.44	79.55	68.29	73.75	83.58
	II as percentage of III	31.61	40.31	37.71	21.56	20.45	31.71	26.25	16.42

(Amount in Rupees crore)									
	Item	Transaction in Government Securities							
		2002-03				2003-04 (so far)			
		December	January	February	March	April	May	June	July
1	10	11	12	13	14	15	16	17	
<b>I.</b>	<b>OUTRIGHT TRANSACTIONS</b>								
1.	Central Government Securities	1,47,941.26 (95.44)	1,77,910.36 (94.13)	69,844.43 (90.07)	65,973.64 (86.57)	1,13,401.26 (90.50)	1,49,966.30 (95.13)	1,50,251.91 (94.52)	1,52,293.60 (92.65)
2.	State Government Securities	1,031.13 (0.67)	939.61 (0.50)	525.22 (0.68)	1,381.34 (1.81)	555.18 (0.44)	918.83 (0.58)	1,534.97 (0.97)	943.31 (0.57)

3.	Treasury Bills (a+b)	6,040.13	10,150.55	7,172.53	8,851.44	11,353.98	9,756.02	7,182.15	11,146.41		
		(3.90)	(5.37)	(9.25)	(11.62)	(9.06)	(4.29)	(4.52)	(6.78)		
	(a) 91 days	3,423.51	6,789.54	4,567.98	4,210.06	3,666.82	2,012.00	2,861.33	5,322.03		
		(2.21)	(3.59)	(5.89)	(5.52)	(2.93)	(1.28)	(1.80)	(3.24)		
	(b) 364 days	2,616.63	3,361.01	2,604.54	4,641.38	7,687.16	4,744.03	4,320.82	5,824.38		
		(1.69)	(1.78)	(3.36)	(6.09)	(6.13)	(3.01)	(2.72)	(3.54)		
	Total (1+2+3)	1,55,012.53	1,89,000.51	77,542.18	76,206.42	1,25,310.42	1,57,641.15	1,58,969.03	1,64,383.31		
		(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)		
	<b>II. REPO TRANSACTIONS</b>										
	1.	Central Government Securities	30,377.83	48,048.78	50,319.93	66,571.45	35,101.13	37,623.97	40,807.01	67,382.59	
		(80.68)	(72.15)	(76.93)	(89.68)	(83.94)	(86.84)	(83.96)	(89.92)		
2.	State Government Securities	0.00	0.00	0.00	20.00	0.00	99.00	0.00	0.00		
		0.00	0.00	0.00	(0.03)	0.00	(0.23)	(0.00)	(0.00)		
3.	Treasury Bills (a+b)	7,273.05	18,550.37	15,092.57	7,644.27	6,713.84	5,604.96	7,797.89	7,553.06		
		(4.56)	(27.85)	(23.07)	(10.30)	(16.06)	(12.94)	(16.04)	(10.08)		
(a) 91 days		1,717.52	5,097.17	3,240.26	880.03	241.00	520.10	743.70	1,218.64		
		(4.56)	(7.65)	(4.95)	(1.19)	(0.51)	(1.20)	(1.53)	(1.63)		
(b) 364 days		5,555.53	13,453.20	11,852.31	6,764.24	6,499.84	5,084.86	7,054.19	6,334.42		
		(14.76)	(20.20)	(18.12)	(9.11)	(15.54)	(11.74)	(14.51)	(8.45)		
Total (1+2+3)	37,650.88	66,599.15	65,412.50	74,235.72	41,814.97	43,327.93	48,604.90	74,935.65			
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)			
<b>III. GRAND TOTAL (I+II)</b>											
		1,92,663.40	2,55,599.67	1,42,954.68	1,50,442.14	1,67,125.39	2,00,969.08	2,07,573.93	2,39,318.96		
I as percentage of III		80.46	73.94	54.24	50.65	74.98	78.44	76.58	68.69		
II as percentage of III		19.54	26.06	45.76	49.35	25.02	21.56	23.42	31.31		

**Note:**

1. Figures in brackets indicate percentages to total outright / repo transactions.
2. Repos transactions exclude second leg of transactions.

Source: RBI Annual Report 2002-03

**Table 2 : Details of Central Government Market Borrowings**

(Rupees crore)											
Date of Auction	Date of Issue	Notified Amount	Maturity (Period/residual Period in years)	Bids Received		Bids Accepted		Devolvement on Primary Dealers	Devolvement Private Placement on RBI	Indicative YTM at cut-off price/ reissue price/ coupon rate	Nomenclature of the Stock
				Number	Face Value	Number	Face Value				
1	2	3	4	5	6	7	8	9	10	11	12
<b>1995-96</b>											
25-Apr-95	27-Apr-95	7603.08	5	76	1936.58	60	1584.6	0	0	13.25	13.25% GS, 2000 (Conversion)
4-May-95	5-May-95	1000	10	98	1299.1	55	959.1	0	40.9	13.75	13.75% GS, 2005
29-May-95	30-May-95	1500	7	101	1158.5	59	694.5	0	805.5	13.8	13.80% GS, 2002
-	8-Jun-95	1000	10	120	1201.32	120	1000	0	0	14	14.00% GS, 2005
-	22-Jun-95	1709.66	10	142	803.61	142	803.61	0	906.05	14	14.00% GS, 2005 (Conversion)
-	14-Jul-95	4045.93	2	17	803.08	17	803.08	0	0	13.25	13.25% GS, 1997
26-Jul-95	27-Jul-95	3000	5	237	4808.8	103	3000	0	0	13.85	ZCB, 2000 (II Series)
17-Aug-95	18-Aug-95	2000	3	248	3666.88	179	2000	0	0	13.65	13.65% GS, 1998
31-Aug-95	1-Sep-95	2000	2	203	2714.86	154	2000	0	0	13.5	13.50% GS, 1997
-	11-Sep-95	-	10	99	4482.63	99	4482.6	0	0	14	14.00% GS, 2005
-	29-Sep-95	-	4	75	1554.31	75	1554.3	0	0	13.73	FRB, 1999

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-	14-Oct-95	3000	2	84	3000	84	3000	0	0	13.5	13.50% GS, 1999 (II Issue)	
-	27-Nov-95	1500	10	117	787.33	117	787.33	0	712.67	14	14.00% GS, 2005 (III Issue)	
-	5-Dec-95	2000	4	37	1017.07	37	1017.1	0	982.93	13.73	FRB, 1999 (II Issue)	
-	27-Dec-95	2000	5	56	1046.95	56	1047	0	953.05	13.85	13.85% GS, 2000	
-	7-Feb-96	2000	3	80	1002.83	80	1002.8	0	997.17	13.65	13.65% GS, 1999	
-	1-Mar-96	2000	2	-	-	-	169.72	0	1830.28	13.5	13.50% GS, 1997	
-	25-Mar-96	1000	2	-	-	-	-	0	1000	13.5	13.50% GS, 1998	
-	25-Mar-96	1500	5	-	-	-	-	0	1500	13.85	13.85% GS, 2001	
-	25-Mar-96	3000	10	-	-	-	-	0	3000	14	14.00% GS, 2006	
1996-97	17-Apr-96	18-Apr-96	6945.83	2	93	2911.05	93	2911.1	0	0	13.5	13.50% GS, 1998 (Conversion )
24-May-96	25-May-96	2000	5	147	1947.44	106	1341.2	26.35	632.46	13.75	13.75% GS, 2001	
6-Jun-96	7-Jun-96	2000	3	142	1931.36	107	1582.9	20.86	396.29	13.7	13.70% GS, 1999	
-	24-Jun-96	5000	10	104	5000	104	5000	0	0	13.85	13.85% GS, 2006 (Payment in instal.)	
12-Jul-96	13-Jul-96	3000	4	180	3272.91	168	3000	0	0	13.72	ZCB, 2000 (III Series)	
30-Jul-96	31-Jul-96	2000	2	181	2351.42	165	2000	0	0	13.62	13.62% GS, 1998	
-	26-Aug-96	2000	10	68	968.38	68	968.38	107.29	924.33	13.85	13.85% GS, 2006	
17-Sep-96	18-Sep-96	2000	6	82	1611.1	43	1026.1	101.29	872.61	13.82	13.82% GS, 2002	
-	7-Oct-96	2000	4	45	1493.01	45	1493	52.73	454.26	13.72	ZCB, 2000 (III Series, II Issue)	
26-Nov-96	27-Nov-96	2000	5	145	2327.87	67	1533.7	48.5	417.85	13.55	13.55% GS, 2001	
23-Dec-96	24-Dec-96	2000	3	160	3415.53	93	2000	0	0	13.4	13.40% GS, 1999	
20-Feb-97	21-Feb-97	1000	10	173	2914.62	75	1000	0	0	13.65	13.65% GS, 2007	
1997-98	21-Apr-97	22-Apr-97	3000	10	293	8114.03	51	3000	0	0	13.05	13.05% GS, 2007
-	23-Apr-97	5000	10	1	5000	1	0	0	5000	13.05	13.05% GS, 2007 (II Issue)	
9-May-97	10-May-97	3000	5	187	3766.63	98	2013	102.65	884.33	12.69	12.69% GS, 2002	
28-May-97	29-May-97	3000	3	172	5744.52	36	3000	0	0	12.14	12.14% GS, 2000	
17-Jun-97	18-Jun-97	2000	7	310	5450.06	54	2000	0	0	12.59	12.59% GS, 2004	
-	25-Jun-97	on tap	7	91	4685.86	91	4685.9	0	-	12.59	12.59% GS, 2004	
16-Jul-97	17-Jul-97	3000	6	534	13044.6	33	3000	0	0	11.83	11.83% GS, 2003	
28-Jul-97	29-Jul-97	5000	4	534	11307.8	247	5000	0	0	10.85	10.85% GS, 2001	

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11-Aug-97	12-Aug-97	3000	8	466	9844.34	87	3000	0	0	11.19	11.19% GS, 2005
30-Aug-97	1-Sep-97	5000	5	183	2833.77	127	2056.7	1800	1143.28	11.15	11.15% GS, 2002
-	29-Dec-97	on tap	5	-	704.52	-	704.52	0	-	-	6.00% Capital Indexed Bonds 2002
-	25-Mar-98	4000	6	-	-	-	-	0	4000	11.57	11.57% GS, 2004
-	25-Mar-98	2000	10	-	-	-	-	0	2000	12.15	12.15% GS, 2008

(Rupees crore)											
Date of Auction	Date of Issue	Notified Amount	Maturity (Period/ residual period In years)	Bids Received		Bids Accepted		Devolvement on Primary Dealers	Devolvement Private placement on RBI	Indicative YTM at cut-off price/ reissue price/ coupon rate	Nomenclature of the Stock
1	2	3	4	5	6	7	8	9	10	11	12
<b>1998-99</b>											
6-Apr-98	7-Apr-98	4000	5	285	6617.5	190	4000	0	0	11.1	11.10% GS, 2003
15-Apr-98	16-Apr-98	4000	8	215	4892.76	68	1645.6	2354.4	0	11.75	11.75% GS, 2006
-	24-Apr-98	5000	8	-	-	-	-	-	5000	11.75	11.75% GS, 2006
30-Apr-98	2-May-98	4000	10	138	5278.35	93	4000	0	0	12	12.00% GS, 2008
8-May-98	9-May-98	4000	6	205	5374.45	178	4000	0	0	11.5	11.50% GS, 2004
27-May-98	28-May-98	4000	9	130	3312	1	0.5	0	3999.5	11.9	11.90% GS, 2007
-	4-Jun-98	5000	10	-	-	-	-	-	5000	12	12.00% GS, 2008
-	19-Jun-98	-	6	28	1645.57	28	1645.6	-	-	11.75	11.75% GS, 2004
-	19-Jun-98	-	10	59	3384.74	59	3384.7	-	-	12.1	12.10% GS, 2008
1-Jul-98	2-Jul-98	2500	3	112	1965	102	1688	0	812	11.55	11.55% GS, 2001
1-Jul-98	2-Jul-98	2000	5	63	1193.69	48	1039.7	0	960.31	11.75	11.75% GS, 2003
1-Jul-98	2-Jul-98	1000	12	49	1414	16	1000	0	0	12.25	12.25% GS, 2010
-	17-Jul-98	-	3	79	2898.72	79	2898.7	-	-	11.55	11.55% GS, 2001
23-Jul-98	24-Jul-98	2500	6	82	1611.5	51	1037.5	0	1462.5	11.95	11.95% GS, 2004
23-Jul-98	24-Jul-98	1500	10	70	1850.31	51	1500	0	0	12.22	12.22% GS, 2008
5-Aug-98	6-Aug-98	2500	4	196	7711.6	14	2500	0	0	11.68	11.68% GS, 2002
13-Aug-98	14-Aug-98	3000	5	167	5567.16	73	3000	0	0	11.78	11.78% GS, 2003
-	20-Aug-98	-	15	42	1191.91	42	1191.9	-	-	12.4	12.40% GS, 2013
7-Sep-98	8-Sep-98	2000	6	84	1706.1	49	1159.1	229	611.95	11.98	11.98% GS, 2004
7-Sep-98	8-Sep-98	2000	10	75	1741.64	59	1306.6	335	358.36	12.25	12.25% GS, 2008
28-Sep-98	29-Sep-98	3000	2	138	3703	125	2793	207	0	11.4	11.40% GS, 2000
-	16-Oct-98	3000	2	-	-	-	-	-	3000	11.4	11.40% GS, 2000
-	2-Nov-98	2000	5	-	-	-	-	-	2000	11.78	11.78% GS, 2003
-	2-Nov-98	3000	6	-	-	-	-	-	3000	11.98	11.98% GS, 2004
-	20-Nov-98	2000	10	-	-	-	-	-	2000	12.25	12.25% GS, 2008
-	23-Nov-98	-	20	13	1131.88	13	1131.9	-	-	12.6	12.60% GS, 2018
-	3-Dec-98	2000	10	-	-	-	-	0	2000	12.25	12.25% GS, 2008
7-Dec-98	8-Dec-98	1500	3	153	6368	9	1500	0	0	11.47	11.47% GS, 2001
-	18-Jan-99	1500	15	-	-	-	-	-	1500	12.4	12.40% GS, 2013
-	18-Jan-99	1500	20	-	-	-	-	-	1500	12.6	12.60% GS, 2018
-	29-Jan-99	3000	11	-	-	-	-	-	3000	12.29	12.29% GS, 2010
-	29-Jan-99	2000	12	-	-	-	-	-	2000	12.32	12.32% GS, 2011
<b>1999-00</b>											
6-Apr-99	7-Apr-99	3000	10	188	7180.35	93	3000	0	0	11.99	11.99% GS, 2009
-	7-Apr-99	3000	14.37	-	-	-	-	-	3000	12.33	12.40% GS, 2013
9-Apr-99	10-Apr-99	3000	7	222	8987	16	3000	0	0	11.68	11.68% GS, 2006
-	13-Apr-99	4000	19.61	-	-	-	-	-	4000	12.45	12.60% GS, 2018
-	23-Apr-99	5000	14.33	-	-	-	-	-	5000	12.24	12.40% GS, 2013
11-May-99	12-May-99	3000	6.25	161	4962.5	66	3000	0	0	11.36	11.19% GS, 2005
11-May-99	12-May-99	2000	11.71	160	4047.5	79	2000	0	0	12.05	12.32% GS, 2011
-	20-May-99	4000	19.51	-	-	-	-	-	4000	12.42	12.60% GS, 2018
-	4-Jun-99	2000	9.84	-	-	-	-	-	2000	11.74	11.99% GS, 2009
-	4-Jun-99	3000	5.26	-	-	-	-	-	3000	11.24	11.98% GS, 2004
16-Jun-99	17-Jun-99	2000	11.7	120	2277	97	1730	270	0	11.96	12.32% GS, 2011
16-Jun-99	17-Jun-99	3000	14.2	148	3868.82	111	3000	0	0	12.14	12.40% GS, 2013
1-Jul-99	2-Jul-99	2500	7.91	119	3335	38	1305	1195	0	11.74	11.90% GS, 2007
-	2-Jul-99	-	17	45	2129.85	45	2129.9	0	0	12.3	12.30% GS, 2016



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15-Jul-99	16-Jul-99	2500	11.54	119	4656.6	36	1173	1327	0	11.97	12.32% GS, 2011
-	16-Jul-99	2500	16.96	-	-	-	-	-	2500	12.3	& 12.30% GS, 2016
29-Jul-99	30-Jul-99	2000	16.92	181	6834.5	28	2000	0	0	12.23	12.30% GS, 2016
5-Aug-99	6-Aug-99	3000	9.67	236	7253.05	79	3000	0	0	11.48	11.99% GS, 2009
27-Aug-99	28-Aug-99	2500	9.61	121	3119.12	103	2500	0	0	11.59	11.99% GS, 2009
28-Sep-99	29-Sep-99	2500	11.74	228	5853.28	90	2500	0	0	11.73	12.32% GS, 2011
7-Oct-99	8-Oct-99	3000	7.5	156	4272.21	127	3000	0	0	11.35	11.90% GS, 2007
7-Oct-99	8-Oct-99	2000	19.13	139	3455	120	2000	0	0	12.05	12.60% GS, 2018
-	22-Oct-99	3500	10.25	-	-	-	-	-	3500	11.65	& 12.29 %GS, 2010
11-Nov-99	12-Nov-99	3500	15	234	8742.35	51	3500	0	0	11.83	11.83 % GS, 2014
22-Nov-99	24-Nov-99	2000	6.33	140	5270.02	15	2000	0	0	11.03	11.68 % GS, 2006
22-Nov-99	24-Nov-99	3000	16.58	209	6048.39	77	3000	0	0	11.81	12.30 % GS, 2016
8-Jan-00	10-Jan-00	5000	14.83	386	11106.9	129	5000	0	0	11.51	11.83 % GS, 2014
20-Jan-00	21-Jan-00	3000	8.25	367	9082.5	56	3000	0	0	10.73	12.00 % GS, 2008
10-Feb-00	11-Feb-00	3000	14.75	241	7018	88	3000	0	0	10.77	11.83 % GS, 2014
10-Feb-00	11-Feb-00	2000	16.42	200	5969	15	2000	0	0	10.8	12.30 % GS, 2016
2000-01											
11-Apr-00	13-Apr-00	5000	9.79	385	11609.8	131	5000	0	0	10.26	12.29 % GS, 2010
20-Apr-00	22-Apr-00	3000	5	186	5457.03	108	3000	0	0	9.88	9.90 % GS, 2005
20-Apr-00	22-Apr-00	3000	20	166	5992.5	26	425.5	2574.5	0	10.7	10.70% GS, 2020
3-May-00	4-May-00	6000	10.16	191	5993.5	170	5005.5	480	514.5	10.52	12.25% GS, 2010
15-May-00	16-May-00	2500	2.89	183	4897	76	2500	0	0	9.47	11.10% GS, 2003
15-May-00	16-May-00	2500	5.9	208	6125.7	75	2500	0	0	9.93	11.68% GS, 2006
-	19-May-00	-	15	55	2683.45	55	2683.45	0	0	10.79	* 10.79% GS, 2015
29-May-00	30-May-00	5000	11	172	3973	11	114	0	4886	10.95	10.95% GS, 2011
8-Jun-00	9-Jun-00	4000	6.97	104	2904.05	70	1505	935	1560	10.71	11.90% GS, 2007
-	3-Jul-00	3000	10.91	-	-	-	-	-	3000	11.09	& 10.95% GS, 2011
11-Jul-00	12-Jul-00	3000	5	235	7274.5	54	3000	0	0	10.2	10.20% GS, 2005
17-Jul-00	18-Jul-00	2500	12	200	6183.75	105	2500	0	0	11.03	11.03% GS, 2012
25-Jul-00	26-Jul-00	4000	3.9	70	2214	13	455	0	3545	10.95	11.75% GS, 2004
-	28-Jul-00	3000	6	-	-	-	-	-	3000	11	& 11.00% GS, 2006
-	28-Jul-00	3000	10	-	-	-	-	-	3000	11.3	& 11.30% GS, 2010
-	7-Aug-00	6000	15	-	-	-	-	-	6000	11.43	& 11.43% GS, 2015
-	28-Aug-00	3000	19.65	-	-	-	-	-	3000	11.61	& 10.70% GS, 2020
30-Aug-00	31-Aug-00	3000	8	51	2264	9	250	1480	1270	11.4	11.40% GS, 2008
28-Sep-00	29-Sep-00	3000	7.92	135	4030	104	2625	0	375	11.49	11.40% GS, 2008
5-Oct-00	6-Oct-00	3000	9.81	204	7087.22	78	3000	0	0	11.69	11.30 % G S, 2010
25-Oct-00	27-Oct-00	3000	11.73	210	8160.72	77	3000	0	0	11.7	11.03 % G S, 2012
6-Nov-00	7-Nov-00	3000	8.42	224	9037.3	9	3000	0	0	11.27	11.99 % G S, 2009
13-Nov-00	14-Nov-00	4000	11.68	200	5635.75	167	4000	0	0	11.5	11.03 % G S, 2012
23-Nov-00	24-Nov-00	3000	11	141	5772.02	105	3000	0	0	11.5	11.50 % G S, 2011
12-Dec-00	13-Dec-00	3000	9.63	272	8198.59	72	3000	0	0	11.1	11.30 % G S, 2010
26-Dec-00	27-Dec-00	3000	14.61	218	5147	122	3000	0	0	11.45	11.43 % G S, 2015
26-Dec-00	27-Dec-00	1000	20	53	1340.75	0	0	0	1000	11.6	11.60 % G S, 2020
15-Jan-01	16-Jan-01	1500	15.46	170	5083	42	1500	0	0	11.04	12.30 % G S, 2016
15-Jan-01	16-Jan-01	2500	9.46	239	6421.67	81	2500	0	0	10.67	12.25 % G S, 2010
10-Feb-01	12-Feb-01	3000	14	231	10290	63	3000	0	0	10.47	10.47 % G S, 2015
29-Mar-01	30-Mar-01	3000	14.35	161	4397.13	57	1089.13	1910.87	0	10.91	11.43 % G S, 2015
<b>2001-02</b>											
12-Apr-01	16-Apr-01	4000	10.12	289	13772.7	57	4000	0	0	10.25	10.95 %G S, 2011
18-Apr-01	19-Apr-01	4000	7.37	238	8325	130	4000	0	0	9.81	11.40 % G S, 2008
18-Apr-01	19-Apr-01	2000	15	184	8032.5	29	2000	0	0	10.71	10.71 % G S, 2016
-	20-Apr-01	4000	10.59	-	-	-	-	-	4000	10.32	& 11.50 % G S, 2011
-	20-Apr-01	4000	15	-	-	-	-	-	4000	10.64	& 10.71 % G S, 2016
-	20-Apr-01	4000	19.69	-	-	-	-	-	4000	11	& 11.60 % G S, 2020
27-Apr-01	30-Apr-01	4000	10.57	216	9316.01	88	4000	0	0	10.12	11.50 % G S, 2011
27-Apr-01	30-Apr-01	2000	17	257	8287	25	2000	0	0	10.45	10.45 % G S, 2018
17-May-01	18-May-01	4000	13.73	320	11257.8	108	4000	0	0	10.19	10.47 % G S, 2015
29-May-01	30-May-01	3000	12	243	7064.77	82	3000	0	0	9.81	9.81 % G S, 2013
29-May-01	30-May-01	2000	20	196	7440.51	27	2000	0	0	10.25	10.25 % G S, 2021
-	30-May-01	5000	20	-	-	-	-	-	5000	10.25	& 10.25 % G S, 2021

**Financial Markets and Instruments**

-	20-Jun-01	4000	11.08	-	-	-	-	-	-	4000	9.71	&	11.03 % G S, 2012
29-Jun-01	2-Jul-01	4000	10	303	11080.8	102	4000	0	0	0	9.39		9.39 G S, 2011
29-Jun-01	2-Jul-01	2000	16.83	223	5235.95	42	2000	0	0	0	9.78		10.45 % G S, 2018
7-Jul-01	9-Jul-01	4000	11.89	238	8252.33	143	4000	0	0	0	9.36		9.81 % G S, 2013
7-Jul-01	9-Jul-01	3000	19.89	172	4989.77	117	3000	0	0	0	9.9		10.25 % G S, 2021
25-Jul-01	26-Jul-01	5000	9.93	251	8066.5	167	5000	0	0	0	9.22		9.39 % G S, 2011
8-Aug-01	9-Aug-01	2000	18	133	4320.79	65	2000	0	0	0	10.03		10.03 % G S, 2019
8-Aug-01	9-Aug-01	4000	11.81	159	4427	98	2586	735	679	0	9.53		9.81 % G S, 2013
10-Sep-01	11-Sep-01	5000	11	252	7891.55	190	5000	0	0	0	9.4		9.40 % G S, 2012
10-Sep-01	11-Sep-01	2000	25	159	3843.71	31	2000	0	0	0	10.18		10.18 % G S, 2026
10-Sep-01	11-Sep-01	5000	11	252	7891.55	190	5000	-	-	-	9.4		9.40 % G S, 2012
10-Sep-01	11-Sep-01	2000	25	159	3843.71	31	2000	-	-	-	10.18		10.18 % G S, 2026
15-Oct-01	16-Oct-01	2000	24.9	97	3135.75	62	2000	-	-	101.10/10.06	-		10.18 % G S, 2026
15-Oct-01	16-Oct-01	6000	14	333	12176.9	176	6000	-	-	-	9.85		9.85 % G S, 2015
19-Nov-01	20-Nov-01	4000	13.86	382	12193.4	113	4000	-	-	-	109.83/8.62		9.85 % G S, 2015
-	20-Nov-01	4000	24.81	-	-	-	-	-	-	4000	112.15/8.95		10.18 % G S, 2026
21-Nov-01	22-Nov-01	2000	5	214	10315	7	2000	-	-	-	100.00/-0.05@		GOI FRB 2006
5-Dec-01	6-Dec-01	3000	8	108	6787.8	21	3000	-	-	-	100.00/-0.01@		GOI FRB 2009
5-Dec-01	6-Dec-01	3000	14.37	256	7387.15	100	3000	-	-	-	121.92/8.10		10.71 % G S, 2016

																(Rupees Crore)	
Date of Auction	Date of Issue	Notified Amount	Maturity (Period/ residual period in years)	Bids received				Bids Accepted				Devolvement on Primary Dealers	Devolvement Private placement on RBI	Indicative YTM at cut-off price/coupon rate	Nomenclature of the stock		
				(Comp)		(Non Comp)		(Comp)		(Non Comp)							
				Number	Face Value	Number	Face Value	Number	Face Value	Number	Face Value						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
<b>2001-2002</b>																	
14-Jan-02	15-Jan-02	5000	15	435	16056.5	36	148.28	82	4851.7	36	148.3	-	-	8.07	8.07 % G S, 2017		
14-Feb-02	15-Feb-02	5000	14.92	328	8494.35	-	-	152	5000	-	-	-	-	108.06/7.18	8.07 % G S, 2017		
-	30-Mar-02	3213.32	19.17	-	-	-	-	-	-	-	-	-	3213.32	122.25/7.96	10.25 % G S, 2021		
<b>2002-2003</b>																	
4-Apr-02	5-Apr-02	3000	7	160	6839	21	61.97	73	2938	21	61.97	-	-	6.65	6.65 % G S 2009**		
4-Apr-02	5-Apr-02	4000	10	310	13490.5	25	176.53	58	3823.5	25	176.5	-	-	6.85	6.85 % G S 2012**		
15-Apr-02	16-Apr-02	6000	15	263	8563.25	19	95.49	189	5904.5	19	95.49	-	-	7.49	7.49 % G S 2017**		
-	22-Apr-02	6000	10.39	-	-	-	-	-	-	-	-	-	6000	114.81/7.34 &	9.40 % G S 2012		
2-May-02	3-May-02	6000	10	274	12964.5	15	27.42	94	5972.6	15	27.42	-	-	7.4	7.40 % G S 2012**		
13-May-02	14-May-02	3000	8	161	3987	14	18.16	123	2467	14	18.16	-	514.836	7.55	7.55 % G S 2010**		
13-May-02	14-May-02	3000	20	85	1933.6	14	22.72	46	1474.1	14	22.72	-	1503.18	8.35	8.35 % G S 2022**		
-	21-May-02	6000	10	-	-	-	-	-	-	-	-	-	6000	95.00/8.14 &	7.40 % G S 2012		
-	30-May-02	4000	14.88	-	-	-	-	-	-	-	-	-	4000	96.45/7.90 &	7.49 % G S 2017		
-	30-May-02	2000	24.28	-	-	-	-	-	-	-	-	-	2000	115.70/8.62 &	10.18 % G S 2026		
5-Jun-02	6-Jun-02	4000	9.91	273	6753.3	-	-	150	2678.3	-	-	1321.7	-	97.80/7.72	7.40 % G S 2012		
5-Jun-02	6-Jun-02	2000	19.94	48	1363.51	-	-	1	0.01	-	-	1999.99	-	100.00/8.35	8.35 % G S 2022		
1-Jul-02	2-Jul-02	4000	7.87	261	6735.1	-	-	201	4000	-	-	-	-	101.46/7.30	7.55 % G S 2010		
1-Jul-02	2-Jul-02	3000	15	41	3685	-	-	18	2885	-	-	115	-	100.00/0.34@	GOI FRB 2017		
17-Jul-02	18-Jul-02	4000	14.49	229	6634.6	23	37.31	66	1521.1	23	37.31	1285	1156.59	102.30/7.80	8.07 % G S 2017**		
17-Jul-02	18-Jul-02	3000	10	145	5508	12	12.4	90	2987.6	12	12.4	-	-	6.72	6.72 % G S 2007/12**		
2-Aug-02	5-Aug-02	5000	8.91	324	12123.3	13	32.52	105	4967.5	13	32.52	-	-	113.90/7.24	9.39 % G S 2011 **		
2-Aug-02	5-Aug-02	2000	24.1	163	6154	9	19.12	34	1980.9	9	19.12	-	-	124.00/7.93	10.18 % G S 2026**		
27-Aug-02	28-Aug-02	5000	15	260	8840.9	26	108.35	157	4891.7	26	108.4	-	-	7.46	7.46 % G S 2017**		
27-Aug-02	28-Aug-02	2000	30	119	3992.5	15	38.55	67	1961.5	15	38.55	-	-	7.95	7.95 % G S 2032**		
9-Sep-02	11-Sep-02	4000	14.96	261	6546.93	22	106.76	152	3893.2	22	106.8	-	-	100.15/7.44	7.46 % G S 2017**		
9-Sep-02	11-Sep-02	3000	19.68	131	4288.5	20	55.64	98	2944.4	20	55.64	-	-	106.50/7.70	8.35 % G S 2022**		
8-Oct-02	9-Oct-02	4000	10.9	361	15269.5	26	78.31	119	3921.7	26	78.31	-	-	100.93/7.14	7.27 % G S 2013**		
8-Oct-02	9-Oct-02	3000	29.89	91	4463.25	15	47.68	39	2952.3	15	47.68	-	-	100.72/7.89	7.95 % G S 2032**		
16-Oct-02	17-Oct-02	4000	14.86	253	13922.5	18	50.85	18	3949.2	18	50.85	-	-	100.79/7.37	7.46 % G S 2017**		
6-Nov-02	7-Nov-02	4000	16.76	245	10410.9	14	29	20	3971	14	29	-	-	126.58/7.26	10.03 % G S 2019**		
6-Nov-02	7-Nov-02	3000	23.84	166	5822.5	11	30.5	49	2969.5	11	30.5	-	-	129.80/7.48	10.18 % G S 2026**		
5-Dec-02	6-Dec-02	5000	19.44	263	12189	23	86.53	39	4913.5	23	86.53	-	-	115.09/6.93	8.35 % G S 2022**		

ZCB : Zero Coupon Bonds.  
 \* : Issued on tap/floatation.  
 & : Private placement with RBI.  
 GS : Government Stock  
 GOIFRG : Government of India Floating rate bonds.  
 \*\* : Allotment to Non-Competitive Bidders at weighted average yield/price of competitive bids  
 @ : Mark up (spread) over the base rate.

Appendix Table 3: Issues of Central Government Dated Securities

(Amount in Rupees crore)									
Nomenclature of loan	Issue / Auction Particulars					Bids/Application Received			
	Date of Auction	Date of Issue	Tenor (Years)	Residual Maturity (Years)	Notified Amount	Competitive		Non-Competitive	
						Number	Face Value	Number +	Face Value
1	2	3	4	5	6	7	8	9	10
<b>2002-03</b>									
6.65% GS 2009 # ** u	04-Apr-02	05-Apr-02	7	7.00	3000.00	160	6839.00	21	61.96
6.85% GS 2012 # ** u	04-Apr-02	05-Apr-02	10	10.00	4000.00	310	13490.45	25	176.53
7.49% GS 2017 # **	15-Apr-02	16-Apr-02	15	15.00	6000.00	263	8563.25	19	95.49
9.40% GS 2012 \$ P	—	22-Apr-02	11	10.39	6000.00	—	—	—	—
7.40% GS 2012 # **	02-May-02	03-May-02	10	10.00	6000.00	274	12964.50	15	27.42
7.55% GS 2010 # **	13-May-02	14-May-02	8	8.00	3000.00	161	3987.00	14	18.16
8.35% GS 2022 # **	13-May-02	14-May-02	20	20.00	3000.00	85	1933.60	14	22.72
7.40% GS 2012 \$ P	—	21-May-02	10	10.00	6000.00	—	—	—	—
7.49% GS 2017 \$ P	—	30-May-02	15	14.88	4000.00	—	—	—	—
10.18% GS 2026 \$ P	—	30-May-02	25	24.28	2000.00	—	—	—	—
7.40% GS 2012 \$	05-June-02	06-June-02	10	9.91	4000.00	273	6753.30	—	—
8.35% GS 2022 \$	05-June-02	06-June-02	20	19.94	2000.00	48	1363.51	—	—
7.55% GS 2010 \$	01-Jul-02	02-Jul-02	8	7.87	4000.00	261	6735.10	—	—
GOI FRB 2017	01-Jul-02	02-Jul-02	15	15.00	3000.00	41	3685.00	—	—
8.07% GS 2017 \$ **	17-Jul-02	18-Jul-02	15	14.49	4000.00	229	6634.6	23	37.31
6.72% GS 2007/12 # ** u	17-Jul-02	18-Jul-02	10	10.00	3000.00	145	5508.00	12	12.40
9.39% GS 2011 \$ **	02-Aug-02	05-Aug-02	10	8.91	5000.00	324	12123.25	13	32.52
10.18% GS 2026 \$ **	02-Aug-02	05-Aug-02	25	24.10	2000.00	163	6154.00	9	19.12
7.46% GS 2017 # **	27-Aug-02	28-Aug-02	15	15.00	5000.00	260	8840.90	26	108.34
7.95% GS 2032 # ** u	27-Aug-02	28-Aug-02	30	30.00	2000.00	119	3992.50	15	38.54
7.46% GS 2017 \$ **	09-Sep-02	11-Sep-02	15	14.96	4000.00	261	6546.93	22	106.76
8.35% GS 2022 \$ **	09-Sep-02	11-Sep-02	20	19.68	3000.00	131	4288.50	20	55.63
7.27% GS 2013 \$ **	08-Oct-02	09-Oct-02	11	10.90	4000.00	361	15269.50	26	78.31
7.95% GS 2032 \$ ** u	08-Oct-02	09-Oct-02	30	29.89	3000.00	91	4463.25	15	47.68
7.46% GS 2017 \$ **	16-Oct-02	17-Oct-02	15	14.86	4000.00	253	13922.50	18	50.85
10.03% GS 2019 \$ **	06-Nov-02	07-Nov-02	18	16.76	4000.00	245	10410.90	14	29.00
10.18% GS 2026 \$ **	06-Nov-02	07-Nov-02	25	23.84	3000.00	166	5822.50	11	30.50
8.35% GS 2022 \$ **	05-Dec-02	06-Dec-02	20	19.44	5000.00	263	12189.00	23	86.52
7.38% GS 2015 \$ **	06-Jan-03	07-Jan-03	13	12.66	5000.00	256	13006.38	22	166.65
6.57% GS 2011 P	—	24-Feb-03	8	8.00	7500.00	—	—	—	—
6.72% GS 2014 P	—	24-Feb-03	11	11.00	5500.00	—	—	—	—
<b>2003-04</b>									
7.37% GS 2014 \$ **	08-Apr-03	09-Apr-03	12	11.02	5000.00	236	7926.00	24	60.19
6.30% GS 2023 # **	08-Apr-03	09-Apr-03	20	20.00	4000.00	245	10413.00	25	147.31
6.25% GS 2018 \$ **	22-Apr-03	23-Apr-03	15	14.69	5000.00	319	9655.25	26	101.93
7.95% GS 2032 \$ **	22-Apr-03	23-Apr-03	30	29.35	2000.00	131	4472.75	19	60.65
6.25% GS 2018 \$ P	—	23-Apr-03	15	14.69	3000.00	—	—	—	—
7.95% GS 2032 \$ P	—	23-Apr-03	30	29.35	2000.00	—	—	—	—
7.27% GS 2013 \$ **	03-May-03	05-May-03	11	10.33	6000.00	314	12468.70	14	30.90
6.30% GS 2023 \$ **	03-May-03	05-May-03	20	18.93	3000.00	143	4158.75	14	41.55
GOI FRB 2014	19-May-03	20-May-03	11	11.00	5000.00	110	8710.00	2	0.80
6.85% GS 2012 \$ **	03-Jun-03	04-Jun-03	10	8.84	6000.00	378	13026.00	21	91.30
6.13% GS 2028 # **	03-Jun-03	04-Jun-03	25	25.00	3000.00	187	7886.00	19	214.32
7.37% GS 2014 \$ **	01-Jul-03	02-Jul-03	12	10.79	5000.00	298	12800.00	20	95.42
6.05% GS 2019 \$ **	01-Jul-03	02-Jul-03	16	15.94	4000.00	279	9055.80	22	178.09
6.13% GS 2028 \$ **	01-Jul-03	02-Jul-03	25	24.92	3000.00	114	5379.75	20	136.14
6.35% GS 2020 \$ **	15-Jul-03	16-Jul-03	17	16.46	6000.00	371	15722.50	29	309.93
7.95% GS 2032 \$ **	15-Jul-03	16-Jul-03	30	29.12	3000.00	134	5234.75	22	68.19
GOI FRB 2011	07-Aug-03	08-Aug-03	8	8.00	6000.00	115	13145.00	10	19.40
6.01% GS 2028 # **	07-Aug-03	08-Aug-03	25	24.63	3000.00	176	7476.26	27	243.32

										(Amount in Rupees crore)	
Issue / Auction Particulars			Bids / Application Accepted							Gross Raised (15+16+17)	Cut-off Price (Rs.) /Yield (%)
Nomenclature of loan	Date of Auction	Date of Issue	Competitive		Non-Competitive		Allocation to				
			Number	Face Value	Number +	Face Value	Others	PDs (Devlmt.)	RBI (Devlmt./P)		
1	2	3	11	12	13	14	15	16	17	18	19
<b>2002-03</b>											
6.65% GS 2009 # ** u	04-Apr-02	05-Apr-02	73	2938.03	21	61.96	3000.00	-	-	3000.00	6.65
6.85% GS 2012 # ** u	04-Apr-02	05-Apr-02	56	3823.47	25	176.53	4000.00	-	-	4000.00	6.85
7.49% GS 2017 # **	15-Apr-02	16-Apr-02	189	5904.50	19	95.49	6000.00	-	-	6000.00	7.49
9.40% GS 2012 \$ P	-	22-Apr-02	-	-	-	-	-	-	6000.00	6000.00	114.81/7.3357
7.40% GS 2012 # **	02-May-02	03-May-02	94	5972.57	15	27.42	6000.00	-	-	6000.00	7.40
7.55% GS 2010 # **	13-May-02	14-May-02	123	2467.00	14	18.16	2485.16	-	514.83	3000.00	7.55
8.35% GS 2022 # **	13-May-02	14-May-02	46	1474.10	14	22.72	1496.82	-	1503.18	3000.00	8.35
7.40% GS 2012 \$ P	-	21-May-02	-	-	-	-	-	-	6000.00	6000.00	95.00/8.14
7.49% GS 2017 \$ P	-	30-May-02	-	-	-	-	-	-	4000.00	4000.00	96.45/7.8983
10.18% GS 2026 \$ P	-	30-May-02	-	-	-	-	-	-	2000.00	2000.00	115.7/8.6234
7.40% GS 2012 \$	05-June-02	06-June-02	150	2678.30	-	-	2678.30	1321.700	-	4000.00	97.80/7.7202
8.35% GS 2022 \$	05-June-02	06-June-02	1	0.010	-	-	0.010	-	1999.99	2000.00	100/8.35
7.55% GS 2010 \$	01-Jul-02	02-Jul-02	201	4000.00	-	-	-	-	-	4000.00	101.46/7.3005
GOI FRB 2017	01-Jul-02	02-Jul-02	18	2885.00	-	-	2885.00	115.00	-	3000.00	0.34 @
											100/6.84% for first 1/2 yr
8.07% GS 2017 \$ **	17-Jul-02	18-Jul-02	66	1521.09	23	37.31	1558.40	1285.000	1156.59	4000.00	102.30/7.8021
6.72% GS 2007/12 # ** u	17-Jul-02	18-Jul-02	90	2987.59	12	12.40	3000.00	-	-	3000.00	6.72 @@
9.39% GS 2011 \$ **	02-Aug-02	05-Aug-02	105	4967.48	13	32.52	5000.00	-	-	5000.00	113.90/7.2434
10.18% GS 2026 \$ **	02-Aug-02	05-Aug-02	34	1980.88	9	19.12	2000.00	-	-	2000.00	124.00/7.9302
7.46% GS 2017# **	27-Aug-02	28-Aug-02	157	4891.65	26	108.34	5000.00	-	-	5000.00	7.46
7.95% GS 2032 # ** u	27-Aug-02	28-Aug-02	67	1961.45	15	38.54	2000.00	-	-	2000.00	7.95
7.46% GS 2017 \$ **	09-Sep-02	11-Sep-02	152	3893.23	22	106.76	4000.00	-	-	4000.00	100.15/7.4427
8.35% GS 2022 \$ **	09-Sep-02	11-Sep-02	98	2944.36	20	55.63	3000.00	-	-	3000.00	106.50/7.7014
7.27% GS 2013 \$ **	08-Oct-02	09-Oct-02	119	3921.68	26	78.31	4000.00	-	-	4000.00	100.93/7.1444
7.95% GS 2032 \$ ** u	08-Oct-02	09-Oct-02	39	2952.31	15	47.68	3000.00	-	-	3000.00	100.72/7.8858
7.46% GS 2017 \$ **	16-Oct-02	17-Oct-02	18	3949.15	18	50.85	4000.00	-	-	4000.00	100.79/7.3702
10.03% GS 2019 \$ **	06-Nov-02	07-Nov-02	20	3971.00	14	29.00	4000.00	-	-	4000.00	126.58/7.2601
10.18% GS 2026 \$ **	06-Nov-02	07-Nov-02	49	2969.50	11	30.50	3000.00	-	-	3000.00	129.80/7.4807
8.35% GS 2022 \$ **	05-Dec-02	06-Dec-02	39	4913.47	23	86.52	5000.00	-	-	5000.00	115.09/6.9251
7.38% GS 2015 \$ **	06-Jan-03	07-Jan-03	112	4833.34	22	166.65	5000.00	-	-	5000.00	111.58/6.0555
6.57% GS 2011 P	-	24-Feb-03	-	-	-	-	-	-	7500.00	7500.00	6.57
6.72% GS 2014 P	-	24-Feb-03	-	-	-	-	-	-	5500.00	5500.00	6.72
<b>2003-04</b>											
7.37% GS 2014 \$ **	08-Apr-03	09-Apr-03	201	4939.80	24	60.19	5000.00	-	-	5000.00	111.11/5.9787
6.30% GS 2023 # **	08-Apr-03	09-Apr-03	65	3852.68	25	147.31	4000.00	-	-	4000.00	6.30
6.25% GS 2018 \$ **	22-Apr-03	23-Apr-03	134	4898.07	26	101.93	5000.00	-	-	5000.00	101.40/6.1032
7.95% GS 2032 \$ **	22-Apr-03	23-Apr-03	9	1939.35	19	60.65	2000.00	-	-	2000.00	121.51/6.3274
6.25% GS 2018 \$ P	-	23-Apr-03	-	-	-	-	-	-	3000.00	3000.00	101.40/6.1032
7.95% GS 2032 \$ P	-	23-Apr-03	-	-	-	-	-	-	2000.00	2000.00	121.51/6.3274
7.27% GS 2013 \$ **	03-May-03	05-May-03	98	5969.10	14	30.90	6000.00	-	-	6000.00	109.92/5.9679
6.30% GS 2023 \$ **	03-May-03	05-May-03	118	2958.45	14	41.55	3000.00	-	-	3000.00	99.45/6.3485
GOI FRB 2014	19-May-03	20-May-03	55	4999.20	2	0.80	5000.00	-	-	5000.00	0.14 @
											100/5.09% for first 1 yr
6.85% GS 2012 \$ **	03-Jun-03	04-Jun-03	151	5908.70	21	91.30	6000.00	-	-	6000.00	107.48/5.7566
6.13% GS 2028 # **	03-Jun-03	04-Jun-03	15	2850.00	19	150.00	3000.00	-	-	3000.00	6.13
7.37% GS 2014 \$ **	01-Jul-03	02-Jul-03	116	4904.58	20	95.42	5000.00	-	-	5000.00	112.80/5.7590
6.05% GS 2019 \$ **	01-Jul-03	02-Jul-03	94	3821.91	22	178.09	4000.00	-	-	4000.00	100.90/5.9613
6.13% GS 2028 \$ **	01-Jul-03	02-Jul-03	45	2863.85	20	136.14	3000.00	-	-	3000.00	100.39/6.0989
6.35% GS 2020 \$ **	15-Jul-03	16-Jul-03	115	5700.00	29	300.00	6000.00	-	-	6000.00	103.92/5.9723
7.95% GS 2032 \$ **	15-Jul-03	16-Jul-03	12	2931.81	22	68.190	3000.00	-	-	3000.00	123.38/6.2041
GOI FRB 2011	07-Aug-03	08-Aug-03	54	5980.60	10	19.40	6000.00	-	-	6000.00	0.13@
											100/5.03% for first 1 yr
6.01% GS 2028 # **	07-Aug-03	08-Aug-03	79	2850.00	27	150.00	3000.00	-	-	3000.00	6.01

- # Yield Based Auction
- u Uniform Price Auction
- P Private Placement with RBI
- + Number of applicants.
- \*\* Allotment to Non-Competitive bidders at wtd.average yield/price of competitive bids.
- \$ Reissues
- @ Mark up (spread) over the base rate
- @@ yield at first call (issuance with put & call options)

Table 4: Turnover in Government Securities Market (Face Value) at Mumbai @

(Rs. crore)					
Week / Month +	Govt. of India Dated Securities	State Govt. Securities	91 Day	Treasury Bills 364 Day	RBI*
1	2	3	4	5	6
<b>2002-03</b>					
April	1,80,655.97	2,093.78	2,007.22	5,651.35	5,306.66
May	1,37,274.02	749.36	4,264.00	7,319.75	1,524.72
June	1,16,865.42	553.22	3,709.13	3,943.06	188.99
July	2,00,581.49	551.56	3,962.38	6,845.36	6,537.78
August	2,71,016.61	1,328.24	4,080.22	10,298.06	7,018.67
September	1,74,820.93	2,086.30	2,115.44	5,049.63	6,378.49
October	1,97,745.96	1,279.76	3,953.42	7,738.58	43.36
November	3,80,602.76	2,094.87	6,023.27	9,425.97	11,072.82
December	2,58,473.27	1,678.64	6,133.04	5,015.37	4,548.29
January	4,01,758.18	2,315.66	14,493.83	7,177.89	10,995.89
February	1,39,688.84	1,050.45	9,135.96	5,209.08	87.77
March	1,17,686.43	2,233.54	7,796.64	8,043.71	65.91
<b>2003-04</b>					
April	1,98,019.70	1,363.59	6,646.69	14,472.36	7.39
May	3,34,895.16	2,051.15	5,208.12	11,520.66	5,568.55
June	3,00,853.16	3,064.23	5,490.37	8,670.06	44.63
July	2,47,838.63	1,532.92	9,149.98	10,308.44	57.00
August	4,98,818.26	4,926.50	14,764.11	11,628.45	11,546.30
September	2,70,472.22	2,923.06	14,378.44	11,399.22	5,107.43
October	4,19,246.88	3,146.76	9,816.18	11,858.48	13,985.16
November	1,73,544.68	1,100.70	7,690.96	9,189.76	78.97
December	1,53,118.26	2,438.54	6,205.72	7,221.54	131.71
January	2,08,836.04	2,603.34	7,743.20	12,434.44	5,228.45
February	1,40,041.90	2,624.60	6,599.20	9,812.20	35.03
<b>Week-Ended</b>					
March 5, 2004	32,308.30	267.40	1,355.68	3,258.12	54.00
March 12, 2004	60,351.64	708.50	1,856.30	4,461.38	7.97
March 19, 2004	55,166.66	1,168.72	1,595.04	5,392.48	—
March 26, 2004	50,142.82	2,641.72	2,105.48	3,656.92	6.64
@ : Based on SGL outright transactions in government securities in secondary market at Mumbai. It excludes repo transactions.					
+ : Turnover upto the last Friday of the month over the last Friday of preceding month.					
* : RBI's Sales and Purchases include transactions in other offices also. It excludes transactions relating to the Government of India and the Welfare Commissioner, Bhopal.					

**Table 5: Yield of SGL Transactions in Government Dated Securities for Various Maturities**

(Per cent annum)												
Term to Maturity (in years)	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	2	3	4	5	6	7	8	9	10	11	12	13
<b>1996-97</b>												
1	-	12.5116	12.3013	11.7813	11.2459	12.7253	10.7676	10.0719	10.966	9.563	10.3196	10.6043
2	13.3595	13.2428	13.2418	12.679	13.3094	12.6929	12.2786	11.877	12.1292	12.0447	11.8339	12.3681
3	13.5032	13.3846	13.6404	13.4402	13.3336	13.5367	13.1755	12.9426	13.2821	12.8575	12.8767	12.7142
4	13.6468	13.5265	13.7068	13.4112	13.408	13.9926	13.4649	13.479	13.5149	13.1036	13.2988	13.1088
5	13.7882	13.6683	13.7209	13.4248	13.4764	13.585	13.533	13.5228	13.3841	13.0089	13.1688	12.9672
6	13.9088	13.8053	13.7476	13.5184	13.5448	13.8753	13.4976	13.5866	13.3039	13.1519	13.1668	13.1865
7	14.0295	13.8439	13.8578	13.612	13.6132	13.9824	13.6414	13.6504	13.4161	13.2789	13.2501	13.3998
8	14.1253	13.8821	13.9361	13.6809	13.6958	13.9081	13.5921	13.6486	13.5284	13.406	13.3333	13.4423
9	14.0049	13.9186	13.9253	13.7044	13.7966	13.6622	13.5391	13.6169	13.6406	13.533	13.3863	13.4832
10	-	13.9551	-	-	13.8973	-	13.671	13.6601	13.7528	13.66	13.4275	13.4328
<b>1997-98</b>												
1	9.8642	9.9835	9.2531	8.1943	9.4734	9.34	8.3299	8.3374	9.3703	13.007	12.0589	10.4957
2	10.2869	11.4614	10.3404	9.3493	10.1754	10.2175	9.1175	9.1783	9.9188	11.8652	11.9839	10.8007
3	11.1641	12.0987	11.3818	10.3631	10.8338	10.7106	9.7063	9.8175	10.3577	11.8042	12.0203	11.0416
4	11.6542	12.2109	11.7997	10.6844	11.1248	11.1411	9.9875	10.1053	10.612	12.4848	12.3149	11.2848
5	12.1444	12.5549	12.1197	10.9807	11.2374	11.3291	10.3129	10.344	10.775	12.8597	12.3937	11.4836
6	12.3643	12.5806	12.3356	11.2271	11.1963	11.4589	10.4635	10.6075	10.8766	12.9573	12.4402	11.6818
7	12.5503	12.6176	12.4828	11.4241	11.282	11.6025	10.5881	10.8024	10.9425	13.0549	12.4866	11.9926
8	12.6552	12.7031	12.5303	11.6107	11.2014	11.677	10.6949	10.8925	10.9921	13.1525	12.533	12.0163
9	12.76	12.7886	12.5581	11.652	11.3906	11.7314	10.802	10.9308	11.0747	13.2501	12.5795	12.0847
10	12.8648	12.8741	12.5858	11.6555	11.5798	11.8622	10.8648	10.9653	11.1751	13.3477	12.6259	12.1175
<b>1998-99</b>												
1	8.667	10.9301	10.2601	9.9241	10.0718	10.9511	10.8969	10.7167	10.8064	10.6519	10.94	10.6531
2	9.8617	11.2938	11.0929	11.1796	11.0393	11.4683	11.4981	11.3864	11.3685	11.2816	11.3115	11.0261
3	10.4726	11.4221	11.3782	11.5195	11.5416	11.6188	11.6549	11.5748	11.5631	11.5068	11.5751	11.1969
4	10.7983	11.5495	11.5893	11.7368	11.6494	11.7402	11.8131	11.68	11.6879	11.6533	11.7407	11.3513
5	11.0643	11.6593	11.7349	11.8632	11.7601	11.8634	11.9407	11.8163	11.83	11.8047	11.8819	11.5543
6	11.4256	11.7691	11.8097	11.9369	11.9157	11.99	12.0305	11.9913	11.977	11.9553	11.9746	11.6809
7	11.5509	11.8789	11.8844	12.0167	11.9157	12.1736	12.0958	12.1	12.0675	12.058	12.0636	11.7484
8	11.676	11.9635	11.9591	12.0964	12.0357	12.3045	12.161	12.1603	12.1304	12.1252	12.1526	11.8444
9	11.7977	12.0474	12.0339	12.1621	12.1048	12.2883	12.2263	12.1913	12.1815	12.1829	12.2416	11.9456
10	11.9194	12.1312	12.1086	12.1923	12.2001	12.272	12.2947	12.2221	12.2326	12.2489	12.3306	12.0324
<b>1999-00</b>												
1	10.4715	10.5796	10.4013	10.2791	10.2891	10.5236	10.4471	10.3921	10.0945	9.9931	9.5702	10.3864
2	10.8072	10.9251	10.9291	10.5781	10.4617	10.6204	10.6254	10.5177	10.2508	10.1234	9.6247	10.2892
3	10.9952	11.097	11.0444	10.892	10.6279	10.732	10.7296	10.6455	10.3975	10.2212	9.7504	10.3543
4	11.1609	11.214	11.1805	11.0021	11.8359	10.8784	10.8597	10.7694	10.6002	10.3295	9.8761	10.3719
5	11.3116	11.3104	11.3725	11.1885	10.9986	10.9764	10.9656	10.867	10.708	10.4269	9.9944	10.4486
6	11.4376	11.3446	11.4635	11.2884	11.0617	11.0614	11.0754	10.9554	10.8227	10.5367	10.1232	10.5459
7	11.6127	11.4767	11.5811	11.3912	11.2364	11.2103	11.2305	11.0797	10.9371	10.6171	10.2191	10.6251
8	11.7903	11.6234	11.711	11.4932	11.3718	11.3327	11.3622	11.1967	11.0405	10.6963	10.3253	10.7286
9	11.8392	11.6692	11.7798	11.5808	11.5071	11.4573	11.4763	11.3338	11.1655	10.8145	10.3882	10.8073
10	11.8903	11.7293	11.862	11.7061	11.6356	11.5811	11.5924	11.4341	11.2471	10.9434	10.4416	10.8663
11	11.9718	11.8462	11.9676	11.8369	11.7373	11.6939	11.6973	11.5311	11.3304	11.0255	10.5046	10.8766
12	12.0484	11.921	12.0367	11.9299	11.8052	11.7565	11.7597	11.5829	11.3767	11.073	10.5556	10.6535

**Treasury Management: Theory and Practice**

13	12.1251	12.0067	12.098	11.9902	11.8576	11.808	11.8093	11.6246	11.4196	11.1206	10.6266	10.8758
14	12.2017	12.0923	12.1593	12.0505	11.9092	11.857	11.8552	11.6611	11.4416	11.1552	10.6853	11.0212
15	-	12.1552	12.2091	12.1009	11.9333	11.8799	11.8857	11.6844	11.4265	11.1713	10.7316	11.0986
16	-	12.2116	12.257	12.1507	11.9575	11.9029	11.9162	11.7257	11.4588	11.2111	10.7488	11.0191
17	-	12.268	12.3049	12.1988	11.9816	11.9266	11.9467	11.7608	11.5232	11.2471	10.7651	11.0322
18	-	12.3245	12.3528	12.2261	12.0057	11.9525	11.9772	11.7867	11.5876	11.2699	10.7853	11.0884
19	-	12.3809	12.4007	12.2534	12.0299	11.9785	12.0077	11.8126	11.652	11.2928	10.8051	11.1446
<b>2000-01</b>												
1	9.3755	9.5138	9.8548	10.0923	10.8133	10.6022	10.3377	10.1831	10.101	9.6001	8.9643	9.1418
2	9.432	9.545	9.8789	10.4529	10.7744	10.6567	10.4756	10.2801	10.1693	9.5784	9.1594	9.1014
3	9.5812	9.6928	10.0257	10.6256	10.8153	10.8076	10.6131	10.4031	10.2352	9.6841	9.1296	9.2074
4	9.7377	9.839	10.1439	10.7602	10.9768	10.8413	10.7088	10.5165	10.3341	9.7905	9.2825	9.3839
5	9.8333	9.9152	10.3225	10.8628	11.0275	10.9741	10.8299	10.6582	10.4468	10.0015	9.4739	9.6134
6	9.9678	10.173	10.5277	11	11.0881	11.1403	11.0428	10.8618	10.5579	10.1177	9.6253	9.7966
7	10.0547	10.37	10.7295	11.079	11.2499	11.3065	11.2726	11.0249	10.6509	10.1806	9.6839	9.8594
8	10.1706	10.5242	10.8582	11.1603	11.2869	11.4727	11.3978	11.1691	10.7647	10.3097	9.9226	10.2819
9	10.2875	10.6901	10.9916	11.2368	11.3292	11.6389	11.5101	11.3068	10.8655	10.4024	9.9388	10.1797
10	10.3663	10.8186	11.1004	11.3	11.3715	11.8051	11.6078	11.4009	10.9359	10.4842	10.0447	10.2737
11	10.4747	10.9468	11.1668	11.2705	11.4138	-	11.6635	11.4996	11.0139	10.5662	10.1931	10.432
12	10.5253	10.9944	11.1805	11.2466	11.4561	-	11.7192	11.5712	11.1315	10.6711	10.3621	10.5592
13	10.5759	11.042	11.1941	11.4169	11.4984	-	-	11.6035	11.223	10.7617	10.5189	10.7044
14	10.6178	11.0896	11.2325	11.3539	11.5407	-	-	11.6106	11.2986	10.7409	10.511	10.8495
15	10.6504	11.1211	11.2542	11.3511	11.583	-	-	11.6176	11.3741	10.8555	10.6031	10.876
16	10.682	11.1394	11.2635	11.379	-	-	-	-	-	10.9715	10.7234	10.8378
17	10.6943	11.1578	11.2711	11.4068	-	-	-	-	-	11.0169	10.7739	10.7997
18	10.7023	11.1762	11.2787	11.4347	-	-	-	-	-	11.0624	10.7617	10.7615
19	10.7139	11.1946	11.2436	11.3143	-	-	-	-	-	-	10.5745	10.7233
<b>2001-02</b>												
1	8.852	8.4269	7.8907	7.3215	7.094	7.3057	6.8697	6.7481	7.3521	6.6351	6.6096	5.7633
2	8.9162	8.5333	8.0379	7.483	7.1768	7.3575	6.9638	6.8106	7.4711	6.7232	6.5847	6.2423
3	9.1461	8.7375	8.168	7.6466	7.2996	7.4362	7.0358	6.8626	7.5493	6.7862	6.6453	6.4009
4	9.2874	8.8082	8.2306	7.8085	7.4389	7.5441	7.14	6.9097	7.5909	6.8769	6.8535	6.486
5	9.4013	8.9023	8.4722	8.0661	7.6313	7.8139	7.3681	6.9641	7.6485	6.9389	7.0034	6.6247
6	9.599	9.1745	8.7424	8.3187	8.145	8.1767	7.6428	7.2569	7.7638	7.0731	7.046	6.7647
7	9.7182	9.3619	8.9387	8.5559	8.2842	8.4738	8.0441	7.4631	7.9131	7.3184	7.1323	7.1103
8	9.85	9.494	9.1248	8.8641	8.6253	9.0494	8.568	7.6847	8.0566	7.4513	7.2638	7.164
9	9.9915	9.6073	9.3088	9.1765	8.953	9.1051	8.6882	7.7743	8.1771	7.5503	7.3953	7.2465
10	10.0779	9.7149	9.4551	9.2609	9.1394	9.1468	8.7893	7.9239	8.2666	7.6474	7.4725	7.3437
11	10.1839	9.7623	9.5826	9.5452	9.2887	9.2861	8.9107	7.9911	8.3805	7.6847	7.4556	7.395
12	10.4906	9.7554	9.6365	9.6495	9.432	9.4921	9.1599	8.0309	8.5622	7.9188	7.5238	7.4307
13	10.602	9.895	9.687	9.76	9.5685	9.7135	9.3678	8.1134	8.5914	8.0972	7.6017	7.4667
14	10.4797	10.0263	9.8164	9.9472	9.7025	9.8304	9.2045	8.2063	8.5951	7.8355	7.4868	7.5998
15	10.5687	10.061	9.8182	9.9845	9.7786	9.9047	9.4664	8.304	8.8207	7.8273	7.3232	7.6597
16	10.5192	10.0784	9.7908	10.0177	9.8156	9.9822	9.5556	8.3542	8.9414	8.0537	7.4563	7.7092
17	10.4134	10.0997	9.7863	10.0509	9.8349	10.0596	9.5928	8.338	9.0604	8.1075	7.5894	7.7586
18	10.508	10.1621	9.8959	10.0841	9.8268	10.0442	9.6085	8.3165	9.1631	8.1786	7.7225	7.8081
19	10.6027	10.2219	10.0056	10.1173	9.9334	10.012	9.6618	8.3943	9.0817	8.1859	7.8887	7.8576
20	-	10.1284	10.1153	9.9449	9.9425	9.9206	9.6637	8.4404	9.0161	8.1873	7.9643	7.8807
21	-	-	-	-	-	-	9.6748	8.454	9.0244	8.2066	7.9529	7.8986
22	-	-	-	-	-	-	9.6859	8.4676	9.0328	8.2259	7.9415	7.9165
23	-	-	-	-	-	-	9.697	8.4811	9.0411	8.2451	7.9301	7.9344
24	-	-	-	-	-	-	9.7081	8.4947	9.0494	8.2644	7.9187	7.9523
25	-	-	-	-	-	-	9.7192	8.5083	9.0578	8.2837	7.9073	7.9702

2002-03													
1	6.3246	6.8175	6.2956	6.2149	5.9593	5.8572	5.767	5.5128	5.62				
2	6.3306	6.9915	6.5471	6.3449	6.0937	5.9803	5.831	5.5888	5.622				
3	6.4957	7.0328	6.6358	6.368	6.1983	6.1035	5.9174	5.6849	5.6585				
4	6.5736	7.1345	6.8168	6.5182	6.2614	6.2266	6.0654	5.8286	5.6949				
5	6.733	7.2588	7.0366	6.6733	6.4472	6.3709	6.2123	5.9744	5.735				
6	6.8923	7.3831	7.3288	6.8284	6.6154	6.5656	6.4014	6.115	5.813				
7	7.0887	7.4907	7.2178	6.9775	6.7752	6.781	6.5923	6.1586	5.8772				
8	7.3039	7.5598	7.3344	7.1355	6.9401	6.9525	6.7489	6.2701	5.9699				
9	7.3663	7.6458	7.6228	7.32	7.1165	7.1423	6.9241	6.4672	6.0806				
10	7.3952	7.6529	7.5701	7.3733	7.156	7.1976	6.9791	6.4573	6.0818				
11	7.4478	7.825	7.6259	7.4316	7.2499	7.2645	7.0335	6.5705	6.1888				
12	7.6279	7.9195	7.8526	7.6007	7.3662	7.4753	7.0894	6.6403	6.3086				
13	7.7059	8.0139	7.9772	7.6046	7.4352	7.3963	7.1518	6.7054	6.189				
14	7.7817	8.0326	7.897	7.6173	7.4123	7.4134	7.2324	6.7424	6.2549				
15	7.4747	7.8488	7.7558	7.6746	7.5151	7.4627	7.299	6.8702	6.3037				
16	7.8138	8.0361	7.8611	7.7261	7.6018	7.6586	7.3605	6.9453	6.3574				
17	7.9697	8.1546	7.9663	7.7776	7.6245	7.6877	7.3911	6.9731	6.4428				
18	7.9189	8.2732	8.0715	7.8291	7.7515	7.7168	7.4217	7.0253	6.4544				
19	7.868	8.3917	8.171	7.8758	7.6871	7.7458	7.4383	7.027	6.4302				
20	-	8.4249	8.2017	7.899	7.6857	7.7744	7.4533	7.0278	6.4519				
21	-	8.4581	8.2204	7.9222	7.7238	7.8029	7.4891	7.071	6.4836				
22	-	8.4912	8.239	7.9454	7.7618	7.8315	7.5249	7.1141	6.5153				
23	-	8.5244	8.2577	7.9686	7.7999	7.8601	7.5607	7.1573	6.547				
24	-	8.5576	8.2764	7.9918	7.8379	7.8878	7.5928	7.191	6.5699				
25	-	-	-	-	7.8515	7.897	7.6025	7.1903	6.5727				
26	-	-	-	-	7.8643	7.9062	7.6122	7.1896	6.5755				
27	-	-	-	-	7.8771	7.9154	7.6219	7.1889	6.5783				
28	-	-	-	-	7.8899	7.9246	7.6315	7.1883	6.5811				
29	-	-	-	-	7.9027	7.9338	7.6412	7.1876	6.5839				
30	-	-	-	-	7.9155	7.943	7.6509	7.1869	6.5867				



## Appendix II

The Chief General Manager  
Reserve Bank of India,  
Public Debt Office,  
Fort,  
Mumbai – 400001.

### Application for \_\_\_\_ percent Government Stock \_\_\_\_

Pursuant to Government of India, Ministry of Finance, Department of Economic Affairs Notification \_\_\_\_\_ dated \_\_\_\_\_, I/We \_\_\_\_\_ /on behalf of \_\_\_\_\_ \$\$ (full name(s) in Block letters) herewith tender\*. Cash/Cheque drawn on Reserve Bank of India, Mumbai/Banker's Pay Order for Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_) and request that securities of the \_\_\_\_ percent Government Stock \_\_\_\_ of the nominal value of Rs. \_\_\_\_\_ may be issued to \*me/us in the form of \*Stock Certificate/Credit to \*my/our/our constituents SGL Account (No. \_\_\_\_\_).

2. \*I/We desire that interest be paid at \_\_\_\_\_.

3. \*I/we have read the terms and conditions governing the issuance of Stock in the aforesaid Government Notification and undertake to abide by the same and also by the terms and conditions as included in the prescribed Form of Application.

N.B.: The applicant should not write anything in this page. The entries will be filled in by the Public Debt Office. \_\_\_\_\_

		Signature _____
<b><u>Initials Date</u></b>		Name in full _____
Application No. _____		(Block letters)
Time of receipt. _____		
Cash/Cheque drawn on _____		
Reserve Bank of India _____		
Mumbai/Banker's Pay Order _____		
received/realized on _____		
Credited to special Current _____		
Account on _____		Office Stamp
Examined _____		Address: _____
Cash applications Register posted _____		_____
Indent No. _____		_____
Scrip No _____		Tel No. _____
Card No. _____		Date: _____
Voucher on _____		

**Notes:**

1. If the applicant's signature is by thumb mark, it should be witnessed by two persons. The full name, occupation and address of the witnesses should be appended to their signature.
2. If the application is made in the name of a registered body, the undernoted documents, if not already registered at the Public Debt Office, should be submitted to the Public Debt Office along with the investment amount:
  - i. Certificate of Incorporation/Registration in original or a copy thereof certified as true by the Issuing authority under his official seal.
  - ii. Certified copies of Memorandum and Articles of Association or the rules and regulations/Bye-Laws of the Company/body.

\* Delete what is not required.

\*\* \$\$ If the application is on behalf of a constituent, indicate the name of the constituent.

- iii. Certified copy of resolution in favor of person/s authorised to deal in Government Securities on behalf of the company/body together with his/their duly attested specimen signature(s).
3. Applicant should also complete a Mandate Form (obtainable from Public Debt Office) for remittance of half-yearly interest on Stock Certificate/s issued to them.

**Terms and Conditions**

1. Government Stock will be issued for a minimum amount of Rs.10,000 and in multiples thereof.
2. The Reserve Bank of India will have the discretion to accept or reject any or all applications either wholly or partially without assigning any reason.
3. Government Stock will be issued to the parties by credit to their Subsidiary General Ledger Account maintained with Reserve Bank of India and in the form of Stock Certificate to others.

## Appendix III

The Chief General Manager  
Reserve Bank of India  
Public Debt Office,  
Fort,  
Mumbai – 400001.

Dear Sir,

Tender for \_\_\_\_\_ year Government Stock, \_\_\_\_\_, for an aggregate amount of  
Rs. \_\_\_\_\_ crore: Auction to be held on \_\_\_\_\_.

Pursuant to Government of India, Ministry of Finance, Department of Economic Affairs  
Notification No. \_\_\_\_\_ dated \_\_\_\_\_ and the tender notice issued by you, I/We, the  
undersigned hereby offer to purchase \_\_\_\_\_ year Government Stock, \_\_\_\_\_, at the auction  
to be held by you on the captioned date as set out below:

- i. Name/Constituents Name \$\$ \_\_\_\_\_
- ii. Address \_\_\_\_\_
- iii. SGL Code, if any \_\_\_\_\_
- iv. Telephone No. \_\_\_\_\_
- v. Nominal value of the Government Stock required Rs. \_\_\_\_\_
- vi. Yield percent per annum desired to be earned  
thereon (expressed upto two decimal points  
rounded off to multiples of one) \_\_\_\_\_
- vii. Place at which interest should be paid \_\_\_\_\_

### **Undertaking**

1. On your acceptance of my/our bid, I/we agree/undertake to immediately collect the letter of acceptance from your office and deposit the requisite amount at Reserve Bank of India, Fort, Mumbai on the day/time as indicated therein.
2. I/We have read the terms and conditions of bid for the auction to be held on the captioned date and undertake to abide by them.
3. I/We have also submitted another bid(s)/not submitted any other bid (strike out which is not necessary) for the auction to be held on the captioned date.

Yours faithfully,

Dated:

Signature and  
Office Stamp of the Bidder/s

---

\$\$ If the application is on behalf of a constituent, indicate the name of the constituent.

1. If the applicant's signature is by thumb mark, it should be witnessed by two persons. The full name, occupation and address of the witnesses should be appended to their signature.
2. If the application is made in the name of a registered body, the undernoted documents, if not already registered at the Public Debt Office, should be submitted to the Public Debt Office along with the investment amount:
  - i. Certificate of Incorporation/Registration in original or a copy thereof certified as true by the Issuing authority under his official seal.
  - ii. Certified copies of Memorandum and Articles of Association or the rules and regulations/Bye-Laws of the Company/body.
  - iii. Certified copy of resolution in favor of person/s authorised to deal in government securities on behalf of the company/body together with his/their duly attested specimen signature(s).
3. Application should also complete a Mandate Form (obtainable from the Public Debt Office) for remittance of half-yearly interest on Stock Certificate/s issued to them.

**Terms and Conditions**

1. Government Stock will be issued for a minimum amount of Rs.10,000 (face value) and in multiples thereof.
2. Separate tender form should be submitted for each bid.
3. Results of the auction would be displayed at the Reserve Bank of India, Fort, Mumbai.
4. The Reserve Bank of India will have full discretion to accept or reject any or all bids either wholly or partially, without assigning any reason.
5. Tenderer should check for himself the result of the auction and, if successful, collect the letter of acceptance of the tender from the Reserve Bank of India, Fort, Mumbai.
6. In the case of accepted tenders, the Government Stock would be issued for the nominal amount applied for at a price arrived at with reference to the yield percent per annum desired to be earned thereon as given in the bid.
7. Payment shall be made at the Reserve Bank of India, Fort, Mumbai, in cash or by cheque drawn on it, or by Banker's Pay Order and the required amount shall be deposited by the close of banking hours on \_\_\_\_.
8. The Government Stock will be issued to the parties by credit to their Subsidiary General Ledger Account maintained with Reserve Bank of India and in the form of Stock Certificates to others.

## **Lesson 10**

# **Repurchase Agreements (REPOs)**

**After reading this lesson, you will be conversant with:**

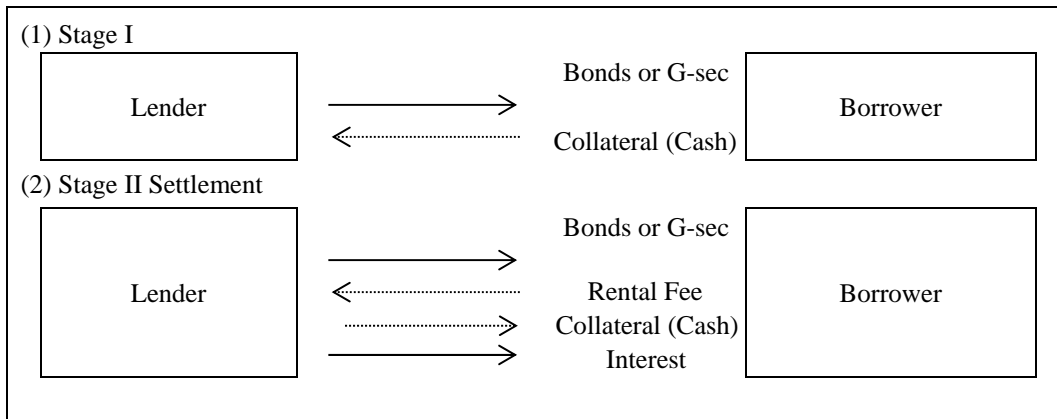
- Nature and Purpose of Repos
- Features of Repos
- Issuing Procedure of Repos

Repo (Ready Forward Deal) is an agreement, which involves a sale of a security with an undertaking to buyback the same at a predetermined price at a future date. The transaction is called Repo from the seller side and viewed as reverse repo from the buyer’s side. In other words, repo is an agreement with a commitment by the seller to buy a security back from the purchaser at a specified price at a designated future date. The repo represents a collateralized short-term loan, where the collateral may be a treasury security, money market instrument, federal agency security, or mortgage-backed security. Repos may be contracted for as short a period as overnight.

A repo transaction essentially involves borrowing money at a price like other money market instruments. A repo will help the holder of a security to acquire liquidity for a short-term without necessarily liquidating the security. The buyer of the security will have an avenue to deploy the surplus funds for a short-term. The government introduced Repurchase Agreements (Repos) in order to manage the excess of liquidity in the system, and also to even out interest rates in the call/notice money market.

Following is the diagrammatic representation of a Repo deal.

**Figure 1**



**Market Participants**

Earlier, only banks, Discount and Finance House of India Ltd. (DFHI) and other financial institutions, which maintain both an SGL (Subsidiary General Ledger) account as well as current account with RBI, Mumbai, were eligible to participate in the repo market. However, subsequent to the amendment of the Securities Contracts (Regulation) Act (SCRA), 1956, the repo market has been widened to cover all such non-bank entities holding both current and SGL accounts with RBI, Mumbai, including mutual funds, thus, increasing the number of eligible non-bank participants to 64 from the earlier 35. These entities can now borrow as well as lend in the repo market. These measures are expected to give a fillip to the repo market, besides enabling better cash and asset-liability management by non-bank institutions.

**REPO vs. Call Money**

Banks borrow in the call market to meet their requirements and these borrowings are unsecured in nature. However, if a bank borrows the same amount through a repo, the lender will receive a security duly transferred which will be held in his name till the reversal of the transaction takes place. Though very unlikely, in the event of the reversal not taking place, the lender does not suffer any loss since the transaction is tantamount to an outright purchase of a security. Hence, the borrowing under Repo is a secured borrowing. These transactions are undertaken mostly between the bankers on the same lines as call money transactions, but they may also be undertaken on the NSE Wholesale Debt Market segment. Considering

the secured nature of borrowing, the interest rate is likely to be lower than the rate prevailing in call. However, the difference is not very conspicuous since the default risk in a call loan is also significantly low.

The following describes the operational aspects of a Repo.

**Size of the Loan:** It is usually the borrower who initiates the transaction and decides the quantum of the borrowing depending on the requirement. However, there will also be instances where banks would like to buy the securities for a short-term as part of their SLR management, in which case the size depends on the need for securities to make up for the SLR shortfall of the Bank.

In case of RBI, tenders should be submitted for a minimum amount of Rs.1 crore (worked out on the basis of face value of securities) and in multiples of Rs.1 crore.

**Selection of Security:** The RBI announces the nature of securities eligible for Repo transactions. All the GoI securities and Treasury Bills and PSU bonds which are in the demat form are eligible for Repo transaction, subject to the condition that the transaction takes place at Mumbai and is reported to the RBI, Mumbai. As of now, consequent upon the delegation of powers by the government and as a part of development of the repo market, even State Government Securities have been made eligible for undertaking repos.

**Interest Rate:** The interest rate on the borrowing will be mutually negotiated depending on the term, amount and the prevailing call money and term money rates.

## Settlement

The RBI operates the government securities settlement system for those having SGL accounts in the public Debt Office through delivery versus payment. Under this system, trades are settled on a gross “trade by trade” basis with irrevocable final settlement taking place simultaneously for securities and funds, after ensuring that there are sufficient funds in buyer’s account and sufficient securities in seller’s account. In view of increased volumes in transactions, the RBI proposed to introduce a scheme for automatic invocation by the SGL account holder of undrawn refinance/liquidity support from the RBI for facilitating smooth securities settlement. The facility will be available only to banks and PDs, subject to adequate safeguards. The SGL also provides for details of the reversal transaction. RBI will maintain a Constituents’ Repo SGL account for the purpose of settlement. Securities held by the Reserve Bank of India on behalf of banks in the Repo SGL accounts will be eligible for SLR purposes. The Reserve Bank will issue SGL Balance Certificate indicating the details of total holdings of bank/institution and total loan-wise securities held in the Repo Constituents’ SGL account as on any date. To simplify the provision of liquidity, in case of reverse repo auctions, successful participants who are eligible to draw refinance from the RBI will be granted refinance against collateral as per the existing procedures. The other successful banks/institutions not eligible for refinance will be provided liquidity support in the form of reverse repo as per the existing procedures.

The following example explains the computation involved in a Repo transaction.

### Illustration 1

Bank A proposes to borrow on 20.03.20x1 an amount of Rs.100 cr. from Bank B under repo for a period of 14 days at an interest rate of 12%. The security for this transaction is 13.40% GOI 20x1 whose interest payments are due on 24th June and 24th December. The current market price of the security is Rs.102.50.

Bank A sells 13.40% GOI 20x1 for a face value of Rs.100 cr. to Bank B at the current market price of Rs.102.50. The cash outflow to Bank B will be as under.

Value of the security at	Rs.	102,50,00,000.00
Interest for the period	Rs.	3,20,11,111.00
24.12.20x0 to 19.3.20x1 (86 days)		
Total	Rs.	<u>105,70,11,111.00</u>

This actual amount borrowed will, therefore, be Rs.105,70,11,111.

Since the contract envisages payment of interest on the borrowing at 12% for 14 days, the amount of interest is Rs.48,65,147. Hence, the amount to be paid by Bank A to Bank B on the reversal date is Rs.106,18,76,258. Hence, the price of the buyback of the security will now be worked out as under:

Amount to be paid	Rs.	106,18,76,258.00
Interest from 24.12.20x0 to 3.04.20x1 (100 days)	Rs.	<u>3,72,22,222.00</u>
Price of the security	Rs.	<u>102,46,54,036.00</u>

The following points need to be borne in mind while working out the cash flows:

- While the amount of borrowing is decided by the borrower the actual cash flow depends on the security selected due to its market price, and the interest accrued on the security from the last date of interest payment till the date of transaction. The holder of the security is entitled from the last interest payment date till the date of sale.
- Once the actual cash flow is determined, the interest cost is worked out based on the terms of agreement with reference to interest rate and the term of borrowing.
- Once the amount of the reverse flow is determined, the price of the security is to be worked out depending on the accrued interest on the security from the last date of interest payment till the date of reversal of the transaction.
- Interest with respect to GOI securities is computed on the assumption of 30 days a month and 360 days a year whether transaction is an outright sale or a repo. Hence, January and February are assumed to have 30 days each. Similarly, the remaining number of days for December is considered as 7 (30 – 23) since, interest is paid on 24th December till 23rd December.
- Interest with respect to borrowing is calculated for the actual number of days based on 365 days a year.

A repo is transacted as follows: Suppose Bank ‘X’ needs funds for a short-term. It sells T-Bills to Bank Y (sale agreement) and simultaneously agrees to buy the same after a specified time at a slightly higher price (purchase agreement). The difference between the prices represents the interest payable by Bank X to Bank Y. The transaction helps Bank Y since it gets the yield on the funds deployed though it runs the risk that the price of the security may drop in the meantime. The RBI makes funds available to the banks under repos, directly or through DFHI (Discount and Finance House of India) and Securities Trading Corporation of India. The RBI allows repo transactions only between banks. In addition to T-bills, all dated central government securities can be used for repos.

## **REPO Rate**

The annualized interest rate at which the funds were transferred by the lender to the borrower is called the repo rate. The possible rate of borrowing through a repo transaction is lower than the rate on the same amount borrowed in the unsecured or interbank loan. This is because the repo is a collateralized transaction where the rate depends upon the creditworthiness of the issuer of the security and it is somewhat higher than the creditworthiness of the seller. Some other factors also influence the repo rate like liquidity of the security or guarantee and relevant rates of other financial instruments in the money market.

The repo transaction can be divided into two stages (first leg and second leg) viz. selling of the security and repurchasing of the same security. Sale price of the security in the first stage depends upon the market price for outright deals and for a date, which is very near in the future. Sale price is determined on the basis of cash inflow and tax aspects on the transacted funds in the second stage, which is for a future date. This is because of two reasons. First, as the instrument is sold to the buyer in the first stage, the ownership right transfers to the buyer from the seller



for the period of repo agreement. The coupon rate of interest accumulated for that period also has to be transferred to the seller. The amount of interest accrued for the broken period has to be remitted to the seller by the buyer in the first stage. In the second or repurchase stage, the initial seller or the present buyer has to pay the accrued interest for the broken period to the earlier buyer or the current seller.

Both spot and forward transactions are present in the repo agreements. The required repo rate is found by calculating the sale and repurchase prices after adjusting the accrued coupon rate of interest. The excess of the coupon rate in the first stage of repo over the second stage of the repo gives the coupon rate of interest for the total period of repo agreement. Hence the method of price adjustment of a repo transaction varies directly with the relationship between the net coupon interest rate and the total amount of repo transaction, which is determined on the basis of the agreed amount of funds transferred. If the current yield is lower than repo rate a capital loss will occur due to the adjustment in the repurchase price. On the other hand, capital gain will occur if the repo rate is lower than the current yield resulting in the downward adjustment of the repurchase price.

Adjustments in price at the repurchase stage are not required if both the repo rate and coupon interest are equal in which case the repurchase price will be equal to the selling price of security.

Though the repo agreements are based on the collateral there is still some element of risk, related to the guarantee in the form of counterparty risk and the issuer risk. The investor can offset the counterparty risk by liquidating the securities kept as collateral.

Both seller and lender usually hold cash or some other securities against the risk of non-return of the lent securities according to the repo agreement. Generally the realizable value of the guarantee or securities should be more or equal to the amount of the exposure of the risk. Another risk that is possible is the illiquid collateral.

Standard accounting practices exist for treating repo agreements and the valuation of collateral. However, the collateral securities are generally calculated on the basis of current market price plus accrued interest (on coupon bearing securities) in the period up to the maturity date of the agreement excluding a "margin" or "haircut". The haircut is an adjustment for offsetting the market risk to save the borrower or lender from the transaction price movements. The amount of the haircut is determined by the period of repo, coupon rate of interest of the securities and the risk exposure involved in the securities.

As the variations in the market prices of securities have effect on both the lender and borrower, marking to market is the most popular method that is used by both of them to act accordingly. Based on this if the market values of the repo securities drop beyond a specified point further collateral is to be supplied by the borrower. In contrast the lender returns all the excess collateral remitted by the borrower if the market values go up substantially.

## **Advantages of REPOS**

Repos have the following advantages:

- The amount of activity in the repo market will increase the turnover of the money market, resulting in the enhanced liquidity and depth in the market.
- As a tool of financing the Repos would cause an increase in the turnover in the debt market. It also causes increase in the volumes of dealings by the dealers. Hence the repos are a cost effective and efficient way of improving the liquidity of the securities transacted in the secondary markets.
- As repos enable the traders to take convenient positions to go short or long in the market the activity of debt markets increases. This flexibility enables one to manage efficiently the cash flows by acquiring in a bullish scenario and disposing off in a bearish environment.
- Institutions and corporates see repos as an inexpensive way of financing and can borrow and invest at market rates.

- In India the growth of the debt markets and hedging activities are on low ebb because of the absence of active term money market. A money market can be effectively formed if a large number of repo transactions for varying structures are traded in the market particularly in the interbank market.
- Repos are also useful to the Central Bank in the way they can use them as a part of their open market operations to maintain the liquidity of the market and also to reduce fluctuations in the money market especially call money rates. The central bank uses the bank reserves and call rates in such cases.

### Developments in REPO Market

While the above describes the transactions between banks, Repo transactions may also be entered into by the RBI and NBFCs. Earlier, NBFCs were only permitted to enter into Reverse Repo transactions. It meant that NBFCs could buy securities in the first stage and then reverse the transaction in the second stage, but they can now enter into Repos. Thus, Repo is an avenue of NBFCs to develop short-term surplus funds, but not an avenue to raise funds.

However, on 10th October, 2000, following the recommendations of the Narasimham Committee II, the Reserve Bank took several steps to widen the participation in repo market such as:

- Permission to non-bank participants maintaining current and SGL accounts with the RBI, Mumbai to undertake both repo and reverse repo;
- Reduction in minimum maturity for repo transactions to 1 day;
- State government securities being made eligible for undertaking repos; and
- Opening of its purchase window to impart liquidity to government securities whenever the situation warrants.

The RBI undertakes Repos with banks as part of its monetary management. When the RBI enters into Repo transactions, it sells the securities to banks with an undertaking to buy them back. Thus, the liquidity in the system is sucked out for the term of the Repo. The RBI can add liquidity to the system by entering into reverse repos with banks. Either of these actions depend on the objective of the Central Bank. The RBI can also use these transactions as a signaling mechanism for short-term interest rates. These transactions can also help banks manage their SLR requirements.

#### Box 1: Efficient Money Markets Grow REPO-Centric

By definition, a repo – short for repurchase – is a combination of spot and forward transactions. It involves a spot purchase (sale) and a forward sale (purchase) between two parties, both now and in the future. In either case, both cash and securities get simultaneously exchanged. The forward stage of the transaction provides the fundamental basis for determining the repo-interest rate. A repo serves several functions. Firstly, it serves as a collateralized fixed-rate loan for a short period. In this function, it becomes a better substitute for a call-loan. In case of call-loans for more than one day, interest rates are recontracted on a daily basis, whereas in case of a repo, the rate can be either fixed or variable for the period of transaction. Secondly, repo-borrowing provides the creditor with a collateral and low-cost alternative to short-period deposit-borrowing. Therefore, the repo rate equilibrates both these markets. Thirdly, the forward or first stage of the repo transaction creates the scope for speculation in the interest rates in the securities market. As a result of such speculation, short selling of securities can serve a healthy price discovery function. With such healthy speculation, the desired forward exposure can be obtained at a transaction cost lower than in a real forward market. This, of course, sounds somewhat surprising as the scope for standardized contracts entail lower cost due to economies of scale, but it is true. Finally, a repo market can be used for hedging risks with an advantage over the forward market, as the former affords an array of maturities that is less restricted than an over-the-counter (OTC) standardized forward market.

Source: ICAI Research Center.

## ISSUING PROCEDURE

The Reserve Bank of India issues press releases indicating the date of auction, the last date and time for submission of tenders, details of securities offered – such as, the nomenclature of the securities, their sale prices and the Repo period from time to time. The participants interested in quoting the bids need to duly fill the tender form (format given in Appendix I) and send it to the Reserve Bank of India, Securities Department, Mumbai. Separate tender forms need to be submitted for each bid in case of multiple bids by a single tenderer. Tenderers are required to state Repo rate expected by them in percentage (up to two decimals) per annum (365 days). The total amount payable by a successful tenderer to the RBI on purchase of securities will include the sale price quoted by the Reserve Bank in addition to the accrued interest on the security.

### Acceptance of Tender

The Reserve Bank will determine the total amount of Repos to be offered at each auction on the basis of tenders received, and it will have the full discretion to accept or reject any or all of the bids or make partial allotment without assigning any reason.

The setting up of Clearing Corporation of India (CCI) has upgraded the cash settlements to the Real Time System. The wholesale investors, banks and mutual funds settle cash transactions in government securities, T-Bills, bonds, in the CCI. The entities have to pay after netting the transactions. This allows the banks and other wholesale investors to leverage their enhanced cash position. The corporation wants to build a war chart by way of settlement guaranteed fund, by the entity exposures to their contribution to the fund. CCI wants to make the process of transacting settlements by building a data link-up (pipe line) with the RBI's Negotiated Dealing System, besides providing a platform to boost Repo transactions. It seeks to remove the risk in trading non-equity derivatives by guaranteeing all trades.

### Announcement of Auction Results

The result of the auction, viz. the Repo rate (cut-off rate) up to which bids have been accepted, would be displayed at the Reserve Bank of India, Mumbai on the same day. Repos will be offered to all the tenderers who have tendered bids at or below the cut-off rate, at the respective rates quoted by them. The successful tenderers can collect the Acceptance-cum-Deal Confirmation Advice (specimen in Appendix II) and SGL transfer forms immediately after announcement of auction results on the date of the auction. They can also take delivery of SGL transfer (credit) advice from PDO, RBI on the same day. The amount to be paid to successful bidders will be debited to their current account with the RBI.

#### Box 2: Terms and Conditions for Fortnightly Repo Auctions

1. Auctions for Repo on “multiple price” basis will be conducted by Reserve Bank of India at Mumbai as per the dates given in the ‘Calendar for Fortnightly Repo Auctions under LAF’.
2. All transferable Government of India dated securities and Treasury Bills will be the eligible securities for Repo auctions.
3. Bids will be received for a minimum amount of Rs.5 crore and in multiples of Rs.5 crore thereafter.
4. All Scheduled Commercial Banks (excluding RRBs) and Primary Dealers (PDs) maintaining SGL and Current accounts with RBI at Mumbai will be eligible to participate in the Repo auctions.

5. Bids should be submitted in the prescribed form on the date of auction in sealed covers indicating "Fortnightly Repo Auction" on the top of the envelope addressed to the Chief General Manager, Internal Debt Management Cell, 16th Floor, Reserve Bank of India, Central Office, Mumbai-400 001 and deposited in the box kept at the Reception on the Ground Floor of the Central Office building, RBI, for the purpose, before 10.30 a.m.
6. Single or Multiple bids at different rates are permissible; separate tender form should be submitted for each bid.
7. The Repo rate in percent per annum expected by the tenderer should be expressed up to two decimal points rounded off to the nearest 5 basis points.
8. The Repo will be conducted as 'Hold-in-Custody' type of Repo. A constituents' SGL Account called "Repo Constituents' SGL Account" will be opened with Reserve Bank of India as a custodial account. Securities will be held by the RBI on behalf of the participants in this account in all Repo operations. The RBI would hold Government Securities sold by the Bank under Repo in the constituents' account (Repo Constituents' SGL Account) on behalf of the counterparties during the repo period.
9. For the purpose of Hold-in-Custody Repos, the applicants will have to authorize the RBI to transfer securities to/from custodial accounts by crediting/debiting their accounts based on their application/bid form. They will also have to authorize the RBI to provide for cash flow adjustments and for transferring coupons to the RBI. All banks/PDs will have to authorize the RBI to accordingly credit/debit their current accounts and Repo Constituents' SGL Accounts as the case may be. Accrued interest on the security will be ignored for the pricing of the security. Coupon, if any, will be transferred to the RBI in the case of Repos.
10. On the basis of the tenders received, the RBI will determine the cut-off rate up to which bids will be accepted.
11. There will be margins for the Government of India dated securities and eligible Treasury Bills. The amount of securities to be offered or tendered on acceptance of a bid for Rs.100 will be Rs.105 in terms of face value.
12. The successful tenderer's Current Account with the RBI will be debited as per the current procedure under Repo facility. The tenderer's Repo Constituents' SGL Account will be credited simultaneously. On the expiry of the Repo period, the tenderer's Constituent SGL Account will be debited and Current Account credited as per the date, amount and rate of interest indicated as the case may be. For instance, in a Repo auction where bid amount accepted is Rs.420 crore at a cut off rate of 6.25 percent the calculations of amount of cash outflow in the first leg and amount of cash inflow in the second leg (with interest) will be as under.
 

Leg 1:	Tenderer's Current Account	Dr.	Rs.420 cr.
	Tenderer's RC SGL Account	Cr.	Rs.441 cr
			= (Amt. of bid x 105) /100.
Leg 2:	Tenderer's RC SGL Account	Dr.	Rs.441 cr.
	Tenderer's Current Account	Cr.	Rs.421,00,68,493 = (Amt. of bid + interest for 14 days at 6.25%)
13. Securities held by Reserve Bank of India on behalf of banks in the Repo Constituents' SGL Account will be counted for SLR purposes. As a custodian of securities, the Securities Department of the Reserve Bank of India will issue SGL balance certificates, which would give details on total holdings of the bank and total loan-wise securities held in the Repo Constituents' SGL Account as on any date.

14. The settlement of transactions in the auction will take place on the same day of the auction.
15. The results of the auction will be announced through the Press Relations Division by 12.00 noon and the same would also be displayed at Mumbai Office, RBI, Main Building, Fort, Mumbai 400001.
16. Tenderer should check for himself/herself the result of the auction and if successful, collect the acceptance cum deal confirmation advice from Securities Department, RBI, Fort, Mumbai 400001 before 2.30 p.m.
17. It will be binding on the successful bidders in the auction to accept the allotted amount of securities in full at the rate emerging in the auction. If the successful bidders do not honor the allotment, they will be subject to penal action to the extent of being debarred from participating in the auctions for a period of one year.
18. The Reserve Bank reserves the right to accept or reject any or all the tenders wholly or partially, if deemed fit, without assigning any reason.
19. Reserve Bank of India shall not be held responsible for any loss, damage or liability on account of acting as the Custodian on behalf of the participants.

Source: RBI Bulletin, July 2002

## Payment

On the date the RBI repurchases the securities the tenderers' current account will be credited with the amounts (that is specified in the acceptance-cum-confirmation advice), while debiting their SGL account with the face value of the security. The tenderers can collect the relative SGL transfer (debit) advice from the Public Debt Office on the same day.

## Repo/Reverse REPO Auctions under Liquidity Adjustment Facility

The Fixed Rate Auction system and ACLF for banks along with Level II support for PDs was replaced by a variable interest rate auction system on "uniform price" basis conducted by the Reserve Bank of India. In case of the RBI, tenders should be submitted for a minimum amount of Rs.1 crore and in multiples of Rs.1 crore. Only banks and PDs maintaining SGL and current accounts with the Reserve Bank of India at Mumbai are eligible to participate in the repo auction. Bids for repos have to be submitted before 10.30 a.m. on all working days, Monday through Friday. Multiple bids can be submitted. There will be no auction on Saturdays. The results of the auctions will be announced by 1.00 p.m. The settlement of transactions in the auctions will take place on the same day. But for intervening holidays, the repo auctions will be for one day except on Fridays; on Fridays, the auction will be for three days or more maturing on the following working day.

The objective of the RBI in conducting the Repo/Reverse repo auctions is to improve the short-term liquidity management in the system and to remove the imbalances in the interest rates of the call/notice money market.

### Box 3: Implications for Securities Market

The latest credit policy serves the three most important macro-level objectives — successful completion of the Government's borrowing program in a cost-efficient manner, ensuring adequate liquidity in the system and continuing to foster an environment for softer interest rates — admirably well. It does so through a combination of positive statements of intent and specific policy measures.

Phasing out of the CLF facility and placing of restrictions on banks in respect of their call money market borrowings and lendings is sure to give a boost to the repo market. That the combination of high liquidity in the system and lack of prudential restrictions on lending and borrowing through the call money market

can be dangerous was brought home forcefully by the Madhavpura Cooperative Bank case. Hence the anxiety, on the Reserve Bank of India's part, to enforce discipline by limiting access to the call money market to only those participants who need it for purposes of short-term liquidity management; the decision to impose restrictions on the quantum of lending and borrowing by individual participants is quite understandable.

In this context, the proposed introduction of a new product by the Clearing Corporation of India Ltd. (CCIL), called CBLO (collateralized borrowing and lending obligation), along with a platform for trading in it with the added facility of straight-through processing through the intermediation of the corporation, could not have come at a more opportune time. CBLO, which is a variant of tripartite repo, will not only bolster demand for repo market operations but may well herald the development of a term money market in India.

CCIL's operationalization has seen the RBI mandating that settlement of all repo transactions be done through the corporation. The facility of guaranteed settlement extended by the corporation to counterparties to every trade serves to mitigate the risks inherent in the process, and would give comfort to the central banker that the systemic risk in settlement will be taken care of.

The exhortation to banks to introduce a flexible interest rate system for all new deposits is aimed at offering better maneuverability in managing the interest rate risk and protecting their spreads. Reiteration of the policy to continue issuing Floating Rate Bonds (FRB) and the announcement that a working group will be set up for suggesting operational and prudential guidelines for operationalizing STRIPS trading are also steps in similar direction aimed at enlarging the scope for asset liability management by the banks.

By announcing the setting up of a working group to fix the limit for call money borrowings by PDs and reviewing the apportionment of liquidity facilities, as between normal and back-stop, the central banker has signaled that the facility of special liquidity support and the practice of unrestricted reliance on call money market borrowings may not continue for long. Like other players, PDs must evolve normal market mechanisms to fund their operations.

PDs have been relying heavily on the call money market to fund the purchase of securities at auctions, as also to stock them up when the market turns bullish. Once a ceiling is imposed on their call money borrowings, however, their only recourse to funding would be through the repo market, and this will compel them to rely on their stock-in-trade for their funding requirements.

Moreover, the current system of SGL account management, with its restrictions on same-day purchase and sale of securities and on the roll-over of repo contracts, handicaps their operations. Trading in the CBLO product, proposed to be introduced by CCIL shortly, will help to remedy this. Against a floating charge in its favor on the repoable securities of a member held in the CSGL account, CCIL will permit the borrowing through the CBLO to be created; the holder of CBLO will be able to trade the same in the secondary market.

One may even buyback its own CBLO, liquidate the borrowing and get its securities released. In addition, members will be free to use securities held in the CSGL account that are lien-free, and will also be able to substitute them by other repoable securities at any time. Such an arrangement will afford PDs the much-needed flexibility in their day-to-day operations.

All entities having SGL accounts are being advised to become members of the NDS (negotiated dealing system at RBI) before May 31. Thus, soon, a majority of the G-sec trades will get settled through CCIL. With CCIL underwriting the market risks inherent in settlement of the bulk of G-sec trades, enhanced use of NDS will see greater transparency and better price discovery and the system will move towards less reliance on brokers. This should do a lot of good to the market as a whole.

Another specific area of policy direction is the proposal to retail government securities by commercial banks through their branch network.

The credit policy exhorts banks to promote this new line of business by offering to make the market in individual securities by giving two-way quotes. By formulating a scheme whereby bank branches may permit automatic lending against pledging of securities, banks cannot only garner good business but also activate G-sec trading in the retail segment.

Finally, the credit policy announced the winding down of the Satellite Dealer (SD) system. The scheme never really took off. With their thin capital base, SDs were totally dependent on the market for liquidity support, through repos.

With the repo market not quite developed, in the absence of liquidity SDs could not serve the policy objective of retailing G-secs effectively. Meanwhile, PDs have come into their own and are now willing to expand their geographical reach. Even banks are inclined to enter the retail market. In such a situation, there is hardly any role for the SD; no tears need, therefore, be shed for the demise of this institution.

*Source: www.hinduonnet.com, May 20, 2002*

## **Secondary Market Transactions in REPOs**

The RBI through the SGL accounts settles the secondary market trading in the repos and notifies the volume, rates and the period of repos on a weekly basis. The weekly average of repo volumes in the secondary markets (based on the SGL) was at Rs.788 crore in 1998-99 and increased to Rs.1,591 crore in 1999-2000. The average weekly transactions in the first six months of 2000-01 were Rs.1,782 crore. In the secondary market repos are being traded primarily on the Central Government securities. The volume of repos on T-bills have also shown increasing trend from Rs.29 crore average amount in 1998-99 to Rs.134 crore of weekly average in 1999-2000.

When the volume of transaction of repos is very high the rates fall to a low of 2% and normally the average rate is 6-8%. With the central bank deciding to make the call market a pure interbank market, the movement of participants from the call market to the repo market is poised to increase the activity and the volumes in the repo market. The important blocks in the growth and smooth operation of the repo market are the improvement of liquidity for only a few securities and lower volumes when compared to other markets.

## **Repos in Other Countries**

In the US, repos could be treasury obligations, agency issues, mortgage-backed securities, corporate debt issues or money market instruments such as NCDs. The period could be between one day and several months. At the end of the period, the seller gets back the security and the purchaser gets back the funds that he provided together with the accrued interest. The major players in the repo market are banks, savings and loan institutions and non-bank security dealers.

In Europe, the stock lending and Repo Committee will constantly review the guidelines on the operations of the repo market. Some specific and additional issues are to be covered by the parties to the contract. These include legal documentation, credit risk assessment and the margin levels. Information regarding the collateral is to be exchanged by the parties at the point of trade. The pricing system is also determined at this stage. The benchmarking rate for the large European repo market is known as Europe. The collateral or the gilt-edged security underlying the repo transaction is known as the Europe GC. A representative panel of prime banks provides daily quotes of the rate, rounded to two decimal places, that each Panel Bank believes one prime bank is bidding another prime bank (and offering money) for term repo on Europe GC. Europe is quoted for spot value (T+2) and on an Act/360 day count convention. It is displayed up to two decimal places. The range of Europe quoted maturities is overnight, 1, 2 and 3 weeks and 1, 2, 3, 6, 9 and 12 months.

<b>Box 4: International REPO-Market</b>
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<p>International repos are so big in size today that their potential impact on the international financial system cannot be ignored. Though the statistics are hard to come by and sometimes of hardly reliable accuracy, according to the Bank for International Settlements and the International Securities Market Association, the international repo outstandings are estimated at around US\$ 1200 billion in 1998 or about 8 percent of the repos in sovereign securities in the world. Financial deregulation and technological advancement, coupled with the inexorable march and inclination towards globalization have lent a helping hand in generating demand for new financial instruments for managing risks and portfolios. Internationally, repos have always proved to be cost-effective, conservative in risk content and complimentary to domestic portfolios in improving the yield prospects. In all, the international repos serve as an attested alternative and approved adjunct to interest and currency derivatives, for managing the interest and exchange risks.</p>
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*Source: ICAI Research Center.*

## **SUMMARY**

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- REPOs are ready forward deals or agreements involving sale of a security with an undertaking to buyback the same at a predetermined price and time in future. To the seller, it is known as a repo and to the buyer it is known as a reverse repo.
- The market participants in repos are: banks, DFHI, financial institutions, non-banking entities like mutual funds that hold current and SGL accounts with the RBI.
- The operational aspects of a repo depend on: size of the loan, selection of security, interest rate and settlement system.
- The procedure to issue repos involves the acceptance of tenders, announcement of auction results and the payment.



## Appendix I

### Tender Form for Fortnightly Repo Auction

The Chief General Manager  
Internal Debt Management Cell  
Reserve Bank of India  
Mumbai.

Tenderer's RC S.G.L. A/c.  
No. with Securities \_\_\_\_\_  
Department \_\_\_\_\_

Tenderer's Current  
A/c. No. with D.A.D. \_\_\_\_\_

Dear Sir,

Tender for Fortnightly Repurchase Agreements (Repos) Auction to be held on  
\_\_\_\_\_ by Reserve Bank of India.

I/We\* the undersigned hereby submit tender as set out below for the purchase of Government of India dated securities/eligible Treasury Bills from you on \_\_\_\_\_ with the undertaking that the same securities will be sold back to you on \_\_\_\_\_.

1.	Name of the tenderer & Address	
2.	Amount bid @ (in figures) (in words)	Rs. _____ crore Rupees _____ crore
3.	Repo Rate percent per annum (up to two decimal points rounded off to the nearest 5 basis points)	
4.	Telephone No.	
5.	Fax No.	

@ Indicates the nominal amount offered in Repo against securities.

#### Undertaking

On your acceptance of my/our\* tender,

1. I/We\* agree and undertake to immediately collect the Acceptance-cum-Deal confirmation advice from your office and to deposit the requisite amount at Reserve Bank of India, Mumbai in the manner and on the day/time indicated therein.
2. I/We\* also authorize the Reserve Bank of India to be our custodian, to hold the securities purchased by us from Reserve Bank of India under the Repos, and to transfer them by debiting/crediting my/our Current Account and Repo Constituents' Accounts based on our application/bid form.
3. I/We\* agree the beneficial interest, viz., Coupon, if any, in respect of securities transferred by Reserve Bank of India to us and held in the Repo Constituents' SGL Account will rest with Reserve Bank of India.

4. I/We\* agree that the Reserve Bank of India shall not be held responsible for any loss, damage or liability on account of acting as the Custodian of our securities. I/We\* also agree that I/We\* shall indemnify and keep indemnified the Reserve Bank of India at all times against any loss, damage or liability whatsoever arising out of acting as Custodian of our securities as above.

I/We\* have also submitted another bid(s)/not submitted any other bids\* for the auction.

**Terms and conditions**

I/We\* have read the terms and conditions for the auction and undertake to abide by them.

Yours faithfully,

- i) Signature of official authorized to operate on SGL/Current Account \_\_\_\_\_
- ii) Name \_\_\_\_\_
- iii) Designation \_\_\_\_\_
- iv) Office stamp of the tenderer \_\_\_\_\_

\*: Strike out whichever is not applicable.

**Appendix II**  
**Reserve Bank of India**  
**Mumbai**  
**Acceptance-Cum-Deal**  
**Confirmation Advice**

Date:

To,

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Ref. No.

Dear Sirs,

Repo auction dated \_\_\_\_\_

Acceptance of tender \_\_\_\_\_

We advise that your tender dated \_\_\_\_\_ for Repos has been accepted as per details shown hereunder. Accordingly, you are requested to deposit a sum of Rs. \_\_\_\_\_ by cheque drawn on your account with the Reserve Bank of India, Mumbai along with a letter (in the form enclosed) with Securities Department, Reserve Bank of India, Fort, Mumbai before 12.30 p.m. on \_\_\_\_\_. On receipt of the amount in full, your SGL account will be credited and the relative credit advice may be collected from the Public Debt Office at the close of business the same day.

You are requested to return to us the duplicate copy of this letter duly signed in confirmation.

**Details of Deals**

Deal Date \_\_\_\_\_

Our sale to you on \_\_\_\_\_

and Repurchase from you on \_\_\_\_\_

Securities	Aggregate Face Value (Rs. in crore)	Sale Price	Repurchase Price	Repo rate in percent per annum (365 days)
		(per Rs.100 of Face Value)		
		Rs.	Rs.	
1	2	3	4	5

Amount payable by you on:

Cost of securities at the above sale price: Rs. \_\_\_\_\_

Add: Broken period interest for \_\_\_\_\_ days Rs. \_\_\_\_\_

Less: Inome tax @ 24.725% Rs. \_\_\_\_\_

Total amount payable to RBI Rs. \_\_\_\_\_

Amount receivable by you on \_\_\_\_\_

Cost at the above Repurchase price Rs. \_\_\_\_\_

Add: Broken period interest for \_\_\_\_\_ days Rs. \_\_\_\_\_

Less: Inome tax @ 24.725% Rs. \_\_\_\_\_

Total amount payable to RBI Rs. \_\_\_\_\_

P. Manager

We confirm the Deal Mentioned Above

- i. Signature of official authorized to operate SGL Account
- ii. Name
- iii. Designation
- iv. Office Stamp of the tenderer

## Appendix III

Name and address of  
the tenderer

Date:

Ref. No.

The Manager,  
Reserve Bank of India,  
Securities Department,  
Reserve Bank of India,  
Mumbai.

Dear Sir,

Repo Auction dated \_\_\_\_\_

1. We return herewith the duplicate copy of your Acceptance-Cum-Deal Confirmation Advice No. \_\_\_\_\_ dated \_\_\_\_\_ duly signed in confirmation. We also return the SGL transfer form signed by us for completion at your end. We also enclose Cheque No. \_\_\_\_\_ dated \_\_\_\_\_ for Rs. \_\_\_\_\_ on our Current Account with the Reserve Bank of India, Mumbai.
2. The securities as specified in the aforesaid Advice may please be transferred to our SGL Account No. \_\_\_\_\_.
3. We also enclose SGL transfer form duly completed at our end to enable you effect the repurchase of the securities on \_\_\_\_\_ by debit to our SGL Account.

Signature

Name:

Designation:

- Encl:
1. Duplicate copy of your Acceptance-Cum-Deal Confirmation Advice.
  2. SGL Transfer form for credit to our account.
  3. Cheque for Rs. \_\_\_\_\_
  4. SGL transfer form for debit to our account.

## **Lesson 11**

# **Public Deposits**

**After reading this lesson, you will be conversant with:**

- Regulatory Framework governing acceptance of Public Deposits
- Public Deposits
- Designing of Deposit Schemes
- Marketing of Deposits

Historically, deposits from the public is an important mode of finance for the corporate sector. Companies prefer to raise finance by accepting deposits rather than borrowing from banks and financial institutions because these were in the nature of unsecured debts and not backed by any security in the form of hypothecation, mortgage, lien, etc. Further deployment of funds raised through deposits is at the discretion of the company unlike loans from Banks and Financial Institutions. There was no control over such deposits till Reserve Bank of India assumed the power to regulate acceptance of public deposits from February, 1964.

## **REGULATORY FRAMEWORK**

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For the purpose of exercising regulatory control over the public deposit market, companies are classified as

**Non-Banking Finance Companies:** These have been defined by Reserve Bank of India as “Non-banking institution which is a loan company or an investment company or a hire purchase finance company or an equipment leasing company or a mutual benefit financial company”. The regulations governing these companies are:

1. Non-Banking Financial Companies (Reserve Bank) Directions, 1998.
2. The Miscellaneous Non-Banking Companies (Reserve Bank) Directions, 1977.
3. Residuary Non-Banking Companies (Reserve Bank) Directions, 1987.
4. Non-Banking Financial Companies Prudential Norms (Reserve Bank) Directions, 1998.
5. Non-Banking Financial Companies Auditors Report (Reserve Bank) Directions, 1998.
6. Housing Finance Companies (NHB) Directions, 1989.

**Non-Banking Non-Finance Companies:** These include all manufacturing companies, trading companies and companies engaged in the services sector. These companies are regulated by Companies (Acceptance of Deposit) Rules, 1975.

## **DEFINITION OF PUBLIC DEPOSITS**

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The Companies (Acceptance of Deposit) Rules 1975 defines public deposit as any deposit of money including any amount borrowed by a company but excludes:

1. Any amount received from or guaranteed by Central or State Government.
2. Amount received from foreign government or foreign citizens.
3. Any borrowings from banks and financial institutions.
4. Inter Corporate Deposits.
5. Security deposit received from an employee or an agent.
6. Advance received for supply of goods or services.
7. Amount received towards subscription to shares or debentures pending allotment and calls in advance.
8. Any amount received from a local authority.
9. Any amount received in trust or amount in transit.
10. Any amount received from a director of the company.
11. Bonds or debentures secured by mortgage of immovable property of the company or with conversion option.
12. Any unsecured loan brought in by promoters in pursuance to any stipulation by financial institutions to that effect.

## TENURE OF THE DEPOSITS

The minimum tenure for which public deposits can be accepted or renewed is 12 months (earlier 6 months). It is also stipulated that the maximum maturity period for the deposits cannot exceed 60 months (earlier 36 months).

It is, however, provided that a company, for the purpose of meeting its short-term requirement of funds, may accept or renew deposits for less than 3 months, but such deposits should not exceed 10% of the aggregate of the paid-up capital and free reserves. The repayment of such deposits before 3 months from the date of acceptance or renewal is also prohibited.

No deposit repayable on demand or on notice can be accepted by a company.

## INTEREST AND BROKERAGE ON THE DEPOSITS

At present there is no ceiling on rates of interest. However, NBFCs cannot pay more than 16% p.a.

The maximum amount of brokerage payable for soliciting public deposits is as follows:

Tenure of the Deposit	Maximum Brokerage
1. Up to one year	1.0%
2. Between one and two years	1.5%
3. Above two years	2.0%

The payment of such brokerage is on a one-time basis.

## Maximum Amount of Deposits

The total amount of public deposits that can be outstanding at any point of time cannot exceed 25% of the aggregate of paid-up capital and free reserves. In addition to the above limits, it can accept deposits from its shareholders up to a maximum limit of 10% of the aggregate of paid-up capital and free reserves.

No government company shall accept any deposits in excess of 35% of its paid-up capital and free reserves.

## MAINTENANCE OF LIQUID ASSETS

The company shall maintain liquid assets to the extent of 15% of the deposits maturing during the financial year ending 31st March next. The amount shall be deposited or invested before 30th April.

The permitted investments are

1. Deposits held with a scheduled bank, free from lien or charge.
2. Unencumbered securities of central or state government.
3. Unencumbered securities approved under Indian Trusts Act, 1882.
4. Unencumbered bonds issued by Housing Development Finance Corporation Ltd.

The amount held in liquid assets can be used only for the purpose of repayment of deposits outstanding and repayable within next 31st March. It is further provided that the amount held in liquid assets shall not, at any point of time, fall below 10% of the amount of outstanding deposits maturing before 31st March next.

## Issue of Deposit Receipts

The company shall, on acceptance or renewal of deposit, furnish to the depositor a receipt within a period of 8 weeks. The receipt shall be signed by a duly authorized official of the company and shall contain the following particulars:

1. Date of the deposit
2. Name and address of the depositor



3. The amount of deposit
4. The rate of interest
5. The date on which the deposit is repayable.

The deposit receipt issued by a company is not negotiable implying that it cannot be transferred to another person by endorsement and delivery.

### **Premature Withdrawal of Deposit**

Under Rule 8(1) of the Companies (Acceptance of Deposits) Rules, 1975, a company can make premature repayment only after a period of 3 months from the date of the deposit. The interest payable on premature withdrawals is as under:

- a. More than 3 months but up to 6 months Nil
- b. More than 6 months but up to one year Not exceeding 10%
- c. Above one year (12 months) 1% less than the rate at which the company would have paid if the deposit had been accepted for the period for which the deposit had actually run.

If, for example, a deposit was received for a period of 4 years and the interest rate was 12 percent. If the deposit is repaid on the expiry of 3rd year and the rate of interest paid for 3-year maturity deposit was 11 percent, then the interest rate payable on such deposit will be 10 percent (11% – 1%).

### **Register of Deposits and Returns**

Every company accepting deposits shall maintain a Register of Deposits at its registered office. The Register shall contain the following particulars of each depositor separately:

1. Name and address of the depositor
2. Date and amount of each deposit
3. The term of the deposit and the date on which the deposit is repayable
4. The rate of interest
5. The dates on which interest payment is to be made.

Every company shall file a return of deposits with the Registrar of Companies, on or before 30th June every year. A copy of the return shall be simultaneously filed with Reserve Bank of India. The register of deposits shall be kept for a minimum period of 8 years from the financial year in which the latest entry has been made in the register.

### **Advertisement**

Every company intending to invite deposits shall issue an advertisement in a leading English and a vernacular newspaper circulating in the state in which the registered office of the company is situated. The advertisement inviting the deposits shall include the following particulars:

1. Name of the company
2. Date of incorporation
3. The business of the company and its subsidiaries
4. Details of the branches of the company
5. Management of the company
6. Board of Directors
7. Profits and dividends for the last three financial years

8. Summarized financial position for the last two years
9. The maximum amount of deposits which the company can accept and the amount of deposits held as at the end of the preceding financial year.

The Board of Directors should also make a declaration that the company is not in default in the repayment of deposits and interest thereupon.

The validity of the advertisement is up to a period of 6 months from the closure of the financial year for which it was issued. A fresh advertisement shall be issued for every succeeding financial year.

## **MARKETING OF PUBLIC DEPOSITS**

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A company has to develop a mix of factors like product differentiation, pricing, promotion, service and distribution to successfully market their public deposit schemes.

**Product Differentiation:** Fixed deposit is an intangible financial product. The needs of the potential depositors have to be kept in mind, while designing the product. Generally, the target market is the middle class household. They normally look for safety and security of their savings. Safety factor can be projected by highlighting the credit rating. Different saving schemes may be developed to suit varying financial needs. Some of the popular schemes include regular income scheme where interest is paid at monthly, quarterly, half-yearly or annual intervals, cumulative deposits where the interest along with the principal is paid on maturity and recurring deposit schemes where a fixed amount is invested regularly and a lump sum is paid on maturity. Some company deposit schemes have sweeteners like free accident insurance cover for their depositor.

**Pricing:** The pricing aspect is regulated by the Government and the maximum coupon is capped at 15% p.a. Hence scope for innovation is limited. However, companies can design schemes with various maturities and differential interest rates can be offered subject to the statutory ceiling.

**Promotion:** The company should first identify the segment of the market that it would like to tap. Unlike consumer goods, where mass marketing is required, financial products should attempt target marketing. This strategy enables it to focus on specific target segments instead of scattering their marketing efforts.

At any point of time, potential depositors are in different stages of readiness – some are unaware, some aware, some informed, some interested, some curious and some intending to invest. Thus the promotion effort should aim at building high awareness through advertising. The promotional campaign can be carried through various media like print media, audio-visual media, outdoor displays like hoardings and posters, direct mailers, novelties like calendars and key chains, catalogues and brochures, circulars, etc.

Most companies hire a professional advertising agency to carry out the campaign. The objectives for promotional campaign are different for different companies. Companies entering the public deposit market need informational advertising to build primary demand. Companies which already have a presence in this segment, go for persuasive campaign for building selective demand. Companies with a long standing track record in the deposit market should adopt reminder advertising. Another strategy is the use of catchy message or slogan as a tool of communication. The advertisement has to put the message across in a way that captures the attention and interest of the potential investors. The message has to be exclusive, desirable and believable to create the necessary impact. Some companies have attempted to create an identity for their public deposits by providing them with brand names.

**Quality Service:** Good and courteous service helps in earning the goodwill of the depositors. The depositors are provided with post-dated interest warrants payable at par, prompt repayment on maturity, loans against deposits, etc. A mechanism for prompt redressal of depositor grievances should also be created. Companies are investing huge sums of money to create infrastructure, so that they can render quality service. Some companies sub-contract the work to specialized agencies. Personalized and prompt service would have a self-propelling effect and can bring in more depositors by word of mouth. It acts as pseudo-marketing.

**Distribution:** A company should decide on the geographical areas that it needs to focus on. However, careful attention should be paid to variations in geographical needs and preferences.

Many companies depend on their existing depositor base for their continued patronage. These companies have developed a loyal depositor base over a period of time and retain them through excellent service. Though the existing depositors do not add much to the net accretion, a large depositor base is definitely a strong selling proposition while campaigning for further deposits. This enables prospective depositors to repose confidence in the company.

Some companies practice direct marketing of their deposits. The company staff directly contacts the potential depositors and explains to them the salient features of their schemes. Sometimes the companies canvass by holding depositor meets and make presentation about the company and its deposit products. Normally, such companies have a clearly defined target segment e.g. pensioners, double income households, young managers, etc.

Most of the companies depend heavily on brokers and agents for mobilization of deposits. These intermediaries constitute a vital link between the company and the depositors. Most of these agents are full-time intermediaries and also sell a wide range of financial products like shares, mutual fund units, insurance schemes, etc. They generally have a loyal investor base who rely upon them for investment advice. The drawback of agency system is that they are inclined to promote deposits of those companies which pay them the highest brokerage.

## **SUMMARY**

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- Corporates prefer public deposits to bank loans because they are unsecured debts and the funds can be deployed at the discretion of the company.
- Non-banking finance companies have been defined as loan companies or hire purchase finance companies or investment companies or equipment leasing companies or mutual benefit financial companies, while non-banking non-financial companies are those involved in manufacturing, trading or service sector.
- Public deposit is any money borrowed by a company, but does not include advances, guarantees from any government, bank borrowings, security deposits, funds from the promoters or directors, share capital or debenture funds.
- Public deposits should be of 12 to 60 months tenure.
- The maximum rate of interest is decided by the RBI and the brokerage paid to the agents depends on the duration of the deposit. The maximum amount of deposits cannot exceed 25% of the paid-up capital and free reserves. In addition, the company can accept deposits from shareholders up to 10% of the paid-up capital and free reserves.
- The company must maintain liquid assets to the extent of 15% of the deposits maturing by the end of the financial year (March 31). The liquid assets can be deposits with scheduled banks without any lien, unencumbered securities of central and state governments, other unencumbered securities or bonds of HDFC. The liquid amount can never fall below 10% of the maturing deposits.

- Receipts of deposit must be issued within 8 weeks of acceptance and premature deposits are allowed after a period of 3 months from the date of deposit, subject to the penalty for early withdrawals.
- Every company accepting deposits should maintain a register of deposits at the registered head office with the basic details of each deposit-holder, for a period of 8 years from the financial year in which the latest entry is made.
- A company inviting public deposits must advertise the details of the company and the profitability in an English and a local language newspaper.
- In order to market its public deposits successfully, a company has to develop a mix of the following factors: product differentiation, pricing, promotion, quality service and distribution.

## **Lesson 12**

# **Financial Guarantees**

**After reading this lesson, you will be conversant with:**

- Guarantee
- Sources of Guarantees
- Specialized Institutions offering Guarantees such as DICGC and ECGC
- Policies covered by DICGC and ECGC

In a loan transaction, the fund provider may face credit 'risk', as the debtor may not always honor the commitment. Hence, the lender seeks a 'Guarantee' and it is nothing but, a form of security demanded by the creditor. The purpose of seeking guarantee is to reduce the default risk.

## **Definition**

According to Section 126 of the Indian Contract Act, 'The guarantee is a contract to perform or to discharge the liability of third person in case of his default', which also specifies the rights and responsibilities of parties to a guarantee.

In a transaction, that is accompanied by a guarantee, three parties are involved – the lender or creditor, borrower or principal debtor and the guarantor. The guarantor becomes a debtor, in case of a default by the principal debtor.

A guarantee can be given either by one person or more than one, jointly or by an organization. A guarantor must be worthy in the eyes of the creditor. Guarantee being a contract can be oral or in writing. Usually, the latter is preferred by the creditors.

## **SUPPLIERS OF GUARANTEES**

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There are three major sources of guarantees:

- a. Personal
- b. Governmental
- c. Institutional.

### **Personal**

It is the oldest form of guarantee. It is extended both in unorganized and organized sectors, for a short period. Usually, in an unorganized sector, loans for agricultural purposes, (loans extended by co-operative institutions and agro-industries corporations) consumption and social purposes are given against personal guarantees.

In an organized sector, banks and term lending institutions extended loans to industrial concerns on the basis of guarantees from managing agents, directors and managerial personnel. Later, this practice declined, the reasons attributed for decline in personal guarantees are – firstly, the abolition of the managing agency system, which led to the disappearance of reputed, prestigious and creditworthy guarantors. Secondly, the rise of new entrepreneurial class, professionalization of managerial cadres and improvement in the technical and financial appraisals have reduced the need for personal guarantee.

### **Governmental**

Usually, state and central co-operative banks are short of funds. They have a high rate of default on their loans. To rescue these co-operative banks, the commercial banks and RBI supplement the former; i.e. by investing in debentures, long-term deposits or by extending loans to them. Usually, this is done only after acquiring a guarantee from State and Central governments. Apart from the above, the Government also extends guarantees on behalf of public sector units to cover the latter's borrowings.

### **Financial Institutions**

In India, commercial banks, insurance companies and most of the statutory financial institutions at the State and Central level provide guarantees. Credit markets are regarded as well developed, as there are a number of financial institutions providing guarantees. For the institutions offering guarantees, this forms only a part of their business. Usually, guarantees are offered on behalf of their clients, who are institutional clients in some other areas.

## **Banks**

Banks extend financial and performance guarantees on behalf of their clients. Financial guarantee involves an undertaking by a bank to pay a certain sum of money in the event of a failure on the part of the bank's client. For example, a contractor who wants to bid for a tender needs to deposit a specified sum of money known as Earnest Money Deposit (EMD). This amount will be refunded to him if the work is not allotted to him. This involves blocking of funds for a specified period which varies depending on the nature of the contract. This can be avoided by submitting a Bank Guarantee in the place of EMD. The bank undertakes to pay the money if the contractor is awarded the work but fails to pay the EMD. If the contract is awarded, then the agency awarding the contract seeks an assurance that the contract completed is up to their satisfaction. Hence, they insist for a bank guarantee where a bank undertakes to compensate the agency for any loss suffered consequent to poor performance/non-performance. Such guarantees are known as Performance Guarantees.

Banks also undertake to pay for the cost of goods bought by their client (imports/domestic goods) provided, that certain predetermined conditions are satisfied. In all such transactions, banks issue letters of credit and the contract is governed by uniform customs and practices for documentary credits. However, these transactions do not qualify as guarantees because in these transactions the liability of the bank is primary whereas in case of guarantees it is secondary. In other words, default by the client is a prerequisite for the bankers' liability to come into existence, in case of guarantees.

Banks also issue solvency certificates for their clients, though they do not take up any liability on account of their clients.

## **Insurance Companies**

Insurance companies issue generally four types of guarantees:

- a. Guarantees extended to non-financial contracts.
- b. Insurance companies extend guarantee on behalf of hire purchase companies to banks and other institutions.
- c. Guarantees to cover deferred payments to supplier of equipment, to bankers (either to suppliers or buyers' bankers).
- d. To cover term loans from banks (long-term loans only).

## **SPECIALIZED PUBLIC GUARANTEE INSTITUTIONS**

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Apart from the above financial institutions and government itself offering guarantee services, it was felt that there was need to establish specialized guarantee institutions. In sequence with nationalization, the policy to extend the credit to small borrowers was implemented (though it was risky). Hence, it became essential to set-up an organization which could cover a common and centralized guarantee scheme. Thus, in the past three decades, the government has set up and reorganized different institutions to provide guarantees; among them are DICGC and ECGC.

Deposit Insurance and Credit Guarantee Corporation (DICGC) undertakes the following activities:

- Insurance of Deposits of Banks
- Guarantee for credit extended by Banks to Priority sector
- Guarantee for credit extended by Banks to Small Scale Industries.

## Insurance of Deposits

The Scheduled Commercial Banks, Cooperative Banks and Regional Rural Banks do accept deposits from general public as a part of their normal banking activity. The majority of the banking system in India is owned by the Government and hence failure of a bank is more an exception rather than a rule. Notwithstanding the same there are a number of small banks who undertake banking and obviously all the banks are not equally strong. After the securities scam in 1992 the Bank of Karad was liquidated and the depositors of the bank lost money in the process. However, the problem is not definitely as acute as is the case with Non-Banking Finance Companies. In order to protect the interests of the depositors it was considered necessary to have the scheme of insuring the bank deposits. The scheme was originally undertaken by Deposit Insurance Corporation which was subsequently merged to become DICGC. As of now all banks have to take the insurance cover on the deposits accepted by them.

The premium payable for the insurance is at the rate of 2.5 paise per half-year for every 100 rupees and the same is paid by the bank on behalf of the depositors. Hence there is no additional cost to the depositors. The deposit will have an insurance cover for the actual amount of the deposit subject to a maximum of Rs.1,00,000 for each depositor irrespective of the number and amount of deposits one has with a Bank. For this purpose all the deposits of a depositor at different branches of the same bank are clubbed together. However, if a deposit held in the name of a person individually and the same depositor also holds a deposit jointly with another person then they are treated as two different deposits. Every bank has to pay the above premium at the end of December and June every year for the following period covering January to June and July to December.

## Guarantee of Advances Extended by Banks

After the nationalization of banks the government played a key role through RBI in ensuring that credit is allocated to target segment. This was done by defining Priority Sector and advising all the banks that they should ensure at least 40% of the net bank credit be extended to priority sector. However, the banks were unwilling to experiment lending without collateral security which was the theme of the priority sector lending. In order to provide comfort to the risk averse bankers the government thought it necessary to take up measures to reduce the risk to the banker. Consequently, two schemes have come into existence, one for advances to Small Scale Industries and the other for all advances under priority sector other than SSI. These schemes are more popularly known as SSI Scheme and Small Loans Scheme. Though both the schemes were launched independently they have been subsequently handed over to the DICGC which administers both the schemes separately. However, the steps involved essentially remain the same with minor changes in the operational aspects.

- All the loans which are eligible for guarantee will have to be covered and there is no choice to the bank to selectively cover the loan accounts.
- The Bank extends a credit facility based on its own appraisal.
- The particulars of all loans outstanding at the end of a fiscal year are to be reported to DICGC.
- Premium at the stipulated rate has to be paid on the outstanding balances for the next year.
- No claim can be made by the bank for a minimum period of three years.
- If the borrower defaults then the bank has to submit the prescribed claim forms to DICGC.
- The DICGC entertains the claim if it is satisfied that there is no laxity on the part of the bank in supervision and follow-up.



The amount of claim paid will be the stipulated (usually 50%) amount in default.

However, the experience of the bankers has been that they are paying more premium than their claims and DICGC's experience reveals that they are paying more claims than the premium received by them. The reality is that most of the banks were disillusioned with the scheme and hence in late 90s decided to withdraw from the scheme. However, both the schemes are in existence as of now and still form the largest block of institutional guarantee in the country. In the budget 2002-03, it was announced that the DICGC would be converted into the Bank Deposits Insurance Corporation (BDIC).

## **Export Credit and Guarantee Corporation**

In a developing economy, usually, the inadequate infrastructure and capital equipment hinders economic growth. In order to enhance the economic growth, the country needs foreign exchange to import capital equipment. The inflow of foreign exchange depends on the country's exports. However, the companies may not be able to withstand global competency because of the quality. The need to promote exports was recognized by the Government of India and a number of incentives were given to exporters. The Government formulated the promotion under two umbrellas:

- i. To extend monetary incentives
- ii. To undertake risk protection.

In case of the former, the monetary benefits are extended to the exporters and the latter is extended to exporters through ECGC (which is discussed in detail here).

In order to provide export credit insurance support to Indian exporters, the Government of India set-up Export Risks Insurance Corporation (ERIC) in July, 1957. It was transformed into the Export Credit and Guarantee Corporation (ECGC) in January, 1964, with the objective of offering financial protection to the exporter and also improving exporters' financial standing. ECGC is a company wholly-owned by the Government of India. It functions under the administrative control of the Ministry of Commerce and is managed by Board of Directors representing Government, Banking, Insurance, Trade and Industry.

Exporters are exposed to payment risk most of the times. These risks may arise due to political uncertainties or economic changes in any country. The exporters who export their commodities or services are prone to these kind of risks which are not insured. Thus, the risks prone to exporters can be broadly categorized into commercial and political risks.

ECGC covers the following risks.

### *Commercial risks such as*

- Insolvency of the buyer.
- Failure of the buyer to make the payment with a specified period, normally 4 months from the due date.

### *Political risks*

- Imposition of restrictions by the Government of the buyer's country or any blockages due to Governments' action or delay in the transfer of payment made by the buyer.
- War, civil war, revolution or civil disturbances in the buyer's country.
- Cancellation of valid import license or new import restrictions.
- Additional freight or insurance charges that result due to interruption or diversion of voyage outside India, which cannot be recovered from the buyer.
- Loss occurring outside India due to any other reasons that are not insured are generally covered.

ECGC does not cover losses arising due to the following risks:

- Commercial disputes including quality disputes raised by the buyer, unless the exporter obtains a decree from a competent court of law in the buyer's country in his favor.
- Causes inherent in the nature of the goods.
- Incapability of the buyer to obtain necessary import or exchange authorization from authorities in his country.
- Default or insolvency of any agent of the exporter or of the collecting bank.
- Loss or damage to goods which can be covered by general insurers.
- Fluctuations in exchange rate.
- Failure of the exporter to fulfill the terms of the export contract or negligence on his part.

The services offered by the ECGC are:

- I. Standard policy
- II. Small exporters' policy
- III. Specific policies
- IV. Guarantees to banks
- V. Special schemes.

### **STANDARD POLICY**

Standard policy, which is also known as Shipments (Comprehensive Risks) Policy, is designed to cover risks in respect of goods exported on short-term credit (credit not exceeding more than 180 days). The standard policy covers two types of risks namely, commercial and political risks (mentioned in the above paragraphs).

### **SMALL EXPORTERS' POLICY**

This policy is similar to the standard policy excepting in terms of tenure of the policy, minimum premium paid, declaration of shipments and percentage of cover, etc. The prime focus of small exporters' policy is to improve and encourage small exporters (whose anticipated export turnover for the future 12 months does not exceed Rs.50 lakh).

### **SPECIFIC POLICIES**

Specific policies cover contracts for export of capital goods or turnkey projects or construction works or rendering services abroad which are not of repetitive nature and which involve medium- to long-term credits. Thus, such projects are insured by ECGC on a case to case basis.

### **GUARANTEES TO BANKS**

Exporters need adequate credit facilities during the pre- as well as post-shipment period. Usually, the banks extend a financial support by extending the credit to companies. However, this is not seen in case of exporters. Exporters may not be able to obtain credit facilities from banks for several reasons. However, ECGC created favorable atmosphere by allowing the following types of guarantees:

#### **Packing Credit Guarantee**

This is the loan extended for manufacturing, purchasing or packing of goods for export against a firm order or letter of credit which qualifies for packing credit guarantee. Pre-shipment credit is also extended to banks, who enter into contracts for export of services or for construction works abroad.

#### **Export Production Finance Guarantee**

According to this scheme, the banks can sanction advances during pre-shipment period to the full extent of cost of production when it exceeds the f.o.b. value of the contract/order, the differences representing incentives receivable.

### **Post-Shipment Export Credit Guarantee**

Banks extended post-shipment finance to exporters through purchase, negotiation or discount of export bills or advances against such bills qualifying for guarantee. However, it is essential that the exporter should hold suitable policy of ECGC for covering the overseas credit risks.

### **Export Finance Guarantee**

This type of guarantee covers post-shipment advances granted by banks to exporters against export incentives receivable in the form of cash assistance, duty drawback, etc.

### **Export Performance Guarantee**

The exporters may have to execute bank guarantee at various stages of export business. If an exporter wins a contract, he may have to furnish a bank guarantee to ensure the due performance or against advance payment or in lieu of retention money by an exporter or to a foreign bank in case he has to raise overseas finance for his contract.

Further, for obtaining import licenses for raw materials of capital goods, exporters may have to execute an undertaking to export goods of a specified value within a stipulated time, duly supported by bank guarantees. They also require guarantees to the customs, central excise or sales tax authorities for the purpose of clearing goods without payment of duty or for exemption from tax for goods procured from export. They are also required to produce guarantee in support of their export obligations to Export Promotion Councils, Commodity Boards, STCI or recognized export houses, etc.

Thus, viewing the above situations, ECGC has designed few schemes of guarantees to banks to enhance the creditworthiness of the exporters so that they would be able to secure better and large facilities from their bankers, i.e. ECGC provides guarantees to banks (to protect them from the risk of loss inherent in granting various types of finance facilities).

### **Export Finance (Overseas Lending) Guarantee**

If a bank financing an overseas project provides a foreign currency loan to the contractor, it can protect itself from the risk of non-payment by the contractors by obtaining export finance guarantee.

## **SPECIAL SCHEMES**

The following are the services rendered by ECGC to exporters under special schemes.

### **Transfer Guarantee**

Transfer guarantee is issued, at the option of the bank, either to cover political risks alone, or to cover both political and commercial risks. Under this scheme, political risks such as war, transfer delays or moratorium which may delay or prevent the transfer of funds to the bank in India are covered. The transfer guarantee seeks to safeguard losses against the mentioned risks.

### **Overseas Investment Insurance**

According to this scheme, ECGC protects Indian investments abroad which are made for the setting up or expansion of overseas projects. The risks of war, expropriation and restriction on remittances are covered under this scheme.

### **Exchange Rate Fluctuation Risk**

It has been designed to protect the exporters of capital goods, civil engineering contractors and consultants who have often received payments over a period of years for their exports, construction works or services from exchange rate fluctuation. The risk cover against exchange rate fluctuation is available for payments scheduled over a period of 12 months or more, up to a maximum of 15 years on the basis of reference rate agreed upon (reference rate can be the rate prevailing on the date of bid or a rate close to it).

**SUMMARY**

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- A guarantee is a contract to perform or to discharge the liability of a third person in case of his default. There are three parties involved in a guarantee: the lender, the borrower and the guarantor.
- There are three major types of guarantees: personal, governmental and institutional (usually by financial institutions, banks, insurance companies, etc.).
- The government of India has also set up two specialized public guarantee institutions: Deposit Insurance and Credit Guarantee Corporation (DICGC) and Export Credit and Guarantee Corporation (ECGC).
- While DICGC undertakes insurance of deposits on banks, guarantee for credit extended by banks to priority sector and guarantee for credit extended to small scale industries, ECGC offers cover to exporters against commercial risks and political risks.
- The main services offered by ECGC are: standard policy, small exporters' policy, specific policy, guarantees to banks and special schemes (transfer guarantee, overseas investment insurance and exchange rate fluctuation risk).

**Appendix**  
**Deposit Insurance and Credit Guarantee Corporation – Insured Deposits**

(Number in million)  
(Amount in Rupees crore)

Year (April- March)	Number of fully protected accounts	Total number of accounts	Total amount of insured deposits	Total amount of assessable deposits
1	2	3	4	5
1970-71*	30	31	4,224	6,801
1971-72*	33	34	4,655	7,458
1972-73*	40	42	5,852	9,152
1973-74*	46	48	6,801	10,624
1974-75*	58	60	8,832	13,494
1975-76*	72	73	11,827	16,588
1976-77*	84	86	14,155	19,892
1977-78*	92	93	15,369	21,659
1978-79*	107	109	18,582	26,743
1979-80*	127	129	24,234	32,570
1980-81#	137	138	25,859	35,004
1981-82#	158	160	31,774	42,360
1982-83#	179	182	37,746	50,797
1983-84#	200	203	46,340	61,880
1984-85#	215	224	56,211	76,517
1985-86#	232	236	62,878	86,214
1986-87#	252	257	75,511	1,03,044
1987-89#	271	278	90,192	1,26,864
1989-90#	306	314	1,01,682	1,40,746
1990-91	298	309	1,09,316	1,56,892
1991-92	317	329	1,27,925	1,86,307
1992-93	340	354	1,64,527	2,44,375
1993-94	350	353	1,68,405	2,49,034
1994-95	496	499	2,66,747	3,64,058
1995-96	482	487	2,95,575	3,92,072
1996-97	427	435	3,37,671	4,50,674
1997-98	371	411	3,70,531	4,92,380
1998-99	454	464	4,39,609	6,09,960
1999-00	430	442	4,98,558	7,04,068

# Data relate to last working day of June.

\* As on last Friday of September 1971 to 1980.

Source: Deposit Insurance and Credit Guarantee Corporation.

## **Lesson 13**

# **Capital Market: An Overview of Capital Market**

**After reading this lesson, you will be conversant with:**

- Capital Market in India
- Primary Markets
- Secondary Markets
- Major Trends
- Current Developments

The lack of depth in our domestic capital markets was one of the major obstacles that hindered India's drive to increase the level and efficient usage of domestic savings and investments to achieve economic growth. The crucial role of the financial markets in attaining sustainable economic growth has now been recognized. The present emphasis on developing a vibrant capital market is based on the premise that, while long-term foreign capital flows are required to meet the country's investment needs, the bulk of the requirements have to be met by mobilizing domestic resources. To enable the capital markets to mobilize and allocate these savings efficiently, it must be appropriately broadened and deepened. This calls for establishing an institutional framework capable of attracting domestic savings and channeling them into productive investments. The efficient allocation of savings flow entails development of appropriate mechanisms for pricing, intermediation and settlement of financial transactions. A wide spectrum of financial instruments designed to meet various risk-reward levels and liquidity preferences are needed to meet the requirements of the issuers and investors. An enabling legal and regulatory framework coupled with effective enforcement is necessary for the market to function in a fair and transparent manner.

The capital market reforms have been at the forefront of the reforms agenda of various Governments since 1991. As greater faith was placed on the allocative efficiency of the markets, they progressively liberalized controls that had created severe distortions and impeded market functioning in the past.

## **BROAD TRENDS IN THE CAPITAL MARKETS**

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### **DISINTERMEDIATION**

The major fallout of the reforms is the increasing disintermediation in the capital markets. There has been a marked shift from staid and conventional sources of funding to bold initiatives in the capital markets. The corporate sector directly accesses the market rather than rely excessively on institutional and bank borrowings. The abolition of the control on capital issues in the year 1992 has given a big boost to this process.

The institutionalization of the market has had a positive impact on the quality of intermediation services and disclosure standards. The institutional investors have become an important source of pressure on the companies they invest in, to improve the quality of their corporate governance.

### **INSTITUTIONALIZATION**

Another major visible trend is the institutionalization of the market. The market is being increasingly pervaded by institutional entities. The dominant players in the market are Mutual Funds, Foreign Institutional Investors, Financial Institutions, Venture Capital Funds, Private Equity Funds, Debt Funds, Portfolio Managers, etc. The intermediaries like Brokers and Merchant Bankers are in the process of becoming corporate entities. The system of proportionate allotment and book building has strengthened this proclivity. The proposed entry of pension funds and provident funds into the market will further accelerate this process.

The institutionalization of the market has had a positive impact on the quality of intermediation services and disclosure standards. The institutional investors have become an important source of pressure on the companies they invest in, to improve the quality of their corporate governance.

### **GLOBALIZATION**

Another notable feature is the gradual integration of the Indian capital markets with the global markets. The process started with the opening of our capital markets to foreign portfolio investment. However, only institutional investors like foreign Mutual Funds and Pension Funds are permitted to invest subject to certain conditions. These conditions in general and the ceilings for investments in particular have been progressively liberalized. The ceilings for investment by

Non-Resident Indians (NRIs) and Overseas Corporate Bodies (OCBs) in Indian companies have also been increased. The Government also permitted Indian corporates to directly tap the international markets for raising capital. This measure enabled listing of Indian paper on international stock exchanges. The Government has also allowed Indian Mutual Funds to invest in foreign markets as a part of global diversification of their portfolios.

### **MODERNIZATION**

The impact of the reforms is most pronounced in the area of modernization of the market. The main drawback of the Indian capital markets was the prevalence of obsolete systems and practices. Modernization involved replacing them with new systems which are in line with those existing in advanced capital markets. Technology has played a vital role in the whole process. The changes are aimed at establishing transparent trading system, efficient clearing and settlement system, reducing transaction costs, introducing of risk management products, eliminating paper by setting up of depository, etc.

### **MAJOR CHANGES IN THE PRIMARY MARKET**

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- i. **Free Pricing:** The abolition of the office of the Controller of Capital Issues resulted in the emergence of a new era in the primary markets. All controls on the pricing, designing and tenure of the instruments were abolished. A wide variety of instruments were designed to meet the specific requirements of the issuers and the investors. The issuers were also given the freedom to price the instruments. It was left to the market forces to decide the appropriateness of the pricing.
- ii. **Entry Norms:** Hitherto there were no restrictions for a company to tap the capital markets. This resulted in a massive surge of small cap issues. Many of the companies were promoted by persons with dubious credentials. Most of these shares were not even traded in the secondary markets after listing. Several investors lost heavily by investing in these shares. The need for transparent entry barriers was felt. SEBI introduced eligibility norms in the form of dividend track record for existing companies and compulsory appraisal of projects for new companies.
- iii. **Disclosures:** The quality of disclosures in the offer documents was extremely poor. Several vital pieces of adverse information was not disclosed in the offer document. SEBI has introduced stringent disclosure norms. The Malegam Committee was appointed to suggest measures to increase the levels of disclosures by Indian issuers. Most of the recommendations of the Committee have been implemented. The attempt is to make Indian disclosure norms conform to global standards.
- iv. **Book Building:** Book building is the process of price discovery. One of the drawbacks of free pricing was the pricing mechanism. The issue price had to be decided around 60-70 days before the opening of the issue. Further, the issuer has no clear idea about the market perception of the price determined. Introduction of book building helps overcome this limitation and results in market driven pricing of securities.
- v. **Streamlining the Procedures:** All the procedural formalities were streamlined. Many of the operational aspects were hitherto unregulated and different practices were being followed. SEBI has issued guidelines to ensure uniform procedures. Many aspects of the operations have been made more transparent.



- vi. **Registration of Intermediaries:** SEBI started the process of registration of some of the intermediaries associated with the process of issue management. This is done to ensure professionalization of the intermediaries and to curb the malpractices indulged by some of the intermediaries. Registration has been made mandatory for the following primary market intermediaries:
- Merchant Bankers
  - Registrars and Share Transfer Agents
  - Brokers to the Issue
  - Bankers to the Issue
  - Debenture Trustees.

**Box 1: A New Dawn in Benchmarking**

Indian capital markets have seen a sea change in the past decade. First, it was the decision to allow companies to freely price their issues. Then dematerialization of shares led to a lot of ease to investors. The turn of the century saw the introduction of derivative products in India. First, the introduction of futures, and then options gave a new dimension to the Indian capital markets. With the introduction of retail participation in the Government securities markets, fixed-income markets have also seen the changes erstwhile experienced by equity markets. These are developments that will have far reaching effects. The international move to adopt a free-float approach for index construction is one such move. The old way of constructing indices was to build a sampled portfolio according to the market capitalization of companies listed on the exchange. The presumption was that these indices would adequately reflect the investable universe. However, if the purpose of a benchmark is to measure the real life opportunity set to the investor, it needs to include everything that can be invested in, and nothing that cannot. There is a clear international and local demand for indices that more accurately represent the investable equity universe.

Come September 1, 2003, and the country's benchmark Index Sensex would also shift to the free-float methodology. The move is a culmination of more than two years of debates and discussions among the major Indian market participants.

Globally, the free-float methodology of index construction is considered to be the best industry practice. All major index providers like MSCI, FTSE, S&P and Dow Jones STOXX have adopted it. The MSCI India Standard Index is also based on the freefloat methodology.

**The Genesis**

The process of testing the waters for freefloat methodology was started in July 2001 with the launch of the BSE TECK Index, India's first free-float Index. This was followed by the launch of Bankex in June 2003. BSE TECK Index brought to the Indian markets a quality benchmark for the TMT sectors. It has been well received by the markets as it rationally reflects the trends in the new economy sector stocks.

A significant outcome of using the free-float methodology for BSE TECK Index has been the impact on weightage of closely held companies in the Index. For example, the weightage of Wipro Ltd. in BSE TECK index is lower than that of Satyam Computers though the market capitalization of Wipro Ltd. is more than three times the market capitalization of Satyam Computers. This is due to the fact that the free-float for Wipro Ltd. is only 16% whereas it is around 80% for Satyam Computers. In other words, the absolute free-float market capitalization of Satyam Computers is higher than that of Wipro Ltd. This ensures that a single stock in index, like Wipro in the case of BSE TECK, does not exert influence on the index disproportionate to its investment opportunity set.

Free-float being a new concept in the Indian capital markets, market participants needed to familiarize themselves with this new concept before it was applied to benchmark Sensex. Thus the BSE TECK and Bankex worked as training grounds for the market participants to appreciate and absorb the merits of the new methodology.

It may be recalled that in order to generate a nation-wide debate on the issue of free-float, BSE had organized a “Roundtable on free-float Index” in March 2002, which was chaired by Mark Makepeace, President and CEO of FTSE Group. The Round table was followed by a series of discussions with a cross-section of market participants. The feedback was overwhelming for shifting benchmark indices to the free-float methodology.

#### **Why Free-float?**

The Sensex has been the barometer of the Indian stock market. The rationale behind changing it to the free-float methodology is to further enhance the benchmarking properties of Sensex. Firstly, a free-float index reflects the market trends in a more rational manner by taking into consideration only those shares that are available for trading in the market.

Secondly, it aids both active and passive investing styles. It aids active managers by enabling them to benchmark their fund returns vis-à-vis an investable index. This enables an apple-to-apple comparison thereby facilitating better evaluation of performance of active managers. Being a perfectly replicable portfolio of stocks, a free-float index is best suited for the passive managers as it enables them to track the index with the minimum tracking error.

Thirdly, a free-float index prevents any closely held company from unreasonably influencing the movement of an index by restricting its impact on the free-float shares.

Lastly, it gives the index provider the flexibility to include any stock from the universe no matter how large it is in terms of market capitalization (even though the free-float may be small). Such flexibility facilitates creating a quality portfolio with improved sector and market coverage of the index.

#### **Comparability with History**

There has been apprehensions from several quarters that the character of the Sensex will change post shift to the freefloat methodology and that it will lose comparability with its own history.

In reality, a smooth transition has been planned based on globally accepted transition practices, without compromising on the comparability of Sensex over its history. The smooth transition will ensure that on September 1, 2003, when Sensex shifts to free-float methodology, the index will open at the same value as on the previous day’s close. This will be achieved by adjusting the base value of Sensex in proportion to the change in market capitalization as a result of free-float. A correlation study undertaken by BSE between the hypothetical free-float Sensex and the full market capitalization weighted Sensex shows a very high correlation of 99.6% between the two indices over the past one year (August 2002 to July 2003). It essentially means that the movement of Sensex in terms of points would remain more or less the same, with more desirable qualities. Even a comparison of volatility of the two indices over the one year period shows that the daily volatility of free-float Sensex was 0.948% as compared to 0.945% for full market capitalization weighted Sensex.

#### **Impact on Sensex Constituents**

The new methodology will alter the weights of stocks in the Sensex depending on their available float. However, these weight changes would be minor. Since the new economy companies like Infosys, Satyam and certain financial stocks like HDFC and ICICI Bank have higher floats, their weightings would improve while the weightings of companies like HLL, RIL, and SBI would fall due to their relatively low float.

The changes in weights would be minor because the average free-float of Indian companies is in the range of 50-60%, barring a few exceptions. As a result, in a free float scenario, the market capitalization of all these companies gets reduced proportionately, thereby having a minor impact on their ultimate relative weightings in Sensex.

*Source: Portfolio Organizer, September 2003.*

### Trends in the Primary Markets

The primary market experienced a major boom after the initiation of the reforms process. This can be seen from the ten-fold increase in the number of public issues from 141 in 1990-91 to 1428 issues in 1995-96. The total capital mobilized also witnessed a seven-fold increase from Rs.1,704.35 cr. to Rs.11,822.18 cr. during the same period. However, there has been a sharp fall in the market both in terms of number of public issues and amount mobilized after 1995-96. The number of issues had drastically fallen from 1428 in 1995-96 to 62 in 1997-98. The capital raised had also fallen from Rs.11,822.18 cr. in 1995-96 to Rs.3,061 cr. in 1997-98. This downward trend in the capital mobilization in the primary market continued till the end of 1997-98, and was reversed in 1998-99. During 1998-99, the total amount of capital raised through public issues rose steeply to Rs.5,018.9 cr. from Rs.3,061.00 cr. While the amount mobilized increased by nearly 64 percent during 1998-99, the number of public issues, entering the market declined sharply to 32 from 62 during the same period. The average size of the issue during 2000-01 was Rs.40.44 cr. as against Rs.84.05 cr. in 1999-00 and Rs.231.56 cr. in 1998-99. This implies that companies on an average made issues of a size larger than the previous year. The distribution analysis by the size of the issue for years 2001-02, and 2002-03 are given below:

**Table 1**

	2001-02		2002-03		Percentage Share (Amount)	
	No.	Amt. (Rs. cr.)	No.	Amt. (Rs. cr.)	2001-02	2002-03
< 5 cr.	3	7.71	2	6.64	0.1	0.2
⇒ 5 cr. & < 10 cr.	3	19.57	1	7.83	0.3	0.2
⇒ 10 cr. & < 50 cr.	8	198.92	10	255.37	2.6	6.3
⇒ 50 cr. & < 100 cr.	3	176.74	0	0.00	2.3	0.0
⇒ 100 cr. & < 500 cr.	14	4506.12	13	3800.45	59.7	93.4
⇒ 500 cr.	4	2634.02	0	0.00	34.9	0.0
Total	35	7543.08	26	4070.29	100.0	100.0

*Source: SEBI Annual Reports 1997-98, 1998-99 and 1999-00.*

In the years 1999-00 and 2000-01, the number of public issues (plus rights issues) has increased to 93 and 151 respectively. Despite increase in the number of public issues during 2000-01, the companies managed to mobilize only a sum of Rs.5,378.38 cr.

A similar trend is witnessed with respect to right issues in the Indian market. During the period 1997-98, funds to the tune of Rs.1,708.01 cr. were mobilized through rights issue, nearly 37 percent of the total funds raised. This is a great contribution by the rights issue towards the capital mobilization. However, only Rs.567.56 cr. was raised by way of rights issues during the year 1998-99. In 1999-2000, the rights issue contributed an amount of Rs.1,560.24 cr. towards its share in the total amount of Rs.7,816.75 cr.

The following Table shows flow capital is mobilized in the years 2001-02 and 2002-03.

**Table 2: Capital Mobilized**

	2001-02		2002-03		Percentage Share (Amount)	
	No.	Amt. (Rs. cr.)	No.	Amt. (Rs. cr.)	2001-02	2002-03
Public	20	6501.81	14	3638.68	86.1	89.4
Rights	15	1041.26	12	431.61	13.8	10.6
<b>Total</b>	<b>35</b>	<b>7543.08</b>	<b>26</b>	<b>4070.29</b>	<b>100.0</b>	<b>100.0</b>

Source: SEBI

### Instrument-wise Analysis of Capital Raised

Instrument-wise analysis reflects investors' preference for various types of instruments available in the primary market. In the year 1996-97, the companies accumulated funds of Rs.7,844.44 crore by way of equity issue. However, in the later years, the importance of equity issue has declined sharply and is substituted through debt finance, probably encouraged by the comparative cost advantage. This analysis clearly suggests an ongoing structural change in the corporate financing. This can be noticed from the Table 4. Meanwhile, the bonds too contributed a major share of 44.4 percent during 2000-01 as against 41 percent in 1999-2000. In 1998-99, funds of Rs.4,450 cr. were raised through issue of bonds, which formed nearly 81 percent of total mobilization. In the year 1999-2000, there was one Fully Convertible Debenture (FCD) and one Partially Convertible Debenture (PCD) and were issued for Rs.20.78 crore and 30 crore respectively. And, during 2000-01, there was only one fully convertible debenture, which was issued for Rs.36.26 crore. The instrument-wise break-up of capital raised during 2001-02 and 2002-03 are shown below.

**Table 3**

	2001-02		2002-03		Percentage Share (Amount)	
	No.	Amt. (Rs. cr.)	No.	Amt. (Rs. cr.)	2001-02	2002-03
Equity – par	7	150.90	6	142.50	2.0	3.5
Equity – prem	8	1121.32	11	1314.36	14.8	32.2
FCDs	3	636.8	1	0.00	8.4	0.0
PCDs	1	32.82	1	13.43	0.4	0.3
Bonds	16	5601.23	8	2600.00	74.2	63.8
<b>Total</b>	<b>35</b>	<b>7543.08</b>	<b>27</b>	<b>4070.29</b>	<b>100.0</b>	<b>100.0</b>

Source: SEBI

### Trends in Listed and IPO issues

As against Rs.5097.7 cr. from 42 issues in 1999-00, the listed companies mobilized only Rs.3385.41 cr. through 37 issues during 2000-01, registering a decline of nearly 33 percent. The market, in 1996-97, was dominated by Initial Public Offers (IPOs), which constituted 95% of the number of issues. However, they raised only 40% of the total capital. The up-mood continued till 2000-01 with small disturbance in 1998-99. This mood indicates investors' confidence and interest in new companies. During 2001-02 and 2002-03, there were only 6 IPO issues that mobilized 1031.82 cr. and 1038.68 cr. respectively.

The details for the years 2001-02 and 2002-03 are given below:

**Table 4: Sector-wise Break-up of Capital Raised**

	2001-02		2002-03		Percentage Share (Amount)	
	No.	Amt. (Rs. cr.)	No.	Amt. (Rs. cr.)	2001-02	2002-03
Private	30	6601.12	17	1895.52	87.5	46.5
Joint	0	0.00	1	1.77	0.0	0.04
Public	5	941.96	8	2173.00	12.5	53.3
<b>Total</b>	<b>35</b>	<b>7543.08</b>	<b>26</b>	<b>4070.29</b>	<b>100.0</b>	<b>100.0</b>

Source: SEBI

## MAJOR CHANGES IN SECONDARY MARKET

### TRADING SYSTEM

Trading on all the stock exchanges was being carried out by “public outcry” in the trading ring. This was an inefficient system and also resulted in lack of transparency in trade. The Over The Counter Exchange of India (OTCEI) was the first exchange to introduce screen based trading in India. Listing on OTCEI was restricted to small and midcap companies. Screen based trading got a big boost with the setting up of the National Stock Exchange. NSE provided nationwide access to investors by setting up trading terminals all over the country. These terminals were networked through satellite links. The fully automated trading system enabled market participants to login orders, execute deals and receive on-line market information. The competition from NSE forced the regional stock exchanges including BSE to switch over to screen based trading. The NSE trading system is order driven while the OTCEI system is quote driven. In an order driven environment, the system captures all the orders and matches them with each other to execute the transaction. A quote driven system is based on market making concept (dealer giving two way quotes) and the order logged in is matched against the best quote given by the market maker. BSE On-line Trading (BOLT) is a mixture of both quote driven and order driven system as the system permits both jobbing and direct matching of orders.

### DEPOSITORY

One of the major drawbacks was/is that the securities were/are held in the form of certificates. This led to problems in physical storage and transfer of securities. There was also the risk of bad delivery for the buyer. The transaction costs were also higher due to physical movement of paper and the incidence of stamp duty. National Securities Depository Ltd. (NSDL) was set up in 1996 as India’s first depository. A depository is an entity which holds the securities in electronic form on behalf of the investor. This is done through dematerialization of holdings at the request of the investor. Dematerialization is a process by which physical certificates of the investor are destroyed and an equivalent number of securities are credited to the account of the investor. This also enables transfer of securities by book entries. The risk of bad deliveries is also eliminated. The transaction costs are also reduced due to less flow of paper and transfer of securities through depository does not attract stamp duty. Further the depository also handles all the corporate actions like exercising for rights, collection of dividends, credit for bonus, exercising of warrants, conversion option, etc. on behalf of the investor.

### CLEARING MECHANISM

The clearing houses attached to stock exchanges functioned only as conduits to delivery of securities and money. The default risk by the counter party in the transaction continued to remain. The NSE was the first stock exchange to set up a clearing corporation. The National Securities Clearing Corporation (NSCC) assumes the counterparty risk in all trading deals made on the exchange. NSCC acts as the counterparty for all the trades and the default risk in the deal is borne by it. NSE has created a special Trade Guarantee Fund for this purpose and loss due to defaults will be met by drawing from its corpus.

## SETTLEMENT SYSTEM

Trading in equities is internationally done on rolling settlement basis. The settlement is done on T + 2 system (i.e. the trade will be settled on the 2nd day from the date of execution of the transaction). SEBI has encouraged the stock exchanges to shorten their settlement cycle further to T + 1. Typically trades taking place on Monday are settled on Wednesday, while trades on Tuesday settled on Thursday and so on. In case of trading in dematerialized securities, rolling settlement has been introduced. Further, with the availability of the facility of electronic funds transfer, Delivery Versus Payment (DVP) system is being introduced.

A tabular representation of the settlement cycle for rolling settlement is given below:

	Activity	Day
Trading	Rolling Settlement Trading	T
Clearing	Custodial Confirmation	T+1 working days
	Delivery Generation	T+1 working days
Settlement	Securities and Funds pay in	T+2 working days
	Securities and Funds pay out	T+2 working days
	Valuation Debit	T+2 working days
Post Settlement	Auction	T+3 working days
	Bad Delivery Reporting	T+4 working days
	Auction settlement	T+5 working days
	Rectified bad delivery pay-in and pay-out	T+6 working days
	Re-bad delivery reporting and pickup	T+8 working days
	Close out of re-bad delivery and funds pay-in & pay-out	T+9 working days

Source: [www.nseindia.com](http://www.nseindia.com)

## CARRY FORWARD SYSTEM<sup>1</sup>

The Indian Stock Exchanges have been an amalgam of cash market and forward market. The prices of the scrips on the exchange did not reflect their 'true' price in the underlying cash market. Further there was indiscriminate and rampant speculation in the market. Defaults were common and other members were forced to "accommodate" the defaulting member. Often, the defaults had a snowballing effect and the entire market would be in the throes of a major payment crisis. This frequently resulted in the closure of the exchanges for a few days. In order to curb the prevailing malpractices, SEBI banned carry forward transactions on all stock exchanges.

### Box 2: Central Listing Authority : A New Facilitator

The regulators all over the world are facing the challenge of low performing regional exchanges and India is not an exception. The general perception is that a healthy environment in the capital market can be created by a limited number of exchanges. For facilitating effective and speedy transactions in the exchanges, each exchange needs to be well-equipped with modern technologies. Can all the stock exchanges afford upgrading the existing technological environment to keep themselves in the race? Technological know-how available in many regional exchanges is another concern let alone the cost of setting up of the required technological infrastructure.

<sup>1</sup> The System of carry forward of positions was banned from July 2, 2001. This is given for academic information only.

The need for a lesser number of exchanges is argued on one more point. With the advanced technologies, capital market activity can reach easily to every nook and corner of the country without much of a problem. If an exchange has to function efficiently, it needs to attain a minimum turnover. This is required to ensure adequate liquidity and price discovery to the investors. As revenues from trading on the majority of the exchanges in India is moving southwards, these exchanges are not placed comfortably to invest in the required infrastructures.

### **Evolution**

In the scenario, as many of the Indian stock exchanges have failed to discharge their minimum responsibilities associated with listing of securities efficiently, a Central Listing Authority (CLA) was proposed to be set-up by Sebi in April 2002 and it came into existence from April 2003. The purpose of establishing a Central Listing Authority is to formulate common guidelines for listing of securities in the stock exchanges of the country. It will not be a regulatory body and may work under the supervision of the Sebi. It is proposed that the CLA will bring uniformity in the due diligence process and in scrutinizing listing applications across the stock exchanges. With the establishment of the CLA, it is not required for a company to list in as many stock exchanges in which it is to be traded. The cumbersome process of undergoing the procedure of listing in each of the stock exchanges is solved. This is expected to save time and reduce costs. In addition, delisting exercise is also made simpler by the CLA.

### **Constitution of CLA**

The CLA will be headed by the former Chief Justice of India, M N Venkatachallaih. He will be assisted by nine committee members who could be selected from different disciplines with expertise in the areas of finance, accounting, law, investment etc. Nine committee members are: S A Dave (Trustee, Center for Consumer Education and Research Center), G Muniappan (Deputy Governor, RBI), Dr. Amit Mitra (Secretary General, FICCI), Raju P Chitale (Chartered Accountant) and Prof. RS Nigam (Academician and Economist), Prithvi Haldea (Managing Director, Prime Database), Ravi Narain (Managing Director and CEO, NSE) Dr. Manoj Vaish (Executive Director and CEO, BSE) and Manjit Singh (Executive Director, Ludhiana Stock Exchange). Term of Office for the President and Members of CLA will be three years. The main function of CLA will be to process applications made by any corporate body, mutual fund or collective investment scheme for a letter of listing on a stock exchange. It will make recommendations for listing. Obtaining a letter of recommendation from CLA by these organizations has been made mandatory.

### **Need for CLA**

Sebi was the sole regulatory authority for the companies to meet their listing requirements with the stock exchanges. The corporates were monitored by Sebi through the listing agreement. Thus compliance of listing agreement was of great significance for the companies vying to operate in the capital market. Initial listing demand a high level of due diligence in order to contain potential frauds.

As per the earlier regulations, it was mandatory for a company to list its securities on its regional stock exchange and listing can be done in any number of exchanges, but for each listing, the company had to pay the requisite fees. This made listing difficult for small companies and they were able to list only in small exchanges. Listing in small exchanges was also a bottleneck for the stocks of these companies to be actively traded. Some companies adopted a different strategy by opting for listing in the small exchanges in the initial stage and when most of the shares come under the control of the promoters, they resorted to price rigging. This facilitate, these companies' entry into the country's two national stock exchanges (BSE and NSE). Subsequently the promoters used to offload their shares to the gullible investors.

### Demerits of the Regional Listing Requirement

In the last decade, it was observed that very little or effectively no time was spent on either screening the initial listing application or on ensuring listing compliance by the exchanges on which the listing was proposed. Exchange officials never used to go to the field for a physical inspection of the companies listed. As a result, the companies were seen to shift their offices, misused issued funds, did not file annual reports, etc. Unsurprisingly, exchanges were ignorant about these facts about the companies. Even when the letters addressed to these companies returned undelivered, no action was taken by the exchanges to suspend their stocks' listing in the exchanges. Exchanges remained dormant even when the companies defaulted the payment of their annual listing fees. In short, a majority of the small regional exchanges failed to enforce the listing agreements.

Faced with resource crunch aggravated by very low turnover every year in the last three years, these small exchanges are seen to be accepting "weak" issues to go public to effectively earn some revenue in terms of listing fees. This situation is not healthy. Many of the regional exchanges have non-business income (income from listing, interest and rent) as the only source of income and is fixed too. For instance, the listing income accounted for as much as 84% of total income of Guwahati Stock Exchange and 73% of total income of Madhya Pradesh Stock Exchange last year. Surprisingly, some exchanges like Bhubaneswar, Cochin, Guwahati, Madhya Pradesh, Madras, Mangalore, SRSE even managed to earn a profit with the non-business income and zero or almost negligible turnover.

Small exchanges have also failed to disseminate the information provided by the companies to the investors and to redress the investors' grievances. Lack of uniformity among the regional exchanges is also another issue of concern. This is more pronounced particularly when companies opt to be listed in more than one exchange. A company rejected for listing by one exchange is accepted by another. This may sound ironical as all the exchanges are regulated by Sebi. Naturally, this will create concern for investors as they would feel more insecure about their investments in such companies. Ideally, a security should be suitable for listing in all the exchanges or not suitable for listing in any exchange at all.

Operational duplication is another issue of concern. A company approaches, say five stock exchanges at a time and applies for its listing in them. Each exchange goes through the offer document independently and scrutinizes the application for the compliance of listing requirements. If these operations can be centralized, then the procedure of security by the exchanges can be simplified. This much would benefit both the exchanges and the companies. Centralization will also reduce the duplication of efforts in monitoring and surveillance. Thus need for quality, uniformity and coordination among exchanges was found to be more critical to ensure that information is not used by unscrupulous operators to obtain benefits at the expense of hapless small investors.

A growing trend of delisting of shares from the Indian stock exchanges is also observed in the recent past. This is another reason for establishing a centralized listing authority thereby making delisting process simpler. Delisting of shares is more common among the Multi-National Companies (MNCs) for a number of reasons. A general opinion is that permanent delisting of shares would curtail the activity in the stock market which would in turn affect the depth and liquidity of the market, resulting in loss of investment opportunities for the public. The main argument against delisting per se is that the exit price offered to the shareholders is not consistent with the company's fundamentals.



**Committee on Delisting Starter for CLA Set up**

In view of the aforesaid concerns and issues, a committee on delisting was set up under the Chairmanship of Pratip Kar, Executive Director, Sebi which came out with the following terms of references:

- i. Review of the current regulations governing the delisting of securities of companies listed on the recognized stock exchanges and suggestion of new norms and procedures regarding the same.
- ii. Review and standardization of the listing agreement.
- iii. Establishment of a listing authority across the stock exchanges in place of independent listing in each stock exchange.
- iv. Suggestion of ways for effective implementation of listing conditions and penal provisions for non-compliance.
- v. Recommendation of changes in laws, rules, regulations, etc., in order to give effect to the recommendations of the above issues.

**Recommendations of the Committee**

The recommendations of the committee are:

- a. No prohibition against delisting securities provided that the securities of the company have been listed for a minimum period of three years on any stock exchange.
- b. No selective restriction or discrimination against any class of companies for delisting. But regulatory framework should be made stringent so as to ensure investor protection.
- c. Any acquisition of shares or scheme resulting in delisting of securities would be in compliance with the provisions in the Sebi regulation and the provisions of the listing agreement to ensure investor protection
- d. Assurance that no company could use the buy-back provision to delist the company.
- e. Comprehensive provisions that include procedures governing the entire subject of delisting of securities of companies from one or more stock exchanges in which they are listed.
- f. The exit price for delisting should be decided based on the price arrived by the process of book building to ensure investor protection.
- g. Provision for delisting of a company listed on any stock exchange without an exit offer being made to its shareholders if the securities of the company are listed on BSE or NSE.
- h. An exit offer is mandatory in all other cases if a company listed on any stock exchange or stock exchanges other than BSE or NSE seeks delisting.
- i. Allowance for fixed income securities of the company to continue to be listed on the stock exchange even if the shares of the company are delisted.
- j. Empowerment of stock exchanges to delist those companies which have been suspended for a minimum period of six months for non-compliance with the listing agreement.
- k. The department of Company Affairs will be requested to amend the Companies Act for allowing the stock exchanges to make an application for winding up of the company.
- l. Establishment of a separate agency designated as the Central Listing Authority (CLA) to bring about the uniformity in the exercise of due diligence in scrutinizing listing application

**Expectations from CLA**

CLA should be charged with approvals related to listing of all types of offerings including IPOs, rights issues, public debt issues, public equity issues by listed companies, preferential issues, debt private placements opting for listing, private placements of equity or hybrid by listed companies and bonus issues and also shares out of mergers and acquisitions, equity swaps, etc. CLA should also give approvals to already listed companies seeking listing on other exchanges. CLA should also be charged with the approvals of all suspensions and delistings. In addition, CLA should bring international standards and best practices to the fore. The monitoring and surveillance of companies listed at the regional stock exchanges where trading is almost nil should be transferred to CLA without any procedural delay. This would give CLA, a complete control over the process of listing and therefore monitoring becomes easier. This will also ensure transparency in the system. Another critical area that CLA should be entrusted with is the redressal of investors' grievances. CLA's only source of funds is the listing fees as on today and hence the entire listing fees, both initial and annual should accrue only to CLA. In addition, 1% deposit which the companies require to keep with the regional stock exchanges can now be kept with CLA. This will serve as an additional source of funds.

With the emergence of a Central Listing Authority, the concept of multiple listing should be completely abolished. The alleged fear among the investor community and the traders in the capital market is that, this will lead to complete disappearance of small regional exchanges. But this fear is unwarranted as with the advancement in the technologies, trading from any where, any part in any exchange should be possible without any hassles. Emergence of CLA would encourage the competition between the national level exchanges in line with the US model where a company lists either at the NYSE or the Nasdaq.

**Benefits to Stock Exchanges**

In whatever way one may look at, establishment of CLA seems to be a major milestone in the Indian capital market. Because of this authority, stock exchanges stand to gain as they would now be able to concentrate on their major function of providing a trading and settlement platform and save time and money in screening of listing applications as well as compliance of listing agreements.

**Benefits to Corporate World**

Corporates stand to gain as their listing costs come down drastically because of the elimination of independent listing fees in each of the exchanges. The cumbersome procedure of following up the process with each exchange is also dispensed with.

**Benefits to Investors**

Investors stand to gain because it creates a more conducive investment climate due to better quality of listings and transparency. They would also be able to get corporate information from a single window and they can address their grievances to a single place.

**Conclusion**

Last but not the least, Indian economy too stands to gain as the situation in the capital market would improve with more participants in the market. The stock exchanges become more active and because of the assured quality of listing, huge inflows are expected in the capital market both from domestic and foreign institution investor. CLA is certainly a good news to the capital market and is no doubt ready to make a significant impression in the saga of Indian capital market.

*Source: Portfolio Organizer, July 2003*

## **MARGIN SYSTEM**

The role of the margin system for smooth running of any stock exchange cannot be overemphasized. The margin system was dysfunctional in most of the stock exchanges. The lack of stringent margin requirements and the laxity in collection of the margins resulted in utter chaos, whenever there was a default. The margin system has now been streamlined. SEBI has introduced the concept of mark-to-market margin. In addition to this, other margins like initial margin, carry forward margin, concentration margin, etc., have been introduced.

## **CAPITAL ADEQUACY**

Most of the brokers in stock exchanges operated on a small capital base. They were, therefore, unable to bear the risks associated with the business. The result was the high incidence of defaults in the Stock Exchange. SEBI has now introduced minimum capital norms for all brokers. Further, the capacity of a broker to assume a position in the market would be a function of his capital.

## **LIQUIDITY FOR DEBT**

An important feature of good capital market is the existence of a vibrant secondary debt market. Indian markets were characterized by lack of liquidity for corporate debt. This called for widening and deepening of the debt market. NSE set up a separate trading system called Wholesale Debt Segment for trading in all debt instruments. This has provided nationwide trading access to debt investors. Market Making would further enhance the liquidity in the debt market.

## **INDICES**

An index is an important tool to measure the price behavior of the overall market. The return on the index provides a benchmark for portfolio risk-return analysis. Several new indices have been constructed based on various parameters. The 30 share BSE Sensex and the 50 share S & P CNX Nifty are the popular sensitive indices to measure the daily market volatility. Some of the new indices like BSE Dollex and NSE Defty are denominated in dollars. The S & P CNX 500 is a more broad based index covering a larger portion of the total market capitalization. The CNX Midcap 200 was designed to capture the price movements in scrips with relatively smaller market capitalization. The Skindia GDR Index tracks the price movements of Indian GDRs on the global exchanges. ICICI Securities has constructed an index called i-Bex for the debt markets. Some industry specific indices have also been constructed to reflect the price volatility of the shares of the companies in a particular industry. The construction and maintenance of well-designed and responsive indices has become critical with the proposed move to introduce index futures.

## **REGULATION**

SEBI has taken a number of steps to maintain the integrity of the markets and to ensure investor protection. Insider trading has been declared as a criminal offence and prosecutions have been initiated in cases of violations of the insider trading regulations. SEBI has also started investigating into instances of price rigging and penal action is taken against the guilty. SEBI has also attempted to bring transparency into broker-client relationships. The system of circuit breakers has been introduced to prevent excessive volatility in price movements.

## **DERIVATIVES**

Derivatives are important tools for portfolio management. The introduction of derivatives result in a paradigm shift in the investment strategies of Indian investors. The L C Gupta committee had recommended the introduction of options and futures in India. SEBI initially wanted to allow the introduction of index based futures. In the light of the experience gained, options were to be introduced at a later stage. Trading in options and futures was started from July 2, 2001.

**Box 3: Demutualization of Securities Exchanges**

Demutualization is a new buzzword that is presently rocking the securities exchanges world over. This means that securities exchanges will no longer be owned only by the members of these exchanges as hitherto. They will be converted into public companies where ownership will be divorced from trading rights of brokers and dealers in securities.

India is the first country to have demutualized the stock exchanges. At both OTCEI established in 1992 and the National Stock Exchange set up in 1994, ownerships of exchanges is divorced from trading rights. It is the financial institutions and commercial banks that own these institutions while the trading rights rest with stockbrokers. The Bombay Stock Exchange has recently announced its plans to become a corporate body and separate its ownership from membership.

Quite a few arguments have been advanced in favor of demutualization. First, stock and futures exchanges owned wholly by members tend to work towards the interests of their members only, concentrating on enhancing revenues from commissions and bereft of any concern for the other players in the market. Division of ownership between the members and outriders can lead to a balanced approach of taking into consideration the interests of diverse elements operating on the exchanges while taking any decision.

Secondly, exchanges are facing growing competition from Alternate Trading Systems (ATS) and Electronic Communication Networks (ECN), which provide access to quoted stocks on a much cheaper and more efficient basis than the traditional exchanges. ATs and ECNs now account for a significant portion of trading volumes with a progressively growing share.

For the derivatives, the primary competition comes from the OTC markets, which have grown significantly faster than the exchanges. The OTC market is more attractive to the large players who are comfortable trading with each other 'in size' without a clearing house and the danger of being 'picked off' by the floor community. In order to face the keen competition that the exchanges are faced with, they have necessarily to raise funds to upgrade their technology so as to reduce the transaction costs to competitive levels. While member-owned exchanges have limitations in raising funds, publicly-owned exchanges can tap the capital market to raise the required funds to meet these challenges.

Finally, it is easier to professionalize the management of an exchange owned by the public than a member-owned exchange. Market operators can then be subjected to greater transparency, accountability, discipline and fairness in dealings.

There can be quite a few strong arguments against demutualization. First and foremost is the conflict of interests that can and probably will take place between the self-regulating function of a securities market and profit-making objective of a publicly listed company. Securities markets are the first effective regulatory layer and, in fact, if this layer discharges its regulatory functions in an efficient and objective manner, there will be little scope for intervention by the statutorily set up regulatory bodies.

*Source: Investment Banking and Financial Services Book of Readings, August 2001, page 231.*

## **SUMMARY**

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- Of late the following broad trends like disintermediation, institutionalization, globalization and modernization are being observed in the capital markets in India.
- The primary markets in India have observed the following major changes: free pricing of instruments, introduction of entry norms, improvement in the quality of disclosures, introduction of the book building process to price new share issues, streamlining all the procedures and registration of intermediaries like merchant bankers, registrars and share transfer agents, brokers to issue, bankers to issue and debenture trustees.
- The secondary markets in India have observed the following major changes: computerized trading system, depository participants and dematerialization of issues, settlement of clearing corporations for the stock exchanges, change in the settlement system, banning of carry forward system, introduction of the margin system, minimum capital norms for brokers, implementation of a vibrant secondary market for debt issues, review of the share indices, strict regulations to maintain integrity of the markets, introduction of derivatives and latest introduction of the daily rolling settlement process.

## **Lesson 14**

# **Regulation of the Capital Market**

**After reading this lesson, you will be conversant with:**

- Historical Perspective of Regulations
- Evolution and Organization of Securities and Exchange Board of India
- Powers and Functions of SEBI
- Regulatory Framework in India
- Self-Regulation of the Markers

The major thrust of the securities market reforms is upon the improvement of the operational and allocative efficiency of the markets by correcting the exogenous and structural factors impeding the functioning of the system. Efficient intermediation is of paramount importance in making the capital markets more vibrant and dynamic. To sustain the growth of the markets and crystallize the increased awareness and interests of a discerning and growing pool of investors, it was essential to overcome the inadequacies and curb the malpractices in the market. It can be observed from the global experience that capital markets cannot develop in a healthy manner without effective regulations for disclosures, listing, trading, liquidity, intermediation, settlements, accounting, etc. The regulatory policy must focus on visible and effective maintenance of market discipline and professionalization of intermediation and support services.

The Government felt the need to set up a regulatory body to ensure investor protection and promotion and growth of vibrant securities market. The Securities and Exchange Board of India (SEBI) was constituted on 12th April, 1988 and established as a statutory body on 21st February, 1992. Regulation of Indian securities market required SEBI to simultaneously perform both disciplinary and developmental roles. The two roles ought to be complementary and carefully synthesized. The disciplinary dimension involves providing for disincentives and penalties for errant and unfair behavior which harm the market. The development dimension is a positive aspect that involves providing incentives to market participants to engage in a constructive role.

## **HISTORICAL PERSPECTIVE**

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Securities market in India has a long history spanning over a century. The Bombay Stock Exchange is the oldest stock exchange with its origins in the informal trading of stocks in the 1850s and 60s. Its formal operations commenced in 1875. The securities market was largely unregulated, prior to independence. In 1947, the Capital Issues (Control) Act was passed which formalized and continued its control over the issue of securities imposed during the second world war. This Act was administered by the Office of the Controller of Capital Issues (CCI), which was a part of the Ministry of Finance in the Central Government. In 1956, The Securities Contract (Regulation) Act, 1956 (SCRA) was enacted which brought stock exchanges, their members and contract in securities which could be traded, under the regulation of the Central Government through the Ministry of Finance.

In India, the incorporation, regulation and liquidation of companies is under the purview of The Companies Act, 1956. This Act is administered by the Department of Company Affairs (DCA) in the Ministry of Law, Justice and Company Affairs of the Central Government. The Companies Act, 1956 specifies the form and contents of the prospectus which is required to accompany an issue of securities. Legislations were also enacted which provide statutory role for Chartered Accountants, Cost Accountants and Company Secretaries. Matters relating to form and contents of financial statements and other matters relating to the disclosures of information to the members are governed by DCA, in some instances through the professional bodies.

For the first four decades of independence, securities markets in India remained in the backwaters of the Indian financial system. The capital markets did not develop in consonance with the rest of the economy due to the limitations imposed on the role of private sector and the control on issue of securities. Dilution of the holdings of multinational companies at low prices in the late seventies kindled the interests of the lay investors. However, the interest soon dampened and could not be sustained for long. It was not until the middle of the next decade that the interest livened again and became widespread to have a palpable impact on the growth of the securities market. The changes introduced in the economic policies by the Rajiv Gandhi Government also provided an active stimulus to the market. Paucity of resources of the financial institutions, hitherto the sole purveyors of long-term capital, also forced companies to tap capital markets.

## Philosophy of Regulations

Markets depend upon credibility and fairness. A sound regulatory framework is expected to provide transparency, maintain market integrity, fairness and ensure investor protection. There is a school of thought which believes that if markets are inherently efficient and over-regulation leads to inefficiency in the market. This school of thought argues for minimal or no regulations. However, it is seen that lack of adequate regulations can lead to manipulations and market abuses, which endanger the integrity of the market and damages the confidence of the investors. Besides, fairness in the market is essential for price discovery, which in turn leads to better investor participation. Regulation also helps in reducing the systemic risk in the market.

The perception of sound regulation is as important as the reality of regulation. The very existence of a regulatory body improves the confidence of the market participants and investors.

## Objectives of SEBI

According to the preamble of SEBI Act 1992, the objectives of SEBI are threefold:

- To protect the interest of the investors in securities.
- To promote the development of securities market in India.
- To regulate the securities market.

## ORGANIZATION OF SEBI

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The affairs of SEBI shall be managed by a Board. The Board shall consist of the following members:

- i. A Chairman
- ii. Two officials of the Central Government from the Ministry of Finance and Ministry of Law, Justice and Company Affairs.
- iii. One official nominated by the Reserve Bank of India.
- iv. Two other members nominated by the Central Government.

The Chairman and the members should be persons of ability, integrity and standing who have shown capacity in dealing with problems of the securities market. They are required to have good knowledge or experience in the areas of finance, law, economics, accountancy, administration, etc.

SEBI also has two advisory committees for primary and secondary market, to provide advisory inputs in framing policies and regulations. These committees are constituted from among the market players, recognized investor associations and eminent persons associated with capital markets. These committees are non-statutory and their advise is only recommendatory in nature.

Under internal administrative arrangements, SEBI has divided its activities into various operational departments:

### PRIMARY MARKET DEPARTMENT

This Department looks after all policy matters and regulatory issues concerning primary market and the intermediaries. This Department also looks after matters relating to the formation and working of Self-Regulatory Organizations (SRO). This Department is also responsible for redressal of investor grievances.

### ISSUE MANAGEMENT AND INTERMEDIARIES DEPARTMENT

This Department looks after filing and registration of offer documents. This department was earlier responsible for vetting offer documents. This Department is also responsible for registration and monitoring of issue related intermediaries.



## **SECONDARY MARKET DEPARTMENT**

One wing of this department looks after all the policy and regulatory issues and operations of the secondary market. It is also responsible for new investment products, market surveillance, insider trading, registration of brokers and administration of major stock exchanges. The other wing looks after inspection of exchanges and regulation of non-market intermediaries like sub-brokers. It also oversees the functioning of smaller stock exchanges.

## **INSTITUTIONAL INVESTMENT DEPARTMENT**

This Department is responsible for policy matters, registration, regulation and monitoring of Foreign Institutional Investors (FII) and Mutual Funds. It also looks after the regulation and administration of the Takeover Code. This Department's responsibilities include research, membership of international organizations like International Organization of Securities Commissions (IOSCO), relations with foreign regulatory bodies and publications.

## **INVESTIGATION DEPARTMENT**

This Department carries investigations in market abuses like price rigging, insider trading, grey market operations, etc.

## **LEGAL DEPARTMENT**

This Department advises SEBI on various legal matters and handles all litigations and other legal issues.

The head office of SEBI is located at Mumbai and it has established regional offices at New Delhi, Kolkata and Chennai.

## **FUNCTIONS OF SEBI**

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According to SEBI Act, 1992, the main functions of SEBI are:

- Regulating the securities market
- Recognition and regulation of the Stock Exchanges
- Registering and regulating the working of various intermediaries including Merchant Bankers, Registrars, Share Transfer Agents, Stock Brokers, Sub-brokers, Debenture Trustees, Bankers to the Issue, Underwriters, Portfolio Managers, etc.
- Registering and regulating the functioning of Depositories, Custodians and Depository Participants
- Registration of Foreign Institutional Investors
- Registering and regulating the working of Venture Capital Funds, Mutual Funds and other collective investment schemes including plantation schemes
- Promotion and regulation of Self-Regulatory Organizations
- Prohibiting fraudulent and unfair trade practices relating to securities market
- Prohibiting insider trading in securities
- Regulating substantial acquisition of shares and takeover of companies
- Promoting investor education and training of intermediaries
- Conducting research relating to securities market

## **POWERS OF SEBI**

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For the purpose of regulation of the securities market, SEBI has been vested with all the powers of a Civil Court as per Code of Civil Procedure, 1908.

The powers include:

- The discovery and production of any books of account and other documents.
- Summoning and enforcing the attendance of persons and examining them on oath.
- Inspection of any books, registers and other documents.

In addition to the above, the other powers of SEBI are:

- Call information, undertake inspection, conduct inquiries and order audit of stock exchanges, intermediaries, mutual funds or any other person associated with the securities market.
- Perform the functions and exercise the powers of Central Government under The Securities Contract (Regulation) Act 1956. These powers have now been delegated to SEBI.
- Levy penalties for certain offenses.
- Levy fees and other charges.
- Issue orders/directions in the interest of investors or orderly development of securities market. However, such orders can be issued only after conduct of an inquiry.
- Hear appeals by companies against the decision of stock exchanges for refusal of listing of their securities.
- Suspend or cancel the registration of any intermediary.

### **Appeal Against SEBI Order**

Any person aggrieved by an order of SEBI can file an appeal petition to the Central Government. Such appeal has to be filed within 30 days from the date of communication of the order. However, the Central Government may extend the period by a further 15 days if it is satisfied that the appellant had sufficient cause for not preferring the appeal within 30 days.

### **Major Steps Initiated by SEBI**

#### **REGISTRATION OF INTERMEDIARIES**

All the intermediaries operating in the primary market were hitherto unregulated. SEBI started the process of regulation of these intermediaries by making their registration mandatory. The following categories of market participants have been brought under the ambit of registration:

- Merchant Bankers
- Registrars and Share Transfer Agents
- Brokers
- Bankers to the issue
- Debenture Trustees
- Underwriters
- Portfolio Managers
- Mutual Funds and Venture Capital Funds
- Depositories
- Custodians of Securities and Depository Participants
- Foreign Institutional Investors
- Collective investment schemes like plantation schemes.

In addition to the above, SEBI is in the process of bringing Sub-brokers and Credit Rating Agencies within the registration framework. Though SEBI has made registration of sub-brokers vide SEBI (Stock Brokers and Sub-Broker) Rules, 1992

mandatory, an effective enforcement of the same has not been impossible. The problem of unregistered sub-brokers continues to be prevalent due to operational constraints in implementing the rules. Hence SEBI has decided that stamping of transfer deed by an unregistered sub-broker would render the delivery void. Further, SEBI has cautioned the investors, not to deal with unregistered sub-brokers as this would deny them access to arbitration and other grievance redressal mechanism of Stock Exchanges, in case of any dispute. As regards credit rating agencies, the Vijay Ranjan Committee has suggested limited regulations of credit rating agencies. The Report is currently under the consideration of SEBI.

The process of mandatory registration brings about some entry barriers for the intermediation industry. The norms include minimum capital adequacy, adequate infrastructure, association of qualified and experienced personnel, etc. This enables SEBI to effectively monitor their functioning and enforce the regulatory fiats.

### **Redressal of Investor's Grievances**

SEBI has instituted a mechanism for redressal of investor grievances related to issue of securities. The grievances are in the nature of delays extending beyond the permitted time-frame by issuers in transfer of securities, dispatch of certificates to allottees, refund of application money and payment of dividends. SEBI enjoys the power to prosecute companies for these violations. SEBI has now made it mandatory for all issuers to deposit 1% of the size of the issue as security deposit with the regional stock exchange. This amount will be released only after all the investor grievances have been redressed to the satisfaction of SEBI. A new product called Stockinvest was introduced which allows investors to use funds earmarked for interest bearing bank deposits (held in their own name) to apply for primary market issues. SEBI has also reduced the maximum time period for allotment to 30 days from the closure of the issue. In order to prevent fraudulent encashment of refund orders, applicants are required to indicate their bank account numbers in the application form, on which the refund orders are to be drawn.

SEBI has also recognized investor associations to further the cause of investor protection. The use of Consumer Courts to bring class action suits against erring issuers is being encouraged. SEBI is educating the investors and making them aware of the availability of institutional mechanisms to solve their problems.

### **Primary Markets**

The major change brought about by SEBI was improvement in the quality of disclosure norms. SEBI's attempts are directed at ensuring full and fair disclosure by issuers. The offer documents have to be drafted in accordance with the guidelines for disclosure issued by SEBI. These guidelines provide entry norms for IPOs, specify disclosure of all material facts, lay down minimum contribution by promoters and also specify the lock-in period for such contribution. The guidelines also provide that the risk factors associated with the issue be prominently displayed in the offer document. SEBI has made justification of pricing mandatory in case of issues at premium. Further SEBI has prohibited companies from giving future profitability projections in the offer document, to prevent investors from being misled.

Filing all the offer documents with SEBI has been made mandatory. SEBI reserves the right to direct any amendment to the draft offer document within 21 days from filing. SEBI has also decided to treat all the offer documents filed with it as public document and put the same on internet. This enables SEBI to deal with public complaints of misstatements before the opening of the issue. SEBI has now delegated the task of vetting the offer document to the Lead Manager. The Lead Manager is required to exercise due diligence with regard to the accuracy and adequacy of the disclosures made in the offer document.

SEBI has allowed issuer companies to access the market through the book building route. Book building facilitates the process of price discovery and also reduces transaction costs. SEBI raised the limits for listing on regular stock exchanges to Rs.5 crore. Issues below Rs.5 crore in size are permitted to be listed only on OTCEI. As market making is mandatory to list on OTCEI, this move provides liquidity to securities of small cap companies. SEBI issued guidelines for issue related advertisements to prevent fraudulent inducements to invest. It permits reservation for certain categories of investors of public issues both on firm and competitive basis. Further, in case of private placement of equity by listed companies, it has directed that they take place only at market related prices.

### **Secondary Markets**

The ability of companies to mobilize capital from the market depends, to a large extent, on the efficiency and liquidity of the secondary market. Investors must have confidence that they will be able to exit from the investment at prices reflective of its future earning potential. The main focus of SEBI's efforts have been the modernization of market infrastructure and to introduce risk containment measures.

The major reform initiated by SEBI is to direct all the stock exchanges to introduce on-line screen based trading. Further, to ensure effective clearing mechanism, SEBI has directed all stock exchanges to set up clearing house/clearing corporation to settle all trades through them only. Almost all stock exchanges have already set up clearing house and the NSE has set up a clearing corporation viz. National Securities Clearing Corporation Ltd. NSCCL assumes the counterparty risk for all the trades executed on the capital market segment of NSE. SEBI has also advised the stock exchanges to set up a Trade Guarantee Fund. This would ensure timely completion of settlement in the event of defaults by member brokers. The trading cycle has been shortened to 7 days. Rolling settlement has already been introduced on OTCEI and trading in dematerialized securities takes place on T + 2 basis. The system of margin collection has been streamlined and the concept of mark to market margin has been introduced. The carry forward and badla system have been banned. A number of checks and balances have been introduced in the modified system to prevent its abuse. SEBI has also introduced the Stock Lending Scheme to facilitate timely delivery of securities. The introduction of depositories has helped overcome the problems of bad deliveries and reduce the transaction costs. SEBI is encouraging the investors to dematerialize their holdings.

SEBI has introduced capital adequacy norms for brokers. SEBI set intra-day trading limits on trading members. SEBI has been encouraging the process of corporatization of broking houses. SEBI directed that the upper limit for gross turnover (buy + sell) intra-day should not exceed 25 times the base capital.

SEBI has directed Stock-Exchanges to amend their listing agreements to enforce continuing disclosures. The cash flow statement, which is a part of financial statements in several countries, is not mandatory under The Companies Act, 1956. The inclusion of cash flow statement has been made a condition for continuation of listing. The listing agreement has also been modified requiring companies to provide shareholders with complete unabridged accounts. Companies have been directed to disclose actual utilization of funds and actual profitability against the projected utilization of funds and profitability projections given in the offer document. SEBI has also accepted the Bhav Committee recommendations for quarterly disclosure of financial performance and disclosure of material events by companies immediately after their occurrence.

### **Regulation of Takeovers**

In order to provide an equitable exit route to minority shareholders in the takeover process and to protect companies from surreptitious acquisitions of stakes by unscrupulous raiders, SEBI has notified the Takeover Code. This code regulates the process of substantial acquisition of shares in a listed company. Takeovers and

substantial acquisition of shares were subject to the provision of the listing agreement, prior to the introduction of the Takeover Code. There is no provision to enforce the stipulations of the listing agreement in case of defaults. The code brings all the parties to the takeover under SEBI's regulatory purview. The takeover code is triggered when an acquirer obtains 15% equity stake in a company. The code makes it mandatory for the acquirer to make a public offer to acquire a further 20% of equity in the target company. The tender offer should be handled by a SEBI registered Merchant Banker. The Code also requires the acquirer to open an escrow account before making the public offer and the amount in the escrow account shall be forfeited in case of non-compliance of the provisions of the Takeover Code.

### **Emergence of Institutional Investors**

The mutual fund industry was open to the public sector till 1992. The notification of SEBI (Mutual Fund) Regulations 1993 heralded the entry of private sector into the mutual fund industry. The entry of private sector resulted in product innovation and improved levels of investor service. The regulations also brought about structural changes in the mutual fund industry. It brought the relationship between the various components of the mutual fund – the trustees, the custodian and the asset management company within an arms' length. SEBI has also introduced uniform valuation and accounting norms.

The Finance Minister announced the opening of the capital markets for foreign portfolio investment during his 1992-93 Budget. However, the opening was limited to "reputed" institutional investors. FIIs include investors such as pension funds, investment trusts, mutual funds, asset management companies, nominee companies and incorporated portfolio managers. The investments were subject to certain specified ceilings for investment in a single corporate. A positive feature of these guidelines was that there was no restriction on the volume of investment and no prescribed lock-in period. FIIs are also permitted by the RBI to hedge against exchange rate risk by forward cover on their entire debt portfolio and a part of their equity portfolio.

### **Maintaining the Fairness and Integrity of the Markets**

Before the formation of SEBI, the breach of regulations was the norm and compliance was an exception. It was vital from the point of view of promoting the investor's confidence that the situation needed to be reversed. SEBI sent a strong message to the market participants that the strict observance of regulations was essential. The success of any regulator in exercising enforcement depends on its effectiveness in investigating market abuses and in imposing different penalties. SEBI has been empowered to conduct inspections, investigate violations of regulations and take punitive actions.

SEBI has been authorized to enforce the prohibition of manipulative and unfair trade practices. Price rigging on the stock exchanges through fraudulent practices leads to loss of investor confidence. With the computerization of the trading and settlement system, it has become more difficult to abuse the process. It is virtually impossible to conceal the audit trail of such manipulations. SEBI has also directed the stock exchanges to set up market surveillance systems backed by adequate infrastructure and manpower. The concept of circuit breakers and price bands have been introduced to check excessive volatility due to speculation. In addition SEBI itself monitors and investigates irregular price movements.

It is difficult to prove cases of insider trading without conclusive evidence. The use, for profit, of privileged access to price sensitive information by insiders, before it is in the public domain, constitutes insider trading. In an effort to curb this malpractice, SEBI has issued SEBI (Insider Trading) Regulations, 1992 which empowers it to start criminal prosecution against the accused. In addition to this, SEBI has encouraged continuous disclosures and timely dissemination of price sensitive information.

SEBI has been empowered to carry out inspection of stock exchanges, market intermediaries, mutual funds, etc. The operations of stock exchanges are subject to regular inspection by SEBI. The focus of this inspection is on exchange administration, compliance with all SEBI regulations and directives and enforcement by the exchange of its own rules, bye-laws and listing agreements. The various deficiencies noticed during the inspections are taken up with the Governing Board. Further, the SEBI nominees on the Governing Board are advised to pursue these matters. SEBI also conducts inspections at random on market intermediaries. In case of serious lapses or violations being noticed on inspections, inquiry proceedings are initiated. Appropriate punitive action like suspension or cancellation of registration is also taken. SEBI has initiated penal action against issuers for misstatements in the offer documents and against merchant bankers failing to exercise their due diligence obligations. In certain cases, SEBI has even directed the companies to refund the entire issue proceeds to the investors.

**Box 1: Clearing Corporation of India**

The main features of the proposed Clearing Corporation for clearing of money, government securities and forex market transactions are:

- The Clearing Corporation will be constituted as a limited liability company under the Indian Companies Act, 1956 and will be known as 'The Clearing Corporation of India Ltd'.
- The Company will have an authorized capital of Rs.50 crore.
- The Clearing Corporation will be owned by the market participants and promoted by State Bank of India. The other core promoters of the company will be Bank of Baroda, HDFC Bank, ICICI IDBI and LIC.
- The proposed Clearing Corporation will be managed by a Board of Directors headed by a non-executive Chairman.
- The Clearing Corporation will address the need for efficient securities settlement system covering money, government securities and forex markets.
- The Clearing Corporation will:
  - Facilitate extension of repos market to non-government securities and enlargement of market participants.
  - Act as a tri-party agent for efficient management of collateral in consonance with internationally accepted best practices.
  - Act as a central counterparty through novation thereby minimizing counterparty risk.
- The Corporation will also manage a Settlement Guarantee Fund thereby minimizing settlement risk.

*Source: The Accounting World, July 2001, page 27.*

**SELF-REGULATION OF THE MARKETS**

There is no clear-cut and accepted definition of a SRO in India. However The Financial Services Act, 1986 of the UK states "A Self-Regulatory Organization means a body (whether a body corporate or an unincorporated association) which regulates the carrying on of investment business of any kind by enforcing rules which are binding on persons carrying on business of that kind either because they are the members of that body or because they are otherwise subject to control."

Self-Regulatory Organizations (SROs) form an important layer of the regulatory structure in the developed markets. The SRO model has been most successful in the the UK. There are 4 active SROs which come under the overall framework of Securities Investment Board (the equivalent of SEBI in the UK). There is Investment Management Regulatory Organization (IMRO) which is an association

of Mutual Funds, the Securities and Futures Association (SFA) for stock brokers, the Financial Intermediaries Managers and Brokers Regulatory Authority (FIMBRA) for market intermediaries and the Life Assurance and Unit Trust Regulatory Authority (LAUTRO).

In India, SEBI has been attempting to accelerate the process of self-regulation and encouraging the formation of SROs. The following SROs have been formed in India by the various market participants:

1. Association of Merchant Bankers of India (AMBI)
2. Association of Mutual Funds of India (AMFI)
3. Registrars Association of India (RAIN)

Most of the stock exchanges also function as SROs though they have not been given that nomenclature.

**The important self-regulatory activities are:**

**Code of Conduct:** Most of the SROs have a code of conduct for their members. Though a different code exists for each SRO, they normally include some common principles. All codes advise their members to observe the principles of fairness, integrity and ethics in their business dealings. They are advised to ensure compliance with all the laws and regulations. The members are expected to maintain high standards of professionalism and exercise independent professional judgment. They shall exercise due diligence and proper care while discharging their professional responsibilities. They shall not divulge any confidential information regarding their clients. They are also expected to consistently strive to upgrade their knowledge and skills.

**Regulation of the Members:** The SROs monitor the functioning of their members with regard to compliance of laws, statutory regulations as well as their own code of conduct. Disciplinary proceedings are initiated against members in case any lapses are noticed. Certain SROs also establish common professional standards to ensure uniformity in the functioning of their members.

**Professional Matters:** The SROs assist SEBI in formulation of policies as well as various regulations and rules. In addition, some SROs also provide for arbitration in cases of dispute among their members. SROs also conduct professional development and training programs for their members.

In addition to SROs at the institutional level, the individuals operating in the securities market are also governed by the professional body from which they acquired their professional qualification. The members of The Council of Chartered Financial Analysts (CCFA) operate in the securities market. The CFAs engaged in practice offering professional services like consultancy, portfolio management, research, etc. have to strictly abide by the Code of Conduct issued by CCFA. The CFAs employed by firms operating in the securities industry are expected to maintain high standards of professionalism and ethical behavior in their professional dealings. They are governed by the Code of Conduct of their employers as well as that of CCFA.

## **International Organization of Securities Commissions**

IOSCO is an international organization of securities regulatory bodies and SROs of various countries. The main purpose of forming IOSCO is to ensure coordination at the global level among the various national regulators. The Secretariat of IOSCO is located at Montreal in Canada.

**The main objectives of IOSCO are:**

- To cooperate and promote high standards of regulation in order to maintain just, efficient and sound markets;
- To exchange information on their respective experiences in order to promote the development of domestic markets;
- To unite their efforts to establish standards and effective surveillance of international securities transactions;
- To provide mutual assistance to promote the integrity of the markets by a rigorous application of the standards and by effective enforcement against offenses.

**Membership**

IOSCO has three categories of membership – ordinary member, associate member and affiliate member. A Securities Commission or a similar Government body is eligible for ordinary membership. If the national regulatory body of a country is already an ordinary member, any other regulatory body with responsibilities for securities regulation or has jurisdiction over any subdivisions of the securities market can become an associate member. An SRO or an international body with interests in securities regulation is eligible to be the affiliate member of IOSCO.

**Functioning of IOSCO**

IOSCO members meet every year at an Annual Conference to discuss important issues relating to international securities and futures market. In addition, IOSCO functions through the committee system. Some of the important committees are:

The **President’s Committee** which is made up of the Presidents of members (ordinary and associate) meets once in a year. The main purpose of this Committee is to achieve the objectives of IOSCO.

The **Executive Committee** consists of 19 members and meets at periodical intervals. It looks after the day to day functioning of the organization and strives to attain the objectives.

The **Technical Committee**, consisting of 16 members, addresses major regulatory issues and generates practical responses to these concerns. This Committee has set up working groups to look into five major functional areas:

- Multinational disclosures and accounting
- Regulation of secondary markets
- Regulation of market intermediaries
- Enforcement and exchange of information
- Investment management

The **Emerging Markets Committee** endeavors the promotion and development of efficient securities and futures market in developing countries. It discharges its responsibilities by setting up minimum professional standards, facilitating exchange of information, transfer of technology and expertise and organizing training programs.

The **SRO Consultative Committee** is constituted by the affiliate members of IOSCO. This Committee enables SROs to provide constructive and substantial inputs to the regulatory initiatives of the organization.

IOSCO also has 4 Standing Regional Committees to address specific regional issues of members. They are:

- The Africa and the Middle-East Regional Committee
- The Asia-Pacific Regional Committee
- The European Regional Committee
- The Inter-American Regional Committee.



**Box 2: Regulatory Issues in Online Capital-Raising**

Creative use of the Internet for capital-raising will continue to develop, but issuers will not be able to take full advantage of the enormous capability of the Internet to disseminate information about both public and private offerings until the Commission revisits some of the current legal and regulatory restrictions on issuer communications during the capital raising process. Many of these issues are rooted in a regulatory system that was designed for a paper world, a system that often appears at odds with the very benefits that flow from technology – broader and faster dissemination, more information and reduced cost.

The Commission’s 2000 release on the use of electronic media (“2000 Release”) made some incremental progress towards recognizing the impact of the Internet on public and private offerings. Most experts expressed frustration that the release did not go far enough in reconciling the requirements of the Securities Act of 1933 (“Securities Act”) with electronic realities. To accommodate the reality of the Internet, experts suggested major changes to the conceptual framework governing the offering process.

They called for deregulating oral and written communications in the pre-effective period. In particular, they called for eliminating the distinction between oral and written communications to permit both a broader range of routine e-mail communications with investors about offerings and wider access to electronic road shows. For private online offerings, commenters called for eliminating the prohibition against “general solicitation or general advertising” so long as sales are made only to sophisticated or accredited investors.

What this means. When a company is contemplating a securities offering, the securities laws severely restrict that company’s communications with the public. The purpose of these restrictions is to ensure that the prospectus is the primary vehicle for communicating information about the offering and to prevent other communications from being used to “condition the market” for the offering. As a result, “gun jumping” concerns influence virtually every communication with the public in the weeks and months preceding a registered offering. Companies are counseled to “scrub” their web sites regularly so that postings on their sites are not interpreted as “conditioning the market.”

**Online Private Offerings**

Technology has also made the Internet an effective medium for raising capital privately. One of the concerns expressed by experts on the 2000 Release with respect to online private offerings relates to the prohibition against general solicitation. The prohibition was originally intended to ensure that access to private offerings was limited to sophisticated or accredited investors who do not need the protections of the federal securities laws.

*Source: Investment Banking and Financial Services Book of Readings, August 2001, page 295.*

**Box 3: Bond Trading – Migrating to the Net**

Getting the right technology will simplify settlement and clearing procedures, and pushing through tough accounting norms may force banks to reshuffle their portfolio and raise debt trade volumes. Even as all this is taking time, there are moves to bridge the initial gap: using the net to bring buyers and sellers closer. Trading doesn’t happen in the net. Once a price is agreed upon, the players go off-line to any transaction medium for clearing and settlement.

The features and scope differ among the dotcoms, but there is a common character: a virtual negotiation platform for the fixed income market. The market still has a long way to go: unorganized with one-to-one private trades, inefficient price discovery mechanism, opaque valuation practices, poor trade disclosures, ineffective audit trails and steep intermediary cost.

What's certain is that the mindset has to change and investors will have to be assured that a multilayered security system is in place and that the portal is neutral – those having access to the back office information are not exactly using it. The same also holds true for primary launches: a book-building exercise can improve upon the rate and other features by erecting an interface with countless investors. Further, in an uncontrolled market stuffed to the gills with private placements and off-market deals, there could be some spin-off branding benefits. Adequate disclosures in offer documents – which can today vary from three to 30 pages – could set some benchmarks and make the market more demanding.

*Source: Investment Banking and Financial Services Book of Readings, August 2001, page 297.*

## **SUMMARY**

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- SEBI was instituted by the government of India to perform disciplinary (disincentives and penalties for errant and unfair behavior) and developmental (incentives for constructive activities) roles.
- The main objectives of SEBI are: protection of the interests of investors in securities, development of the securities markets in India and regulation of the securities markets.
- The activities of SEBI are divided into: primary market department, issue management and intermediaries department, secondary market department, institutional investment department, investigation department and legal department.
- The major steps initiated by SEBI include: registration of intermediaries, redressal of investors' grievances, improvement in the functioning of primary and secondary markets, regulation of takeovers, emergence of institutional investors and entry of private mutual funds in the markets, maintenance of fairness and integrity of the markets.
- The main objectives of the International Organization of Securities Commission (IOSCO) are: promotion of high standards of regulations, exchange information on past experiences, establishment of standards of conduct and provision of mutual assistance for promotion of integrity.
- IOSCO has three types of members: ordinary members, associate members and affiliate members and various committees that meet every year to discuss important issues relating to international securities and futures markets.

## Appendix 1

### Emerging Trends in Indian Securities Market

The securities market in India, has undergone sea changes in the last decade, and has coped rather well with that. The emergence of National Stock Exchange (NSE) with online trading terminals throughout the country, dematerialization of securities (with India being among the few countries in the world to have succeeded in a very short span of time), and shorter settlement cycle (T+2, with T+1 round the corner) have changed the face of the securities industry in India.

The origination of the Indian securities market may be traced back to 1875, when 22 enterprising brokers under a banyan tree established the BSE. Over the last 128 years, the Indian securities market has evolved continuously to become one of the most dynamic, modern and efficient securities markets in Asia. Today, Indian markets conform to international standards both in terms of structure and in terms of operating efficiency. It has two national exchanges, the Bombay Stock Exchange (BSE) and the NSE. Each has fully electronic trading platforms with around 9400 participating broking outfits. There are some 9600 companies listed on the respective exchanges with a combined market capitalization of nearly \$125.5 bn. Beside these two national stock exchanges, there are 23 regional stock exchanges spread all over the country.

Another fast gaining segment is the Wholesale Debt Market (WDM) that deals with fixed income securities. The WDM segment of the Exchange commenced operations on June 30, 1994. This provides the first formal screen-based trading facility for the debt market in the country. This segment provides trading facilities for a variety of debt instruments including Government Securities, Treasury Bills and Bonds issued by Public Sector Undertakings/ Corporates/ Banks like Floating Rate Bonds, Zero Coupon Bonds, Commercial Papers, Certificate of Deposits, Corporate Debentures, State Government loans, SLR and Non-SLR Bonds issued by Financial Institutions, Units of Mutual Funds and Securitized debt by banks, financial institutions, corporate bodies, trusts and others. Large investors and a high average trade value characterize this segment. Till recently, the market was purely an informal market with most of the trades directly negotiate and struck between various participants. The commencement of this segment by NSE has brought about transparency and efficiency to the debt market, along with effective monitoring and surveillance to the market.

Besides equity and debt, another innovative financial instrument that plays an important economic role in transferring risks is the derivatives. These are financial contracts. Standardized derivatives contracts such as Index Futures, Index options, Stock Futures and Stock Options are currently traded in NSE and BSE. Increasing sophistication and range of tradable financial products add to the attractiveness of the market as a whole. The availability of derivative products including index futures, index options, individual stock futures and individual stock options re-enforces the overall attractiveness of this market to foreign and domestic investors. The equity derivative markets in India have been structured after studying practices in equity derivative markets globally, and keeping in mind the unique culture and ethos of the Indian market. In only three years, the market has shown a spectacular growth. Compared to the last financial year the annual turnover of this market grew by over 300%.

### Structural and Operational Changes in Indian Securities Market

With the sweeping economic changes that is being witnessed globally towards more market-oriented economies, the Government of India too has embarked upon radical economic policies to revitalize its economy. In 2002-03, trends in the Indian capital markets were adversely affected by factors like initial slowdown syndrome, lack of investment initiative, sharp decline in FII investment to \$607 mn (\$2.1bn), cross-border tensions, drought, war uncertainties, poor corporate financial results, the impact of fluctuating global markets etc. Both primary and

secondary markets have experienced declining trends. For instance, the average Sensex for 2002-03 recorded a 3.8% fall over the previous year. The amount mobilized in the primary market was Rs.40,240 cr (Rs.45,835 cr) in 2002-03 (a fall of 12.2%). The third quarter of 2003-04 has given some hope to the investors. The BSE benchmark Sensex shot up to an all time high for the last 2 years and crossed the 5000 mark by the December 2003. In the beginning of 2004. The Sensex is marching fast towards the 6000 mark, closing at 5915 on January 1, 2004 the index has gained 77 points, a high of 1.7% and more than 150 scrips reached a 52-week high. A similar story is seen in the other index also. The NSE S&P CNX Nifty 50 have also risen by 1.7% to close at 1912 mark.

Any market that has experienced such volatility has a substantial demand for structural as well as operational changes. So, Indian securities market, without any exception has also passed through some changes in its settlement procedure, trading system and flexibility and response time of the Stock Exchanges. To have transparency, competitiveness and create equal opportunities to all market participants, some regulations have also been introduced by Sebi. The Central Listing Authority (CLA), in this regard has been formed to guide Sebi in protecting the interests of the investors in terms of listing agreement, listing conditions and disclosure norms of a stock.

### **Rolling Settlement**

In order to bring settlement efficiency and reduce settlement risk, in 1989, a group of 30 had recommended that all secondary markets across the globe should adopt a rolling settlement cycle on T+3 basis by 1992, i.e., the trades should be settled by delivery of securities and payment of monies within three business days after the trade day. But in India, due to multiple problems faced by the secondary markets like the open outcry system, wide geographical coverage, settlement of securities in physical form, inadequate banking and depository infrastructure, India could not implement the G30 recommendations within the stipulated time-frame. In 1999, rolling settlements were introduced in select scrips on a T+5 basis which had an effect from December 2001. After successful implementation of rolling settlements on T+5 basis, Sebi moved the settlement to T+3 basis with effect from April 2002. To carry the reforms further in this area, the Indian capital market has reduced the settlement cycle to T+2 basis w.e.f., April 1, 2003. The main advantage of this T+2 settlement cycle is that, as the trades spread across all trading days, this reduces undue concentration of payment of monies and delivery of securities on a single day. As the settlement is spread across evenly, it results in efficiency utilization of infrastructure and system capacity.

In addition, trades are guaranteed by the National Clearing Corporation of India Ltd., (NSCCL) and Bank of India Shareholding Ltd. (BOISL), Clearing Corporation houses of NSE and BSE respectively. The main functions of the Clearing Corporation are to work out: (a) what counterparties owe and (b) what counterparties are due to receive on the settlement date.

Furthermore, each exchange has a Settlement Guarantee Fund to meet with any unpredictable situation. The Clearing Corporation of the exchanges assumes that the counterparty risk of each member and guarantees settlement through a fine-tuned risk management system and an innovative method of online position monitoring. It also ensures the financial settlement of trades on the appointed day and time irrespective of default by members to deliver the required funds and/or securities with the help of a settlement guarantee fund.

### **Online Trading**

Another remarkable step of Indian securities market is the online trading system. Each exchange has a facility of online share trading. Nowadays, brokers have taken their trading rooms to the Internet, known as online brokers. They allow investors to buy and sell shares via Internet. There are two types of online trading brokers available: Discount brokers and full service online broker. Discount online

brokers allow investors to trade via Internet at reduced rates. Full service online brokerage is linked to existing brokerages. These brokers allow their clients to place online orders with the option of talking/chatting to brokers if advice is needed. Brokerage rates here are higher. 5paisa.com, icidirect.com, indiabulls.com, sharekhan.com, geojitsecurities.com, hdfcsec.com, tatatdw.com, kotakstreet.com are some of the online broking sites in india.

## **Demutualization**

Another most visible and talked about operational changes in the Indian capital markets is the trend towards demutualization. The Government of India had announced its proposal to corporatise the recognized stock exchanges in the country and thereby segregate the ownership, management and trading rights from each other. Demutualization, in a nutshell, is a process of converting a stock exchange from a 'non-profit' member-owned organization to a "for-profit", shareholder owned corporation. The Union Finance Minister had also emphasized this issue in his budget speech for the financial year 2002-03. Sebi had accordingly, constituted a committee under the Chairmanship of Justice M H Kania, former Chief Justice of India to give recommendations on demutualization and corporatization of mutually owned stock exchanges. In the new environment, mutually owned stock exchanges are no longer monopolies and will be facing fierce competition from other demutualized exchanges, threat of disintermediation from Electronic Communication Networks (ECNs) and Alternative Trading Systems (ATSs). In order to survive in the present competitive markets where profits margins of financial services are diminishing, the exchange must function like efficient business enterprises.

Demutualization improves the flexibility and the response time of the Stock Exchange to improve for the financial needs and various strategic initiatives. Another promise of demutualization is that along with the capital necessary for investment in technology, the shareholders of the newly demutualized stock exchanges provide a new corporate governance structure that is far more effective in managing conflicts among various shareholders, i.e., investors, traders, regulators.

## **Central Listing Authority**

The Central Listing Authority (CLA) has been empowered to make recommendations to the Sebi on issues concerning the protection of interests of investors in securities and the development and regulation of the securities market. The main objective behind the setting up of a CLA was to bring about uniformity in the exercise of "due diligence" in scrutinizing listing applications.

Under the current laws, while it is mandatory for a company to list its securities on its regional stock exchange (a provision which the Sebi Committee has now recommended to be scrapped), it can also list on any number of other exchanges. There are 23 stock exchanges in our country of different heritage, constitution and size. Each interprets and enforces the listing agreement in a different manner; and set out different listing criteria. Moreover, the skill sets at the various exchanges are widely different.

As a result, many companies mostly small, to avoid closer pre-issue scrutiny as well as post-issue monitoring, are able to list easily only at the small exchanges. With most shares in control of the promoters, they rig up their share prices and try to graduate to either of the two national exchanges in order to offload the promoters-held shares to the gullible investors and even to the funds.

Besides the principal function of receiving and processing applications for "letter precedent to listing", the CLA can now specifically make suggestions on investor protection, development and regulation of the securities market, including listing agreements, listing conditions and disclosures to be made in offer documents.

India's stock regulator, the Sebi is playing more of a development role rather than being merely a watchdog. It has come up with a new set of regulations on CLA that has broad-based the functions of the authority, besides making alterations in its composition. Interestingly, the revamped regulations have dispensed with the self-regulatory character of the CLA, which was enshrined in the previous regulations issued in February 2003.

### **Mutual Fund Industry Growth**

Another powerful sector of Indian securities market is mutual fund. Over the past decade, the Indian mutual fund industry has been one of the fast-growing sectors in the Indian capital and financial markets. From 1991 to 2002, the compound annual growth rate for the industry's assets under management averaged around 20%. The rapid growth has led to considerable changes in regulation, the structure of funds available and the composition of net assets across various industry segments, as well as in the portfolio of investment funds. The high degree of transparency and disclosure standards are comparable to the most sophisticated financial markets. Following the strengthening of the regulatory framework in India, there is a greater transparency and credibility in the functioning of Indian mutual funds and as a result, the Indian mutual funds business is expected to grow significantly in the coming years. In addition, corporate governance is gradually permeating the mutual fund industry. This encourages credible institutions and foreign players to participate in the local mutual fund industry and also boost investors confidence in the market. There are now 34 mutual funds offering close to 380 different types of schemes, which are as diversified and up to date as in any other part of the world.

Despite all this good news there are still major challenges ahead for the mutual fund industry in the near future as market needs continue to evolve. Shortening settlement cycles and increased cross-border investment will force many fund managers to upgrade their fund accounting capabilities. India plans to move to T+1 in 2004 and it is likely that many fund managers need to make big investments in new technology in order to stay aligned with market changes. The challenge is exasperated as many of these fund managers operate what have been described by local market specialists as "clunky old administration systems", most of which will not be able to cope with multi-currency and other changing market requirements.

### **Going Forward**

The smooth functioning of the securities market is very crucial for the growth of the economy at large. A strong, efficient and vibrant equity as well as debt market provide a base for an equally strong securities market to keep the wheel of the economy running. Efficient settlement systems, online trading facility and demutualization of stock markets are integral part of robust secondary market. The Central Listing Authority will help the investors to protect their interests by maintaining due diligence in listing stocks in the exchanges. Similarly, in derivative market also, by mandating the segregation of clients/customer funds, and also by introducing the disclosure documents, Sebi has tried to protect the interest of the investors. Investors now can take conscious decision regarding the trade in derivative market. However, what still need to be done is to increase the confidence and information base of the investors to curb market manipulation.

*Source: Treasury Management, April 2004.*

## Appendix 2

### Margin Trading: Trading on Borrowed Money

The Ketan Parekh scam was the final straw in Sebi banning the 100-year old *badla* system. The system allowed carrying forward speculative trades by borrowing money on interest. After the ban on *badla* trading, which coincided with a lull in the markets after the dotcom bubble, brokers were complaining of both lower profits and volumes. Margin trading has been introduced now as a refined version of the *badla* system suited to the T+2 settlement mechanism.

### What is Margin Trading?

Margin trading is nothing but borrowing money to invest in stocks. Here, the investor borrows money from his or her broker to invest in stocks through the same broker. The “Margin” here is the money actually borrowed from the broker, who uses the investors’ stocks thus purchased as collateral for the funds advanced.

Partial Sebi Rules
<p>After banning the badla in 2001, Sebi has introduced Margin Trading in order to increase liquidity in the market. After issuing of the complete Margin Trading norms, the system will officially take off when exchanges and other market intermediaries are ready for them.</p> <p>The partial norms for margin transactions indicated by Sebi are as follows:</p> <ul style="list-style-type: none"><li>• The initial margin can be up to 50% of the amount sought to be invested.</li><li>• The maintenance margin is 40% of the market value of the shares held at all times.</li><li>• If the margin falls below 30% of the market price of the shares, the broker can liquidate the clients’ holdings.</li><li>• To start with, only corporate brokers with a minimum network of Rs. 3 cr are allowed to offer Margin Trading.</li><li>• Margin trading will be allowed only for buying BSE A Group Securities.</li><li>• Brokers can extend advances from their own resources or can borrow from banks, Non-banking Financial Companies (NBFCs) and other qualified lenders such as insurance companies.</li><li>• The total borrowing by the broker from the above institutions is capped to five times his or her network.</li><li>• The broker cannot use the funds of other clients or individuals to extend margin loans.</li><li>• Brokers have to disclose client-wise, scrip-wise, position-wise gross exposure limits to the exchanges.</li><li>• Brokers also have to maintain separate client-wise accounts of all the securities against which loans have been advanced and this should be made available to the client at any given point of time.</li></ul>

*Compiled by The ICAI University Press Research Center*

In margin trading, the investor buys shares taking a ‘margin loan’ from the broker. The margin loan can be up to 50% of the total amount invested. This effectively means that you can invest in shares worth Rs.100 by borrowing Rs.50 from your broker. This is called buying shares on a 50% margin. If the value of the shares goes down, the investor has to pay a “maintenance margin” to bring the margin up to 40% of the market value of the shares. This margin is paid when the broker makes a “margin call” to the investor, and the investor has to pay the difference between current margin and the maintenance margin to take it to 40%. If the margin falls below 30%, the broker has the discretion of liquidating the client’s holdings and thus recovering the loan advanced.

### Mechanics of a Margin Trade

Buying shares on margin is a fairly simple process. Say you want to buy 100 Infosys Technology shares at Rs.5500 (price as on January 16 ). You would need Rs.5,50,000 for the transaction. Now, you have just Rs.3,00,000 of cash readily available. Enter your broker, who will invest money on your behalf, taking interest for the same. Now you invest 50% of the amount (i.e., Rs.2,75,000) and your broker puts in the other half on your behalf and buys 100 Infy shares in your name.

Now let us assume that the price of Infy (unfortunately for you) falls to Rs.4500 during the course of the succeeding week. Your 100 Infy stocks are now worth only Rs.4,50,000, and you have suffered an absolute loss (excluding brokerage and margin fee) of Rs.1,00,000. Now, your margin loan from the broker would remain at Rs.2,75,000, but your own account equity will fall to Rs.1,75,000 (Rs.2,75,000 less Rs.1,00,000). Now your maintenance margin equals 38.88% (Equity Account/ Market Value of Holding x 100 i.e., 1,75,000/4,50,000 x 100). If the maintenance margin falls below 40%, your broker can ask you for the balance to take the margin to the 40% mark. This he/she does by sending you a 'margin call' of Rs.5,000 to increase your margin account balance from Rs.1,75,000 to 1,80,000 (1,80,000/4,50,000 x 100 = 40%).

Now, assume that Infy suddenly crashes (God forbid) to Rs.3,750. Now your entire holding is worth only Rs.3,75,000. Your margin loan still remains at what you originally took, i.e., Rs.2,75,000, but now your equity account falls to Rs.1,00,000. The maintenance margin has come down to only 26.67% (1,00,000/3,75,000 x 100). As your margin has fallen below the minimum prescribed limit of 30%, your broker can sell your entire holdings even without intimating you, and realize Rs.3,75,000. The broker now takes back his/her Rs.2,75,000 advanced to you, as well as 500 as interest (assuming that the total interest is 2% of the sum borrowed). In addition to all this, you always had to pay the 1% brokerage on each leg of your transaction. This amounts to Rs.9,250 (Rs.5,500 + Rs.3,750). After meeting all costs, you get back Rs.85,250 (i.e., Rs.3,75,000 (selling price) - Rs.2,75,000 (margin loan) - Rs.5,500 (interest) - Rs.9,250 (brokerage)). Remember, you had invested Rs.2,75,000 in the risky game of margin trading, and ended up paying for the money invested as well as the money your broker invested on your behalf. Your total loss stands at Rs.1,89,750 or 69%, whereas your stock decreased only by 31.81%.

<b>Risks in Margin Trading</b>
<p>The downside to using margin is that if the stock price decreases, losses can mount quickly. For example, let's say the stock you bought for \$50 (on a 50% margin) falls to \$25. If you fully paid for the stock, you'll lose 50% of your money. But if you bought on margin, you'll lose 100%, and moreover you must come up with the interest you owe on the loan.</p> <p>In volatile markets, investors who put up an initial margin payment for a stock may, from time to time, be required to provide additional cash if the price of the stock falls. Some investors have been shocked to find out that the brokerage firm has the right to sell their securities that were bought on margin without any notification and potentially at a substantial loss to the investor. If your broker sells your stock after the price has plummeted, then you've lost out on the chance to recoup your losses if the market bounces back.</p> <p><b>Recognize the Risks</b></p> <p>Margin accounts can be very risky and they are not suitable for everyone. Before opening a margin account, you should fully understand that:</p> <ul style="list-style-type: none"> <li>• You can lose more money than you have invested;</li> <li>• You may have to deposit additional cash or securities in your account on short notice to cover market losses;</li> </ul>



- You may be forced to sell some or all of your securities when falling stock prices reduce the value of your securities;
- Your brokerage firm may sell some or all of your securities without consulting you to pay off the loan it made to you.

**Ask Yourself these Key Questions**

- Do you know that margin accounts involve more risk than cash accounts where you fully pay for the securities you purchase? Are you aware that you may lose more than the amount of money you initially invested when buying on margin? Can you afford to lose more money than the amount you have invested?
- Did you take the time to read the margin agreement? Did you ask your broker questions about how a margin account works and whether it's appropriate for you to trade on margin? Did your broker explain the terms and conditions of the margin agreement?
- Are you aware of the costs you will be charged on money you borrow, from your firm and how these costs affect your overall return?
- Are you aware that your brokerage firm can sell your securities without notifying to you when you don't have sufficient equity in your margin account?

Source: [www.sec.gov](http://www.sec.gov)

On the other hand, let us take (and hope for!) the other view. You have 100 Infy shares at Rs.5500 each, that you purchased by forwarding 50% cash and buying the rest on margin. Infy announces that it has made a strategic alliance with Tata Consultancy Services (TCS) to take on their global rivals Accenture and IBM, and the stock surts to Rs.6500. Your margin loan, as ever, remains at Rs.2,75,000, but the Rs.2,75,000 cash you had invested is now worth Rs.3,75,000 (Rs.6,50,000 - Rs.2,75,000), returning a good Rs.1,00,000 or 36.36%. From this notional profit, after you pay about 1% brokerage on each leg of your transaction (Rs.12,000) and 2% interest charges (Rs.5,000) your entire profit amounts to 30% (Rs.82,500). Compare this figure with the 18.18% (excluding brokerage) appreciation in Infy, and you will literally laugh all the way to the bank.

### How Margin Trading is Different from *Vyaj Badla*

*Badla* and Margin Trading are forms of leveraging oneself to purchase stocks. *Badla* was prevalent in the weekly settlement system, and was used when an investor wanted to carry forward his position on the settlement date to the next settlement without blocking money. *Vyaj Badla* is a mechanism that enables roll over of speculative positions from one settlement to another. The word "*badla*" meaning change is derived from the switch in positions between the trader and financier in a roll over. "*Vyaj*" means interest. A trader who is bullish and has bought without having the money to take delivery, sells to the financier in one-settlement, concurrently buying it back in the next settlement at a higher rate, the difference being the interest element, or *badla* charge.

However, Margin Trading is not linked to the settlement system (which is currently the T+2 system and not weekly settlement like in the days of *badla* trading). In a margin transaction, the broker forwards money to the client, and this is only a one-way transaction, and the broker does not buy shares as he does while undertaking a *Vyaj Badla* transaction.

### Mechanism of Margin Trading in the US

#### **Use of Margin Accounts**

A customer who purchases securities may pay for them in full or may borrow part of the purchase price from his or her securities firm. If the customer chooses to borrow funds from a firm, the customer will open a margin account with the firm. The portion of the purchase price that the customer must deposit is called “margin” and is the customer’s initial equity in the account. The loan from the firm is secured by the securities that are purchased by the customer. A customer may also enter into a short-sale through a margin account, which involves the customer borrowing stock from a firm in order to sell it, hoping that the price will decline. Customers generally use margin to leverage their investments and increase their purchasing power. At the same time, customers who trade securities on margin incur the potential for higher losses.

#### **Margin Requirements**

The terms on which firms can extend credit for securities transactions are governed by federal regulation and by the rules of NASD and the securities exchanges. This investor guidance focuses on the requirements for marginable equity securities, which includes most stocks. Some securities cannot be purchased on margin, which means they must be purchased in a cash account, and the customer must deposit 100% of the purchase price. In general, under Federal Reserve Board Regulation T, firms can lend a customer up to 50% of the total purchase price of a stock for new, or initial purchases. Assuming the customer does not already have cash or other equity in the account to cover his share of the purchase price, the customer will receive a margin call from the firm. As a result of the margin call, the customer will be required to deposit the other 50% of the purchase price.

The rules of NASD and the exchanges supplement the requirements of ‘Regulation T’ by placing “maintenance” margin requirements on customer accounts. Under the rules of NASD and the exchanges, as a general matter, the customer’s equity in the account must not fall below 25% of the current market value of the securities in the account. Otherwise, the customer may be required to deposit more funds or securities in order to maintain the equity at the 25% level. The failure to do so may cause the firm to force the sale of or liquidate the securities in the customer’s account in order to bring the account’s equity back up to the required level.

#### **Firm Practices**

Firms have the right to set their own margin requirements often called “house” requirements as long as they are higher than the margin requirements under ‘Regulation T’ or the rules of NASD and the exchanges. In today’s market, some firms have raised their maintenance margin requirements for certain volatile stocks (such as stocks of companies that sell products or services via the Internet) to help ensure that there are sufficient funds in their customer accounts to cover the large swings in the price of these stocks. These changes in firm policy often take effect immediately and may result in the issuance of a maintenance margin call. Again, a customer’s failure to satisfy the call may cause the firm to liquidate a portion of the customer’s account.

#### **Margin Agreements and Disclosures**

If a customer trades stocks in a margin account, the customer needs to carefully review the margin agreement provided by his or her firm. A firm charges interest for the money it lends its customers to purchase securities on margin, and a customer needs to understand the additional charges that he or she may incur by opening a margin account. Under the federal securities laws, a firm that loans money to a customer to finance securities transactions is required to provide the customer with written disclosure of the terms of the loan, such as the rate of interest and the method for computing interest. The firm must also provide the customer with periodic disclosures informing the customer of transactions in the account and the interest charges to the customer.

Source: [www.nasd.com](http://www.nasd.com)

## Benefits of Margin Trading

The main benefit of Margin Trading for the investors is that it serves as an avenue for the investor who wants to buy more shares than the cash available. The investor leverages the transaction and aims to make more money on the investment than the interest payable on the margin loan. Margin trading can be a very effective tool in the hands of the experienced and heavy trader, who can invest up to double his investible sum in the hope to earn high profits.

Margin trading has a two-fold benefit for capital markets. Firstly, it acts as a deterrent to unofficial *badla* and *dabba* transactions. After Sebi banned *badla* trading, some unscrupulous brokers are still running quasi-*badla* trades and chasing the 'sky-high' returns achieved during the days of the *badla* system. Others are still running parallel exchanges or '*dabbas*.'

<b>Margin Trading Jargon</b>
<p><b>Margin</b></p> <p>The amount of equity contributed by a customer as a percentage of the current market value of the securities held in a margin account.</p>
<p><b>Initial Margin</b></p> <p>The percentage of the purchase price of securities that can be purchased on margin. The initial margin is currently 50%. This level is only a minimum and some brokerages require a deposit of more than 50%.</p>
<p><b>Maintenance Margin</b></p> <p>The amount of equity that must be maintained in a margin account. The investor will be hit with a 'margin call' if the value of securities falls below the maintenance margin.</p> <p>After securities have been bought on margin, the Sebi rules require that the level of margin be maintained at 40% of the total market value of the securities in the margin account. It should be kept in mind that this level is a minimum and many brokerages have higher maintenance requirements of 30%-40%.</p>
<p><b>Margin Call</b></p> <p>A demand that an investor using margin, deposits additional money or securities to bring a margin account up to the minimum maintenance margin.</p> <p>A broker will make a margin call if one or more of the securities one has bought (with borrowed money) decreases in value past a certain point. The investor will be forced to either deposit more money in the account or sell off some of the assets.</p>

Source: Compiled by ICFAI Research Center

Secondly, trading on margin improves liquidity in the market. With lesser amounts of cash with investors, they can assume higher risk and can invest in higher value of stocks. This would increase the volumes of stocks traded on the bourses and thus give a fillip to the already healthy liquidity in the market.

The official and structured market for margin trading will most likely lead to an expansion of day trading activity in the market. Day trading provides the much-needed liquidity to the equity market.

The stock lending mechanism proposed by Sebi will also facilitate short-selling. In the present system, short-selling is possible only when one owns the stock. In the new system, holding a stock for selling it short will not be required, and an investor can short-sell without owning a stock in the first place. This mechanism will allow for actively trading on contrarian views.

Margin trading is likely to take off, even with its additional risk, because it provides scope for leveraged trades in the 97 Group A securities on which derivatives are not available. The lure of having high returns will draw seasoned traders to Margin Trading.

### **A Step in the Right Direction**

Margin trading is certainly an improvement in the Indian capital markets and serves as a further enhancement to the contemporary nature of the Indian equity market. Capital markets are projected to become even more liquid, enabling better price discovery in the days to come. Sebi has introduced Margin Trading with a relatively high maintenance margin of 40% (it is 25% in the US markets), but with a promise to review the scheme after six months. Now that this scheme is offered to investors and brokers, let us hope that it is taken in the right spirit by the markets and does not become an avenue for fraudulent trading practices like *badla* had become. If this happens, Margin Trading can make the Indian capital markets a better place for investors.

## **Chapter VII**

# **Long-term Funds: Needs and Sources**

## **Lesson 1**

### **Sources of Long-term Finance**

**After reading this lesson, you will be conversant with:**

- Need for Long-term Finance
- Types of Capital
- Types of Debentures
- Issue of Securities

## NEED FOR LONG-TERM FIANANCE

Business firms need finance mainly for two purposes – to fund the long-term decisions and for meeting the working capital requirements. The long-term decisions of a firm involve setting up of the firm, expansion, diversification, modernization and other similar capital expenditure decisions. All these decisions involve huge investment, the benefits of which will be seen only in the long-term and these decisions are also irreversible in nature. By nature of these projects, long-term sources of funds become the best suited means of financing. One of the most important consideration for an investment and financing decision will be proper asset-liability management. Companies will have to face a severe asset-liability mismatch if the long-term requirements are funded by the short-term sources of funds. Such a mismatch will lead to an interest rate risk thereby enhancing the interest burden of the firm and a liquidity risk with the short-term funds being held up in long-term projects. Let us consider the costs and means of finance of a few projects.

- a. Ponni Sugars & Chemicals Ltd. is setting up a new sugar mill in Orissa, the details of the cost of the project and the means of financing are given below.

Particulars	Rs. in lakh
<b>Cost of the Project</b>	
1. Land and Site Development	102
2. Buildings	543
3. Plant and Machinery	2,959
4. Miscellaneous Fixed Assets	176
5. Fees for Consultants	55
6. Preliminary and Pre-operative Expenses	445
7. Provision for Contingencies	210
8. Margin Money for Working Capital	60
<b>Total</b>	<b>4,550</b>

Particulars	Rs. in lakh
<b>Means of Financing</b>	
1. Equity Capital:	
– Promoters	208
– Rights to Shareholders	605
2. Partly Convertible Debentures:	
– Rights Issue	605
– Public Issue	1600
3. Rupee Term Loan from Financial Institution	1,250
4. Internal Accruals	282
<b>Total</b>	<b>4,550</b>

- b. Bhilwara Spinners Ltd., a closely held company belonging to the Bhilwara Group, engaged in the manufacture of various types of yarns and sewing threads, has gone in for a modernization program, the cost and the means of finance for the same are given below.

### Cost of the Project

Sl. No.	Particulars	Total Cost (Rs. in lakh)
<b>A. Capital Expenditure For Modernization Program</b>		
I.	Machinery Equipments	
i.	Cards	279.84
ii.	Ring frames with 2 overhead cleaners	71.14
iii.	TFO VL150	
	TFO VTS 09	155.67

Sl. No.	Particulars	Total Cost (Rs. in lakh)	
	iv. Uster	14.00	
	v. Ring Data System	9.51	
	vi. Draw Frame	14.89	
	vii. Condenser LVS	5.65	
	viii. Blender	5.15	
	ix. Accessories and other necessary machines	<u>22.67</u>	578.52
II.	Building		
	i. Construction of yarn godown	6.48	6.48
	Total (I) + (II)		585.00
B.	<b>Long-term working capital requirement</b>		708.00
C.	<b>Public issue expenses</b>		50.00
			<u>1,343.0</u>

**Means of Finance**

			Rs. in lakh
Particulars	Nominal Value	Share Premium	Total Amount
<b>A. Equity Capital</b>			
a. Promoters, directors, their friends and relatives	50.00	50.00	100.00
b. Public issue	375.00	375.00	750.00
			850.00
<b>B. Term Loan</b>			
IFCI – Rupee term loan			
– Under Equipment Finance Scheme	275.00		
– Under Equipment Credit Scheme	178.00		453.00
<b>C. Internal Accruals</b>			40.00
			<u>1,343.00</u>

- c. Arvind Polycot Ltd. has started a project with the latest spinning & weaving machineries for the manufacture of 100% cotton high value fabrics to capture the international textile market in a big way. The cost and means of finance of the project which has been appraised by ICICI is as follows.

**Cost of the Project**

Particulars	Rs. in lakh	
Land		75
Building		1,050
Plant and Machinery		
Imported	2,866	
Indigenous	1,612	
Erection, Installation	<u>150</u>	4,628
Miscellaneous Fixed Assets		1,068
Preliminary & Pre-operative Expenses		600
Contingencies		816
Working Capital Margin		<u>426</u>
	<b>TOTAL</b>	<u><b>8,663</b></u>

<b>MEANS OF FINANCE</b>		
(i) Issue of Debentures to Public		3,732
(ii) Issue of Debentures to Arvind Mills Ltd.		2,371
(iii) Issue of Debentures on Rights Basis		<u>2,560</u>
	TOTAL	<u>8,663</u>
<b>OTHER REQUIREMENT OF FUNDS</b>		
Other requirement of funds as appraised by ICICI in September, 1992 is as under:		
Long-Term Working Capital Requirements		<u>870</u>
	TOTAL	<u>870</u>
<b>MEANS OF FINANCE</b>		
(i) Issue of Debentures to Public		529
(ii) Cash Accruals		<u>341</u>
	TOTAL	<u>870</u>

In the above cases, the sources of long-term financing for firms are generally issue of securities, term loans, internal accruals, suppliers credit scheme and equipment financing. In addition to these, firms have the option of funding their projects by way of deferred credit, unsecured loans and deposits and venture capital financing. Some important and popular sources of long-term financing are discussed here.

## **TYPES OF CAPITAL**

Firms can issue three types of capital – equity, preference and debenture capital. These three types of capital distinguish amongst themselves in the risk, return and ownership pattern.

### **Equity Capital**

Equity Shareholders are the owners of the business. They enjoy the residual profits of the company after having paid the preference shareholders and other creditors of the company. Their liability is restricted to the amount of share capital they contributed to the company. Equity capital provides the issuing firm the advantage of not having any fixed obligation for dividend payment but offers permanent capital with limited liability for repayment. However, the cost of equity capital is higher than other capital. Firstly, since the equity dividends are not tax-deductible expenses and secondly, the high costs of issue. In addition to this since the equity shareholders enjoy voting rights, excess of equity capital in the firms' capital structure will lead to dilution of effective control.

### **Preference Capital**

Preference shares have some attributes similar to equity shares and some to debentures. Like in the case of equity shareholders, there is no obligatory payment to the preference shareholders; and the preference dividend is not tax deductible (unlike in the case of the debenture holders, wherein interest payment is obligatory). However, similar to the debenture holders, the preference shareholders earn a fixed rate of return for their dividend payment. In addition to this, the preference shareholders have preference over equity shareholders to the post-tax earnings in the form of dividends; and assets in the event of liquidation.

Other features of the preference capital include the call feature, wherein the issuing company has the option to redeem the shares, (wholly or partly) prior to the maturity date and at a certain price. Prior to the Companies Act, 1956 companies could issue preference shares with voting rights.



However, with the commencement of the Companies Act, 1956, the issue of preference shares with voting rights has been restricted only in the following cases:

- i. There are arrears in dividends for two or more years in case of cumulative preference shares;
- ii. Preference dividend is due for a period of two or more consecutive preceding years, or
- iii. In the preceding six years including the immediately preceding financial year, if the company has not paid the preference dividend for a period of three or more years.

**Types of Preference Capital:** Preference shares can be of two types in three categories.

- i. Cumulative or Non-cumulative preference shares
- ii. Redeemable or Perpetual preference shares.
- iii. Convertible or non-convertible preference shares.

For cumulative preference shares, the dividends will be paid on a cumulative basis, in case they remain unpaid in any financial year due to insufficient profits. The company will have to pay up all the arrears of preference dividends before declaring any equity dividends. While on the other hand, the non-cumulative shares do not enjoy such right to dividend payment on cumulative basis.

Redeemable preference shares will be redeemed after a given maturity period while the perpetual preference share capital will remain with the company forever.

## **Debenture Capital**

A debenture is a marketable legal contract whereby the company promises to pay its owner, a specified rate of interest for a defined period of time and to repay the principal at the specific date of maturity. Debentures are usually secured by a charge on the immovable properties of the company.

The interest of the debenture holders is usually represented by a trustee and this trustee (which is typically a bank or an insurance company or a firm of attorneys) is responsible for ensuring that the borrowing company fulfills the contractual obligations embodied in the contract. If the company issues debentures with a maturity period of more than 18 months, then it has to create a Debenture Redemption Reserve (DRR), which should be at least half of the issue amount before the redemption commences. The company can also attach call and put options. With the call option the company can redeem the debentures at a certain price before the maturity date and similarly the put option allows the debenture holder to surrender the debentures at a certain price before the maturity period.

## **TYPES OF DEBENTURES**

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Debentures can be classified based on the conversion and security. A few types of debentures are discussed below:

### **Non-Convertible Debentures (NCDs)**

These debentures cannot be converted into equity shares and will be redeemed at the end of the maturity period.

- ICICI offered for public subscription for cash at par, 20,00,000 16% unsecured redeemable Bonds (Debentures) of Rs.1,000 each. These bonds are fully non-convertible and so here, the investor is just not given the option of converting it into equity. Interest on the ICICI bonds will be paid half-yearly on June 30 and December 31 each year. The Company proposes to redeem these bonds at par on the expiry of 5 years from the date of allotment i.e., the maturity period is 5 years. But ICICI has also allowed its investors the option of requesting the company to redeem all or part of the bonds held by them on the expiry of 3 years from the date of allotment, provided the bond holders give the prescribed notice to the company.

## Fully Convertible Debentures (FCDs)

These debentures will be converted into equity shares after a specified period of time at one stroke or in installments. These debentures may or may not carry interest till the date of conversion. In the case of a fully established company with an established reputation and good, stable market price, FCD's are very attractive to the investors as their bonds are getting automatically converted to shares which may at the time of conversion be quoted much higher in the market compared to what the debenture holders paid at the time of FCD issue.

- Recently 3 reputed companies, Apple Industries Limited, Arvind Polycot Limited and Jindal Iron and Steel Company Limited have come out with the issue of Zero percent FCDs for cash at par. Let us take a look at the Jindal issue.

The total issue was for 3,01,72,080 secured Zero Interest Fully Convertible Debentures. Of these, 1,29,30,000 FCDs of Rs.60 each were offered to the existing shareholders of the company on Rights basis in the ratio of one FCD for every one fully paid equity share held as on 30.03.93. The balance of 1,72,42,080 secured zero-interest FCDs were offered to the public at par value of Rs.100 each.

The terms of conversion were as follows: Each fully paid FCD will be automatically and compulsorily converted into one equity share of Rs.10 each at a premium of Rs.90 per share. Credited as fully paid-up, conversion into equity shares will be done at the end of 12 months from the date of allotment.

## Partly Convertible Debentures (PCDs)

These are debentures, a portion of which will be converted into equity share capital after a specified period, whereas the non-convertible (NCD) portion of the PCD will be redeemed as per the terms of the issue after the maturity period. The non-convertible portion of the PCD will carry interest right up to redemption whereas the interest on the convertible portion will be only up to the date immediately preceding the date of conversion.

- Let us look at the illustration given earlier on Ponni Sugars and Chemicals in greater detail. The company is offering PCDs worth Rs.2,205 lakh of which Rs.605 lakh is being offered to the existing shareholders. The issue is for 14,70,000 16% Secured Redeemable PCDs of Rs.150 each. Out of this, 4,06,630 PCDs is by way of Rights Issue, in the ratio of one PCD for every ten equity shares held. The balance of 10,63,370 PCDs are offered to the public. Of the total face value of Rs.150, the convertible portion will have a face value of Rs.60 and the non-convertible portion, a face value of Rs.90. A 'tradeable warrant' will be issued in the ratio of one warrant for every 5 fully paid PCDs. Each such warrant will entitle the holder to subscribe to one equity share at a premium which will not exceed Rs.20 per share within a period of 3 years from the date of allotment of the PCDs. This is not included in the conversion at the rate of 1:10. The tradeable warrants will also be listed in stock exchanges to ensure liquidity. Interest at 16% on the paid-up value of the PCD allotted shall accrue from the date of allotment, but interest on the convertible portion of the PCD will be paid only up to the date immediately preceding the date of conversion. The non-convertible portion of the PCD will be redeemed in 3 stages at the end of the 6th, 7th and 8th year from the allotment of the PCD.

## Secured Premium Notes (SPNs)

This is a kind of NCD with an attached warrant that has recently started appearing in the Indian Capital Market. This was first introduced by TISCO which issued SPNs aggregating Rs.346.50 crore to existing shareholders on a rights basis. Each SPN is of Rs.300 face value. No interest will accrue on the instrument during the

first 3 years after allotment. Subsequently the SPN will be repaid in 4 equal installments of Rs.75 each from the end of the fourth year together with an equal amount of Rs.75 with each installment. This additional Rs.75 can be considered either as interest (regular income) or premium on redemption (capital gain) based on the tax planning of the investor.

The warrant attached to the SPN gives the holder the right to apply for and get allotment of one equity share for Rs.100 per share through cash payment. This right has to be exercised between one and one-and-half year after allotment, by which time the SPN will be fully paid-up.

**Box 1: New Financial Instruments**

- **Non-voting Shares:** Useful for companies seeking to bolster net worth without losing management control. Similar in every respect to equity, the sole exception being the absence of voting rights.
- **Detachable Equity Warrants:** Issuable with Non-convertible Debentures (NCDs) or other debt or equity instruments. Ideal for firms with growth prospects, which would prefer equity coupons to convertible debentures (CDs).
- **Participating Debentures:** These are unsecured corporate debt securities which participate in the profits of a company. Potential issuers will be existing dividend-paying companies. Could appeal to investors willing to accept risk for higher returns.
- **Participating Preference Shares:** Quasi-equity instrument to bolster net worth without loss of management control. Pay-outs linked to equity dividend, and also eligible for bonus. Will appeal to investors with an appetite for low risk.
- **Convertible Debentures with Options:** A derivative of the convertible debentures with an embedded option, providing flexibility to the issuer as well as the investor to exit from the terms of the issue. The coupon rate is specified at the time of the issue.
- **Third Party Convertible Debentures:** Debt with a warrant allowing the investor to subscribe to the equity of a third firm at a preferential price vis-à-vis the market price. Interest rate here is lower than pure debt on account of the conversion option.
- **Mortgage-backed Securities:** A synthetic instrument, otherwise known as the asset-backed security (ABS), for securitization of debt. An ABS is backed by pooled assets like mortgages, credit card receivables, and the like.
- **Convertible Debentures Redeemable at Premium:** Convertible debenture issued at face value with a “put” option entitling investors to sell the bond later to the issuer at a premium. Serves a similar purpose as that of convertible debt, but risks to investors are lower.
- **Debt-equity Swaps:** An offer from an issuer of debt to swap it for common stock (equity). The risks: it may dilute earnings per share in the case of the issuer; the expected capital appreciation may not materialize in the case of the investor.
- **Zero-coupon Convertible Note:** A zero-coupon convertible note (ZCCN) converts into common stock. If investors choose to convert, they forgo all accrued and unpaid interest. The risk: ZCCN prices are sensitive to interest rates.

**ISSUE OF SECURITIES**

A firm can raise capital from the primary market (both domestic & foreign) by issuing securities in the following ways:

- Public Issue
- Rights Issue

- Private Placement
- BODs
- Euro-Issues.

The apex body regulating the Indian securities market and the companies raising finance from it is the Securities and Exchange Board of India (SEBI). Since the Capital Issues Control Act, 1947, was repealed in May, 1992, SEBI was given the statutory power to regulate the Securities Market.

**PUBLIC ISSUE**

Companies issue securities to the public in the primary market and get them listed on the stock exchanges. These securities are then traded in the secondary market. The major activities involved in making a public issue of securities are as follows:

**Appointment of the Lead Manager**

Before making a public issue of securities the firm should appoint a SEBI registered Category-I Merchant Banker to manage the issue. The lead manager will be responsible for all the pre and the post-issue activities, liaison with the other intermediaries, statutory bodies like SEBI, Stock Exchanges and the Registrar of Companies (ROC) and finally ensures that the securities are listed on the stock exchanges.

**Preparation of the Prospectus**

The Lead Manager is responsible for the preparation of the prospectus. The prospectus is a document that disseminates all the information about the company, the promoters, the objectives of the issue and has the contents as specified by the Company Law. The final prospectus has to be forwarded to SEBI and the listing Stock Exchange.

**Appointment of Intermediaries**

The other intermediaries who are involved in the public issue of securities are underwriters, registrars, bankers to the issue, brokers and advertising agencies. Apart from these it also involves promotion of the issue, printing and despatch of prospectus and application forms, obtaining statutory clearances, filing the initial listing application, final allotment and refund activities. The cost of a public issue ranges between 12-15% of the issue size and can go up to 20% in bad market conditions.

**RIGHTS ISSUES**

Under Section 81 of the Companies Act, 1956, when a firm issues additional equity capital, it has to first offer such securities to the existing shareholders on a pro rata basis. The rights offer should be kept open for a period of 60 days and should be announced within one month of the closure of the books. The shareholders can also renounce their rights in favor of any other person at market determined rate. The cost of floating of rights issue will be comparatively less than the public issue, since these securities are issued to the existing shareholders, thereby eliminating the marketing costs and other relevant public issue expenses. The rights issue will also be priced lower than the public issue since it will be offered to the existing shareholders.

**Ex-rights Value of a Share**

The value of a share, after the rights issue, is  $\frac{NP_0 + S}{N + 1}$

Where

- N = number of existing shares required for a rights share
- P<sub>0</sub> = cum-rights price per share
- S = subscription price at which rights shares are issued.

If a company issues one share for every 3 shares held at a price of Rs.25 per share, and the existing price is Rs.30 per share, the ex-rights price of the share would be

$$= \frac{3 \times 30 + 25}{3 + 1} = \text{Rs.28.75 per share.}$$

Value of a right

$$\text{The theoretical value of a right is } \frac{P_0 - S}{N + 1}$$

In the above example, it would be  $= (30 - 25) / 4 = \text{Rs.1.25}$

### **PRIVATE PLACEMENT**

The private placement method of financing involves direct selling of securities to a limited number of institutional or high net worth investors. This avoids the delay involved in going public and also reduces the expenses involved in a public issue. The company appoints a merchant banker to network with the institutional investors and negotiate the price of the issue. The major advantage of privately placing the securities are:

- Easy access to any company
- Fewer procedural formalities
- Lower issue cost
- Access to funds is faster.

### **BOUGHT-OUT DEALS**

Buy-out is a process whereby an investor or a group of investors buy-out a significant portion of the equity of an unlisted company with a view to sell the equity to public within an agreed time frame. The company places the equity shares, to be offered to the public, with a sponsor. At the right time, the shares will be off loaded to the public through the OTCEI route or by way of a public issue. The bought-out deal route is relatively inexpensive, funds accrue without much delay (in a public issue funds reach the company only after a period of 2-3 months from the date of closure of the subscription list). In addition to this, it affords greater flexibility in terms of the issue and matters relating to off-loading with proper negotiations with the sponsor or the Merchant Banker involved. Major advantages of entering into a bought-out deal are:

- Companies, both existing and new, which do not satisfy conditions laid down by SEBI for premium issues, may issue at a premium through the BOD method.
- The procedural complexities are reduced considerably and the funds reach the firm upfront. Added to this there is a cut in the issue costs.
- An advantage accruing the investor is that the issue price usually reflects the company's intrinsic value.

### **EURO-ISSUES**

The Government has allowed Indian companies to float their stocks in foreign capital markets. The Indian corporates, which face high rates of interest in the domestic markets are now free to tap the global capital markets for meeting resource requirements at less costs and administrative problems. The instruments which the company can issue are Global Depository Receipts (GDRs), Euro-Convertible Bonds (ECBs), Foreign Currency Convertible Bonds (FCCBs). These instruments are issued abroad and listed and traded on a foreign stock exchange. Once they are converted into equity, the underlying shares are listed and traded on the domestic exchange.

**Term Loans**

Term Loans constitute one of the major sources of debt finance for a long-term project. Term loans are generally repayable in more than one year but less than 10 years. These term loans are offered by the All India Financial Institutions viz., IDBI, ICICI etc. and by the State Level Financial Institutions. The salient features of the term loans are the interest rates, security offered and the restrictive covenants.

The interest rate on the term loans will be fixed after the financial institution appraises the project and assesses the credit risk. Generally there will be a floor rate fixed for different types of industries. The interest and the principal installment payment are obligatory for the company and any defaults, in this regard will attract a penalty. The company will generally be given 1-2 years of moratorium period, and they will be asked to repay the principal in equal semi-annual installments.

Term Loans, which can be either in rupee or foreign currency, are generally secured through a first mortgage or by way of depositing title deeds of immovable properties or hypothecation of movable properties. In addition to the security, financial institutions also place restrictive covenants while granting the term loan. These depend mostly on the nature of the project and can include placing the nominees of the financial institution on the company's board, refrain the company from undertaking any new project without their prior approval, disallow any further charges on the assets, maintain the debt-equity ratio to a certain level, etc.

The major advantage of this source of finance is its post-tax cost, which is lower than the equity/preference capital and there will be no dilution of control. However, the interest and principal payments are obligatory and threaten the solvency of the firm. The restrictive covenants may, to a certain extent, hinder the company's future plans.

**Internal Accruals**

Financing through internal accruals can be done through the depreciation charges and the retained earnings. While depreciation amount will be used for replacing an old machinery etc., retained earnings on the other hand can be utilized for funding other long-term objectives of the firms. The major advantages the company gets from using this as a source of long-term finance are its easy availability, elimination of issue expenses and the problem of dilution of control. However, the disadvantage is that there will be limited funds from this source. In addition to this ploughing back of retained earnings implies foregoing of dividend receipts by the investors which may actually lead to higher opportunity costs for the firm.

**Deferred Credit**

The deferred credit facility is offered by the supplier of machinery, whereby the buyer can pay the purchase price in installments spread over a period of time. The interest and the repayment period are negotiated between the supplier and the buyer and there are no uniform norms. Bill Rediscounting Scheme, Supplier's Line of Credit, Seed Capital Assistance and Risk Capital Foundation Schemes offered by financial institutions are examples of deferred credit schemes.

**Leasing and Hire Purchase**

The other sources of finance for companies are the leasing and hire purchase of assets. These two types of financing options, which are supplementary to the actual long-term sources, are offered by financial institutions, Non-Banking Finance Companies, Banks and manufacturers of equipment/assets. Leasing is a contractual agreement between the lessor and the lessee, wherein companies (lessee) can enter into a lease deal with the manufacturer of the equipment (lessor) or through some other intermediary. This deal will give the company the right to use the asset till the maturity of the lease deal and can later return the asset or buy it from the manufacturer. During the lease period the company will have to pay lease rentals, which will generally be at

negotiated rate and payable every month. Very similar to leasing is hire purchase, except that in hire purchase the ownership will be transferred to the buyer after all the hire purchase installments are paid-up. With the mushrooming of non-banking finance companies offering the leasing and hire purchase of equipments, many companies are opting for this route to finance their assets. The cost of such financing generally lies between 20-25%.

### **Government Subsidies**

The central and state governments provide subsidies to Industrial units in backward areas. The central government has classified backward areas into three categories of districts: A, B and C. The central subsidy applicable to industrial projects in these districts is:

Category A Districts	25 percent of the fixed capital investment subject to a maximum of Rs.25 lakh
Category B Districts	15 percent of the fixed capital investment subject to a maximum of Rs.15 lakh
Category C Districts	10 percent of the fixed capital investment subject to a maximum of Rs.10 lakh

The state governments also offer cash subsidies to promote widespread dispersal of industries within their states. Generally, the districts notified for the state subsidy schemes are different from those covered under the central subsidy scheme. The state subsidies vary between 5 percent to 25 percent of the fixed capital investment in the project, subject to a ceiling varying between Rs.5 lakh and Rs.25 lakh depending on the location.

- Satavahana Ispat Limited has been set up with the capacity to manufacture 1,20,000 tonnes of pig iron. The cost of project has been appraised by IDBI at Rs.5,450 lakh and is to be mainly financed through equity capital and term loans. The unit is also eligible for a State Government Subsidy (Andhra Pradesh) of Rs.20 lakh which will also be a source of long-term finance. The unit is located at Anantapur District of Andhra Pradesh and falls into 'C' Category backward area.

### **Sales Tax Deferments and Exemptions**

To attract industries, the state provides incentives, *inter alia*, in the form of sales tax deferments and sales tax exemptions.

Under the sales tax deferment scheme, the payment of sales tax on the sale of finished goods may be deferred for a period ranging between five to twelve years. Essentially, it implies that the project gets an interest-free loan, represented by the quantum of Sales Tax deferment period.

Under the sales tax exemption scheme, some states exempt the payment of sales tax applicable on purchase of raw materials, consumables, packing, and processing materials from within the state which are used for manufacturing purposes. The period of exemption ranges from three to nine years depending on the state and the specific location of the project within the state.

Thus, with a definite increase in the variety of sources for long-term funds rising, an efficient finance manager will be the one who devises the optimum financing mix. The funding process should be a trade-off between the cost of funding, the risk involved and the returns expected, so that a reasonable spread is maintained for the firm.

Lupin Chemicals Ltd. have stated in their prospectus that they are eligible for sales tax incentive for a period of five years or till they reach the ceiling of 60% of fixed capital investment whichever is earlier.

## **SUMMARY**

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- Long-term finance is absolutely essential for any operating concern. Any company needs to have a lot of money for investing in long-term assets such as land and buildings, plant and machinery, technical know-how and working capital margin and hence it needs long-term sources of funds to finance these investments as usage of short-term funds will only result in asset-liability mismatch and make the firm illiquid.
- There are three main sources of long-term funds – equity shares, preference shares and debentures. Equity shareholders are the owners of the company and enjoy residual profits after having paid all the commitments including preference share dividend. Companies have no fixed obligation to pay dividends and hence equity offers perpetual capital with limited liability for repayment. However, since the equity shareholders assume a lot more risk than others, cost of equity is higher than the cost of other sources of finance. In addition, since equity shareholders enjoy voting rights, too much of equity capital can dilute the control of the management.
- Preference shares are similar to equity in that there is no obligatory payment and the dividends are not tax deductible. However, preference shareholders earn a fixed rate of return for their investments and have a preference over equity shareholders to post-tax earnings in the form of dividends and assets in case of liquidation. Preference shares can be classified into three types: cumulative and non-cumulative, redeemable and perpetual and convertible and non-convertible.
- Debentures are marketable contracts where-in the company promises to pay the holder a specified rate of interest for a certain period and repay the principal on maturity. These instruments are generally secured by a charge on immovable properties of the companies. Interest paid on debentures is tax deductible and debentureholders have the first right to assets in case of liquidation. Debentures can be classified into non-convertible, partly convertible and fully convertible debentures.
- A company can raise money using any of these instruments by going to the capital market. There are many ways of doing it. A company can go for a public issue, a rights issue, private placement, buyout deals or euro-issues for raising finances.
- With a definite increase in the variety of sources for long-term funds raising, an efficient finance manager will be the one who devises the optimum financing mix. The funding process should be a trade-off between the cost of funding, the risk involved and the returns expected, so that a reasonable spread is maintained for the firm.



## **Lesson 2**

# **Cost of Capital and Capital Structure Theories**

**After reading this lesson, you will be conversant with:**

- The Meaning of Cost of Capital
- Costs of Different Sources of Finance
- Concept of Weighted Average Cost of Capital
- Weighted Marginal Cost of Capital Schedule
- Meaning of Capital Structure
- Factors affecting the Capital Structure
- Theories of Capital Structure

## THE MEANING OF COST OF CAPITAL

Now that we are familiar with the different sources of long-term finance, let us find out what it costs the company to raise these various types of finance. The cost of capital to a company is the minimum rate of return that it must earn on its investments in order to satisfy the various categories of investors who have made investments in the form of shares, debentures or term loans. Unless the company earns this minimum rate, the investors will be tempted to pull out of the company, leave alone participate in any further capital investment in that company. For example, equity investors expect a minimum return as dividend on their perception of the risk undertaken based on the company's past performance, or on the returns they are getting from shares they have of other companies.

The weighted arithmetic average of the cost of different financial resources that a company uses is termed as its cost of capital. Let us look at a simple example. A company has a total capital base of Rs.500 lakh in the ratio of 1:1 of debt-equity<sup>1</sup> i.e., divided equally between debt and equity; Rs.250 lakh of debt and Rs.250 lakh of equity. If the post-tax costs of debt and equity are 7% and 18% respectively, the cost of capital to the company will be equal to the weighted average cost i.e.,

$$\frac{250}{500} \times 7\% + \frac{250}{500} \times 18\% = 12.5\%.$$

### Assumptions

Given this definition of cost of capital, it must be noted that the use of this measure for appraising new investments will depend upon two important assumptions: (a) the risk characterizing the new project under consideration is not significantly different from the risk characterizing the existing investments of the firm, and (b) the firm will continue to pursue the same financing policies. Put differently, there will be no deviation from the debt-equity mix presently adopted by the firm.

For calculating the cost of capital of the firm, we have to first define the cost of various sources of finance<sup>2</sup> used by it. The sources of finance that are typically tapped by a firm are (a) debentures (b) term loans (c) preference capital (d) equity capital, and (e) retained earnings. The mechanics involved in computing the costs of these sources of finance are discussed in the following section.

## COSTS OF DIFFERENT SOURCES OF FINANCE

### Cost of Debentures

The cost of a debenture is defined as the discount rate which equates the net proceeds from issue of debentures to the expected cash outflows in the form of interest and principal repayments, i.e.,

$$P = \sum_{t=1}^n \frac{I(1-t)}{(1+k_d)^t} + \frac{F}{(1+k_d)^n} \quad \dots(1)$$

where,

- $k_d$  = post-tax cost of debenture capital
- $I$  = annual interest payment per debenture capital
- $t$  = corporate tax rate
- $F$  = redemption price per debenture

1 This text is called the Debt-Equity Ratio which will be covered in detail later in this chapter.

2 The cost of a source of finance is defined as the rate of discount which equates the present value of the expected payments to that source of finance with the net proceeds received from that source of finance. The formulae discussed in this section for obtaining the costs of the different sources have been derived using this definition.

P = net amount realized per debenture and  
 n = maturity period.

The interest payment (I) is multiplied by the factor (1 – t) because interest on debt is a tax-deductible expense and only post-tax costs are considered.

An approximation formula as given below can also be used.

$$k_d = \frac{I(1-t) + \frac{F-P}{n}}{\frac{F+P}{2}} \quad \dots(2)$$

**Note:** When the difference between the redemption price and the net amount realized can be written off evenly over the life of the debentures and the amount so written-off is allowed as a tax-deductible expense, the above two equations can be changed as follows:

Equation (1) becomes

$$P = \sum_{t=1}^n \frac{I(1-t) - \frac{(F-P)t}{n}}{(1+k_d)^t} + \frac{F}{(1+k_d)^n}$$

Equation (2) becomes

$$k_d = \frac{I(1-t) + \left(\frac{F-P}{n}\right)(1-t)}{\frac{F+P}{2}}$$

The following Illustration illustrates the application of this formula.

**Illustration 1**

Ajax Limited has recently made an issue of non-convertible debentures for Rs.400 lakh. The terms of the issue are as follows: each debenture has a face value of Rs.100 and carries a rate of interest of 14 percent. The interest is payable annually and the debenture is redeemable at a premium of 5 percent after 10 years.

If Ajax Limited realizes Rs.97 per debenture and the corporate tax rate is 50 percent, what is the cost of the debenture to the company?

**Solution**

Given I = Rs.14, t = 0.5, P = Rs.97, and n = 10 years, F = Rs.105, the cost per debenture (k<sub>d</sub>) will be:

$$k_d = \frac{14(1-0.5) + \frac{105-97}{10}}{\frac{105+97}{2}} = 7.7 \text{ percent}$$

**Cost of Term Loans**

The cost of the term loans will be simply equal to the interest rate multiplied by (1 – tax rate). The interest rate to be used here will be the interest rate applicable to the new term loan. The interest is multiplied by (1 – tax rate) as interest on term loans is also tax deductible.

$$k_t = I(1-t)$$

Where,

I = Interest rate

t = Tax rate.

### Cost of Preference Capital

The cost of a redeemable preference share ( $k_p$ ) is defined as that discount rate which equates the proceeds from preference capital issue to the payments associated with the same i.e. dividend payment and principal payments, which can be

$$P = \sum_{t=1}^n \frac{D}{(1+k_p)^t} + \frac{F}{(1+k_p)^n} \quad \dots(3)$$

where,

$k_p$  = cost of preference capital

D = preference dividend per share payable annually

F = redemption price

P = net amount realized per share and

n = maturity period

An approximation formula as given below can also be used.

$$k_p = \frac{D + \frac{F-P}{n}}{\frac{F+P}{2}} \quad \dots(4)$$

### Illustration 2

The terms of the preference share issue made by Color-Dye-Chem are as follows: Each preference share has a face value of Rs.100 and carries a dividend rate of 14 percent payable annually. The share is redeemable after 12 years at par. If the net amount realized per share is Rs.95, what is the cost of the preference capital?

### Solution

Given that D = 14, F = 100, P = 95 and n = 12

$$k_p = \frac{14 + \frac{100-95}{12}}{\frac{100+95}{2}} = 0.148 \text{ or } 14.8 \text{ percent}$$

### Cost of Equity Capital

Measuring the rate of return required by the equity shareholders is a difficult and complex exercise because the dividend stream receivable by the equity shareholders is not specified by any legal contract (unlike in the case of debenture holders). Several approaches are adopted for estimating this rate of return like the dividend forecast approach, capital asset pricing approach, realized yield approach, earnings-price ratio approach, and the bond yield plus risk premium approach.

According to the dividend forecast approach, the intrinsic value of an equity stock is equal to the sum of the present values of the dividends associated with it, i.e.,

$$P_e = \sum_{t=1}^n \frac{D_t}{(1+k_e)^t} \quad \dots(5)$$

where,

$P_e$  = price per equity share

$D_t$  = expected dividend per share at the end of year one, and

$k_e$  = rate of return required by the equity shareholders.

If we know the current market price ( $P_e$ ) and can forecast the future stream of dividends, we can determine the rate of return required by the equity shareholders ( $k_e$ ) from equation (5) which is nothing but the cost of equity capital.

In practice, the model suggested by equation (5) cannot be used in its present form because it is not possible to forecast the dividend stream completely and accurately over the life of the company. Therefore the growth in dividends can be categorized as nil or constant growth or super normal growth and the equation (5) can be modified accordingly. How to value a security given the required rate of return and pattern of growth, has already been discussed in the chapter 'Valuation of Securities'. Cost of equity from the company's point of view is nothing but the rate at which the intrinsic value of the market price of the share is equal to the discounted value of the dividends. For instance, assume a constant growth rate (g) in DPS. Assuming a constant growth rate in dividends, the equation (5) can be simplified as follows:

$$P_e = \frac{D_1}{k_e - g} \quad \dots(6)$$

If the current market price of the share is given ( $P_e$ ), and the values of  $D_1$  and  $g$  are known, then the equation (6) can be rewritten as  $k_e = \frac{D_1}{P_e} + g$

The following Illustration illustrates the application of this formula.

**Illustration 3**

The market price per share of Mobile Glycols Limited is Rs.125. The dividend expected per share a year hence is Rs.12 and the DPS is expected to grow at a constant rate of 8 percent per annum. What is the cost of the equity capital to the company?

**Solution**

The cost of equity capital ( $k_e$ ) will be:

$$k_e = \frac{D_1}{P_e} + g = \frac{12}{125} + 0.08 = 17.6 \text{ percent}$$

**Realized Yield Approach**

According to this approach, the past returns on a security are taken as a proxy for the return required in the future by the investors. The assumptions behind this approach are that (a) the actual returns have been in line with the expected returns, and (b) the investors will continue to have the same expectations from the security. As these assumptions generally do not hold good in real life, the results of this approach are normally taken as a starting point for the estimation of the required return.

The realized return over a n-year period is calculated as  $(W_1 \times W_2 \times \dots \times W_n)^{1/n} - 1$

Where  $W_t$ , referred to as the wealth ratio, is calculated as  $\frac{D_t + P_t}{P_{t-1}}$  and  $t = 1, 2, \dots, n$ .

$D_t$  = Dividend per share for year t payable at the end of year

$P_t$  = Price per share at the end of year t.

**Illustration 4**

Year	1	2	3
DPS(Rs.)	1.50	2.00	1.50
Price per share at the end of the year	12.00	11.00	12.00

The wealth ratios are

If the price per share at the beginning of the year 1 is Rs.10.

Year	1	2	3
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Wealth ratio	1.35	1.08	1.23
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$$\begin{aligned} \text{Realized yield} &= (1.35 \times 1.08 \times 1.23)^{1/3} - 1 \\ &= 0.2149 \text{ or } 21.5\% \end{aligned}$$

### Capital Assets Pricing Model Approach

According to this approach, the cost of equity is reflected by the following equation:

$$k_i = R_f + \beta_i (R_m - R_f) \quad \dots(7)$$

where,

- $k_i$  = rate of return required on security i
- $R_f$  = risk-free rate of return
- $\beta_i$  = beta of security i
- $R_m$  = rate of return on market portfolio

### Bond Yield Plus Risk Premium Approach

The logic behind this approach is that the return required by the investors is directly based on the risk profile of a company. This risk profile is adequately reflected in the return earned by the bondholders. Yet, since the risk borne by the equity investors is higher than that by the bondholders, the return earned by them should also be higher. Hence this return is calculated as:

Yield on the long-term bonds of the company + Risk premium.

This risk premium is a very subjective figure which is arrived at after considering the various operating and financial risks faced by the firm. Though these risks are already factored in the bond yield, since by nature equity investment is riskier than investments in bonds and is exposed to a higher degree of the firm's risks, they also have an impact on the risk-premium. For example, let us take two companies A and B, A having a net profit margin of 5% and B of 10% with other things being equal. Since company B faces less downside risk compared to company A, it will have to pay less interest to its bondholders. Hence, the risk of a company is already accounted for in the bondholders' return. Yet, when it comes to estimating the equityholders' risk premium, these risks are considered all over again because the equityholders are going to bear a larger part of these risks. In fact, these risks being taken into account for fixing the bondholders' return will result in a multiple increase in the equityholders' risk. Hence, the equityholders of company A will receive a higher risk premium than those of company B.

### Earnings Price Ratio Approach

According to this approach, the cost of equity can be calculated as  $E_1/P$

where,

- $E_1$  = expected EPS for the next year
- $P$  = current market price per share

$E_1$  can be arrived at by multiplying the current EPS by  $(1 + \text{growth rate})$ .

This ratio assumes that the EPS will remain constant from the next year onwards.

There are two parameters which have to be analyzed to see if this approach will provide an accurate result or not. They are dividend pay-out ratio and the rate of return the firm is capable of earning on the retained earnings. The results are accurate in the following two scenarios.

- a. When all the earnings are paid out as dividends. Here the rate of return the firm is capable of earning becomes irrelevant.
- or,
- b. The dividend pay-out ratio is less than 100 percent and retained earnings are expected to earn a rate of return equal to the cost of equity.

In all other cases there is scope for this approach not giving an accurate estimate. The option (a) is not normally seen in real life situations, while it is difficult to foresee the option (b). This approach should hence be used with caution.

### **Cost of Retained Earnings and Cost of External Equity**

Earnings of a firm can be reinvested or paid as a dividend to the shareholder. If the firm retained part of its earnings for future growth of the firm, the shareholder will demand compensation from the firm for using that money. As a result, the cost of retained earnings simply represents a shareholder's expected return from the firm's common stock. Viewing retained earnings as fully subscribed issued of additional common stock we can set the firm's cost of retained earnings  $K_r$  to the cost of equity capital.

$$\text{i.e. } K_r = K_e$$

The cost of retained earnings is always less than the cost of new issue of common stock due to absence of floating costs when projects with retained earnings.

Cost of external equity comes into the picture when there are certain floatation costs involved in the process of raising equity from the market. It is the rate of return that the company must earn on the net funds raised, in order to satisfy the equityholders' demand for return. Under the dividend capitalization model, the following formula can be used for calculating the cost of external equity:

$$K'_e = \frac{D_1}{P_0(1-f)} + g$$

where,

$K'_e$  = cost of external equity

$D_1$  = dividend expected at the end of year 1

$P_0$  = current market price per share

$g$  = constant growth rate applicable to dividends

$f$  = floatation costs as a percentage of the current market price.

For all other approaches, there is no particular method for accounting for the floatation costs. The following formula can be used as an approximation in such cases:

$$K'_e = k_e / (1 - f)$$

where,

$k_e$  = rate of return required by the equity investors

$K'_e$  = cost of external equity

$f$  = floatation costs as a percentage of the current market price.

#### **Illustration 5**

Gamma Asbestos Limited has got Rs.100 lakh of retained earnings and Rs.100 lakh of external equity through a fresh issue, in its capital structure. The equity investors expect a rate of return of 18%. The cost of issuing external equity is 5%. The cost of retained earnings and the cost of external equity can be determined as follows:

Cost of retained earnings:

$$k_r = k_e \text{ i.e., } 18\%$$

Cost of external equity raised by the company:

$$\text{Now } K'_e = \frac{k_e}{1-f} = \frac{0.18}{1-0.05} = 18.95\%$$

### **CONCEPT OF WEIGHTED AVERAGE COST OF CAPITAL**

To illustrate the calculation of the weighted average cost of capital, let us consider the following illustration.

#### **Illustration 6**

Ventura Home Appliances Ltd. has the following capital structure:

(Rs. in lakh)

Equity Capital (10 lakh shares at par value)	100
12 percent preference capital (10,000 shares at par value)	10
Retained earnings	120
14% Non-convertible Debentures (70,000 debentures at par value)	70
14% term loan from APSFC	100
<b>Total</b>	<b>400</b>

The market price per equity share is Rs.25. The next expected dividend per share (DPS) is Rs.2.00 and the DPS is expected to grow at a constant rate of 8 percent. The preference shares are redeemable after 7 years at par and are currently quoted at Rs.75 per share on the stock exchange. The debentures are redeemable after 6 years at par and their current market quotation is Rs.90 per share. The tax rate applicable to the firm is 50 percent. Calculate the weighted average cost of capital.

**Solution**

We will adopt a three-step procedure to solve this problem.

**Step 1:** Determine the costs of the various sources of finance. We shall define the symbols  $k_e$ ,  $k_r$ ,  $k_p$ ,  $k_d$  and  $k_i$  to denote the costs of equity, retained earnings, preference capital, debentures, and term loans respectively.

$$\begin{aligned}
 k_e &= \frac{D_1}{P_0} + g \\
 &= \frac{2.00}{25} + 0.08 = 0.16 \\
 k_r &= k_e = 0.16 \\
 k_p &= \frac{D + \frac{F-P}{n}}{\frac{F+P}{2}} \\
 &= \frac{12 + \frac{100-75}{7}}{\frac{100+75}{2}} = 0.1780 \\
 k_d &= \frac{I(1-t) + \frac{F-P}{n}}{\frac{F+P}{2}} \\
 &= \frac{14(1-0.5) + \frac{100-90}{6}}{\frac{100+90}{2}} = 0.0912 \\
 k_i &= 0.14(1-0.5) = 0.07
 \end{aligned}$$

**Note:** Market price can be taken as a close substitute of the net amount realizable per share or debenture.

**Step 2:** Determine the weights associated with the various sources of finance.

One issue to be resolved before concluding this section relates to the system of weighting that must be adopted for determining the weighted average cost of capital. The weights can be used on (i) book values of the sources of finance included in the present capital structure (ii) present market value weights of the



sources of finance included in the capital structure and (iii) proportions of financing planned for the capital budget to be adopted for the forthcoming period.

Let us assume the book value approach and the weights of a source of fund, according to book value approach is equal to the book value of that particular source divided by the total of the book values of all sources i.e., weight given to equity would be equal to book value of equity divided by book value of equity, retained earnings, debt, preference shares (if any). Similarly the weights according to the market value approach is equal to the market value of a particular source divided by the market value of all sources. For instance, weight attached to equity is equal to the market value of equity divided by the market value of equity, debt, preference shares, if any.

We shall define the symbols  $W_e$ ,  $W_r$ ,  $W_p$ ,  $W_d$  and  $W_i$  to denote the weights of the various sources of finance.

$$W_e = \frac{100}{400} = 0.25$$

$$W_r = \frac{120}{400} = 0.30$$

$$W_p = \frac{10}{400} = 0.025$$

$$W_d = \frac{70}{400} = 0.175$$

$$W_i = \frac{100}{400} = 0.25$$

**Step 3:** Multiply the costs of the various sources of finance with the corresponding weights and add these weighted costs to determine the Weighted Average Cost of Capital (WACC). Therefore,

$$\begin{aligned} \text{WACC} &= W_e k_e + W_r k_r + W_p k_p + W_d k_d + W_i k_i \\ &= (0.25 \times 0.16) + (0.30 \times 0.16) + (0.025 \times 0.1780) + (0.175 \times 0.0912) \\ &\quad + (0.25 \times 0.07) \\ &= 0.1259 \text{ or } 12.59 \text{ percent.} \end{aligned}$$

## **WEIGHTED MARGINAL COST OF CAPITAL SCHEDULE**

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At the time of developing the concept of cost of capital, we had assumed that the risk profile and financing policy of the firm do not change. Now the question that arises is if these assumptions hold, does the weighted average cost of capital remains unchanged irrespective of the magnitude of financing? It does not. Normally, the WACC increases with the level of financing required. The suppliers of capital generally require a higher return as they supply more capital. A schedule showing the relationship between additional financing and the weighted average cost of capital is referred to as the **weighted marginal cost of capital schedule**.

### **Determining the Weighted Marginal Cost of Capital Schedule**

The following steps have to be followed for determining the weighted marginal cost of capital schedule:

1. The cost of each individual source of finance for various levels of usage has to be estimated.

2. Given the ratio of different sources of finance in the new capital structure, find out the levels of total new financing at which the cost of various sources would change. These levels, called breaking points, can be found out as:

Breaking Point on Account of a Source

$$\frac{\text{Total new financing from that source at the breaking point}}{\text{Proportion of that financing source in the capital structure}}$$

3. Calculate the weighted average cost of capital for various ranges of total financing between the breaking points.
4. List out the weighted average cost of capital for each level of total new financing. This is the weighted marginal cost of capital schedule.

We can illustrate the preparation of the weighted marginal cost of capital schedule with the help of an illustration. Consider the following illustration:

**Illustration 7**

Crypton Limited is planning to raise equity, preference and debt capital in the following proportions:

Equity : 0.50  
 Preference : 0.20  
 Debt : 0.30

The cost of the three sources of finance for different levels of usage has been estimated as below:

Source of Finance	Range of new financing from the source (Rs. in lakh)	Cost %
Equity	0-15	16.00
	15-25	17.00
	25 and above	18.00
Preference	0-3	14.00
	3 and above	15.00
Debt	0-20	8.00
	20 and above	10.00

**Calculation of Breaking Point**

Source of Finance	Cost %	Range of new Financing (Rs. in lakh)	Breaking Point (Rs. in lakh)	Range of Total new Financing (Rs. in lakh)
Equity	16.00	0-15	15/0.5 = 30	0-30
	17.00	15-25	25/0.5 = 50	30-50
	18.00	25 and above	–	50 and above
Preference	14.00	0-3	3/0.2 = 15	0-15
	15.00	3 and above	–	15 and above
Debt	8.00	0-20	20/0.3 = 66.67	0-66.67
	10.00	20 and above	–	66.67 and above

**Weighted Average Cost of Capital for Various Ranges of Total New Financing.**

Range of Total New Financing (Rs. in lakh)	Source of Finance	Proportion	Cost (%)	Weighted cost (%)
0-15	Equity	0.5	16	8.00
	Preference	0.2	14	2.80

	Debt	0.3	8	2.40
	<b>Weighted Average Cost of Capital</b>			<b>13.20</b>
15-30	Equity	0.5	16	8.00
	Preference	0.2	15	3.00
	Debt	0.3	8	2.40
	<b>Weighted Average Cost of Capital</b>			<b>13.40</b>
30-50	Equity	0.5	17	8.50
	Preference	0.2	15	3.00
	Debt	0.3	8	2.40
	<b>Weighted Average Cost of Capital</b>			<b>13.90</b>
50-66.67	Equity	0.5	18	9.00
	Preference	0.2	15	3.00
	Debt	0.3	8	2.40
	<b>Weighted Average Cost of Capital</b>			<b>14.40</b>
66.67 and above	Equity	0.5	18	9.00
	Preference	0.2	15	3.00
	Debt	0.3	10	3.00
	<b>Weighted Average Cost of Capital</b>			<b>15.00</b>

Weighted Marginal Cost of Capital Schedule

Range of Total New Financing (Rs. in lakh)	Weighted Marginal Cost of Capital (%)
0-15	13.2
15-30	13.4
30-50	13.9
50-66.67	14.4
66.67 and above	15.0

## MEANING OF CAPITAL STRUCTURE

The capital structure of a company refers to the mix of the long-term finances used by the firm. It is the financing plan of the company. Let us take a look at the capital structure of a company that has recently gone in for public issue.

Pennar Aluminium Company Limited has gone in for a project to manufacture Aluminium Rolled Products, Alloy Conductors and Aluminium Alloys. For raising finance, the company went in for a public issue of 1,93,45,000 equity shares of Rs.10 each at par and 28,25,000 secured PCDs of Rs.200 each. The capital structure of the company including the present issue as per the prospectus of the company was:

(Rs. in lakh)		
A.	Authorized Capital 9,00,00,000 Equity shares of Rs.10 each	9,000.00
B.	Issued, subscribed and paid-up capital	825.50
C.	Present Issue	
	– Equity Shares at par	1934.50
	– 16% Secured PCDs	5,650.00
D.	Rupee Term Loan from Institutions and Banks	5,060.00
E.	Buyers Credit	1,350.00
		14,820.00

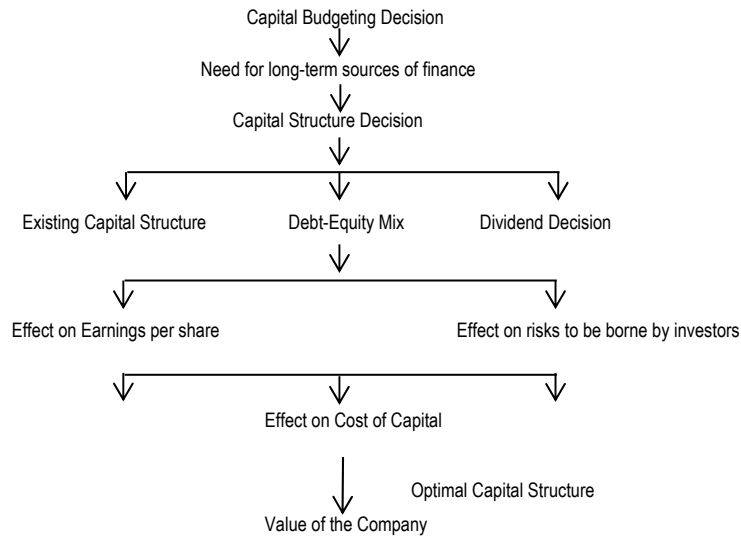
## Importance of the Capital Structure Decision

The objective of any company is to mix the permanent sources of funds used by it in a manner that will maximize the company's market price. In other words companies seek to minimize their cost of capital. This proper mix of funds is referred to as the Optimal Capital Structure.

The capital structure decision is a significant managerial decision which influences the risk and return of the investors. The company will have to plan its capital structure at the time of promotion itself and also subsequently whenever it has to raise additional funds for various new projects. Wherever the company needs to raise finance, it involves a capital structure decision because it has to decide the amount of finance to be raised as well as the source from which it is to be raised.

The capital structure decision process can be represented diagrammatically as:

**Figure 1: Process of Capital Structure Decisions**



## FACTORS AFFECTING THE CAPITAL STRUCTURE

**Leverage:** The use of fixed charges sources of funds such as preference shares, debentures and term loans along with equity capital in the capital structure is described as financial leverage or trading on equity. The term trading on equity is used because it is the equity that is used as a basis for raising debt. Financial Institutions while sanctioning long-term loans insist that companies should generally have a debt-equity ratio of 2:1 for medium and large-scale industries and 3:1 for small-scale industries. A debt-equity ratio of 2:1 indicates that for every 1 unit of equity the company has, it can raise 2 units of debt. The ratio is calculated using the formula  $\frac{\text{Debt}}{\text{Equity}}$ .

Increased use of leverage increases the fixed commitments of the company in the form of interest and repayments and thus increases the risk of the equity shareholders as their returns are affected.

The other factors that should be considered whenever a capital structure decision is taken are:

- Cost of capital
- Cash flow projections of the company
- Size of the company
- Dilution of control
- Floataion costs.

## Features of an Optimal Capital Structure

An optimal capital structure should have the following features:

- Profitability** – The company should make maximum use of leverage at a minimum cost.

- **Flexibility** – The capital structure should be flexible to be able to meet the changing conditions. The company should be able to raise funds whenever the need arises and also retire debts whenever it becomes too costly to continue with that particular source.
- **Control** – The capital structure should involve minimum dilution of control of the company.
- **Solvency** – The use of excessive debt threatens the solvency of the company. In a high interest rate environment, Indian companies are beginning to realize the advantage of low debt. Companies are now launching public issues with the sole purpose of reducing debt. The recent equity issue of more than Rs.30 crore by Ballarpur Industries was purely aimed at repaying term loans and retiring debentures.

## **THEORIES OF CAPITAL STRUCTURE**

Equity and debt capital are the two important sources of long-term finance for a firm. What should be the proportion of equity and debt in the capital structure of a firm, i.e. how much financial leverage should a firm employ? The answer is quite difficult and is based on an understanding of the relationship between the financial leverage and firm valuation or financial leverage and cost of capital. First of all, one should know whether there is any relationship between the financial leverage and firm valuation. To understand this, many approaches have been propounded, some say that there exists a relationship between the two and some state that there is no relation.

### **Assumptions and Definitions**

The following are some of the common assumptions made to understand the relationship between financial leverage and cost of capital.

- There is no income tax, corporate or personal.
- The firm has a policy of paying its earnings as dividend, i.e. a 100% dividend pay-out ratio is assumed.
- Investors have identical subjective probability distributions of net operating income (earnings before income and taxes) for each company.
- The net operating income is not expected to grow or decline over time.
- Without incurring transaction costs, a firm can change its capital structure instantaneously.

Based on the above assumptions and some more stated as and when required, the cost of debt, equity and the firm are derived as follows:

Assuming that the debt capital is perpetual,  $k_d$  represent the cost of debt which is the discount rate at which discounted future constant interest payments are equal to the market value of debt i.e.

$$B = \sum_{t=1}^{\infty} \frac{F}{(1+k_d)^t} \text{ or}$$

$$k_d = \frac{F}{B} = \frac{\text{Annual Interest Charges}}{\text{Market Value of Debt}} \quad \text{.....(8)}$$

Based on the assumption of 100% dividend pay-out and constant earnings, cost of equity is the discount rate at which the discounted future dividend (or earnings) are equal to the MV of equity, i.e.

$$S = \sum_{t=1}^{\infty} \frac{E}{(1+k_e)^t} \text{ or}$$

$$k_e = \frac{E}{S} = \frac{\text{Equity Earnings}}{\text{Market Value of Equity}} \quad \text{.....(9)}$$

Given the net operating income to be constant, the cost of capital of the firm,  $k_o$  is the discount rate at which the present value of net operating income is equal to the market value of the firm (i.e., sum of the market values of debt and equity). Hence,

$$K_0 = \frac{O}{V} = \frac{\text{Net Operating Income}}{\text{Market Value of the Firm}}$$

Where  $V = B + S$  and  $k_o$  is the overall capitalization rate for the firm. Since it is the weighted average cost of capital, it may be expressed as

$$k_o = k_d B / (B + S) + k_e S / (B + S) \quad \dots\dots(10)$$

Measured by the ratio  $B/S$ , what happens to  $k_d$ ,  $k_e$  and  $k_o$  when financial leverage changes? The answer to this question is discussed below:

**Net Income Approach**

According to this approach, the cost of equity capital ( $k_e$ ) and the cost of debt capital ( $k_d$ ) remain unchanged when  $B/S$ , the degree of leverage varies. This means that  $k_o$ , the average cost of capital, measured as

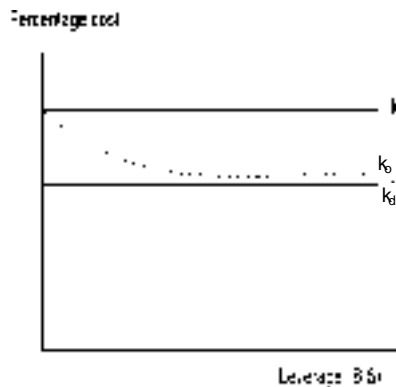
$$k_o = k_d B / (B + S) + k_e S / (B + S)$$

declines as  $B/S$  increases. This happens because when  $B/S$  increases,  $k_d$ , which is lower than  $k_e$ , receives a higher weight in the calculation of  $k_o$ .

The following is the graphical representation of net income approach.  $B/S$ , the degree of leverage is plotted on the x-axis,  $k_e$ ,  $k_d$ , and  $k_o$  are plotted on the y-axis.

From the graph it is clear that as  $B/S$  increases,  $k_o$  decreases because the proportion of debt, the cheaper source of finance, increases in the capital structure.

**Figure 2**



**Illustration 8**

The net income approach may be illustrated with a numerical Illustration. Consider two firms X and Y, which are identical in all respects except in the degree of leverage employed by them. The following is the financial data for these firms.

	Firm X	Firm Y
Net Operating Income (O)	Rs.20,000	Rs.20,000
Interest on Debt (F)	Rs.0	Rs.5,000
Equity Earnings (E)	Rs.20,000	Rs.15,000
Cost of Equity Capital ( $k_e$ )	12%	12%
Cost of Debt Capital ( $k_d$ )	10%	10%
Market Value of Equity ( $S = E/k_e$ )	Rs.1,66,667	Rs.1,25,000
Market Value of Debt (B)	Rs.0	Rs.50,000
Total Value of Firm (V)	Rs.1,66,667	Rs.1,75,000

The average cost of capital for firm X:

$$10\% \times \frac{0}{1,66,667} + 12\% \times \frac{1,66,667}{1,66,667} = 12\%$$

The average cost of capital for firm Y:

$$10\% \times \frac{50,000}{1,75,000} + 12\% \times \frac{1,25,000}{1,75,000} = 11.43\%$$

### Net Operating Income Approach

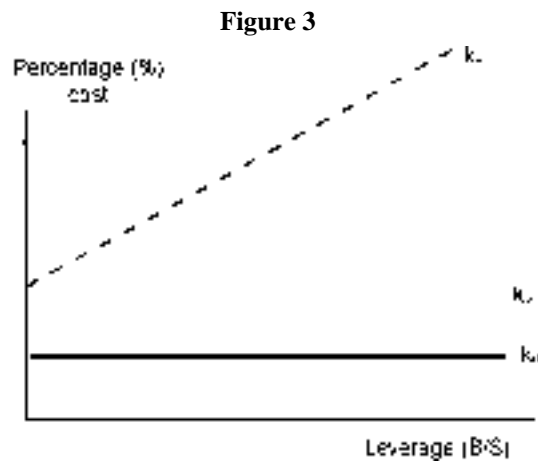
According to the net operating income approach, the overall capitalization rate and the cost of debt remain constant for all degrees of leverage. Therefore, in the following equation  $k_o$  and  $k_d$  are constant for all degrees of leverage.

$$k_o = k_d B / (B + S) + k_e S / (B + S)$$

Therefore, the cost of equity can be expressed as:

$$k_e = k_o + (k_o - k_d)(B/S) \quad \dots\dots(11)$$

The behavior of  $k_d$ ,  $k_e$  and  $k_o$  in response to changes in  $B/S$  is shown graphically as:



The critical assumption with this approach is that  $k_o$  is constant, regardless of the degree of leverage. The market capitalizes the value of the firm as a whole and therefore, the breakdown between debt and equity is unimportant. An increase in the use of supposedly “cheaper” debt funds is compensated exactly by the increase in the required equity return,  $k_e$ . Therefore, the weighted average of  $k_e$  and  $k_d$  remains unchanged for all degrees of leverage. As the firm increases its degree of leverage, it becomes more risky. Investors penalize the stock by raising required equity return with the view of increase in the debt-to-equity ratio. As long as  $k_d$  remains constant,  $k_e$  is a constant linear function of the debt-to-equity ratio. Because the cost of capital of the firm,  $k_o$ , cannot be altered through leverage, the net operating income approach implies that there is no optimal capital structure.

The net operating income position has been advocated eloquently by David Durand. According to him, the market value of a firm depends on its net operating income and business risk. The change in the degree of leverage employed by a firm cannot change these underlying factors. Changes take place in the distribution of income and risk between debt and equity without affecting the total income and risk which influence the market value of the firm. Hence the degree of leverage cannot influence the market value or the average cost of capital of the firm.

### Illustration 9

Consider two firms MN and XY which are similar in all respects other than the degree of leverage employed by them. The following is the financial data of both these firms.

	Firm MN	Firm XY
Net Operating Income (O)	Rs.15,000	Rs.15,000
Overall Capitalization Rate ( $k_0$ )	0.17	0.17
Total Market Value (V)	Rs.88,235	Rs.88,235
Interest on Debt (F)	Rs.1500	Rs.3,500
Debt Capitalization Rate ( $k_d$ )	0.12	0.12
Market Value of Debt ( $B = F/k_d$ )	Rs.12,500	Rs.29,167
Market Value of Equity ( $S = V - B$ )	Rs.75,735	Rs.59,068
Degree of Leverage (B/S)	0.165	0.494

The equity capitalization rates of firms MN and XY are:

Firm MN:

$$\frac{\text{Equity Earnings}}{\text{Market Value of Equity}} = \frac{13,500}{75,735} = 17.83\%$$

Firm XY:

$$\frac{\text{Equity Earnings}}{\text{Market Value of Equity}} = \frac{11,500}{59,068} = 19.47\%$$

The equity capitalization rates for the above firms can also be calculated by using equation (11) i.e.,

$$k_e = k_0 + (k_0 - k_d)B/S$$

$$\text{Firm MN: } k_e = 0.17 + (0.17 - 0.12)(0.165) = 17.83\%$$

$$\text{Firm XY: } k_e = 0.17 + (0.17 - 0.12)(0.494) = 19.47\%$$

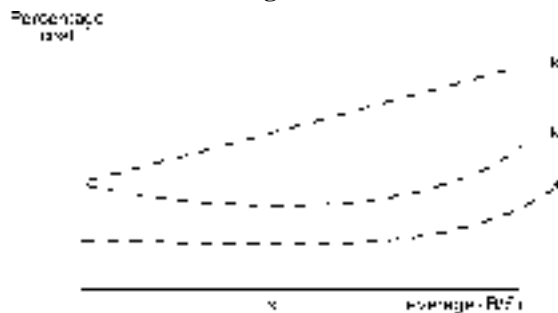
### Traditional Approach

The traditional approach has the following propositions:

- i. The cost of debt capital,  $k_d$ , remains more or less constant up to a certain degree of leverage but rises thereafter at an increasing rate.
- ii. The cost of equity capital,  $k_e$ , remains more or less constant or rises only gradually up to a certain degree of leverage and rises sharply thereafter.
- iii. The average cost of capital,  $k_0$ , as a consequence of the above behavior of  $k_e$  and  $k_d$  (a) decreases up to a certain point; (b) remains more or less unchanged for moderate increases in leverage thereafter, and (c) rises beyond a certain point.

The following is the graphical representation of the traditional approach.

Figure 4



The principal implication of the approach is that the cost of capital is dependent on the capital structure and there is an optimal capital structure which minimizes the cost of capital. In the above graph, it is the point X which is the optimal capital



structure. At the optimal capital structure, the real marginal cost of debt and equity is the same. Before the optimal point the real marginal cost of debt is less than the real marginal cost of equity and beyond the optimal point the real marginal cost of debt is more than the real marginal cost of equity. Thus, the traditional approach implies that the cost of capital is not independent of the capital structure of the firm and that there is an optimal capital structure.

**Illustration 10**

The following is a numerical Illustration of the traditional approach. This table shows the average cost of capital for a firm which has a net operating income of Rs.1,25,000 that is split variously between interest and equity earnings depending on the degree of leverage employed by the firm.

F Rs.	E Rs.	K <sub>d</sub> (%)	K <sub>e</sub> (%)	B Rs.	S Rs.	V Rs.	K <sub>o</sub> (%)
0	1,25,000	6.0	10.5	0	11,90,476	11,90,476	10.50
25,000	1,00,000	6.0	10.5	4,16,667	9,52,381	13,69,048	9.13
35,000	90,000	6.5	11.0	5,38,462	8,18,182	13,56,664	9.21
45,000	80,000	6.5	11.0	6,92,308	7,27,273	14,19,581	8.81
55,000	70,000	7.0	11.5	7,85,714	6,08,696	13,94,410	8.96
65,000	60,000	7.5	12.0	8,66,667	5,00,000	13,66,667	9.15
75,000	50,000	9.0	14.0	8,33,333	3,57,143	11,90,476	10.50
85,000	40,000	11.0	16.0	7,72,727	2,50,000	10,22,727	12.22
95,000	30,000	15.0	18.0	6,33,333	1,66,667	8,00,000	15.63
1,05,000	20,000	18.0	20.0	5,83,333	1,00,000	6,83,333	18.29

**Miller and Modigliani Approach**

Modigliani and Miller in their paper have stated that the relationship between leverage and the cost of capital is explained by the net operating income approach in terms of three basic propositions. They argue against the traditional approach by offering behavioral justification for having the cost of capital, k<sub>o</sub>, remain constant throughout all degrees of leverage. It is therefore essential to spell out the assumptions underlying their analysis.

1. Capital markets are perfect. Information is costless and readily available to all investors. There are no transaction costs, and all securities are infinitely divisible.
2. Investors are assumed to be rational and behave accordingly i.e., choose a combination of risk and return that is most advantageous to them.
3. The average expected future operating earnings of a firm are subjected by random variables. It is assumed that the expected probability distribution values of all the investors are the same. The MM theory implies that the expected probability distribution values of expected operating earnings for all future periods are the same as present operating earnings.
4. Firms can be grouped into “equivalent return” classes on the basis of their business risks. All firms falling into one class have the same degree of business risk.
5. There is no corporate or personal income tax.

**Basic Propositions**

MM derived the following three propositions based on the above assumptions.

**Proposition I:** The total market value of the firm which is equal to the total MV of debt and market value of equity is independent of the degree of leverage and is equal to its expected operating incomes discounted at the rate appropriate to its risk class.

Symbolically, it is represented as:

$$V_j = S_j + B_j = O_j / \rho_k \quad \text{.....(12)}$$

where,

- $V_j$  = total market value of the firm j
- $S_j$  = market value of the equity of the firm j
- $B_j$  = market value of the debt of the firm j
- $O_j$  = expected operating income of the firm j
- $\rho_k$  = discount rate applicable to the risk class k to which the firm j belongs.

**Proposition II:** The expected yield on equity,  $i_j$ , is equal to  $\rho_k$  plus a premium which is equal to the debt-equity ratio times the difference between  $\rho_k$  and the yield on debt,  $r$ .

Symbolically it is represented as

$$i_j = \rho_k + (\rho_k - r)B_j/S_j \quad \text{.....(13)}$$

**Proposition III:** The manner in which an investment is financed does not affect the cut-off rate for the investment decision-making for a firm in a given risk class. The proposition emphasizes the point that average cost of capital is not affected by the financing decisions as both investment and financing decisions are independent.

**Proof of MM Argument – The Arbitrage Mechanism**

To prove their argument, MM suggested an Arbitrage mechanism. Two firms X and Y in the same risk class and same expected operating incomes but with varying financial leverages are considered.

	X	Y
Expected Operating Income	O	O
Market Value of Equity	$S_x$	$S_y$
Market Value of Debt	–	$B_y$
Market Value on the Firm	$V_x$	$V_y$
Interest Rate on Debt	–	r
Interest Burden	–	$rB_y$

Consider the case wherein the unlevered firm X has a market value which is less than that of the levered firm Y, ( $V_x < V_y$ ). Now if an investor holds  $S_y$  rupees worth of equity shares of firm Y, representing a fraction of the total outstanding market value of equity shares of firm Y ( $s_y = \alpha S_y$ ), the return he gets is:

$$P_y = \alpha (O - r B_y) \quad \text{.....(14)}$$

If the same investor sells his shares i.e.,  $\alpha S_y$  worth of shares of firm Y and borrows  $\alpha B_y$  at an interest rate of  $r$  percent on his personal account, then he can purchase  $\alpha (S_y + B_y)/S_x$  of the equity shares of firm X. (For firm X,  $V_x = S_x$  since it is an all-equity firm).

After the above transactions, the return obtained by the investor would be:

$$P_x = \alpha \frac{(S_y + B_y)}{S_x} O - r \alpha B_y = \alpha \frac{V_y}{V_x} O - r \alpha B_y \quad \dots\dots(15)$$

Comparing the above equations (14) and (15) we find that as long as  $V_y > V_x$ , we have  $P_x > P_y$ , which means that the equity shareholders of firm Y will sell their shareholding and acquire shares of firm X by resorting to personal leverage since it is profitable to do so. In this process  $S_y$  (and hence  $V_y$ ) will get depressed and  $S_x$  (and hence  $V_x$ ) will rise till the equality between  $V_x$  and  $V_y$  is established. Hence, the difference in the values of the levered firm and the unlevered firm would be abolished by the personal leverage of the investors.

Next is the case wherein  $V_x > V_y$ . Here, let us put  $V_x/V_y = \beta > 1$ . For instance, if an investor holds equity shares worth  $S_x$  of firm X, representing a fraction  $\alpha_x$  of the total market value of the outstanding shares,  $S_x$ , the return he gets is:

$$P_x = \frac{S_x}{S_x} O = \alpha O \quad \dots\dots(16)$$

If he sells his shareholding worth  $\alpha V_x$  ( $V_x = S_x$ ) he can buy a fraction  $\alpha\beta$  of the equity shares and bonds of firm Y because the market value of the firm X is  $\beta$  times the market value of the firm Y which will therefore make his return equal to:

$$P_y = \alpha\beta (O - r B_y) + \alpha\beta (r B_y) = \alpha\beta O \quad \dots\dots(17)$$

without any change in the level of risk borne by him.

Comparing the above equations (16) and (17), we find that as long as  $V_x > V_y$  ( $\beta > 1$ ), we have  $P_y > P_x$  which means that equity shareholders of firm X will sell their shareholding and buy a portfolio consisting of shares and bonds of firm Y since it is profitable to do so. In the process,  $V_x$  will get depressed and  $V_y$  will rise till the equality between  $V_x$  and  $V_y$  is established. The following is an illustration to show how the arbitrage mechanism works.

**Illustration 11**

Consider two firms P and Q similar in all respects except in their capital structure. Firm P is financed by only equity, firm Q is financed by a mixture of equity and debt. The following are the financial particulars of the two firms.

	Firm P	Firm Q
Total Capital Employed	Rs.20,00,000	Rs.20,00,000
Equity Capital	Rs.20,00,000	Rs.12,00,000
Debt	–	Rs.8,00,000
Net Operating Income	Rs.2,00,000	Rs.2,00,000
Debt Interest (@5%)	–	Rs.40,000
Market Value of Debt	–	Rs.8,00,000
Equity Earnings	Rs.2,00,000	Rs.1,60,000
Equity Capitalization Rate	10%	12%
Market Value of Equity	Rs.20,00,000	Rs.13,33,333
Total Market Value of the Firm	Rs.20,00,000	Rs.21,33,333
Average Cost of Capital	10%	9.38%
Debt Equity Ratio (in terms of Market Value)	0	0.6

The market value of the levered firm Q is higher than that of the unlevered firm P. MM argue that in such a situation equityholders would sell their equity investment in firm Q and invest in the equity of firm P resorting to personal leverage. For instance, an equity investor who owns 1 percent equity in firm Q would:

1. Sell his equity in firm Q for Rs.13,333
2. Borrow 1% of the debt of the firm Rs.8,000 at 5 percent interest on personal account and
3. Buy Rs.21,333 worth of shares i.e. 1.0667 percent of the equity of firm P.

The sequence of above transactions would result in:

Income on investment in firm P (1.0667% of Rs.2,00,000)	2,133.3
Less: Interest (8,000 x 0.05)	400.0
Net Income	1,733.3

This net income is higher than a net income of Rs.1,600 forgone by selling 1 percent equity of firm Y and when the leverage ratio is the same in both the cases.

The action of a number of investors undertaking similar arbitrage transactions result in driving up the price of firm P shares, lower its equity capitalization rate, drive down the price of firm Q, and increase its equity capitalization rate. This process of arbitrage will continue till there is no further opportunity for reducing one's investment outlay and achieving the same return. As a result, the average costs of capital,  $k_o$ , would be the same. The principle involved here is simply that investors are able to reconstitute their former positions by offsetting changes in corporate leverage with changes in personal leverage.

### Criticisms of MM Proposition

#### TAXATION AND CAPITAL STRUCTURE

The irrelevance of capital structure rests on the absence of market imperfections. Though debt and equity are two different parts there is something called conservation of value, wherein the sum of parts is always the same. However, in the face of imperfections in the capital markets, the capital structure of a firm may affect the valuation i.e. the firm's valuations and cost of capital may change with changes in its capital structure.

#### CORPORATE TAXES

Presence of taxes is one of the major imperfections. Debt Financing is advantageous when taxes are applicable to corporate income. The reason is that the dividends and retained earnings are not deductible for tax purposes, whereas interest on debt is a tax-deductible expense. Hence, the combined income of stockholders and debtholders is greater when debt capital is used.

#### Illustration 12

Consider two firms A and B having an expected net operating income of Rs.5,00,000 which are similar in all respects except in the degree of leverage employed by them. Firm A employs no debt capital whereas firm B has Rs.20,00,000 in debt capital on which it pays 12 percent interest. The corporate tax rate applicable to both the firms is 50%. The income to stockholders and debtholders of both the firms is shown below.

	Rs. Firm A	Rs. Firm B
Net Operating Income	5,00,000	5,00,000
Interest on Debt	-	2,40,000
Profit before Taxes	5,00,000	2,60,000
Taxes	2,50,000	1,30,000
Profit after Tax (Income available to stockholders)	2,50,000	1,30,000
Combined Income of Debtholders and Stockholders	2,50,000	3,70,000

It is quite clear from the above table that the combined income of debtholders and stockholders of the levered firm B is higher than that of the unlevered firm A.

The explanation for this is: the interest payment of Rs.2,40,000 made by the levered firm brings a tax shield of Rs.1,20,000 (Rs.2,40,000 x Tax rate). Therefore, the combined income of the debtholders and stockholders of firm B is higher by this amount.

The present value of tax shield associated with interest payments, assuming debt to be perpetual in nature would be equal to

$$\text{Present value of tax shield} = \frac{t_c B r}{r} = t_c B \quad \dots\dots(18)$$

where,

- $t_c$  = corporate tax rate
- $B$  = market value of debt
- $r$  = interest rate on debt

In the above Illustration, for firm B, the present value of tax shield works out to:  $0.5(20,00,000) = \text{Rs.}10,00,000$  which represents the increase in market value arising from financial leverage.

In general, when corporate taxes are considered the value of the firm that is levered would be equal to the value of the unlevered firm increased by the tax shield associated with debt, i.e.

$$V = \frac{O(1-t_c)}{k} + t_c B \quad \dots\dots(19)$$

From the above equation it is quite clear that other things being equal, greater the leverage, greater is the value of the firm. This implies that the optimal strategy of a firm should be to maximize the degree of leverage in its capital structure.

**Corporate Taxes and Personal Taxes**

When personal taxes are considered along with corporate taxes and investors pay the same rate of personal taxes on debt returns as well as stock returns, the advantage of corporate tax in favor of debt capital remains intact.

Consider a 30% personal tax rate to debt as well as stock returns in the above Illustration. The income to debtholders and stockholders after taxes, both corporate and personal is calculated below:

**Personal Taxes and Income of Debtholders and Stockholders**

	Firm A	Firm B
Income available to stockholders	2,50,000	1,30,000
Less: Personal taxes at 30%	75,000	39,000
Income available to stockholders after personal tax	1,75,000	91,000
Income to debtholders	0	2,40,000
Less: Personal taxes at 30%	-	72,000
Income to debtholders after personal taxes	0	1,68,000
Combined income of stockholders and debtholders after personal taxes	1,75,000	2,59,000

From the above table, it is clear that although the combined post-tax income to stockholders and debtholders decreases in both the firms, the proportional advantage of debt remains unaffected because the combined income of stockholders and debtholders is still higher by 48% in the levered firm.

If the personal tax rate is  $t_p$  the tax advantage of debt becomes:  $t_c B(1 - t_p)$ .

The above formula is valid when personal tax rate applicable to stock as well as debt income is same as in the above Illustration. However, it is not the same in many countries including India. Stock income, which includes dividend income and capital gains is taxed at a lower rate when compared to that of debt income.

When the tax rate on stock income ( $t_{ps}$ ) differs from the tax rate on debt income ( $t_{pd}$ ) the tax advantage of debt capital may be expressed as:

$$\left[ 1 - \frac{(1-t_c)(1-t_{ps})}{(1-t_{pd})} \right] \times B$$

- $t_c$  = corporate tax rate
- $t_{pd}$  = personal tax rate on debt income
- $t_{ps}$  = personal tax rate on equity income

.....(20)

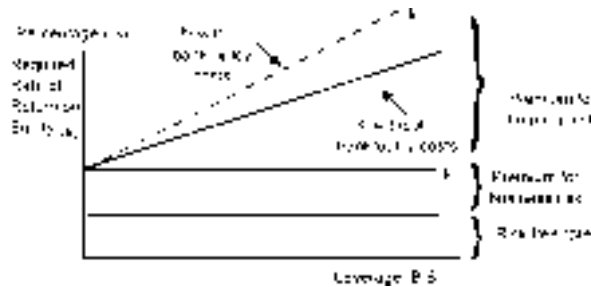
## Bankruptcy Costs

Existence of bankruptcy costs is another important imperfection affecting the capital structure. Capital Market when perfect, has no costs associated with bankruptcy. Assets of a bankrupt firm can be sold at their economic values and legal and administrative expenses are not present. However, in the real world, there are costs associated with bankruptcy. Under distress conditions, assets are sold at a significant discount below their economic values. Moreover, costs like legal and administrative costs associated with bankruptcy proceedings are high. Finally, an impending bankruptcy entails significant costs in the form of sharply impaired operational efficiency.

The probability of bankruptcy for a levered firm is higher than for an unlevered firm, other things being equal. Beyond a threshold level, the probability of bankruptcy increases at an increasing rate as the debt-equity ratio increases. This means that the expected cost of bankruptcy increases when the debt-equity ratio increases. Investors expect a higher rate of return from a firm which is faced with the prospect of bankruptcy, as bankruptcy costs represent a loss that cannot be diversified away. The following figure is a graphical representation of the relationship between the required rate of return on equity,  $k_e$ , and the leverage ratio, B/S.

### Difference Between Corporate and Home-made Leverage

Figure 5



The following are some differences between corporate and personal leverage:

- In the propositions given, MM has stated that the premium of the levered firm over unlevered firm would be abolished by resorting to personal leverage by the investors. However, he had assumed that the rate at which an individual borrows would be the same at which the corporate borrows. In reality, an individual may not be able to borrow on his personal account at the same rate of interest as a company can do. In India, the average rate of interest on personal borrowings is higher than the average rate of interest on corporate borrowings.
- The creditors simply refuse to lend individuals who want to employ a high leverage ratio. Therefore an individual cannot adopt a leverage as high as a company can do.
- The liability of an individual borrower towards the borrowed amount on his account is unlimited whereas the equity stockholders of a company have limited liability irrespective of the company's level of borrowing.

## Agency Costs

Whenever creditors are approached by a firm to obtain debt capital, they impose certain restrictions on the firm in the form of some protective covenants incorporated in the loan contract. They could be in the form of obtaining prior approval of the creditors for matters relating to key managerial appointments, maintenance of current ratio above a certain level, restriction on the rate of dividend during the currency of the loan, constraints on the additional issue of capital, limitation on further investments etc.

The above said restrictions generally entail legal and enforcement costs which also impair the operating efficiency of the firm. All these costs referred to as monitoring costs or agency costs, detract from the value of the firm.

Monitoring costs are a function of the level of debt in the capital structure. When the amount of debt is considerably less, then the creditors may limit their monitoring activity. But if the level of debt is high, then they may insist on continuous monitoring which entails substantial costs.

## **SUMMARY**

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- At one extreme, there is traditional position which states that there exists an optimal capital structure and financial leverage does affect the value of the firm. At the other end, there is MM approach which states that financial leverage does not have any impact on the value of the firm. However, there are certain imperfections like presence of taxes, bankruptcy costs, agency costs etc., which go against the latter approach.

## **Lesson 3**

# **Capital Expenditure Decisions**

**After reading this lesson, you will be conversant with:**

- Nature of the Investment or Capital Expenditure Decisions
- Scanning and Identification of Investment Opportunities
- Criteria for Preliminary Screening
- Other steps of Project Management like Feasibility Study, Implementation and Performance Appraisal
- Introduction to Network Techniques for Project Planning and Control
- Principles underlying Measurement of Costs and Benefits
- Preparing Cash Flow Projections for Projects
- Assessing the Financial Viability of Projects using the various Appraisal Criteria



## **NATURE OF INVESTMENT DECISIONS**

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Shri Shakti LPG Ltd, a Hyderabad based company, put up facilities to import and market liquified petroleum gas, at an estimated cost of Rs.103.50 crore.

- Tata Metaliks has set up a new Mini Blast Furnace with associated systems for manufacture of foundry grade pig iron.
- Lupin Chemicals Ltd. has set up a project to manufacture 'RIFAMPICIN', an anti-TB drug, at an estimated cost of Rs.8,250 lakh.
- The above items, which appeared in newspapers are typical Illustrations of capital expenditure decisions, also referred to as capital budgeting or investment decisions. Such a decision may be defined as the company's decision to invest its current funds most efficiently in long-term assets in anticipation of an expected flow of benefits over a series of years. Capital expenditure decisions occupy a very important place in corporate finance for the following reasons:
  - Once the decision is taken, it has far-reaching consequences which extend over a considerably long period, and influences the risk complexion of the firm.
  - These decisions involve huge amounts of money.
  - These decisions are irreversible once taken.
  - These decisions are among the most difficult to make when the company is faced with various potentially viable investment opportunities.

While capital expenditure decisions are extremely important, managers find it extremely difficult to analyze the pros and cons and arrive at a decision because:

- Measuring costs and benefits of an investment proposal whether it be for a mini-steel plant or a library is difficult because all costs and benefits cannot be expressed in tangible terms.
- The benefits of capital expenditure are expected to occur for a number of years in the future which is highly uncertain.
- Because the costs and benefits occur at different points of time, investment proposal, for a proper analysis of the viability of the all these have to be brought to a common time-frame. Hence time value of money becomes very relevant here.

The investment decision starts with the identification of investment opportunities and culminates in performance review after the project is implemented and operations are stabilized.

### **Identification of Potential Investment Opportunities**

Identification of appropriate investment opportunities is a complicated exercise primarily because of the innumerable investment opportunities available to a promoter. To identify such investment opportunities that are *prima facie* feasible and promising, the promoter has to:

- Scan the various sources that can throw up promising investment opportunities;
- Understand the governmental regulatory framework and policies that have a bearing on the different investments; and
- Appraise the potential investments in relation to his organization's strengths and weaknesses.

**Potential Sources for Project Ideas**

The sources that can be tapped for identifying promising investment opportunities are numerous and an attempt has been made here to describe some of the important sources.

**Market Characteristics of Different Industries**

The supply and demand conditions prevailing in the different industries can be analyzed to identify such industries which have unfulfilled demand. Such industries can be subjected to a further scrutiny to examine the present level of capacity utilization, the profitability of the existing units, and the new projects under implementation. Some instances of projects which have successfully capitalized on such unfulfilled demand are presented below:

- When Food Specialities Ltd., introduced 'Maggi' noodles in the market in the early eighties and the product gained a high degree of consumer acceptance, it became evident that a huge unsatisfied demand exists for fast foods. We have seen a number of new entrants in this industry since then.
- The market for spark plugs was virtually a monopoly of MICO until the Modi group recognized the supply-demand imbalance and promoted a new company for manufacturing spark-plugs.
- Perceiving the popularity of 'Surf' in the premium detergents market, Karsan Bhai Patel saw an opportunity to sell detergents to the lower strata of the market, and launched 'Nirma'.

**Product Profiles of Various Industries**

A study of the end-products (including by-products) of the various industries can throw up new project ideas. The following examples are relevant in this regard:

- An analysis of the inputs required for the various industries can also help in the identification of new projects.
- Linear Alkyl Benzene (LAB), an important input in manufacturing detergents was in short-supply a few years ago. Perceiving the need for this raw material, SPIC floated a new project for manufacturing LAB and many others have followed suit.
- In many industries dominated by large firms, small firms can concentrate on producing components or other specialized parts for the larger firms. Ford Motors, for example, at one time produced their own car window frames but found it more suitable to contract this work out as they could not benefit from the economies open to the specialist firm. In the Indian context, we have the illustrations of Ashok Leyland and Maruti Udyog which depend upon a large network of ancillary units for manufacturing specific components or parts.

**Imports and Exports**

The government is keen on promoting export-oriented industries and import-substitution industries. Therefore the promoter might find it advantageous to analyze the trends in exports and imports over the last five to six years, to identify potential investment opportunities. Two examples and a potential idea are given here:

- Cold-rolled coils and many other steel derivatives worth Rs.1,500 crore are imported by India every year. Ispat Profiles India Ltd. identified an opportunity to produce these items indigenously and their project has been doing extremely well.
- ATV group of companies, mainly engaged in Cardamom exports, found an export market for cut flowers and tissue culture plants and have successfully commissioned an export-oriented project for this purpose.

While examining the end-products of a particular industry, it may also be worthwhile to analyze whether one can improve upon the product or find new uses for the existing product. For example Sinter Plast Containers recognized that the

storage tanks made of low density polythene are functionally better suited than the conventional storage tanks for storing water and chemicals. This improved version has indeed gained considerable acceptance in the market.

### **Emerging Technologies**

Analyzing the commercial viability of some of the indigenously developed technologies or adapting the imported technologies to suit the local requirements can result in identification of potential investment opportunities. The Technology Development and Infrastructure Corporation of India (TDICI) set up by the ICICI and similar venture capital windows promoted by the other financial institutions can provide useful ideas in this regard. The success story of Xerox Corporation in the United States is in fact based on the successful exploitation of a new technology.

- Xeroxography was invented in 1938 by Carlson but he could not sell the technology to business firms successfully. Even IBM was not convinced that it is a promising idea. Xerox Corporation adopted the idea in 1960, and launched photo-copiers with astounding success.
- Hindustan Computers Ltd. Hewlett Packard (HCL-HP) has launched a new computer system based on Intel Corporations Pentium 586 chip. The Pentium 586 processor which is said to be 10 times faster than the normal processor was launched internationally only a month before HCL-HP launched its new system in India.

### **Social and Economic Trends**

An entrepreneur who is quick to spot changes in the social and economic status of the population can identify new opportunities for investment. For instance, there has been a perceptible increase in the demand for readymade garments, and garment units which have spotted this change rather early have successfully exploited the opportunity. Likewise, the middle-income group are becoming less averse to buying goods on credit and recognizing this trend, many finance companies are launching innovative consumer financing schemes.

### **Consumption Patterns in Foreign Countries**

An analysis of the consumption patterns abroad can provide clues for launching new projects. To give an example, Brooke Bond and Food Specialities promoted projects for manufacturing granulated coffee in India after recognizing a shift in the consumption pattern abroad from powdered instant coffee to granulated coffee.

### **Revival of Sick Units**

A sick unit presents a potential investment opportunity to an entrepreneur who has the capability of turning it around. To illustrate:

- Nutrine confectioneries tookover an ailing biscuit manufacturing unit in Andhra Pradesh and turned it around. Likewise Gujarat Narmada Auto tookover Ginnar Scooters as a part of its diversification strategy and successfully revitalized the unit. (However, subsequently Gujarat Narmada Auto became sick and was closed down).
- SPIC tookover the loss-making caustic soda plant of Kothari Industrial Corporation Limited and at the same time promoted a downstream petrochemical unit to effectively utilize the chlorine which results as a by-product in the process of manufacturing caustic soda. The downstream unit will manufacture polyglycol and polyol which are imported at present.
- Baroda Fibres and Chemicals Company's attempt to takeover Calico Mills, the one time flagship company of the Sarabhai Group, a sick unit referred to BIFR, with the hope of turning it around.

### **Backward and Forward Integration**

Many units find an opportunity to use their own output to make other products. The advantage is that the output can be captively consumed to make better value-added products.

- Deepak Fertilizers and Chemicals has been the only producer of ammonia in the private sector. Since ammonia prices are administered by the government, the company was not able to maintain its profitability. It has therefore decided to set up a new project to manufacture ammonia-based fertilizers and thereby improve its profit potential.

### **Chance Factors**

Sometimes investment opportunities are identified by sheer chance like in the following instance:

- Satya Prakash Mathur hit upon the idea of making domestic mixers when his wife complained that their imported mixer had succumbed to Indian conditions. He designed and manufactured 'Sumeet' mixers to cater to Indian kitchens.

### **Regulatory Framework and Policies**

An entrepreneur scouting for suitable investment opportunities must familiarize himself with those economic legislations, governmental guidelines and policies that have a bearing on the identification and implementation of projects. Some of the legislations to be studied in this regard are: the Industries (Development and Regulation) Act, Income Tax Act and the Foreign Exchange Management Act. Besides these legislations, the Industrial policy statements, the guidelines governing foreign collaboration and investment, the incentives and subsidy schemes of the government, and the fiscal policy of the government also influence in the choice of projects.

The entrepreneur will also do well to look for distinct shifts in the priorities of the government in the recent years and assess the implications of such priorities for investments in different industries because other things being equal, a project which is in line with the governmental priorities is a better bet than a project which is not.

Now that the Indian economy is opening up and is on the way to globalization, foreign companies are also on the look out for investment opportunities in India.

- CRA Exploration Pvt. Ltd, an Australian mining company had submitted a proposal to explore the potential for diamonds in Kurnool and Ananthapur districts of Andhra Pradesh.

### **Preliminary Screening**

The list of promising investment opportunities identified from various sources is first subjected to an analysis within the governmental regulatory framework to obtain a set of feasible investment opportunities that merit further consideration. It is a tedious task to undertake a detailed appraisal of each of these opportunities; hence the list has to be further narrowed down by evaluating the investments against certain specific criteria and selecting only those investments that are prima facie desirable. The criteria that are typically applied for the preliminary evaluation are:

- Compatibility with the Promoter.
- Compatibility with Governmental Priorities.
- Availability of Raw Materials and Utilities.
- Size of the Potential Market.
- Reasonableness of Cost.
- Risk Inherent in the Project.

These criteria are briefly examined here.

#### **Compatibility with the Promoter**

Any entrepreneur promoting a new project must ensure that the physical, financial, and human resources available at his disposal are adequate to meet the requirements of the project under review. Many diversification projects have failed because of the

incompatibility between the promoter's strengths and the project requirements. An example in this regard can be the unsuccessful attempt made by Brooke Bond to enter the two-wheeler automobile market by taking over Karnataka Scooters Limited. Similarly, Bush's entry into the Color TV market was not entirely successful and it has taken a decision to come back to the business it knows best – audio systems, though it still plans to manufacture Black & White TV sets.

### **Compatibility with Governmental Priorities**

It is preferable that the project under review does not run counter to the governmental priorities. Besides it is also necessary to ensure that the promoter does not violate any governmental guidelines and/or legislations that have a bearing on the choice of investment. For example, a medium-scale unit cannot embark on a project or manufacturing tooth-powder because it is a product reserved for the small-scale sector. Likewise, a private corporate promoter cannot undertake an activity included in Schedule A of the Industrial Policy Resolution of 1956.

### **Availability of Inputs**

The importance of this factor cannot be over-emphasized because business history is replete with instances of project failures on account of non-availability or scarcity of critical inputs. The various inputs, the availability of which needs to be verified, include raw materials, utilities, the technology involved etc. Apart from the availability of inputs, the costs involved in obtaining these inputs must also be examined because adverse variation in input costs can significantly affect the viability of the project. For example, the successive revaluations in the exchange value of yen over the last few years resulted in a sharp increase in the input costs of Maruti Udyog because it was importing auto-components in large numbers from Japan.

### **Size of the Potential Market**

The size of the present domestic and export markets, the projected increase in consumption, the competitors' profiles and their market shares, the barriers to the entry of new units, the availability of substitute-products, and the pace of technological development in the industry concerned are some of the important factors to be assessed while subjecting the project to a preliminary evaluation.

### **Reasonableness of Cost**

The cost structure of the product must be examined to see whether the desired profit margin can be attained with a competitive price. A break down of the product cost in terms of raw materials cost, labor cost, factory overheads, selling and distribution overheads, and after sales service costs is often helpful for this analysis.

### **Acceptability of Risk Level**

The risk characterizing the project must be carefully assessed taking into account the different sources of risk like technological changes, availability of substitutes, competitive forces and cyclical effects.

### **Feasibility Study**

Once a project opportunity is conceived and it is considered acceptable after preliminary screening, a detailed feasibility study has to be undertaken covering marketing, technical, financial, and economic aspects of the project. The study in the form of a Detailed Project Report (DPR) will contain fairly specific estimates of project cost, means of financing, schedules of implementation, estimates of profitability based on projected sales and production costs, estimates of cost and benefit streams in terms of cash flows, debt servicing capability<sup>1</sup> of the project and social profitability. The ultimate decision whether to go in for the project or not and how to finance it, is undertaken after this study which discloses whether the project is technically feasible, economically viable and financially sound.

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<sup>1</sup> Debt servicing capability refers to the ability of the project to generate sufficient cash flows to repay the debt taken to finance the project. This includes the principal along with the interest component.

## Implementation

The implementation of a project i.e., translating the investment proposal into a concrete project is a highly complicated, time consuming, tension-fraught and risky affair. The various stages of implementation are:

- Construction of buildings and other civil works, erection and installation of machinery, preparation of blueprints and designs for project and plant engineering, selection of machineries and equipment.
- Negotiating for project finance with various financial institutions, entering into technical know-how agreements if necessary, entering into contracts for construction of buildings, supply of machinery, marketing of the company's products etc.
- Actual construction and installation of equipment.
- Training of engineers, technicians, workers, etc.
- Commissioning of plant and trial run.
- Commercial Production.

## Project Delays

It is quite common for projects in India to be inordinately delayed due to a hoard of reasons like setting wrong target date, mistake in tender specifications due to which a lot of equipment cannot be fitted and goes waste, delay in arrival of materials, unskilled labor, etc. which lead to huge cost overruns and subsequent revision of project cost and the search for additional financing over and above the finance already sanctioned, which can in no way meet the cost overruns.

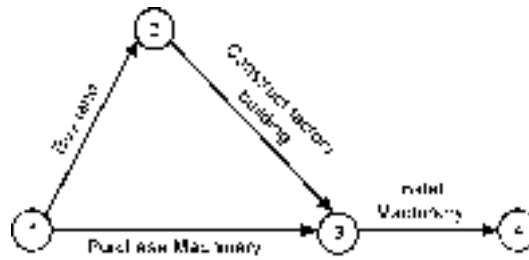
- The project of Ready Foods Limited to promote a 100% EOU (Export Oriented Unit) which will process and freeze fruits, vegetables, delicacies etc., for export was originally appraised by IDBI in November, 1991 and the project cost was estimated to be Rs.5,710 lakh. There was a cost escalation of about Rs.650 lakh due to delay in project implementation, which raised the project cost to Rs.6,360 lakh in March, 1993. The company had to raise Rs.6,360 lakh, which it proposed to do by issue of equity shares to the public and by taking loans, together amounting to Rs.5,465 lakh, the balance of Rs.895 lakh to be brought in by the promoters as their contribution.

For expeditious implementation of projects, it is helpful if,

- the projects are formulated adequately so that all aspects of the project are covered and targets are set on time;
- specific responsibilities are assigned to project managers for completing the project within the defined time-frame;
- network techniques like PERT (Program Evaluation Review Technique) and CPM (Critical Path Method) are used. These are ideal tools for project planning and control developed in the late 1950s. While CPM was developed for construction projects, PERT was developed for Research and Development projects. Both PERT and CPM present various activities of a project in the form of a network. A project may be split into various activities which have precedence relationships among them. This means that an activity in the project may require some other activities in it to be completed first before it can be started. Certain other activities can be carried on in tandem. When these activities are set out in the form of a network, it is called a network technique and this establishes the logical relationships between activities and also helps to analyze various project characteristics.

A simple network for the setting up of a plant can be shown as follows:

Figure 1



**Note :** The above network has been designed using the major activities in setting up a plant. Actually, each major activity has to be split up into several activities like calling for quotations, entering into contracts for building, machinery, finance etc., installation of electricity, water supply, etc.

### Performance Review

Once the project has been implemented, the trial run is successful, and commercial production is started, a review of the actual performance with the performance projected in the feasibility study is required. This is an integral and vital part of project management because:

1. It throws light on how realistic were the assumptions underlying the project.
2. It is a valuable tool for decision-making in future.

### Aspects of Project Appraisal

The appraisal of a project includes the following types of appraisal:

- Market Appraisal.
- Technical Appraisal.
- Financial Appraisal.
- Economic Appraisal.

### MARKET APPRAISAL

The market appraisal is attempted to answer two important questions:

- What is the size of the total market for the proposed product or service?
- What will be the project's share of the total market?

Answers to both these questions are equally important because a dominant position in a rapidly shrinking market is certainly not a better proposition than a meagre share of a large market. To answer these questions, the market analyst compiles and analyzes the data relating to the following aspects<sup>2</sup>:

- Past and present consumption trends
- Present and prospective supply position
- Level of imports and exports
- Structure of competition
- Price and cross-elasticity of demand<sup>3</sup>
- Consumer requirements, and
- Production constraints.

Based on the available data, the market analyst estimates the future demand using an appropriate forecasting technique or a combination of forecasting techniques.

<sup>2</sup> The list is only illustrative and not exhaustive.

<sup>3</sup> Price-elasticity of demand for a product refers to the responsiveness of the quantity demanded to a given change in its price. Cross-elasticity of demand on the other hand refers to the responsiveness of the quantity demanded of a product to a given change in the price of a related product. Cross-elasticity of demand needs to be analyzed for a product which has a close substitute or complementary product. For instance, tea and coffee being substitutes, an increase in the price of tea can result in an increase in the demand for coffee, and vice-versa. Likewise a steep hike in the price of petrol can have an adverse impact on the demand for cars in general, large cars in particular, and may have some impact even on the demand for tyres.

## TECHNICAL APPRAISAL

As the name suggests, this appraisal is done to ensure that all technical aspects related to the successful commissioning of the project have been taken care of. The important issues considered in this appraisal are:

- Availability of the required quality and quantity of raw materials and other inputs;
- Availability of utilities like power, water, etc.;
- Appropriateness of the plant design and layout;
- The proposed technology vis-à-vis the alternative state-of-the-art technologies available;
- Optimality of the scale of operations;
- The technical specifications of the plant and machinery in relation to the proposed technology; and
- Assembly line balancing.

## FINANCIAL APPRAISAL

The financial appraisal looks at return and risk characterising the project and examines whether the risk adjusted return exceeds the cost of financing the project. For this purpose, the financial analyst compiles data on the cost of project, means of financing, and projected revenues and costs. Based on this data, he works out the net cash flows expected from the project and appraises these cash flows in terms of various criteria of merit like payback, IRR, etc.

## ECONOMIC APPRAISAL

In addition to financial appraisal, most of the projects sponsored by government authorities are subjected to a social cost benefit analysis (otherwise known as economic appraisal) to adjudge whether the project is desirable from the social point of view. Some of the issues considered in this analysis are:

- Impact of the project on the distribution of income in society,
- Impact of the project on the level of savings and investment in the society, and
- Contribution of the project towards socially desirable objectives like self-sufficiency, employment, etc.

For the successful implementation of a project, each step of the capital budgeting process is equally important. As students of Corporate Finance, we must be aware of all the aspects of Project Management, and be thoroughly proficient to appraise a project in relation to its financial aspects. This is discussed in detail in the next section.

## FINANCIAL APPRAISAL OF A PROJECT

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The financial appraisal of a project can be viewed as a two-step procedure:

### Step 1

Define the stream of cash flows (both inflows and outflows) associated with the project.

### Step 2

Appraise the cash flow stream to determine whether the project is financially viable or not.

This section covers these two steps in greater detail. The first part of this section deals with the principles underlying measurement of cash flows and the second part discusses the criteria employed for appraising the financial viability. But before we discuss these aspects, we should be aware of the two important assumptions that underlie our discussions: (a) The cash flows occur only once a year, (b) The risk characterizing the project is similar to the risk complexion of the ongoing projects of the firm. While the first assumption is made to simplify the calculations, the second assumption is made for the sake of explanation.



## DEFINING COSTS AND BENEFITS

The important principles underlying measurement of costs (outflows) and inflows (benefits) are as follows:

- All costs and benefits must be measured in terms of cash flows. This implies that all non-cash charges (expenses) like depreciation which are considered for the purpose of determining the profit after tax must be added back to arrive at the net cash flows for our purpose. (Illustrations 1, 2 and 3 of this chapter clarify this aspect.)
- Since the net cash flows relevant from the firm's point of view are what that accrue to the firm after paying tax, cash flows for the purpose of appraisal must be defined in post-tax terms.
- Usually the net cash flows are defined from the point of view of the suppliers of long-term funds<sup>4</sup> (i.e., suppliers of equity capital plus long-term loans).
- Interest on long-term loans must not be included for determining the net cash flows. The rationale for this principle is as follows: Since the net cash flows are defined from the point of view of suppliers of long-term funds, the post-tax cost of long-term funds will be used as the interest rate for discounting. The post-tax cost of long-term funds obviously includes the post-tax cost of long-term debt. Therefore if interest on long-term debt is considered for the purpose of determining the net cash flows, there will be an error of double-counting.
- The cash flows must be measured in incremental terms. In other words, the increments in the present levels of costs and benefits that occur on account of the adoption of the project are alone relevant for the purpose of determining the net cash flows.

Some implications of this principle are as follows:

- If the proposed project has a beneficial or detrimental impact on say, the other product lines of the firm, then such impact must be quantified and considered for ascertaining the net cash flows.
- Sunk costs must be ignored. For example, the cost of existing land must be ignored because money has already been sunk in it and no additional or incremental money is spent on it for the purposes of this project.
- Opportunity costs associated with the utilization of the resources available with the firm must be considered even though such utilization does not entail explicit cash outflows. Example, while the sunk cost of land is ignored, its opportunity cost i.e., the income it would have generated if it had been utilized for some other purpose or project must be considered.
- The share of the existing overhead costs which is to be borne by the end product(s) of the proposed project must be ignored.

The application of these principles in the measurement of the cash flows of a project are illustrated by the following illustrations:

### Illustration 1

Anand, a chemical engineer with 15 years of experience, and Prakash, a pharmacy graduate with 18 years of experience, are evaluating a pharmaceutical formulation. They have estimated the total outlay on the project to be as follows:

Plant & Machinery	:	Rs.36 lakh
Working Capital	:	Rs.24 lakh
The proposed scheme of financing is :	:	
Equity Capital	:	Rs.16 lakh
Term Loan	:	Rs.26 lakh
Trade Credit	:	Rs.8 lakh
Working Capital Advance	:	Rs.10 lakh

<sup>4</sup> Cash flows can also be defined either exclusively from the point of view of equity shareholders or from the view point of the suppliers of both long-term and short-term funds. Suppliers of short-term funds will include commercial banks which provide short-term loans and trade-creditors.

The project has an expected life of 10 years. Plant & Machinery will be depreciated at the rate of 33 1/3 percent per annum as per the written down value method. The expected annual sales would be Rs.80 lakh, and the cost of sales (including depreciation but excluding interest) is expected to be Rs.50 lakh per year. The tax rate of the company will be 50 percent. Term-loan will carry 14 percent interest and will be repayable in 5 equal annual installments, beginning from the end of the first year. Working capital advance will carry an interest rate of 17 percent and, thanks to the 'rollover' phenomenon, will have an indefinite maturity.

Define the cash flows for the first three years from the long-term funds point of view.

Note: the rates of interest quoted above are hypothetical and not in tune with present prevalent rates.

**Solution**

**Net Cash Flows Relating to Long-term Funds**

(Rs. in lakh)

Year	0	1	2	3
A. Investment	(42.00)			
B. Sales		80.00	80.00	80.00
C. Operating costs (excluding depreciation)		38.00	42.00	44.67
D. Depreciation		12.00	8.00	5.33
E. Interest on working capital advance		1.70	1.70	1.70
F. Profit before tax		28.30	28.30	28.30
G. Tax		14.15	14.15	14.15
H. Profit after tax		14.15	14.15	14.15
I. Initial flow	(42.00)			
K. Operating flow (= H + D) + I(1 - t)		26.15	22.15	19.48
L. Net cash flow (= I + K)	(42.00)	26.15	22.15	19.48

**Explanatory Notes**

The investment outlay has to be considered from the point of view of the suppliers of long-term funds. In the given Illustration, we find that Rs.18 lakh out of the investment of Rs.24 lakh in current assets is financed by way of trade-credit and working capital advance. The difference of Rs.6 lakh is called the working-capital margin i.e., the contribution of the suppliers of long-term funds towards working capital. Therefore, the investment outlay relevant from the long-term funds point of view will be equal to investment in plant and machinery + working capital margin = Rs.42 lakh.

Since depreciation is a non-cash charge which has to be added to the profit after tax, this charge must be disclosed separately in the cash flow statement and not clubbed with other operating costs. Further, the depreciation charge to be considered here will be the tax-relevant charge. In other words, the depreciation must be computed in accordance with the method and rate(s) prescribed by the Income Tax Act, 1961.

While interest on long-term debt must be excluded for reasons discussed earlier, interest on short-term bank borrowings must be included in the cash flow statement.

In the Illustration discussed above, we have defined the cash flows only over the first three years of the project's life. But in practice cash flows are defined over the entire project life or over a specified time horizon (if the project life is too long). If the cash flows are defined over the entire life of the project, then the estimated

salvage value<sup>5</sup> of the investment in plant and machinery and the working capital must be considered for determining the net cash flow in the terminal year. If the cash flows are defined over a specified time horizon, a notional salvage value is taken into account in the final year of the time horizon.

The following illustration illustrates this point:

**Illustration 2**

A capital project involves the following outlays:

(Rs. in lakh)	
Plant and machinery	180
Working Capital	120

The proposed scheme of financing is as follows:

(Rs. in lakh)	
Equity	100
Long-term loans	104
Trade credit	36
Commercial banks	60

The project has a life of 10 years. Plant and machinery are depreciated at the rate of 15 percent per annum as per the written down value method. The expected annual net sales is Rs.350 lakh. Cost of sales (including depreciation, but excluding interest) is expected to be Rs.190 lakh a year. The tax rate of the company is 60 percent. At the end of 10 years plant and machinery will fetch a value equal to their book value and the investment in working capital will be fully recovered. The long-term loan carries an interest of 14 percent per annum. It is repayable in eight equal annual installments starting from the end of the third year. Short-term advance from commercial banks will be maintained at Rs.60 lakh; and will carry interest at 18 percent per annum. It will be fully liquidated after 10 years. Trade credit will also be maintained uniformly at Rs.36 lakh and will be fully paid back at the end of the tenth year.

Calculate the cash flow stream from the long-term funds point of view.

**Solution**

**Cash Flows Relating to Long-Term Funds**

	(Rs. in lakh)										
	0	1	2	3	4	5	6	7	8	9	10
A. Investment	(204.00)										
B. Sales		350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00
C. Cost of sales		163.00	167.05	170.49	173.42	175.91	178.02	179.82	181.34	182.64	183.75
D. Depreciation		27.00	22.95	19.51	16.58	14.09	11.98	10.18	8.66	7.36	6.25
E. Profit before interest and taxes		160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00
F. Interest on ST bank borrowing		10.80	10.80	10.80	10.80	10.80	10.80	10.80	10.80	10.80	10.80
G. Profit before taxes		149.20	149.20	149.20	149.20	149.20	149.20	149.20	149.20	149.20	149.20
H. Tax		89.52	89.52	89.52	89.52	89.52	89.52	89.52	89.52	89.52	89.52
I. Profit after tax		59.68	59.68	59.68	59.68	59.68	59.68	59.68	59.68	59.68	59.68
J. Net salvage value of fixed assets											35.44
K. Net salvage of current assets											120.00
L. Retirement of trade credit											(36.00)
M. Payment of ST bank borrowing											(60.00)
N. Net Cash Flow											
= -A + I + D + J + K - L - M	(204.00)	86.68	82.63	79.19	76.26	73.77	71.66	69.86	68.34	67.04	125.37

5 Estimating the salvage values of capital equipment is indeed a complicated task given the absence of a secondary market for used capital equipments and the numerous factors that influence the estimation of salvage value which are difficult to predict.

**Explanatory Notes**

- Net salvage value of fixed assets will be equal to the salvage value of fixed assets less any income tax that may be payable on the excess of the salvage value over the book value. Likewise there will be a tax shield on the loss, if any, incurred at the time of disposing of the fixed assets. According to tax laws, the net salvage value of any individual item off plant and machinery has lost its significance and therefore for our purposes, we will ignore the impact of tax on the salvage value. In other words, we will take only the gross salvage value into consideration.
- The depreciation rate assumed in this problem is not indicative of the current rates in force.
- In working out the cash flows, deduction available for a new project under Section 80 I of the Income Tax Act has been ignored.
- Our Illustrations have so far been focused on estimating cash flows for a new project. The following illustration illustrates estimation of cash flows for a replacement project.

**Illustration 3**

Sandals Inc. is considering the purchase of a new leather cutting machine to replace an existing machine that has a book value of Rs.3,000 and can be sold for Rs.1,500. The estimated salvage value of the old machine in four years would be zero, and it is depreciated on a straight-line basis. The new machine will reduce costs (before tax) by Rs.7,000 per year, i.e., Rs.7,000 cash savings over the old machine. The new machine has a four year life, costs Rs.14,000 and can be sold for an expected amount of Rs.2,000 at the end of the fourth year. Assuming straight-line depreciation, and a 40% tax rate, define the cash flows associated with the investment. Assume that the straight-line method of depreciation is used for tax purposes.

**Solution**

**Cash Flows Associated with Replacement Decision**

(in Rs.)

Year	0	1	2	3	4
1. Net investment in new machine	(12,500)				
2. Savings in costs		7,000	7,000	7,000	7,000
3. Incremental depreciation		2,250	2,250	2,250	2,250
4. Pre-tax profits		4,750	4,750	4,750	4,750
5. Taxes		1,900	1,900	1,900	1,900
6. Post-tax profits		2,850	2,850	2,850	2,850
7. Initial flow (= (1))	(12,500)				
8. Operating flow (= (6) + (3))		5,100	5,100	5,100	5,100
9. Terminal flow					2,000
10. Net cash flow (= (7) + (8) + (9))	(12,500)	5,100	5,100	5,100	7,100

**Working Notes**

Computation of depreciation:

Existing leather-cutting machine

Rs.3,000/4 = Rs.750 per annum

New leather-cutting machine

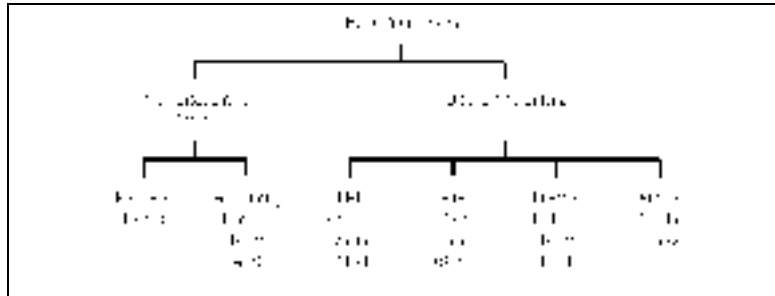
Rs.12,000/4 = Rs.3,000 per annum

Incremental depreciation = Rs.2,250 per annum.

## APPRAISAL CRITERIA

Having defined the costs and the benefits associated with a project, we are now ready to examine whether the project is financially desirable or not. A number of criteria have been evolved for evaluating the financial desirability of a project. These criteria can be classified as follows:

Figure 2



### Payback Period

The payback period measures the length of time required to recover the initial outlay in the project. For example, if a project with a life of 5 years involves an initial outlay of Rs.20 lakh and is expected to generate a constant annual inflow of Rs.8 lakh, the payback period of the project =  $20/8 = 2.5$  years. On the other hand if the project is expected to generate annual inflows of, say Rs.4 lakh, Rs.6 lakh, Rs.10 lakh, Rs.12 lakh and Rs.14 lakh over the 5 year period the payback period will be equal to 3 years because the sum of the cash inflows over the first three years is equal to the initial outlay.

In order to use the payback period as a decision rule for accepting or rejecting the projects, the firm has to decide upon an appropriate cut-off period. Projects with payback periods less than or equal to the cut-off period will be accepted and others will be rejected. The payback period is a widely used investment appraisal criterion for the following reasons:

- It is simple in both concept and application;
- It helps in weeding out risky projects by favoring only those projects which generate substantial inflows in earlier years.

The payback period criterion however suffers from the following serious shortcomings:

It fails to consider the time value of money, the importance of which has already been discussed at length.

- The cut-off period is chosen rather arbitrarily and applied uniformly for evaluating projects regardless of their life spans. Consequently the firm may accept too many short-lived projects and too few long-lived ones.
- Since the application of the payback criterion leads to discrimination against projects which generate substantial cash inflows in later years, the criterion cannot be considered as a measure of profitability.

To incorporate the time value of money in the calculation of payback period some firms compute what is called the “discounted payback period”. In other words, these firms discount the cash flows before they compute the payback period. For instance if a project involves an initial outlay of Rs.10 lakh, and is expected to generate a net annual inflow of Rs.4 lakh for the next 4 years, the discounted pay back will be that value of ‘n’ for which

$$4x \text{PVIFA}_{(12, n)} = 10 \quad \dots\dots(1)$$

Assuming the cost of funds to be 12 percent.

Equation (1) can be re-written as

$$PVIFA_{(12, n)} = 2.5$$

From PVIFA Tables, we find that

$$PVIFA_{(12,3)} = 2.402$$

$$PVIFA_{(12,4)} = 3.037$$

Therefore, 'n' lies between 3 and 4 years and is approximately equal to 3.15 years<sup>6</sup>. We find the discounted pay back period is longer than the undiscounted pay back period which will be 2.5 years in this case.

Evaluating the discounted pay back period as an appraisal criterion, we find it to be a whisker better than the undiscounted pay back period. It considers the time value of money and thereby does not give an equal weight to all flows before the cut-off date. But it still suffers from the other shortcomings of the pay back period. This criterion also depends on the choice of an arbitrary cut-off date and ignores all cash flows after that date. In practice, companies do not give much importance to the payback period as an appraisal criteria.

### Accounting Rate of Return

The accounting rate of return or the book rate of return is typically defined as follows:

$$\text{Accounting Rate of Return (ARR)} = \frac{\text{Average Profit After Tax}}{\text{Average book value of the investment}}$$

To use it as an appraisal criterion, the ARR of a project is compared with the ARR of the firm as a whole or against some external yard-stick like the average rate of return for the industry as a whole. To illustrate the computation of ARR consider a project with the following data:

(Amount in Rs.)

Year	0	1	2	3
Investment	(90000)			
Sales Revenue		120000	100000	80000
Operating expenses (excluding depreciation)		60000	50000	40000
depreciation		30000	30000	30000
Annual Income		30000	20000	10000

$$\text{Average annual income} = \frac{30,000 + 20,000 + 10,000}{3} = 20,000$$

$$\text{Average net book value of investment} = \frac{90,000 + 0}{2} = 45,000$$

$$\text{Accounting rate of return} = \frac{(20,000)}{(45,000)} \times 100 = 44 \text{ percent}$$

The firm will accept the project if its target average rate of return is lower than 44 percent.

As an investment appraisal criterion, ARR has the following merits:

- Like payback criterion, ARR is simple both in concept and application. It appeals to businessmen who find the concept of rate of return familiar and easy to work with rather than absolute quantities.
- It considers the returns over the entire life of the project and therefore serves as a measure of profitability (unlike the payback period which is only a measure of capital recovery).

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<sup>6</sup>  $n = 3 + (4 - 3) \times \frac{2.500 - 2.402}{(3.037 - 2.402)} = 3.15$

This criterion, however, suffers from several serious defects. First, this criterion ignores the time value of money. Put differently, it gives no allowance for the fact that immediate receipts are more valuable than the distant flows and results giving too much weight to the more distant flows. Second, the ARR depends on accounting income and not on the cash flows. Since cash flows and accounting income are often different and investment appraisal emphasizes cash flows, a profitability measure based on accounting income cannot be used as a reliable investment appraisal criterion. Finally, the firm using ARR as an appraisal criterion must decide on a yard-stick for judging a project and this decision is often arbitrary. Often firms use their current book-return as the yard-stick for comparison. In such cases if the current book return of a firm tends to be unusually high or low, then the firm can end up rejecting good projects or accepting bad projects.

**NET PRESENT VALUE (NPV)**

We have already discussed the concept of present value and the method of computing the present value in the chapter on time value of money. The net present value is equal to the present value of future cash flows and any immediate cash outflow. In the case of a project, the immediate cash flow will be investment (cash outflow) and the net present value will be therefore equal to the present value of future cash inflows minus the initial investment. The following illustration illustrates this point.

**Illustration 4**

Consider the project described in illustration 18.3. Compute the net present value of the project, if the cost of funds to the firm is 12 percent.

**Solution**

The net cash flows of the project and their present values are as follows:

Year	1	2	3	4
Net cash flow (Rs.)	5100	5100	5100	7100
PVIF @ k = 12%	0.893	0.797	0.712	0.636
Present value (Rs.)	4554	4065	3631	4516

Net present value

$$\begin{aligned}
 &= (-12,500) + (4,554 + 4,065 + 3,631 + 4,516) \\
 &= \text{Rs. } (-12,500 + 16,766) \\
 &= \text{Rs. } 4,266
 \end{aligned}$$

The decision rule based on the NPV criterion is obvious. A project will be accepted if its NPV is positive and rejected if its NPV is negative. Rarely in real life situations, we encounter a project with NPV exactly equal to zero. If it happens, theoretically speaking, the decision-maker is supposed to be either indifferent in accepting or rejecting the project. But in practice, NPV in the neighborhood of zero, calls for a close review of the projections made in respect of such parameters that are critical to the viability of the project because even minor adverse variations can mar the viability of such marginally viable projects.

The NPV is a conceptually sound criterion of investment appraisal because it takes into account the time value of money and considers the cash flow stream in its entirety. Since net present value represents the contribution to the wealth of the shareholders, maximizing NPV is congruent with the objective of investment decision making viz., maximization of shareholders' wealth. The only problem in applying this criterion appears to be the difficulty in comprehending the concept per se. Most non-financial executives and businessmen find 'Return on Capital Employed' or 'Average Rate of Return' easy to interpret compared to absolute values like the NPV.

**Benefit-Cost Ratio (BCR)**

The benefit-cost ratio (or the Profitability Index) is defined as follows:

$$BCR = \frac{PV}{I}$$

where

- BCR = Benefit Cost Ratio
- PV = Present Value of Future Cash Flows
- and I = Initial Investment

A variant of the benefit-cost ratio is the net benefit-cost ratio (NBCR) which is defined as:

$$\begin{aligned} NBCR &= NBCR = \frac{NPV}{I} \\ &= \frac{PV - I}{I} \\ &= \frac{PV}{I} - 1 \\ &= BCR - 1 \end{aligned}$$

The BCR and NBCR for the project described in illustration 18.4 will be:

$$\begin{aligned} BCR &= 16,766/12,500 = 1.34 \\ NBCR &= 4,266/12,500 = 0.34 \end{aligned}$$

The decision-rules based on the BCR (or alternatively the NBCR) criterion will be as follows:

- If - Decision Rule
- BCR > 1 (NBCR > 0) Accept the project
- BCR < 1 (NBCR < 0) Reject the project

Since the BCR measures the present value per rupee of outlay, it is considered to be a useful criterion for ranking a set of projects in the order of decreasingly efficient use of capital. But there are two serious limitations inhibiting the use of this criterion. First, it provides no means for aggregating several smaller projects into a package that can be compared with a large project. Second, when the investment outlay is spread over more than one period, this criterion cannot be used. The following illustration illustrates the first limitation.

**Illustration 5**

Zeta Limited is considering 4 projects – A, B, C, and D with the following characteristics:

	Initial Investment (Year 0)	Annual Net Cash Flow (Years 1 to 5)
A	(20)	7.5
B	(4.5)	1.5
C	(7)	2.5
D	(8)	3.5

The funds available for investment are limited to Rs.20 lakh and the cost of funds to the firm is 14 percent. Rank the 4 projects in terms of the NPV and BCR criteria. Which project(s) will you recommend given the limited supply of funds?



**Solution**

The NPVs of the 4 projects are:

Project	NPV (Rs. in lakh)	Rank
A	$7.5 \times PVIFA_{(14,5)} - 20 = (7.5 \times 3.433) - 20 = 5.75$	I
B	$(1.5 \times 3.433) - 4.5 = 0.65$	IV
C	$(2.5 \times 3.433) - 7 = 1.58$	III
D	$(3.5 \times 3.433) - 8 = 4.02$	II

The BCR of the 4 projects are:

Project	BCR	Rank
A	$25.75/20 = 1.27$	II
B	$5.15/4.5 = 1.14$	IV
C	$8.58/7 = 1.23$	III
D	$12.02/8 = 1.50$	I

Based on the NPV and BCR criteria, all 4 projects are acceptable because NPV is positive and BCR is greater than one for each project. But all 4 projects cannot be taken by the firm because of the limited availability of funds. Either Zeta has to accept project A or a package consisting of projects, B, C and D but not both. The decision will depend upon which option maximizes the shareholders' wealth. In this sort of a decision-making situation, the BCR becomes inapplicable because there is no way by which we can aggregate the BCRs of projects B, C and D. On the other hand NPVs of projects B, C, and D can be aggregated and compared with the NPV of project A to arrive at a decision.

$NPV (B + C + D) = NPV (B) + NPV (C) + NPV (D) = 0.65 + 1.58 + 4.02 = 6.25$  which is more than NPV (A). Therefore the package comprising projects B, C and D must be accepted.

**INTERNAL RATE OF RETURN**

The internal rate of return is that rate of interest at which the net present value of a project is equal to zero, or in other words, it is the rate which equates the present value of the cash inflows to the present value of the cash outflows. While under NPV method the rate of discounting is known (the firm's cost of capital), under IRR this rate which makes NPV zero has to be found out. To illustrate this concept, let us consider the following illustration.

**Illustration 6**

A project has the following pattern of cash flows:

Year	Cash flow (Rs. in lakh)
0	(10)
1	5
2	5
3	3.08
4	1.20

What is the IRR of this project?

**Solution**

To determine the IRR, we have to compute the NPV of the project for different rates of interest until we find that rate of interest at which the NPV of the project is equal to zero or sufficiently close to zero. To reduce the number of iterations involved in this trial and error process, we can use the following short-cut procedure:

**Step 1**

Find the average annual net cash flow based on the given future net cash flows. In our illustration, the average annual net cash flow will be equal to:

$$(5 + 5 + 3.08 + 1.20)/4 = 3.57$$

**Step 2**

Divide the initial outlay by the average annual net cash flow i.e.,  $10/3.57 = 2.801$

**Step 3**

From the PVIFA table find that interest rate at which the present value of an annuity of Re.1 will be nearly equal to 2.801 in 4 years i.e., the duration of the project. In our case, this rate of interest will be equal to 15%.

We use 15% as the initial value for starting the trial and error process and keep trying at successively higher rates of interest until we get an interest rate at which the NPV is marginally above zero and an interest rate at which the NPV is marginally below zero. Now we know that IRR lies between the two rates of interest and using a linear approximation, we can determine the approximate value of the IRR. In the case of our project,

the NPV at  $r = 15\%$  will be equal to:

$$-10 + (5 \times 0.870) + (5 \times 0.756) + (3.08 \times 0.658) + (1.2 \times 0.572) = 0.84$$

NPV at  $r = 16\%$  will be equal to:

$$-10 + (5 \times 0.862) + (5 \times 0.743) + (3.08 \times 0.641) + (1.2 \times 0.552) = 0.66$$

NPV at  $r = 18\%$  will be equal to:

$$-10 + (5+9/ \times 0.848) + (5 \times 0.719) + (3.08 \times 0.609) + (1.20 \times 0.516) = 0.33$$

NPV at  $r = 20\%$  will be equal to:

$$-10 + (5 \times 0.833) + (5 \times 0.694) + (3.08 \times 0.579) + (1.20 \times 0.482) = 0$$

We find that at  $r = 20\%$ , the NPV is zero and therefore the IRR of the project is 20%.

To use IRR as an appraisal criterion, we require information on the cost of capital or funds employed in the project. If we define IRR as 'r' and cost of funds employed as 'k', then the decision rule based on IRR will be: Accept the project if 'r' is greater than k and reject the project if r is less than k. (If  $r = k$ , it is a matter of indifference).

IRR is a popular method of investment appraisal and has a number of merits like:

- It takes into account the time value of money.
- It considers the cash flow stream over the entire investment horizon.
- Like ARR, it makes sense to businessmen who prefer to think in terms of rate of return on capital employed.

This criterion however suffers from the following limitations:

IRR is uniquely defined only for a project whose cash flow pattern is characterized by cash outflow(s) followed by cash inflows (such projects are called simple investments). If the cash flow stream has one or more cash outflows interspersed with cash inflows, there can be multiple internal rates of return.

This point can be clarified with the help of the following table 1 where four projects with different patterns of cash flows are given:

**Table 1**

(Rs. in lakh)

Project	Cash Flow Stream (Rs.)				
	Year 0	Year 1	Year 2	Year 3	Year 4
A	-20	5	10	15	15
B	-10	-10	15	15	15
C	-10	5	-10	20	20
D	-10	15	10	-5	20

- Projects A and B are simple investments and therefore will have unique IRR values. But projects C and D can have multiple internal rates of return because their cash inflows and outflows are interspersed. For such projects, IRR cannot be a meaningful criterion of appraisal.
- The IRR criterion can be misleading when the decision-maker has to choose between mutually exclusive projects that differ significantly in terms of outlays.

In spite of these defects, IRR is still the best criterion today to appraise a project financially. Financial Institutions insist that projects having substantial outlay specially in the medium and large scale sectors must show the computation of IRR in the Detailed Project Report, which they appraise before sanctioning financial assistance.

### Annual Capital Charge

This appraisal criterion is used for evaluating mutually exclusive projects or alternatives which provide similar service but have differing patterns of costs and often unequal life spans, e.g., choosing between fork-lift transportation and conveyor-belt transportation.

The steps involved in computing the annual capital charge are as follows:

#### Step 1

Determine the present value of the initial investment and operating costs using the cost of capital ( $k$ ) as the discount rate.

#### Step 2

Divide the present value by  $PVIFA_{(k,n)}$  where  $n$  represents the life span of the project. The quotient is defined as the annual capital charge or the equivalent annual cost. Once the annual capital charge for the various alternatives are defined, the alternative which has the minimum annual capital charge is selected.

#### Illustration 7

Hindustan Forge Limited is evaluating two alternative systems: A and B, for internal transportation. While the two systems serve the same purpose, system A has a life of 7 years and system B has a life of 5 years. The initial outlay and operating costs (in Rs.) associated with these systems are:

Year	A	B
0	10,00,000	8,00,000
1	1,00,000	75,000
2	1,25,000	1,00,000
3	1,50,000	1,20,000
4	1,75,000	1,40,000
5	2,00,000	1,00,000
6	2,25,000	
7	2,00,000	

Calculate the annual capital charge associated with these two systems, if the cost of capital is 12 percent. (You can assume that the net salvage values of the two systems at the end of their economic lives will be zero.)

**Solution**

Present value of costs associated with system A

$$= \text{Rs.}10,00,000 + (1,00,000 \times 0.893) + (1,25,000 \times 0.797) + (1,50,000 \times 0.712) + (1,75,000 \times 0.636) + (2,00,000 \times 0.567) + (2,25,000 \times 0.507) + (2,00,000 \times 0.452) = \text{Rs.}17,24,900$$

Annual capital charge associated with system A

$$= \frac{17,24,900}{\text{PVIFA}_{(12,7)}} = \frac{17,24,900}{4.564} = \text{Rs.}3,77,936$$

Present value of costs associated with system B

$$= \text{Rs.}8,00,000 + (75,000 \times 0.893) + (1,00,000 \times 0.797) + (1,20,000 \times 0.712) + (1,40,000 \times 0.636) + (1,00,000 \times 0.567) = \text{Rs.}11,77,855$$

Annual capital charge associated with system B

$$= \frac{11,77,855}{\text{PVIFA}_{(12,5)}} = \frac{11,77,855}{3.605} = \text{Rs.}3,26,728$$

Since the annual capital charge associated with system B is lower than that of system A, system B is preferred to system A.

A wide variety of measures are used in practice for appraising investments. But whatever method is used, the appraisal must be carried out in explicit, well-defined, preferably standardized terms and should be based on sound economic logic.

**INFRASTRUCTURE DECISIONS AND FINANCING**

The capital budgeting decisions are long-term in nature involving huge amount of capital and risk. We have seen the significance of identification of potential investment opportunities, conducting feasibility study (both technical and economic), assessing constraints before implementing and lastly review performance or project appraisal in terms of market, technical, financial and economic aspects during project implementation. Infrastructure means the support services in the real economy. These support services are aids to economic development; they play a vital role in development of the economy and help in sustaining real growth. The capital budgeting decisions in infrastructure are quite complicated as the factors one need to consider for evaluation are distinctly different when compared to a normal project evaluation. As it involves high risk, low return, huge capital, long gestation period, the entity undertaking the infrastructure project needs to analyze these aspects very carefully.

**Reasons for Poor Infrastructure in India**

The following are the reasons for the under development of infrastructure in India.

Infrastructure is highly capital-intensive and requires the kind of resources which cannot be generated domestically in the country.

- Since the gestation period is very long and the returns are not commensurate with the high level of risk (not even in a medium-term perspective), active participation of private sector in infrastructure development is usually low.
- Banks with their short-term nature of liabilities are precluded from participating in infrastructural financing due to long gestation period of the projects since it results in Asset-Liability Mismatch.
- Major financial institutions like LIC, GIC and the Provident Funds are not channelizing their funds into infrastructure segment.
- Lack of innovative instruments for financing infrastructure is another major constraint, inhibiting the growth of infrastructure in the country.

## **IMPLICATIONS**

- Poor infrastructure distorts the level playing field for Indian corporates and results in a competitive disadvantage when compared to the foreign counterparts.
- Lack of infrastructural facilities leads to delays in project implementation and consequently to time and cost overruns in a project.
- Poor infrastructure forces the consumers to pay more for products than what they should be actually paying.
- Poor infrastructure hinders the flow of Foreign Direct Investment into the country.

## **Financing Infrastructure**

As discussed above, the financing of infrastructure projects is associated with high risk, low returns with a long gestation period. Hence, the financier would look to the optimal combination of debt, equity, securitization, risk sharing and government guarantees.

The need for developing infrastructure in the country was recognized by the government, and a Committee, headed by Dr. Rakesh Mohan, was set up to report on infrastructural conditions in India. The Committee opined that commercialization of infrastructure is the only viable and long-term solution to the problems associated with the traditional methods of infrastructural development. One of the important suggestions given by the Committee is to set up a regulatory body. It also recommended that government participation in private financed infrastructure projects should go beyond mere guarantees and they should also take equity positions in the projects.

## **INFRASTRUCTURE DEVELOPMENT FINANCE CORPORATION**

Following the recommendations of the Rakesh Mohan Committee, the Infrastructure Development Finance Corporation (IDFC) was set-up in the year 1997 with a corpus of Rs.1,600 crore by the Government of India and RBI with other domestic and foreign institutions as equity participants.

### **Key Activities**

IDFC provides underwriting facilities, refinance facilities and take-out financing. Take-out financing involves an institution like IDFC promising to take over the loan extended by another institution after a prescribed time-frame. As a part of its fee-based activities, it also extends loan syndication, partial credit guarantees and fund-management. Apart from the above, its focus is on providing inputs to policy reforms to mitigate constraints faced by infrastructure projects besides extending financial intermediation for such projects.

As a part of its assignments, IDFC has already signed Memorandum of Understanding (MOU) with SBI for Rs.300 crore, Bharati Telecom has already availed Rs.25 crore as take-out financing and IDFC also committed for four projects in power sector, three in road schemes and two bridges.

The classification of IDFC as a public FI will help the newly-formed infrastructure institution to access long-term funds from pension funds and insurance companies. The setting up of IDFC is definitely a step in the right direction, but, the small capital base of the institution becomes a constraint in the fund-based financing of infrastructure. If we consider the huge fund requirements in power, telecom and transportation sectors, the fund-based support of IDFC is minuscule to make an impact. A single IDFC can do little to improve the state of infrastructure in India.

## **Future of Infrastructure**

The infrastructure segment till eighties was considered as government monopoly. Private sector was viewed as having no interest in these projects due to the above discussed reasons. As we are aware, poor infrastructure is the biggest stumbling block for capital investments in India. Experts opine that all developmental plans reach a dead end because of poor infrastructure. Another trend emerging in infrastructure financing is the role of government as a facilitator in infrastructural

financing. Broadly, this takes the form of support through venture capital and guarantees in the initial stages, providing a stable regulatory and transparent policy framework as well as developing the domestic capital markets for financing infrastructure. There are two basic issues which need to be addressed.

1. An infrastructure project does not become acceptable to an investor from the finance point of view. However, there are considerable social benefits involved in it and hence government has a significant role in ensuring that a project becomes acceptable.
2. Since the returns are low, the cost of funds also has to be low. The cost of funds becomes high due to the nature of long-term funds required. Hence, a market mechanism needs to be developed for raising short-term funds at cheaper rates which can be used for funding infrastructure projects. However, market making becomes necessary to ensure liquidity for investors to enter and exit at their will. Thus a maturity intermediation is necessary for the same.

## **SUMMARY**

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- Capital expenditure decisions occupy an important place in corporate finance. The huge sums involved and the irreversible and long-term nature of the decisions make them very important. Investment decisions begin with identification of the investment opportunities, followed by preliminary screening, feasibility study, implementation and performance review.
- Six appraisal criteria are used for evaluating the financial viability of a project. While the first two are simple additive measures, the latter methods make use of discounted cashflow techniques.
- The payback period of an investment enables the manager to calculate the number of years required to recover the initial capital outlay in the project. Although this is a rough measure of liquidity of the project, it makes a poor job of measuring profitability as it ignores cashflows occurring after the payback period and the time value of money using a crudely determined subjective cut-off point to appraise a project.
- The account rate of return is the ratio of average profit after tax to average book value of the investment. Akin to payback period, the criterion ignores the time value of money. Although it considers the returns over the entire life of the project and therefore is a measure of profitability, it depends largely on accounting income rather than cashflows. In addition, any company using ARR needs to determine a yardstick to compare the returns of any project. In most cases, the yardsticks themselves suffer from subjectivity.
- The net present value is the present value of the project's net cash flows less the initial outflow. A project is acceptable only when its NPV is greater than or equal to zero. Benefit cost ratio measures the present value of a rupee of outflow and is very useful in ranking projects in the order of the efficient usage of capital. If a project's BCR is greater than or equal to 1, the project can be accepted.
- The internal rate of return is the discount rate that equates the present value of the net cashflows of the project with the initial cash outlay. Any project is acceptable if the internal rate of return is greater than or equal to the required rate of return, usually the company's cost of capital. Annual capital charge is used for evaluating mutually exclusive projects or alternatives that are not comparable in terms of life spans or cost patterns. In this case, the project that has a lower annual capital charge is preferable to the one that has a higher charge.

## **Lesson 4**

# **Dividend Policy**

**After reading this lesson, you will be conversant with:**

- The Dividend Decisions of a Firm-Relevance/Irrelevance
- Models explaining the Relevance/Irrelevance of the Dividend Policy

## DIVIDEND DECISIONS

There are basically two options which a firm has while utilizing its profits after tax. Firms can either plough back the earnings by retaining them or distribute the same to the shareholders. The first option suits those firms which need funds to finance their long-term projects. However, such projects should have enough growth potential and sufficient profitability. On the other hand, the second option of declaring cash dividends from the profits after tax will lead to maximization of the shareholders wealth.

The returns to the shareholders either by way of the dividend receipts or capital gains are affected by the dividend policies of the firms. This is mainly due to the fact that the dividend policy decides the retention ratio and pay-out ratio (dividend as a percent of profits). Furthermore, the dividend policy of the firm gains importance especially due to unambiguous relationship that exists between the dividend policy and the equity returns. Thus, a firm's decision should meet the investors' expectations.

A few models which studied this relationship and the dividend policies of firms are given below and discussed:

- Traditional Position
- Walter Model
- Gordon Model
- Miller and Modigliani Model
- Rational Expectations Model.

### Traditional Position

The traditional approach to the dividend policy, which was given by B Graham and D L Dodd lays a clear emphasis on the relationship between the dividends and the stock market. According to this approach, the stock value responds positively to higher dividends and negatively when there are low dividends.

The following expression, given by traditional approach, establishes the relationship between market price and dividends using a multiplier:

$$P = m (D + E/3) \quad \text{.....(1)}$$

where,

P = Market Price

m = Multiplier

D = Dividend per share

E = Earnings per share

### LIMITATIONS OF THE TRADITIONAL APPROACH

The traditional approach, further states that the P/E ratios are directly related to the dividend pay-out ratios i.e., a high dividend pay-out ratio will increase the P/E ratio and vice-versa. However, this may not be true in all situations. A firm's share price may rise even in case of a low pay-out ratio if its earnings are increasing. Here the capital gains for the investor will be higher than the cash dividends. Similarly for a firm having a high dividend pay-out ratio with a slow growth rate there will be a negative impact on the market price (because of lower earnings). In addition to this there may be a few investors of the company who would prefer the dividends to the uncertain capital gains and a few who would prefer lower taxed capital gains. These conflicting factors that have not been properly explained from the major shortcomings of the dividend policy given by the traditional approach.



## Walter Model

Similar to the traditional approach, the dividend policy given by James E Walter also considers that dividends are relevant and they do affect the share price. In this model he studied the relationship between the internal rate of return ( $r$ ) and the cost of capital of the firm ( $k$ ), to give a dividend policy that maximizes the shareholders' wealth.

The model studies the relevance of the dividend policy in three situations: (i)  $r > k_e$  (ii)  $r < k_e$  (iii)  $r = k_e$ . According to the Walter Model, when the return on investment is more than the cost of equity capital, the earnings can be retained by the firm since it has better and more profitable investment opportunities than the investors. It implies that the returns the investor gets when the company re-invests the earnings will be greater than what they earn by investing the dividend income. Firms which have their  $r > k_e$  are the growth firms and the dividend policy that suits such firms is the one which has a zero pay-out ratio. This policy will enhance the value of the firm.

In the second case the return on investment is less than the cost of equity capital and in such situation the investor will have a better investment opportunity than the firm. This suggests a dividend policy of 100% pay-out. This policy of a full pay-out ratio will maximize the value of the firm.

Finally, when the firm has a rate of return that is equal to the cost of equity capital, the firms' dividend policy will not affect the value of the firm. The optimum dividend policy for such normal firms will range between zero to a 100% pay-out ratio, since the value of the firm will remain constant in all cases.

**Assumptions:** The relevance of the dividend policy as explained by the Walter's Model is based on a few assumptions, which are as follows:

- i. Retained earnings is the only source of finance available to the firm, with no outside debt or additional equity used.
- ii.  $r$  and  $k$  are assumed to be constant and thus additional investments made by the firm will not change its risk and return profiles.
- iii. Firm has an infinite life.
- iv. For a given value of the firm, the dividend per share and the earnings per share remain constant.

According to Walter, the market price of the share is taken as the sum of the present value of the future cash dividends and capital gains. His formula is based on the share valuation model and is arrived at in the following manner:

**Step 1:** Market per share price of the firm is given as

$$P = D/(k_e - g) \quad \text{.....(2)}$$

Thus, we have

$$k_e = D/P + g$$

$$\text{since, } g = \Delta P/P$$

$$\text{we have, } k_e = D/P + \Delta P/P$$

but since,

$$\Delta P = \frac{r(E-D)}{k_e}$$

(since retained earnings is the only sources of finance), substituting the same, we

$$\text{have } P = \frac{D}{k_e} + \frac{r(E-D)/k_e}{k_e} \quad \text{.....(3)}$$

where

$$P = \text{Market price per share}$$

$$D = \text{Dividend per share}$$

$$E = \text{Earnings per share}$$

- r = Internal rate of return
- $k_e$  = Cost of equity capital
- $\Delta P$  = Change in the price
- g = Growth rate of earnings

**Illustration 1**

Given the following information about ZED Ltd, show the effect of the dividend policy on the market price of its shares, using the Walter’s model:

- Equity capitalization rate ( $k_e$ ) = 12%
- Earnings per share (E) = Rs.8

Assumed return on investments (r) are as follows:

- i. r = 15%
- ii. r = 10%
- iii. r = 12%

**Solution**

To show the effect of the different dividend policies on the share value of the firm for the three levels of r let us consider the dividend pay-out (D/P) ratios of zero, 25%, 50%, 75% and 100%.

- i.  $r > k_e$  (r = 15%,  $k_e$  = 12%)
  - a. D/P ratio = 0; dividend per share = zero
 
$$P = \frac{0 + (0.15/0.12)(8-0)}{0.12} = \text{Rs.}83$$
  - b. D/P ratio = 25%; dividend per share = Rs.2.00
 
$$P = \frac{2 + (0.15/0.12)(8-2)}{0.12} = \text{Rs.}79$$
  - c. D/P ratio = 50%; dividend per share = Rs.4
 
$$P = \frac{4 + (0.15/0.12)(8-4)}{0.12} = \text{Rs.}75$$
  - d. D/P ratio = 75%; dividend per share = Rs.6
 
$$P = \frac{6 + (0.15/0.12)(8-6)}{0.12} = \text{Rs.}71$$
  - e. D/P ratio = 100%; dividend per share = Rs.8
 
$$P = \frac{8 + (0.15/0.12)(8-8)}{0.12} = \text{Rs.}67$$

**Interpretation:** From the above calculations it can be observed that when the return on investment is greater than the cost of capital, there is an inverse relation between the value of the share and the pay-out ratio. Thus, the value of ZED Ltd. is the highest when the D/P ratio is zero (P = Rs.83) and this goes on declining as the D/P ratio increases. Hence the optimum dividend policy for a growth firm is a zero dividend pay-out ratio.

- ii.  $r < k_e$  (r = 10%,  $k_e$  = 12%)
  - a. D/P ratio = 0; dividend per share = zero
 
$$P = \frac{0 + (0.10/0.12)(8-0)}{0.12} = \text{Rs.}56$$
  - b. D/P ratio = 25%; dividend per share = Rs.2
 
$$P = \frac{2 + (0.10/0.12)(8-2)}{0.12} = \text{Rs.}58$$

c. D/P ratio = 50%; dividend per share = Rs.4

$$P = \frac{4 + (0.10/0.12)(8-4)}{0.12} = \text{Rs.61}$$

d. D/P ratio = 75%; dividend per share = Rs.6

$$P = \frac{6 + (0.10/0.12)(8-6)}{0.12} = \text{Rs.64}$$

e. D/P ratio = 100%; dividend per share = Rs.8

$$P = \frac{8 + (0.10/0.12)(8-8)}{0.12} = \text{Rs.67}$$

**Interpretation:** When the return on investment is less than the cost of equity capital, calculations reveal that the firm's value will enhance as the D/P ratio increases. Due to this positive correlation between the share price and the dividend pay-out ratio, firms which have their returns on investment less than the cost of equity capital should prefer a higher dividend pay-out ratio in order to maximize the share value.

iii.  $r = k_e$  ( $r = 12\%$  ;  $k_e = 12\%$ )

a. D/P ratio = 0; dividend per share = zero

$$P = \frac{0 + (0.12/0.12)(8-0)}{0.12} = \text{Rs.67}$$

b. D/P ratio = 25%; dividend per share = Rs.2

$$P = \frac{2 + (0.10/0.12)(8-2)}{0.12} = \text{Rs.67}$$

c. D/P ratio = 50%; dividend per share = Rs.4

$$P = \frac{4 + (0.10/0.12)(8-4)}{0.12} = \text{Rs.67}$$

d. D/P ratio = 75%; dividend per share = Rs.6

$$P = \frac{6 + (0.10/0.12)(8-6)}{0.12} = \text{Rs.67}$$

e. D/P ratio = 100%; dividend per share = Rs.8

$$P = \frac{8 + (0.10/0.12)(8-8)}{0.12} = \text{Rs.67}$$

**Interpretation:** In the final case where the firm has its' return on investment equal to the cost of equity capital, the dividend policy does not affect the share price of the firm. The price of the firm remains Rs.67 for all the given levels of the D/P ratio. However, in actual practice  $r$  and  $k$  will not be the same and it can only be a hypothetical case. Excepting the hypothetical cases of  $r = k_e$  in other cases where  $r < k_e$  or  $r > k_e$ , according to Walter model, the dividend policy of a firm, as shown above is relevant for maximizing the share price of the firm.

#### **LIMITATIONS OF THE WALTER'S MODEL**

Most of the limitations for this model arise due to the assumptions made. The first assumption of exclusive financing by retained earnings make the model suitable only for all-equity firms. Secondly, Walter assumes the return on investments to be constant. This again will not be true for firms making high investments. Finally, Walter's model on dividend policy ignores the business risk of the firm which has a direct impact on the value of the firm. Thus,  $k$  cannot be assumed to be constant.

## Gordon’s Dividend Capitalization Model

Yet another model that has given importance to the dividend policy of the firm is the Gordon Model. Myron Gordon used the dividend capitalization approach to study the effect of the firms’ dividend policy on the stock price.

**Assumptions:** The following are the assumptions based on which Gordon based the dividend policy model for firms.

- i. The firm will be an all-equity firm with the new investment proposals being financed solely by the retained earnings.
- ii. Return on investment (r) and the cost of equity capital ( $k_e$ ) remain constant.
- iii. Firm has an infinite life
- iv. The retention ratio remains constant and hence the growth rate also is constant ( $g = br$ ).
- v.  $k > br$  i.e., cost of equity capital is greater than the growth rate.

Gordon’s Model assumes that the investors are rational and risk-averse. They prefer certain returns to uncertain returns and thus put a premium to the certain returns and discount the uncertain returns. Thus, investors would prefer current dividends and avoid risk. Retained earnings involve risk and so the investor discounts the future dividends. This risk will also affect the stock value of the firm.

Gordon explains this preference for current income by the bird-in-hand argument. Since a bird-in-hand is worth two in the bush, the investors would prefer the income that they earn currently to that income in future which may or may not be available. Thus, investors would prefer to pay a higher price for the stocks which earn them current dividend income and would discount those stocks which either postpone/ reduce the current income. The discounting will differ depending on the retention rate (percentage of retained earnings) and the time.

Gordon’s dividend capitalization model gave the value of the stock as:

$$P = \frac{E(1 - b)}{k_e - br} \quad \dots(4)$$

where,

- P = Share price
- E = Earnings per share
- b = Retention ratio
- (1 - b) = Dividend pay-out ratio
- $k_e$  = Cost of equity capital (or cost of capital of the firm)
- br = Growth rate (g) in the rate of return on investment

### Illustration 2

If  $k_e = 11\%$ , and  $E = \text{Rs.}15$  calculate the stock value of Swan Ltd. for (i)  $r = 12\%$  (ii)  $r = 11\%$  (iii)  $r = 10\%$  for the various levels of the D/P ratios.

	D/P Ratio (1 - b)	Retention Ratio
a.	10%	90%
b.	20%	80%
c.	30%	70%
d.	40%	60%
e.	50%	50%

**Solution**

- i.  $r > k_e$  ( $r = 12\%$ ,  $k_e = 11\%$ )
- a. D/P ratio = 10%  
 b = 90%  
 g =  $br = 0.90 \times 0.12 = 0.108$   

$$P = \frac{E(1-b)}{k_e - br} = \frac{15(1-0.9)}{0.11 - 0.108} = \text{Rs.750}$$
- b. D/P ratio = 20%  
 b = 80%  
 g =  $br = 0.80 \times 0.12 = 0.096$   

$$P = \frac{15(1-0.8)}{0.11 - 0.096} = \text{Rs.214.28}$$
- c. D/P ratio = 30%  
 b = 70%  
 g =  $br = 0.70 \times 0.12 = 0.084$   

$$P = \frac{15(1-0.7)}{0.11 - 0.084} = \text{Rs.173.08}$$
- d. D/P ratio = 40%  
 b = 60%  
 g =  $br = 0.60 \times 0.12 = 0.072$   

$$P = \frac{15(1-0.6)}{0.11 - 0.072} = \text{Rs.158}$$
- e. D/P ratio = 50%  
 b = 50%  
 g =  $br = 0.50 \times 0.12 = 0.06$   

$$P = \frac{15(1-0.5)}{0.11 - 0.06} = \text{Rs.150}$$
- ii.  $r = k_e$  ( $r = 11\%$ ,  $k_e = 11\%$ )
- a. D/P ratio = 10%  
 b = 90%  
 g =  $br = 0.90 \times 0.11 = 0.099$   

$$P = \frac{15(1-0.9)}{0.11 - 0.099} = \text{Rs.136.36}$$
- b. D/P ratio = 20%  
 b = 80%  
 g =  $br = 0.80 \times 0.11 = 0.088$   

$$P = \frac{15(1-0.8)}{0.11 - 0.088} = \text{Rs.136.36}$$
- c. D/P ratio = 30%  
 b = 70%  
 g =  $br = 0.70 \times 0.11 = 0.077$   

$$P = \frac{15(1-0.7)}{0.11 - 0.077} = \text{Rs.136.36}$$

d.	D/P ratio	=	40%
	b	=	60%
	g	=	$br = 0.060 \times 0.11 = 0.066$
	P	=	$\frac{15(1-0.6)}{0.11-0.066} = \text{Rs.}136.36$
e.	D/P ratio	=	50%
	b	=	50%
	g	=	$br = 0.50 \times 0.11 = 0.055$
	P	=	$\frac{15(1-0.5)}{0.11-0.055} = \text{Rs.}136.36$
iii. $r < k_e$ ( $r = 10\%$ , $k_e = 11\%$ )			
a.	D/P ratio	=	10%
	b	=	90%
	g	=	$br = 0.90 \times 0.10 = 0.09$
	P	=	$\frac{15(1-0.9)}{0.11-0.09} = \text{Rs.}75$
b.	D/P ratio	=	20%
	b	=	80%
	g	=	$br = 0.80 \times 0.10 = 0.08$
	P	=	$\frac{15(1-0.8)}{0.11-0.08} = \text{Rs.}100$
c.	D/P ratio	=	30%
	b	=	70%
	g	=	$br = 0.70 \times 0.10 = 0.07$
	P	=	$\frac{15(1-0.7)}{0.11-0.07} = \text{Rs.}112.5$
d.	D/P ratio	=	40%
	b	=	60%
	g	=	$br = 0.60 \times 0.10 = 0.06$
	P	=	$\frac{15(1-0.6)}{0.11-0.06} = \text{Rs.}120$
e.	D/P ratio	=	50%
	b	=	50%
	g	=	$br = 0.50 \times 0.10 = 0.05$
	P	=	$\frac{15(1-0.5)}{0.11-0.05} = \text{Rs.}125$

The above illustration explains the relevance of dividends as given by the Gordon's Model. In the given three situations, the firm's share value is positively correlated with the pay-out ratio when  $r_e < k_e$  and decreases with an increase in the pay-out ratio when  $r > k_e$ . Thus, firms with a rate of return greater than the cost of capital should have a higher retention ratio and those firms which have a rate of return less than the cost of capital should have a lower retention ratio. The dividend policy of firms which have a rate of return equal to the cost of capital will, however, not have any impact on its share value.

## Miller and Modigliani Model

Miller and Modigliani have propounded the MM hypothesis to explain the irrelevance of a firm's dividend policy. This model which was based on a few assumptions, sidelined the importance of the dividend policy and its effect thereof on the share price of the firm. According to the model, it is only the firm's investment policy that will have an impact on the share value of the firm and hence should be given more importance.

**Critical Assumptions:** Before discussing the details of the model let us first look into the assumptions upon which the model is based:

- The first assumption is the existence of a perfect market in which all investors are rational. In perfect market condition there is easy access to information and the floatation and the transaction costs do not exist. The securities are infinitely divisible and hence no single investor is large enough to influence the share value.
- Secondly, it is assumed that there are no taxes, implying that there is no differential tax rates for the dividend income and the capital gains.
- The third assumption is a constant investment policy of the firm, which will not change the risk complexion nor the rate of return even in cases where the investments are funded by the retained earnings.
- Finally, it was also assumed that the investors are able to forecast the future earnings, the dividends and the share value of the firm with certainty. This assumption was however, dropped out of the model.

Based on these assumptions and using the process of arbitrage Miller and Modigliani have explained the irrelevance of the dividend policy. The process of arbitrage balances or completely offsets two transactions which are entered into simultaneously. Arbitrage can be applied to the investment function of the firm. As mentioned earlier, firms have two options for utilizing its after tax profits (i) to retain the earnings and plough back for investment purposes (ii) distribute the earnings as cash dividends. If the firm selects the second option and declares dividend, then it will have to raise capital for financing its investment decisions by selling new shares. Here, the arbitrage process will neutralize the increase in the share value due to the cash dividends by the issue of additional shares. This makes the investor indifferent to the dividend earnings and the capital gains since the share value of the firm depends more on the future earnings of the firm, than on its dividend policy. Thus, if there are two firms having similar risk and return profiles the market value of their shares will be similar in spite of different pay-out ratios.

Symbolically the model is given as:

In the first step the market price of the share is equal to the sum of the present values of the dividend paid and the market price at the end of the period.

$$P_0 = \frac{1}{(1 + k_e)} (D_1 + P_1) \quad \text{.....(5)}$$

where,

$P_0$  = Current market price of the share (t = 0)

$P_1$  = Market price of the share at the end of the period (t = 1)

$D_1$  = Dividends to be paid at the end of the period (t = 1)

$k_e$  = Cost of equity capital

With no external financing the total value of the firm will be as follows:

$$nP_0 = \frac{1}{(1 + k_e)} (nD_1 + nP_1) \quad \text{.....(6)}$$

where,

$n$  = No. of shares outstanding

Now, if the firm finances its investment decisions by raising additional capital issuing  $n_1$  new shares at the end of the period ( $t = 1$ ), then the capitalized value of the firm will be the sum of the dividends received at the end of the period and the value of the total outstanding shares at the end of the period less the value of the new shares. Since this adjustment is actually adding and reducing the value of the new shares, (6) remains as it is. Thus we have,

$$nP_0 = \frac{1}{(1 + k_e)} (nD_1 + (n + n_1)P_1 - n_1P_1) \quad \text{.....(7)}$$

Firms will have to raise additional capital to fund their investment requirements, if its investment requirement is more than its retained earnings, additional equity capital ( $n_1P_1$ ) after utilizing its retained earnings is as follows:

$$n_1P_1 = I - (E - nD_1) \quad \text{.....(8)}$$

where,

$I$  = Total investment required

$nD_1$  = Total dividends paid

$E$  = Earnings during the period

$(E - nD_1)$  = Retained earnings

Simplifying the above equation we get,

$$n_1P_1 = I - E + nD_1 \quad \text{.....(9)}$$

Substitute this value of the new shares in equation (7) to get,

$$\begin{aligned} nP_0 &= \frac{1}{(1 + k_e)} [(nD_1 + (n + n_1)P_1 - I + E - nD_1)] \\ &= \frac{nD_1 + (n + n_1)P_1 - I + E - nD_1}{(1 + k_e)} \\ \Rightarrow nP_0 &= \frac{(n + n_1)P_1 - I + E}{(1 + k_e)} \quad \text{.....(10)} \end{aligned}$$

Thus, according to the MM model, the market value of the share is not affected by the dividend policy and this is explicitly shown in equation (10) (dividend does not figure in the equation used to calculate the share price).

### Illustration 3

The capitalization rate of A1 Ltd. is 12%. This company has outstanding shares to the extent of 25,000 shares selling at the rate of Rs.100 each. Anticipating a net income of Rs.3,50,000 for the current financial year, A1 Ltd. plans to declare a dividend of Rs.3 per share. The company also has a new project the investment requirement for which is Rs.5,00,000. Show that under the MM model, the dividend payment does not affect the value of the firm.

To prove that the MM model holds good, we have to show that the value of the firm remains the same whether the dividends are paid or not.

i. The value of the firm, when dividends are paid:

**Step 1:** Price per share at the end of year 1

$$P_0 = \frac{1}{(1 + k_e)} (D_1 + P_1)$$

$$100 = \frac{1}{(1.12)} (3 + P_1)$$

$$P_1 = \text{Rs.109}$$



**Step 2:** Amount to be raised by the issue of new shares

$$\begin{aligned} n_1 P_1 &= I - (E - nD_1) \\ &= 5,00,000 - (3,50,000 - 75,000) \\ &= \text{Rs.}2,25,000 \end{aligned}$$

**Step 3:** Number of additional shares to be issued

$$n_1 = \frac{2,25,000}{109} \text{ shares}$$

**Step 4:** Value of the firm

$$\begin{aligned} nP_0 &= \frac{(n + n_1)P_1 - I + E}{(1 + k_e)} \\ &= \frac{(25,000 + 2,25,000/109)109 - (5,00,000 - 3,50,000)}{1.12} \end{aligned}$$

Value of the firm,  $nP_0 = \text{Rs.}25,00,000$

ii. Value of the firm when dividends are not paid.

**Step 1:** Price per share at the end of the year 1

$$P_0 = \frac{1}{(1 + k_e)} (D_1 + P_1)$$

$$100 = P_1/1.12$$

$$P_1 = \text{Rs.}112$$

**Step 2:** Amount to be raised from the issue of new shares

$$n_1 P_1 = (5,00,000 - 3,50,000) = \text{Rs.}1,50,000$$

**Step 3:** Number of new shares to be issued

$$n_1 = 1,50,000/112 \text{ shares}$$

**Step 4:** Value of the firm

$$\begin{aligned} nP_0 &= \frac{(n + n_1)P_1 - I + E}{(1 + k_e)} \\ &= \frac{(25,000 + 1,50,000/112)112 - (5,00,000 - 3,50,000)}{1.12} \end{aligned}$$

Value of the firm,  $nP_0 = \text{Rs.}25,00,000$

Thus, the value of the firm, in both the cases remains the same.

### **Critical Analysis of the Assumptions**

The MM approach to the irrelevance of dividends has been based on a few assumptions which need to be evaluated critically especially since a perfect market and absence of floatation costs and transaction costs are situations which do not happen in reality. Few assumptions have been critically viewed below:

#### **TAX EFFECT**

This assumption cannot be true, since in the real world the tax rate for the dividend income is higher than the tax rate applicable to the capital gains.

#### **FLOATATION COSTS**

The proceeds which the firm gets from the issue of securities will be net off the issue expenses. The total issue expenses which include the underwriting expenses, brokerage, other marketing costs will be around 10-15% of the total issue (in India). With the costs of mobilizing capital from the primary market being high, these costs cannot be ignored.

### TRANSACTION COSTS

This is an unrealistic assumption, since investors do have to incur certain transaction costs like the brokerage expenses while they dispose off their shares. Thus, if the investors are to equate the capital gains to the dividend income, they should sell off the shares at a higher price. In addition to this, the inconvenience and the uncertainty involved in the share price movements make the investors prefer current income by way of dividends to plough back profits.

### MARKET CONDITIONS

Sometimes the market conditions do effect the investment decisions of the firm. For instance, though a firm has profitable investment opportunities, the bad market condition may not allow it to mobilize the funds. In such cases, the firms will have to depend on the retained earnings and have a low dividend pay-out ratio. In still other cases, there may be certain sub-standard investment opportunities in which the firm will invest just because there is an easy access to funds from the market.

### UNDERPRICING OF SHARES

If the company has to raise funds from the market, it will have to sell the shares to the new shareholders at a price that is less than the prevailing market price. Thus, with the shares being underpriced the firm will have to sell more shares to replace the dividend amount.

These criticisms and the preference for current income, uncertain market conditions, presence of transaction and floatation costs, underpricing etc. highlight the shortcomings of the Miller & Modigliani's dividend irrelevance policy. Thus, the dividend policy of a company does have an effect on its share value.

### RATIONAL EXPECTATIONS MODEL

According to the rational expectations model, there would be no impact of the dividend declaration on the market price of the share as long as it is at the expected rate. However, it may show some adjustments in case the dividends declared are higher or lower than the expected level. For instance, when a firm declares dividends higher than what was expected, it would result in an upward movement of the share price as there would be expectations of higher earnings and similarly low dividends would be taken as a fall in future earnings. Thus, the rational expectations model suggests that alterations in the market price will not be necessary where the dividends meet the expectations and only in case of unexpected dividends will there be a change in the market price as stated above.

### SUMMARY

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- There are two different schools of thought on the dividend policies of a firm. According to one school of thought in a perfect market situation investment and financing decisions are independent and thus, the dividend decisions become irrelevant. The model given by Miller & Modigliani belongs to this school of thought. They also consider that the share value of the firm is based on the investment opportunities of the firm. However, the imperfect market conditions and the uncertainty prevailing in the future earnings do not provide enough support to this model. The second school of thought explains the relevance of the dividend policy and the impact of the same on the share value. However, in spite of these dividend models, it should be noted that investors are risk-averse and prefer current dividend to future earnings. Further, with maximization of shareholder wealth being the most important issue, the dividend policies of a firm will vary, depending on the operational environment.

## **Lesson 5**

# **Leverage**

**After reading this lesson, you will be conversant with:**

- The Concept of Leverage
- Measures of Leverage

## THE CONCEPT OF LEVERAGE

Leverage in the general sense means influence of power i.e., utilizing the existing resources to attain something else. Leverage in terms of financial analysis is the influence which an independent financial variable has over a dependent/related financial variable. When leverage is measured between two financial variables it explains how the dependent variable responds to a particular change in the independent variable. To explain further, let X be an independent financial variable and Y its dependent variable, then the leverage which Y has with X can be assessed by the percentage change in Y to a percentage change in X.

$$LY/LX = \frac{\Delta Y/Y}{\Delta X/X}$$

where

- LY/LX – measure of the leverage which dependent Y has with independent X
- $\Delta X$  – change in X
- $\Delta Y$  – change in Y
- $\Delta X/X$  – percentage change in X
- $\Delta Y/Y$  – percentage change in Y

## MEASURES OF LEVERAGE

To better understand the importance of leverage in financial analysis, it is imperative to understand the three measures of leverage.

- Operating Leverage
- Financial Leverage
- Combined/ Total Leverage.

These three measures of leverage depend to a large extent on the various income statement items and the relationship that exists between them. Given below is the Income Statement of XYZ Company Ltd. and the relationship that exists between the various items of the statement:

### Income Statement of XYZ Company Ltd.

Item	Amount (Rs.)
Total Revenue	25,00,000
Less: Variable Expenses (V)	10,00,000
Fixed Expenses (F)	9,00,000
Earnings Before Interest & Tax (EBIT)	6,00,000
Less: Interest on Debt (I)	75,000
Profit Before Tax (PBT)	5,25,000
Less: Tax @ 50% (T)	2,62,500
Profit After Tax (PAT)	2,62,500
Less: Preference dividend (D <sub>p</sub> )	50,000
Equity Earnings	2,12,500

Total Revenue = Quantity Sold (Q) x Selling Price (S)

Hence,

$$EBIT = Q \times S - Q \times V - F = Q(S - V) - F \quad \dots(i)$$

$$EPS = \frac{[(EBIT - I)(1 - T) - D_p]}{N} \quad \dots(ii)$$

$$= \frac{[Q(S - V) - F - I](1 - t) - D_p}{N} \quad \dots(iii)$$

where N = No. of Equity Shareholders

The above three equations [(i), (ii) and (iii)] which establish the relationship between the various items of the Income Statement form the base for the measurement of the different leverages.

## Operating Leverage

Operating leverage examines the effect of the change in the quantity produced on the EBIT of the company and is measured by calculating the Degree of Operating Leverage (DOL).

$$\begin{aligned} \text{DOL} &= \text{Percentage change in EBIT/Percentage change in Output} \\ &= \frac{\Delta \text{EBIT}/\text{EBIT}}{\Delta Q/Q} \end{aligned}$$

From Eq(i)  $\text{EBIT} = Q(S - V) - F$

Substituting for EBIT, we get

$$\text{DOL} = [Q(S - V)] / [Q(S - V) - F] \quad \dots(\text{iv})$$

### Illustration 1

Calculate the DOL for XYZ Company Ltd. given the following additional information:

Quantity produced	=	5,000
Variable cost per unit	=	Rs.200
Selling price per unit	=	Rs.500
Fixed asset	=	Rs.9,00,000

DOL of XYZ Company Ltd.

$$= [5,000(500 - 200)]/[5,000(500 - 200) - 9,00,000] = 2.50$$

### APPLICATION AND UTILITY OF THE OPERATING LEVERAGE

It is important to know how the operating leverage is measured, but equally essential is to understand its application and utility in financial analysis. To understand the application of DOL one has to understand the behavior of DOL vis-à-vis the changes in the output by calculating the DOL at the various levels of Q.

Following are the different DOL for the various levels of Q for XYZ Company Ltd.:

Quantity Produced	Degree of Operating Leverage
1000	-0.5
2000	-2.0
3000	$\infty$
4000	4.0
5000	2.5

When the value of Q is 3000 the EBIT of the company is zero and this is the operating break-even point. Thus, at operating break-even point, where the EBIT is zero, the quantity produced can be calculated as follows:

$$Q = F/(S - V)$$

For XYZ Company Ltd.:

$$Q = 9,00,000/(500 - 200) = 3,000$$

After measuring the DOL for a particular company at varying levels of output the following observations can be made:

- Each level of output has a distinct DOL.
- DOL is undefined at the operating break-even point.
- If Q is less than the operating break-even point, then DOL will be negative (which does not imply that an increase in Q leads to a decrease in EBIT).
- If Q is greater than the operating break-even point, then the DOL will be positive. However, the DOL will start to decline as the level of output increases and will reach a limit of 1.

**IMPLICATIONS**

**Determining Behavior of EBIT**

DOL helps in ascertaining change in operating income for a given change in output (quantity produced and sold). If the DOL of a firm is say, 2, then a 10% increase in the level of output will increase operating income by 20%. A large DOL indicates that small fluctuations in the level of output will produce large fluctuations in the level of operating income.

In Table 8.1, two firms with different cost structures are compared.

**Table 1**  
**Cost and Profit Schedules for**  
**Bell Metal Works and Fibre Glass Ltd.**

Bell Metal Works				Fibre Glass Limited			
Units Produced & Sold	Sales	Total Operating Cost	EBIT	Units Produced & Sold	Sales	Total Operating Cost	EBIT
Q	PQ			Q	PQ		
			(In Rupees)			(In Rupees)	
10,000	1,00,000	1,60,000	(60,000)	10,000	1,00,000	2,40,000	(1,40,000)
20,000	2,00,000	2,30,000	(30,000)	20,000	2,00,000	2,90,000	(90,000)
30,000	3,00,000	3,00,000	0	30,000	3,00,000	3,40,000	(40,000)
40,000	4,00,000	3,70,000	30,000	40,000	4,00,000	3,90,000	10,000
50,000	5,00,000	4,40,000	60,000	50,000	5,00,000	4,40,000	60,000
60,000	6,00,000	5,10,000	90,000	60,000	6,00,000	4,90,000	1,10,000
70,000	7,00,000	5,80,000	1,20,000	70,000	7,00,000	5,40,000	1,60,000
80,000	8,00,000	6,50,000	1,50,000	80,000	8,00,000	5,90,000	2,10,000
Unit Selling Price (P) = Rs.10 Operating Fixed Costs (F) = Rs.90,000 Unit Variable Operating Cost (V) = Rs.7 EBIT Break-even Point = 30,000 units				Unit Selling Price (P) = Rs.10 Operating Fixed Costs (F) = Rs.1,90,000 Unit Variable Operating Cost (V) = Rs.5 EBIT Break-even Point = 38,000 units			

From table 1, we can see that Bell Metal Works has lower fixed costs and higher variable cost per unit when compared to Fibre Glass Limited. The selling price per unit (P) of both firms is the same, viz., Rs.10. An interesting point we notice is that at an output of 50,000 units both firms have the same profit i.e., Rs.60,000. However, as sales fluctuate, the EBIT of Bell Metal Works fluctuates far less than the EBIT of Fibre Glass Limited. This brings us to the conclusion that the DOL of Fibre Glass Limited is greater than the DOL of Bell Metal Works. Let us compute the DOL of these two firms at an output of 50,000 units.

For Bell Metal Works:

$$DOL = [50,000 (10 - 7)] / [50,000 (10 - 7) - 90,000] = 2.5$$

For Fibre Glass Limited:

$$DOL = [50,000 (10 - 5)] / [50,000(10 - 5) - 1,90,000] = 4.17$$

The figures prove our conclusion to be right.

- **Measurement of Business Risk:** We know that the greater the DOL, the more sensitive is EBIT to a given change in unit sales, i.e. the greater is the risk of exceptional losses if sales become depressed. DOL is therefore a measure of the firm's business risk. Business risk refers to the uncertainty or variability of the firm's EBIT. So, every thing else being equal, a higher DOL means higher business risk and vice-versa.
- **Production Planning:** DOL is also important in production planning. For instance, the firm may have the opportunity to change its cost structure by introducing labor-saving machinery, thereby reducing variable labor overhead while increasing the fixed costs. Such a situation will increase DOL. Any method of production which increases DOL is justified only if it is highly probable that sales will be high so that the firm can enjoy the increased earnings of increased DOL.

## Financial Leverage

While operating leverage measures the change in the EBIT of a company to a particular change in the output, the financial leverage measures the effect of the change in EBIT on the EPS of the company. Financial leverage also refers to the mix of debt and equity in the capital structure of the company. The measure of financial leverage is the Degree of Financial Leverage (DFL) and it can be calculated as follows:

$$\text{DFL} = (\text{percentage change in EPS}) / (\text{percentage change in EBIT})$$

$$\text{DFL} = (\Delta\text{EPS}/\text{EPS}) / (\Delta\text{EBIT}/\text{EBIT})$$

Substituting Eq (ii) for EPS we get,

$$\text{DFL} = \frac{\text{EBIT}}{\text{EBIT} - \text{I} - \frac{\text{D}_p}{(1 - \text{T})}} \quad \dots(\text{v})$$

Take the example of XYZ Company Ltd., which has an EBIT of Rs.6,00,000 at 5,000 level of production, the capital structure of the company is as follows:

Capital Structure	Amount (Rs.)
Authorized Issued and Paid-up Capital	
500000 Equity Shares @ Rs.10 each	50,00,000
15% Debentures	5,00,000
10% Preference Shares	
5000 Preference Shares @ Rs.100	5,00,000
<b>Total</b>	<b>60,00,000</b>

Let us now calculate the DFL of XYZ Company Ltd.

Earnings Before Interest and Tax (EBIT) = Rs.6,00,000

Interest on Long-term Debt (I) = Rs.75,000

Preference Dividend (D<sub>p</sub>) = Rs.50,000

Corporate Tax (T) = 50%

$$\text{DFL} = \frac{6,00,000}{6,00,000 - 75,000 - \frac{50,000}{1 - 0.5}} = 1.41$$

### APPLICATION AND UTILITY OF THE FINANCIAL LEVERAGE

Financial leverage when measured for various levels of EBIT will aid in understanding the behavior of DFL and also explain its utility in financial decision making. Consider the case of XYZ Company Ltd. and measure DFL for varying levels of EBIT.

EBIT (Rs.)	DFL
50,000	-0.40
1,00,000	-1.33
1,75,000	∞
6,00,000	1.41
7,00,000	1.33
7,50,000	1.30

The DFL at EBIT level of 175000 is undefined and this point is the Financial Break-even Point. It can be defined as:

$$\text{EBIT} = \text{I} + \text{D}_p / (1 - \text{T})$$

The following observations can also be made from studying the behavior of DFL.

- Each level of EBIT has a distinct DFL.
- DFL is undefined at the financial Break-even Point.
- DFL will be negative when the EBIT level goes below the Financial Break-even Point.
- DFL will be positive for all values of EBIT that are above the Financial Break-even Point. This will however start to decline as EBIT increases and will reach a limit of 1.

By assessing the DFL one can understand the impact of a change in EBIT on the EPS of the company. In addition to this it also helps in assessing the financial risk of the firm.

**Impact of Financial Leverage on Investor’s Rate of Return**

Let us see with the help of a very simple example, how financial leverage affects return on equity. A company needs a capital of Rs.10,000 to operate. This money may be brought in by the shareholders of the company. Alternatively, a part of this money may also be brought in through debt financing. If the management raises Rs.10,000 from shareholders, the company is not financially leveraged and would have the following balance sheet.

Liabilities	Rs.	Assets	Rs.
Equity Capital	10,000	Cash	10,000

The company commences operations which leads to the preparation of the following simplified version of its income statement.

	Rs.
Sales	10,000
Expenses	7,000
EBIT	3,000
Tax @ 50%	1,500
Net Profit	1,500

What is the return the company has earned on the owner’s investment? We see that the return on equity is 15%. The net profit of Rs.1,500 may be paid fully or partly to the shareholders as dividends or may be retained to finance future activities of the company. Either way the Return on Equity is 15%.

What happens to the owner’s rate of return if the management decides to finance a part of the required total investment (Rs.10,000) through debt financing? The answer to this question depends on

- The proportion of total investment which the management decides to finance through debt (Debt Equity Ratio the firm aspires to), and
- The interest rate on borrowed funds.

If the management has decided on a Debt Equity Ratio of 2:1, total borrowings will amount to  $10,000 \times \frac{2}{3} = \text{Rs.}6,667$ . Assuming that the company is able to raise

this amount at an interest rate of say, 15%, the company’s balance sheet will appear as follows:

Liabilities	Rs.	Assets	Rs.
Equity Capital	3,333	Cash	10,000
Debt Capital	6,667		
	10,000		

The company now has an added financial burden of payment of interest on the amount it has borrowed. The income statement will now show as follows:

	Rs.
Sales	10,000
Expenses	7,000
EBIT	3,000
Interest Charges	1,000
Profit Before Tax (PBT)	2,000
Tax @ 50%	1,000
Net Profit	1,000



The use of debt in the company's capital structure has caused the net profit to decline from Rs.1,500 to Rs.1,000. But has the return on owner's capital declined? Return on Equity now works out to 30%, as the owners have invested only Rs.3,333 now which earned them Rs.1,000. What were the factors which contributed to this additional return? We can trace out two sources of this additional return:

- though the company has to pay interest at 15% on borrowed capital, the company's operations have been able to generate more than 15% which is being transferred to the owners.
- the reduction in PBT has brought about a reduction in the amount of tax paid, as interest is a tax deductible expense, to the extent of Interest (1 – tax rate) i.e., Rs.500. The greater the tax rate, the more is the tax shield available to a company which is financially leveraged.

As was seen in the above example, a company may increase the return on equity by the use of debt i.e., the use of financial leverage. By increasing the proportion of debt in the pattern of financing i.e., by increasing the debt-equity ratio, the company should be able to increase the return on equity.

### **Financial Leverage and Risk**

If increased financial leverage leads to increased return on equity, why do companies not resort to ever increasing amounts of debt financing? Why do financial and other term lending institutions insist on norms for Debt-Equity Ratio? The answer is that as the company becomes more financially leveraged, it becomes riskier, i.e., increased use of debt financing will lead to increased financial risk which leads to:

- Increased fluctuations in the return on equity.
- Increase in the interest rate on debts.

### **Increased Fluctuations in Returns**

In the previous example, let us assume that sales decline by 10% (from Rs.10,000 to Rs.9,000), expenses remaining the same. What happens to return on equity? The income statements for the financially unleveraged and leveraged firms will appear as follows:

	Unleveraged Firm (zero Debt)	Leveraged Firm (Debt-Equity Ratio 2 : 1)
Sales	9,000	9,000
Expenses	7,000	7,000
EBIT	2,000	2,000
Interest Charges	–	1,000 (6667 x 0.15)
PBT	2,000	1,000
Tax @50%	1,000	500
Net Profit	1,000	500
Net Profit at Sales of Rs.10,000	1,500	1000
ROE at Sales of Rs.10,000	15%	30%
ROE at Sales of Rs.9,000	10%	15%

We see that a 10% decline in sales produces substantial declines in earnings and the rates of return on owner's equity in both cases. But the decline is greater for the financially leveraged firm than for the financially unleveraged firm. Why is this so? The reason can be traced to the fact that once a firm borrows capital, interest payments become obligatory and hence fixed in nature. The same interest payment which was the cause for increase in owner's equity when sales were Rs.10,000 is now the cause for its more than proportional decline with a decline in sales. Hence, the greater the use of financial leverage, the greater the potential fluctuation in return on equity.

**INCREASE IN INTEREST RATES**

Firms that are highly financially leveraged are perceived by lenders of debt as risky. Creditors may refuse to lend to a highly leveraged firm or may do so only at higher rates of interest or more stringent loan conditions. As the interest rate increases, the return on equity decreases. However, even though the rate of return diminishes, it might still exceed the rate of return obtained when no debt was used, in which case financial leverage would still be favorable.

**IMPLICATIONS**

Let us again refer to our earlier example. In the first situation, the company was unleveraged, in the second situation the debt-equity ratio was 2:1. The balance sheet and income statements are reproduced below:

**Balance Sheets**

Unleveraged			Leveraged		
Liabilities	Assets		Liabilities	Assets	
Equity Capital	10,000	Cash 10,000	Equity Capital	3,333	Cash 10,000
			Debt		
				6,667	
	<u>10,000</u>	<u>10,000</u>		<u>10,000</u>	<u>10,000</u>

**Income Statements**

	Unleveraged	Leveraged
Sales	10,000	10,000
Expenses	7,000	7,000
EBIT	3,000	3,000
Interest	–	1,000
PBT	3,000	2,000
Tax @ 50%	1,500	1,000
Net Profit	1,500	1,000

The Degree of Financial Leverage (DFL) in each case is calculated as:

$$DFL = \frac{EBIT}{EBIT - I - \frac{D_p}{1 - T}}$$

$$\text{Unleveraged} = \frac{3,000}{3,000} = 1$$

$$\text{Leveraged} = \frac{3,000}{3,000 - 1,000} = 1.5$$

What do these figures imply? They imply that if EBIT is changed by 1%, EPS will also change by 1%, if the company uses no debt. However, EPS changes by 1.5% when it uses debt in the ratio of 2:1 (66.67% of total capital). This is proof of what we have stated earlier: The greater the leverage, the wider are fluctuations in the return on equity and the greater is the financial risk the company is exposed to. Through an EBIT-EPS analysis, we can evaluate various financing plans or degrees of financial leverage with respect to their effect on EPS.

**Total Leverage**

A combination of the operating and financial leverages is the total or combined leverage. Thus, the degree of total leverage (DTL) is the measure of the output and EPS of the company. DTL is the product of DOL and DFL and can be calculated as follows:

$$DTL = \% \text{ change in EPS} / \% \text{ change in output}$$

$$= (\Delta EPS / EPS) / (\Delta Q / Q)$$

$$\begin{aligned}
 \text{DTL} &= \text{DOL} \times \text{DFL} \\
 &= \left\{ \frac{[Q(S - V)]}{[Q(S - V) - F]} \right\} \times \\
 &\quad \left\{ \frac{[Q(S - V) - F]}{Q(S - V) - F - I - \left[ \frac{D_p}{1 - T} \right]} \right\} \\
 &= \frac{Q(S - V)}{Q(S - V) - F - I - \frac{D_p}{(1 - T)}}
 \end{aligned}$$

Calculating the DTL for XYZ Co. Ltd. given the following information:

Equity Earnings	=	Rs.1,62,500
Quantity Produced (Q)	=	5000 Units
Variable Cost per unit (V)	=	Rs.200
Selling Price per unit (S)	=	Rs.500
Number of Equity Shareholders (N)	=	5,00,000
Fixed Expenses (F)	=	Rs.9,00,000
Interest (I)	=	Rs.75,000
Preference Dividend (D <sub>p</sub> )	=	Rs.50,000
Corporate Tax (T)	=	50%

$$\text{DTL} = \frac{5,000(500 - 200)}{5,000(500 - 200) - 9,00,000 - 75,000 - \frac{50,000}{(1 - 0.5)}} = 3.53$$

$$\text{DTL} = \text{DOL} \times \text{DFL} = 2.5 \times 1.41 = 3.53$$

Thus, when the output is 5,000 units, a one percent change in Q will result in 3.5% change in EPS.

### APPLICATIONS AND UTILITY OF TOTAL LEVERAGE

Before understanding what application the total leverage has in the financial analysis of a company, let us make a few more observations by studying its behavior. Let us calculate the overall break-even point and the DTL for the various levels of Q, given the following information:

$$\begin{aligned}
 F &= \text{Rs.8,00,000} \\
 I &= \text{Rs.80,000} \\
 D_p &= \text{Rs.60,000} \\
 S &= \text{Rs.1,000} \\
 V &= \text{Rs.600}
 \end{aligned}$$

The overall break-even point is that level of output at which the DTL will be undefined and EPS is equal to zero. This level of output can be calculated as follows:

$$\begin{aligned}
 Q &= \frac{F + I + \frac{D_p}{(1 - T)}}{(S - V)} \\
 &= \frac{[8,00,000 + 80,000 + 60,000/(1 - 0.5)]}{(1,000 - 600)} = 2,500.
 \end{aligned}$$

Thus, the overall break-even point is at 2500 units.

Calculating DTL for various levels of output with the given information:

Q	DTL
1000	-0.67
2000	-4.00
2500	∞
3000	6.00
5000	2.00

The following observations can be made from the above calculations:

- There is a unique DTL for every level of output.
- At the overall break-even point of output the DTL is undefined.
- If the level of output is less than the overall break-even point, then the DTL will be negative.
- If the level of output is greater than the overall break-even point, then the DTL will be positive. DTL decreases as Q increases and reaches a limit of 1.

Further, the DTL has the following applications in analyzing the financial performance of a company:

1. Measures changes in EPS: DTL measures the changes in EPS to a percentage change in Q. Thus, the percentage change in EPS can be easily assessed as the product of DTL and the percentage change in Q. For example, if DTL for Q of 3000 units is 6 and there is a 10% increase in Q, the affect on EPS is 60%.  

$$\begin{aligned} \text{Percentage change in EPS} &= \text{DTL (Q = 3,000)} \times \text{Percent change in Q} \\ &= 6 \times 10\% = 60\% \end{aligned}$$
2. Measures Total Risk: DTL measures the total risk of the company since it is a measure of both operating risk and total risk. Thus, by measuring total risk, it measures the variability of EPS for a given error in forecasting Q.

## SUMMARY

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- Leverage literally means the use of influence to attain some end. In the world of finance, there are three measures of leverage – operating leverage, financial leverage and total leverage.
- Operating leverage examines the effect of the change in quantity produced upon the EBIT of a company and is useful in analyzing the behavior of a company's EBIT over a period of time, measuring business risk and production planning. On the other hand, financial leverage measures the effect of the change in EBIT on the EPS of the company. It also refers to the mix of debt and equity in the capital structure of the company. Financial leverage can be used to assess the financial risk of the firm.
- Total leverage is the combination of operating and financial leverages. It examines the impact of change in the output upon the EPS of the company. Total leverage measures the total risk of the company as it includes measures of both operating risk and financial risk.

## **Lesson 6**

# **Lease Financing**

**After reading this lesson, you will be conversant with:**

- What is Leasing?
- Meaning and Definition of Leasing
- Evolution of the Indian Leasing Industry
- Types of Leasing
- Return to Lessor and Cost to the Lessee

## WHAT IS LEASING?

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Leasing as financial service is a contractual arrangement where the owner (lessor) of equipment transfers the right to use the equipment to the user (lessee) for an agreed period of time in return for a rental. At the end of the lease period the asset reverts back to the lessor unless there is a provision for the renewal of the contract or there is a provision for transfer of ownership to the lessee. If there is any such provision for transfer of ownership, the deal is treated as hire purchase.

Leasing was prevalent during the ancient Sumerian and Greek civilizations where leasing of land, agricultural implements, animals, mines and ships took place. The practice of 'equipment leasing' came into being sometime in the later half of the 19th century where the railroad manufacturers in the USA resorted to leasing of rail cars and locomotives. The spectacular performance of the railroad companies brought into sharp focus the role of equipment leasing in prompting capital formation. After the Second World War the railroad companies in Europe resorted to the practice of equipment leasing in a big way. By the early sixties equipment leasing came into popular use in many industries in the USA and in Europe. Today, it is estimated that in the USA and in many other countries of the world, about 25 percent of all business equipment in terms of value are leased.

Today, equipment leasing includes leasing of plant and machinery, office equipment (including computers), automobiles, ships and aircraft. In fact, the global trend in the eighties has been towards leasing of large scale manufacturing facilities, power projects and large construction projects. Put differently, leasing industry in the eighties graduated from 'equipment leasing' to 'project leasing'. The wide range of business assets that are leased today have naturally led to several innovations in the practice of leasing in order to cater to the varied requirements of the end-users.

### Evolution of the Indian Leasing Industry

The equipment leasing industry came into being in 1973 when the first leasing company, appropriately named as the First Leasing Company of India (FLCI), was incorporated in Chennai. This industry, however, remained relegated to the background until the early eighties, because the need for this financial service was not strongly felt in industry. The public sector financial institutions – IDBI, IFCI, ICICI and the State Financial Corporations (SFCs) – provided bulk of the term loans and the commercial banks provided working capital finance required by the manufacturing sector on relatively soft terms. Given the easy availability of funds at reasonable cost, there was obviously no need to look for alternative means of financing. Therefore, the second leasing company – Twentieth Century Leasing Limited commenced operations only in 1979.

But the scenario of the seventies underwent a change in the early eighties. The credit squeeze announced by the RBI coupled with the strict implementation of the Tandon & Chore Committee norms on Maximum Permissible Bank Finance (MPBF) for working capital forced the manufacturing companies to divert a portion of their long-term funds for working capital. The LIC – Escorts Limited episode conveyed a clear message that the financial institutions and the investment institutions cannot be taken for granted as passive investors. These factors forced the manufacturing companies to look for alternative means of funding their capital expenditure programs. They found equipment leasing a viable alternative because of its inherent advantages like: (a) easy documentation; (b) fewer restrictive covenants; (c) no convertibility clause that can result in dilution of ownership and control; and (d) availability of 100 percent finance.

The sudden spurt in the demand for equipment leasing resulted in a spectacular performance of the few leasing companies that were in existence, and created an active investor following for equity stocks of these companies. The supply-demand imbalance and the easy availability of funds from the capital market encouraged

the spawning of a number of leasing companies. By the end of 1985, there were about 300 leasing and composite finance companies operating in the industry.

The demand for leasing also encouraged the financial institutions and commercial banks to enter this industry. In 1983, the Industrial Credit and Investment Corporation of India (ICICI) entered the leasing industry. This was followed by the entry of the Industrial Reconstruction Bank of India (IRBI), Industrial Finance Corporation of India (IFCI), Industrial Development Bank of India (IDBI) and a number of state level financial institutions.

In 1983, the Banking Regulation Act, 1949 was amended, whereby commercial banks were permitted to promote subsidiaries specializing in equipment leasing and financial services other than hire purchase. The first commercial bank to set up a financial services subsidiary was the State Bank of India (SBI), which became operational in 1986 under the name of SBI Capital Markets Limited. This was followed by the Canara Bank setting up the Canbank Financial Services Limited, the Punjab National Bank promoting the PNB Financial Services Limited and so on. Some commercial banks promoted subsidiaries with equity participation from the financial institutions. The Infrastructure Leasing and Financial Services (ILFS) Limited is one such finance company jointly promoted by the Central Bank of India, Housing Development Finance Corporation and the Unit Trust of India (UTI).

The early eighties also witnessed the entry of the International Finance Corporation, Washington D.C. and a number of multinational banks into the industry through the company-promoter route. The IFC promoted two leasing companies jointly with the commercial banks and finance companies in the private sector – the India Equipment Leasing Limited (IEL) at Chennai with equal equity participation from the State Bank of India and Sundaram Finance, and the Leasing Corporation of India at Mumbai with equal equity participation from the Bank of India and the Twentieth Century Finance Corporation Limited.

The Standard Chartered Bank was the first foreign bank to participate in the equity of a leasing company. It promoted the Cholamandalam Investment and Finance Company at Chennai jointly with Tube Investments of India Limited. Many foreign banks started offering the service of lease brokering to their corporate clientele.

As expected, the large-scale entry of private-sector companies, financial institutions and commercial banks into an industry with no entry barriers created tough competition and resulted in a steep fall in the lease rates. By the end of 1985-86, the lease rate on a five-year non-cancelable lease had declined from Rs.32 ptpm (per thousand rupees per month) to Rs.25 ptpm. The profit margins came under tremendous pressure with an increase in the cost of funding leases; the governments of several states further compounded this by imposing a sales tax on lease rentals. These developments forced several small leasing companies in the private sector to either close or diversify. Among the companies, which chose the diversification route, some companies went in for concentric diversification by adding related activities like bill discounting and consumer finance to their portfolio. Others diversified into unrelated areas like manufacturing (conglomerate diversification). As of date the dominant players in this industry are the bank sponsored subsidiaries like: SBI Capital Market, Canbank Financial Services and Infrastructure Leasing & Financial Services; the financial institutions like the ICICI, IFCI and IDBI; and about ten to fifteen companies in the private sector like the First Leasing Company of India, Twentieth Century Finance Corporation and Sundaram Finance.

In terms of the industry's performance, the eighties witnessed a rapid growth in investment in leased assets. The annual investment in leased assets which was around Rs.50 crore at the end of 1983 increased to Rs.900 crore by the end of 1990. The industry expects this growth rate to be maintained in the nineties, thanks to the liberalization measures announced in the Industrial Policy, 1991. For

instance, the abolition of the investment limits under the MRTP Act and the provision to allow 51 percent foreign equity in Indian Companies is bound to accelerate the process of capital formation in the private sector. Equipment leasing has an important role to play in this process as a means of financing.

In 1994, the RBI had permitted all commercial banks (excluding RRBs) to undertake equipment leasing and hire purchase financing activities directly without establishing subsidiaries. It is to be noted that in 1984 banks were allowed to provide hire purchase and leasing services through a subsidiary only.

## **Concept and Classification**

Conceptually an 'equipment lease' (lease hereafter) can be defined as a form of financing the use of equipment. A lease is a transaction where a lessor owns the leased property and agrees to permit the lessee to have an unrestricted use of the property for a specified period of time, known as the lease term. At the end of the lease term, the lessee has the right to acquire the property by exercising the purchase option (either FMV/10% or \$1.00 buy-out) that was selected at the beginning of the lease, return the property to the lessor, or continue leasing the property.

Operationally, an equipment lease transaction comes into existence as follows: The lessee identifies the exact specification of the equipment, its supplier, price, terms of guarantee and warranty, delivery period, etc. and approaches the leasing company – a financial intermediary – with a lease proposal. The negotiation between the lessor and the lessee revolves around the duration of the lease, lease rentals, terms and conditions relating to usage, maintenance and insurance of the equipment, etc. Once the negotiations culminate into lease contract, the lessor buys the equipment and delivers it to the lessee. The lessee usually bears the costs of insuring and maintaining the asset.

Given the nature of an equipment lease transaction, the natural question is: How does it differ from the other asset financing plans, say hire purchase or conditional sales agreement? In the Indian context, the fundamental difference between a lease transaction and other asset financing plans like the hire purchase is that a lease contract cannot provide for a transfer of ownership from the lessor to the lessee whereas the other asset based financing plans carry this feature. Consequently, the tax and the accounting aspects of lease transactions are different from that of the other financing plans.

An equipment lease transaction can vary along the following dimensions; extent to which the risks and rewards of ownership are transferred, number of parties to the transaction, domiciles of the equipment manufacturer, the lessor and the lessee, etc. Based on these variations, the following classifications have been developed:

- Finance Lease and Operating Lease
- Sale and Lease back, and Direct Lease
- Single Investor Lease and Leveraged Lease
- Domestic Lease and International Lease.

## **Finance Lease and Operating Lease**

The distinction between a finance lease and an operating lease is of fundamental importance in the financial evaluation and accounting of leases. The distinction is based on the extent to which the risks and rewards of ownership are transferred from the lessor to the lessee.

### **Finance Lease**

A lease is defined as finance if it transfers a substantial part of the risks and rewards associated with ownership from the lessor to the lessee. According to the International Accounting Standards Committee (IASC), there is a transfer of a substantial part of the ownership-related risks and rewards if,



- i. the lessor transfers ownership of the asset to the lessee by the end of the lease term; (or)
- ii. the lessee has the option to purchase the asset at a price which is expected to be sufficiently lower than the fair market value at the date the option becomes exercisable and, at the inception of the lease, it is reasonably certain that the option will be exercised; (or)
- iii. the lease term is for a major part of the useful life of the asset. The title may or may not eventually be transferred; (or)
- iv. the present value of the minimum lease payments is greater than or substantially equal to the fair market value of the asset at the inception of the lease. The title may or may not eventually be transferred.

The aforesaid criteria are largely based on the criteria evolved by the Financial Accounting Standards Board (FASB) of the USA. The FASB has in fact defined certain cut-off points for criteria (iii) and (iv). According to the FASB definition of a finance lease, if the lease term exceeds *seventy five percent* of the useful life of the asset or if the present value of the minimum lease payments exceeds *ninety percent* of the fair market value of the asset at the inception of the lease, the lease will be classified as a 'finance lease'.

For the purpose of determining the present value, the discount rate to be used by the lessor will be the rate of interest implicit in the lease and the discount rate to be used by the lessee will be its incremental borrowing rate.

In the Indian context, conditions (i) and (ii) are inapplicable because inclusion of any of these conditions in the lease agreement will result in the agreement being treated as a hire purchase agreement. Therefore, a lease is to be classified as a finance lease if one of the conditions (iii) or (iv) is satisfied.

#### **Illustration 1**

Montari Industrial Corporation (MIC) has recently leased equipment costing Rs.400 lakh on the following terms:

- \* Lease Term : 5 years
- \* Lease Rentals : Rs.300/Rs.1000 per annum.

The incremental borrowing rate for MIC is 18% p.a. Can the transaction be classified as a finance lease if the useful life of the equipment is six years? ten years?

Answer

- a. i. Lease Term : 5 years
- ii. Estimated Useful Life : 6 years
- iii. (i) As a percentage of (ii) : 83.3

Since the lease term exceeds 75 percent of the estimated useful life of the equipments, the transaction must be classified as a finance lease.

- b. i. Lease Term : 5 years
- ii. Estimated Useful Life : 10 years
- (i) As a percentage of (ii) : 50

The third condition specified by the FASB for classifying a lease as a 'finance lease' is not fulfilled.

- iii. Present value of minimum lease payments  
 $= (400 \times 0.3) \times PVIFA_{(18,5)}$   
 $= 120 \times 3.127 = \text{Rs.}375.24 \text{ lakh.}$

- iv. Fair market value at the time of inception = Rs.400 lakh.  
(iii) As a percentage of (iv) : 94

The fourth condition specified by the FASB is fulfilled and therefore, the transaction must be classified as a finance lease.

In a finance lease, the lessee is responsible for repair, maintenance and insurance of the asset. The lessee also undertakes a “hell or high water” obligation to pay rental regardless of the condition or the suitability of the asset. A finance lease which operates over the entire economic life of the equipment is called a “full pay out lease”.

### **Operating Lease**

The International Accounting Standards Committee defines an Operating Lease as “any lease other than a finance lease”.

An Operating Lease has the following characteristics:

- a. The lease term is significantly less than the economic life of the equipment.
- b. The lessee enjoys the right to terminate the lease at short notice without any significant penalty.
- c. The lessor usually provides the operating know-how, suppliers, the related services and undertakes the responsibility of insuring and maintaining the equipment in which case an operating lease is called a ‘wet lease’. An operating lease where the lessee bears the costs of insuring and maintaining the leased equipment is called a ‘dry lease’.

From the features of an operating lease, it is evident that this form of a lease does not shift the equipment-related business and technological risks from the lessor to the lessee. The lessor structuring an operating lease transaction has to depend upon multiple leases or on the realization of a substantial resale value (on expiry of the first lease) to recover the investment cost plus a reasonable rate of return thereon. Therefore, specializing in operating leases calls for an indepth knowledge of the equipments *per se* and the secondary (resale) market for such equipments. Of course, the prerequisite is the existence of a resale market. Given the fact that the resale market for most of the used capital equipments in our country lacks breadth, operating leases are not in popular use. But then this form of lease ideally suits the requirements of firms operating in sun rise industries which are characterized by a high degree of technological risk.

### **Sale and Leaseback and Direct Lease**

#### **Sale and Leaseback**

In a sale and leaseback transaction, the owner of an equipment sells it to a leasing company which in turn leases it back to the erstwhile owner (the lessee). The ‘leaseback’ arrangement in this transaction can be in the form of a ‘finance lease’ or an ‘operating lease’.

A classic example of this type of transaction is the sale and leaseback of safe deposit vaults resorted to by commercial banks. Under this arrangement, the bank sells the safe deposit vaults in its custody to a leasing company at a market price which is substantially higher than the book value.

The leasing company offers these lockers on a long-term lease to the bank. The advantages to the bank are (a) It is able to unlock its investment in a low income yielding asset. (b) It is able to enjoy the uninterrupted use of the lockers (which can be leased to its customers). (c) It can invest the sale proceeds (which are not subject to the reserve ratio requirements) in high income yielding commercial loans.

In general, the ‘sale and leaseback’ arrangement is a readily available source of funds for financing the expansion and diversification programs of a firm. In case where capital investments in the past have been funded by high cost short-term debt, the sale and lease back transaction provides an opportunity to substitute the short-term debt by medium-term finance (assuming that the leaseback arrangement is a finance lease). From the leasing company’s angle a sale and leaseback

transaction poses certain problems. First, it is difficult to establish a fair market value of the asset being acquired because the secondary market for the asset may not exist; even if it exists, it may lack breadth. Second, the Income Tax Authorities can disallow the claim for depreciation on the fair market value if they perceive the fair market value as not being 'fair'.

### **Direct Lease**

A direct lease can be defined as any lease transaction which is not a "sale and leaseback" transaction. In other words, in a direct lease, the lessee and the owner are two different entities. A direct lease can be of two types: Bipartite Lease and Tripartite Lease.

## **Bipartite Lease and Tripartite Lease**

### **Bipartite Lease**

In a bipartite lease, there are two parties to the transaction – the equipment supplier cum-lessor and the lessee. The bipartite lease is typically structured as an operating lease with in-built facilities like upgradation of the equipment (Upgrade Lease) or additions to the original equipment configuration. The lessor undertakes to maintain the equipment and even replaces the equipment that is in need of major repair with a similar equipment in working condition (swap lease). Of course, all these add-ons to the basic lease arrangement are possible when only if the lessor happens to be a manufacturer or a dealer in the class of equipments covered by the lease.

### **Tripartite Lease**

A tripartite lease, on the other hand, is a transaction involving three different parties — the equipment supplier, the lessor, and the lessee. Most of the equipment lease transactions fall under this category. An innovative variant of the tripartite lease is the sales-aid lease where the equipment supplier catalyzes the lease transaction. In other words, he arranges for lease finance for a prospective customer who is short on liquidity. Sales-aid leasing can take one of the following forms: (a) The equipment supplier can provide a reference about the customer to the leasing company (b) The equipment supplier can negotiate the terms of the lease with the customer and complete the necessary paper work on behalf of the leasing company. (c) The supplier can write the lease on his own account and discount the lease receivables with the designated leasing company. The effect of the transaction is that the leasing company owns the equipment and obtains an assignment of the lease rental. By and large, sales-aid lease is supported by a recourse to the supplier in the event of default by the lessee. The recourse can be in the form of the supplier offering to buyback the equipment from the lessor in the event of default by the lessee or in the form of providing a guarantee on behalf of the lessee.

## **Single Investor Lease and Leveraged Lease**

This classification is also based on the number of parties to the lease transaction. In a single investor lease transaction there are only two parties to the transaction – the lessor and the lessee in contrast to a leveraged lease transaction where there are three parties to the transaction – the lessor (equity investor), the lender and the lessee.

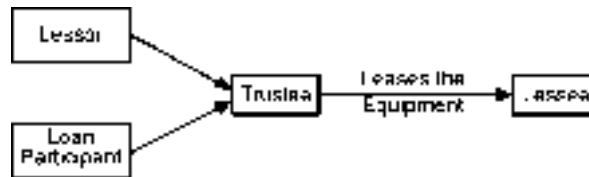
### **Single Investor Lease**

In a single investor lease transaction, the leasing company (lessor) funds the entire investment by raising an appropriate mix of debt and equity. The important point to be noted is that the debt funds raised by the leasing company are without recourse to the lessee. Put differently, the lender cannot demand payment from the lessee in the event of the leasing company defaulting on its debt-servicing obligations.

**Leveraged Lease**

In a leveraged lease transaction, the leasing company (called equity investor) invests in the equipments by borrowing a large chunk of the investment with full recourse to the lessee and without any recourse to it. The lender (also called the loan participant) obtains an assignment of the lease and the rentals to be paid by the lessee, and a first mortgage on the leased asset. The transaction is routed through a trustee who looks after the interests of the lender and lessor. On receiving the rentals from the lessee, the trustee remits the debt-service component of the rental to the loan participant and the balance to the lessor. A schematic representation of the transaction is provided in Figure 1.

**Figure 1: Leveraged Lease Transaction**



**Illustration 2**

Innovative Financial Services Limited (IFSL) has recently structured a leveraged lease transaction involving an investment cost of Rs.80 crore with itself as the equity participant and Bharat Commercial Bank as the loan participant funding the investment in the ratio of 1:4. The loan carries a rate of interest of 18% p.a. and is to be repaid in five equated annual installments. If the required rate of return (gross yield) of IFSL is 22% p.a. calculate the annual lease rental to be charged.

*Answer*

$$\begin{aligned}
 \text{Loan Amount} &= 0.8 \times 80 &= & \text{Rs.64 crore} \\
 \text{Equity Contribution} &= & & \text{Rs.16 crore} \\
 \text{Equated annual installment} &= & \frac{64}{\text{PVIFA}_{(18.5)}} & \\
 &= & \frac{64}{3.127} &= \text{Rs.20.47 crore}
 \end{aligned}$$

Denote the annual lease rental as Y.

$$\text{Annual cash inflow to IFSL} = (Y - 20.47)$$

Given that IFSL requires a rate of return of 22% p.a.

it follows that

$$\begin{aligned}
 (Y - 20.47) \times \text{PVIFA}_{(22.5)} &= 0.2 \times 80 = 16 \\
 \text{i.e., } 2.864 (Y - 20.47) &= 16 \\
 \text{i.e., } 2.864 Y &= 74.63 \\
 \text{i.e., } Y &= \text{Rs.26.06 Crore}
 \end{aligned}$$

In terms of the standard quote, the lease rental works out to be Rs.325.75/Rs.1000/p.a. (=26.06 x (1000 / 80))

Like any other lease transaction, a leveraged lease transaction entitles the lessor to claim tax shields on depreciation and other capital allowances on the entire investment cost despite the fact that a substantial part of the investment cost has been funded with non-recourse debt. Therefore, the return on equity (defined as Profit after Tax divided by Net worth) tends to be high. From the lessee's angle, the effective rate of interest implied by the lease transaction turns out to be less than that of a straight loan because the lessor passes on a portion of the tax benefits

to the lessee in the form of lower rental payments. Leveraged lease packages are usually structured for leasing investment-intensive assets like aircrafts, ships, etc.

### **Domestic Lease vs. International Lease**

A lease transaction is classified as a domestic lease if all parties to the transaction – the equipment supplier, the lessor and the lessee – are domiciled in the same country. On the other hand if these parties are domiciled in different countries, the transaction is classified as an international lease transaction. The distinction between a domestic lease transaction and an international lease transaction is important for two reasons. First, packaging an international lease transaction calls for (a) an understanding of the political and economic climate; and (b) a knowledge of the tax and the regulatory framework governing these transactions in the countries concerned. Second, as the payments to the supplier and the lease payments are denominated in different currencies, the economics of the transaction from the points of view of both the lessor and the lessee tend to be affected by the variations in the relevant exchange rates. In short, international lease transactions unlike domestic lease transactions are affected by two additional sources of risk – country risk and currency risk.

International lease transactions can be further sub-classified into two groups, import lease transactions, and cross-border lease transactions. In an import lease transaction, the lessor and the lessee are domiciled in the same country, but the equipment supplier is located in a different country. The lessor imports the equipment and leases it to the lessee. On the other hand, in a cross-border lease transaction, the lessor and the lessee are domiciled in different countries. The domicile of the supplier is immaterial.

The question that arises is: Given the complexities and additional risks characterizing international leases in general and cross-border leases in particular, why should lessors and lessees go in for cross-border leasing? The proponents of cross-border leasing advance the following reasons:

1. The lease can be so structured as to obtain maximum tax benefits by taking advantage of the tax concessions and incentives offered by the tax laws of the different countries. The end result is that the lease can be priced on terms favorable to both the lessor and the lessee.
2. Cross-border leases offer funding on a long-term basis at fixed rates of interest which may not be available to the lessee in its country.
3. The lessor has access to cross-country equipment markets for disposing off the leased equipments. Hence, it is prepared to take a higher residual value exposure and in the process prices the lease on terms favorable to the lessee.

Of these reasons, the reason concerning the tax implications merits a more detailed discussion. In countries where a finance lease transaction is treated as a genuine lease transaction the lessor claims the tax shields on depreciation and the other capital allowances associated with the investment. The lessee claims the lease rentals as a tax deductible expense. But in some countries (USA, for instance) a finance lease is treated as a sale and the lessee is allowed to claim the tax shield on the investment-related depreciation and other capital allowances. A cross-border lease takes advantage of the laws of two countries, one in which the lessor can claim the investment-related tax shields and the other in which the lessee can claim these tax shields thereby enhancing the financial advantage of leasing to both the lessor and the lessee.

For example, consider a lease transaction in which a UK based lessor leases an equipment to a US based lessee under a finance lease arrangement. Under the tax laws of the UK, the lease will be treated as a ‘true’ lease and the UK lessor will claim the investment-related tax shields. Under the tax laws of the USA, the same transaction will be treated as a “sale” and the lessee will be allowed to claim the tax shields. This dual tax benefit (referred to as the “double-dip” advantage) reduces the cost of the lease to the lessee without affecting the return to the lessor.

If the lessee is not in a position to absorb these tax shields, the UK lessor can write a lease with an intermediate lessor in USA who can absorb these tax shields and in turn sub-lease the asset to the lessee at a lower lease rental. A schematic representation of this transaction is provided in Figure 2.

Figure 2: Structure of a Double-Dip Transaction

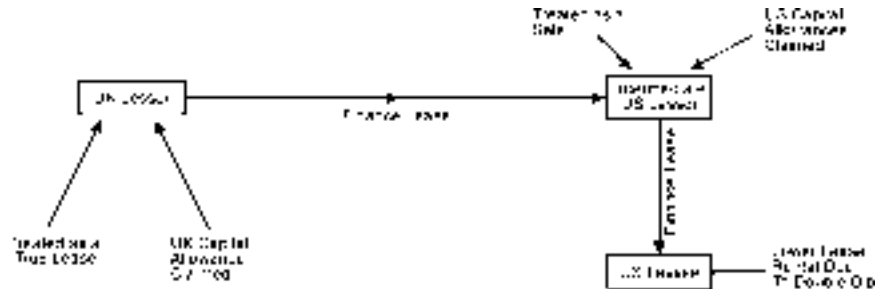
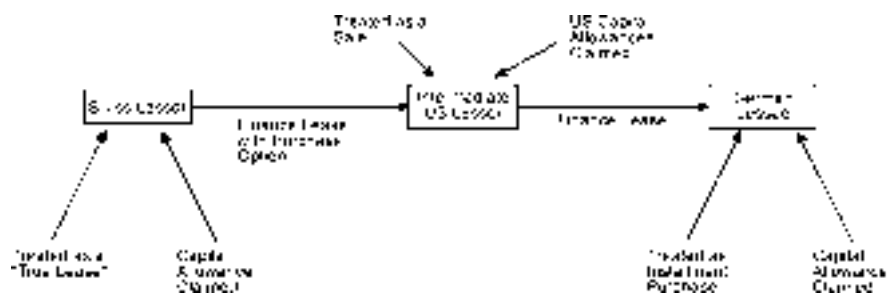


Figure 3: Structure of a Multiple-Dip Transaction



A natural sequel to the “double-dip” transaction is the “multiple-dip” transaction in which more than two countries are involved. For example, consider a Switzerland based lessor writing a lease with a purchase option with a UK based intermediate lessor and this lessor writing a lease that resembles an installment sale with a lessee in Germany. The multiple tax benefits associated with this transaction is schematically presented in Figure 3.

In the recent years, however, there has been a decline in the number of double-dip and multiple-dip lease transactions<sup>1</sup>. This decline is largely on account of introduction of a number of deterrents including the phasing out of initial capital allowances in the UK restrictions on tax-oriented leases to the non-residents in the US as introduced by the Deficit Reduction Act of 1984 and the abolition of the Investment Tax Credit in the US implemented with the Tax Reform Act of 1986.

## ADVANTAGES OF LEASING

Having seen the different types of lease arrangements, let us try to identify the principal reasons for leasing. The proponents of equipment leasing offer the following reasons.

### Flexibility

Equipment leasing is a flexible financing arrangement in the sense that the lease rentals can be structured in a manner that squares with the cash flow pattern anticipated by the lessee. If the lessee expects a constant net cash flow stream from the project in which the leased assets are employed, the lease rentals can be evenly spread over the lease term. On the other hand, if the lessee anticipates a steadily increasing stream of cash flows, the lease rentals can be stepped up gradually. If

1 Nagano, Osamu, “The Development of International Framework for Cross-Border Leasing”, – World Leasing Year Book 1990 (A Euromoney Publication).

the lease finance is availed for a project with a gestation period, the lease rentals can be structured with a deferment period.

The various ways of structuring lease rentals is illustrated through the following example.

**Illustration 3**

Sunrise Leasing has made available the following data:

- \* Investment Cost : Rs.40 lakh
- \* Pre-tax required Rate of Return : 20% p.a.
- \* Primary Lease Period : 5 years
- \* Residual Value after the Primary Period : Nil

It seeks your help in determining the annual lease rentals to be charged under the following rental structures:

- a. Equated
- b. Stepped (Assume an increase of 15% p.a.)
- c. Ballooned (Assume an annual rental of Rs.4 lakh for years one through four)
- d. Deferred (Assume a deferment period of two years).

*Answer*

- a. Denote Y as the annual rental to be charged. The value of Y can be obtained from the equation:

$$Y \times PVIFA_{(20,5)} = 40$$

$$Y = \frac{40}{2.991} = \text{Rs.13.37 lakh}$$

- b. Denote Y as the annual rental to be charged in year 1. The value of Y can be obtained from the equation:

$$Y \times PVIF_{(20,1)} + (1.15)Y \times PVIF_{(20,2)} + (1.15)^2Y \times PVIF_{(20,3)} + (1.15)^3Y \times PVIF_{(20,4)} + (1.15)^4Y \times PVIF_{(20,5)} = 40$$

$$\text{i.e., } 0.833Y + [(1.15)Y \times 0.694]$$

$$+ [(1.15)^2Y \times 0.579] + [(1.15)^3Y \times 0.482] + [(1.15)^4Y \times 0.402] = 40$$

$$\text{i.e., } 3.833Y = 40$$

$$\text{i.e., } Y = \text{Rs.10.44 lakh.}$$

The lease rentals to be charged over the lease term will be:

Year	Lease Rental (Rs. in lakh)
1	10.44
2	12.01
3	13.81
4	15.88
5	18.26

- c. Denote Y as the ballooned payment to be made in year 5. The value of Y can be obtained from the equation:

$$[4 \times PVIFA_{(20,4)} + Y \times PVIF_{(20,5)}] = 40$$

$$\text{i.e., } 10.36 + 0.402Y = 40$$

$$\text{i.e., } 0.402Y = 40$$

$$\text{or } Y = \text{Rs.73.73 lakh.}$$

- d. Denote Y as the equated rental to be charged between years 3 through 5. The value of Y can be obtained from the equation:

$$\begin{aligned}
 & Y \times PVIF_{(20,3)} + Y \times PVIF_{(20,4)} \\
 & + Y \times PVIF_{(20,5)} \qquad \qquad \qquad = 40 \\
 & \text{i.e., } (0.579 + 0.482 + 0.402) Y \qquad = 40 \\
 & \text{i.e., } 1.463Y \qquad \qquad \qquad = 40 \\
 & \text{i.e., } Y \qquad \qquad \qquad = \text{Rs.27.34 lakh.}
 \end{aligned}$$

This flexibility associated with structuring is not found in the debt-servicing pattern associated with a conventional loan. In India, the debt-servicing pattern of a conventional loan requires the loan amount to be repaid over a specified number of installments. This results in heavy debt servicing burden in the earlier years and does not suit projects which generate substantial cash flows in the later years. To illustrate, the debt servicing burden associated with a loan of Rs.40 lakh (carrying interest @20% p.a.) repayable in five equal annual installments will be as follows:

(Rs. in lakh)

Year	1	2	3	4	5
Loan amount outstanding at the beginning	40	32.0	24.0	16.0	8.0
Principal repaid	8	8.0	8.0	8.0	8.0
Interest	8	6.4	4.8	3.2	1.6
Debt services charge	16	14.4	12.8	11.2	9.6

**User Oriented Variants**

There are several variants of a lease transaction which are designed to meet the specific requirements of the lessee. Examples of such innovative variants are the Upgrade Lease, which helps in hedging the risk of obsolescence or the cross border lease which reduce the cost of the lease from the lessee’s point of view. There are also leases which provide all services related to the usage and maintenance of the asset. For example, in a full service car lease, the lessee pays a predetermined charge for the use of a car or a fleet of cars and he gets the entire spectrum of services ranging from the provision of chauffeurs to break-down maintenance.

**Tax Based Benefits**

Leasing makes a lot of financial sense to a firm which has no capacity to absorb the investment-related tax shelters like depreciation. A lessor who can absorb these tax shelters can acquire the assets and lease them to the firm at a lower lease rental. The cross border lease is a classic example of how leasing helps in exploiting multiple tax shelters to the advantage of both the lessor and the lessee.

**Less Paper Work and Expeditious**

**Disbursement**

Compared to the term loan arrangement, a lease arrangement requires (a) less of paper work to be done by the lessee and (b) involves a shorter lead time between the date of submitting the proposal and the date of disbursement of funds.



## **Convenience**

Convenience determines the decision to lease when a firm intends using an asset for a very short period of time. For example, a firm which requires the use of the fleet of cars for a week will find it easier to rent the fleet for a week than to buy it on Monday morning and sell it on Saturday evening. Apart from convenience, it is also a financially sensible proposition because the transaction costs associated with buying and selling like search costs, legal charges, selling commissions, etc. will outweigh the rentals to be paid for the short-term lease.

## **Hundred Percent Financing**

The proponents of leasing often emphasize this feature of leasing as an advantage not available with the other forms of equipment financing. For example, the Equipment Finance Scheme of IFCI requires a borrower's contribution of 25% of the equipment cost. Most of the other financing plans including hire purchase call for down payments varying between 15 to 25 percent. While it is true that equipment leasing does not call for as high a margin as other financing schemes, the fact remains that where lease rentals are payable say monthly in advance, the first installment amounts to a down payment. For example, a lease contract which requires lease rentals to be paid at the rate of Rs.25 ptpm (per thousand rupees per month) in advance can be viewed as a contract which requires a down payment of 2.5% of the asset cost.

## **Better Utilization of Own Funds**

The proponents argue that leasing is the sensible route for acquiring non-income generating assets like air conditioners, office equipments and vehicles. The firm can deploy its own funds in more productive channels.

## **Off-Balance Sheet Financing**

From our discussion of the characteristics of finance lease, it is clear that this form of lease with its non-cancelable and full pay-out features is like a secured loan to be repaid over a period of time. We are also aware that secured loans and the assets acquired out of these loans are reflected in the balance sheet of the borrower. But surprisingly neither the financial commitments nor the value of the assets acquired under a finance lease needs to be disclosed in the balance sheet of the lessee. This phenomenon which goes by the name of 'Off-Balance Sheet Financing' is projected as a unique advantage of leasing over other forms of financing. The lessors who market leases on the strength of this USP (Unique Selling Proposition) argue that liabilities that do not exist on the balance sheet of a firm do not affect the future borrowing capacity of the firm for the simple reason that the potential lender is unaware of these liabilities. A close examination of this argument reveals that the advantage is by and large dubious. Financial institutions and other organized lending agencies do not base their decision to lend solely on the apparent strength of the borrower's balance sheet. They do call for information on the off-balance sheet liabilities to assess the real borrowing capacity of the borrower. But the phenomenon of off-balance sheet financing can mislead the individual investors who go by the information conveyed by the financial statements for assessing the return and risk of their investments. The following example illustrates how the measures of return and risk get distorted by this phenomenon.

**Illustration 4**

The summarized income statement and balance sheet of Comet Steel Rolling Mills are given in Tables 1 and 2 respectively:

**Table 1: Income Statement for the Year ended**

March 31, 2001

(Rs. in lakh)	
Net Sales	1500
Cost of Goods Sold	850
(includes depreciation of Rs.130 lakh)	
Gross Profit	650
Operating Expenses	240
Operating Profit	410
Interest	67
Lease Rentals	163
Profit Before Tax	180
Tax at 45%	81
Profit After Tax	99

**Table 2: Balance Sheet as on March 31, 2001**

Sources of Funds	(Rs. in lakh)
1. Shareholders' Funds:	
– Share Capital	170
– Reserves & Surplus	400
2. Loan Funds	
– Secured Loans	1425
(including cash credit of Rs.285 lakh)	
– Unsecured Loans	–
<b>Total</b>	<b>1995</b>

Application of Funds	(Rs. in lakh)
1. Fixed Assets	
Gross Block	4170
Less: Acc. Depreciation	2700
Net Block	1470
2. Investments	45
3. Current Assets	665
Less: Current Liabilities	185
Net Current Assets	480
4. Miscellaneous Assets	–
<b>Total</b>	<b>1995</b>

The following additional information is also available:

- At the beginning of the year, the company has leased equipments costing Rs.510 lakh on the following terms:
  - Primary Lease Period : 5 years
  - Lease Rate : Rs.320/Rs.1000
  - Frequency of Payment : Annually in arrear

- The company could have financed the investment through an Equipment Finance Scheme which provides hundred percent debt finance at a rate of interest of 18% p.a. repayable in five equal annual installments.
- The depreciation policy of the company requires the plant and machinery to be depreciated @ 30% p.a. on the written down value method.
  - a. Calculate the following ratios based on the given set of financial statements:
    - Total Assets Turnover Ratio
    - Fixed Assets Turnover Ratio
    - Long-Term Debt/Equity Ratio
    - Return on Investment
  - b. Recast the financial statements assuming that the investment of Rs.510 lakh was financed under the Equipment Finance Scheme. Calculate the above ratios based on the new set of financial statements.
  - c. Comment on the variations in the ratios computed in (a) and (b).

*Answer*

a. 
$$\text{Total Assets Turnover} = \frac{\text{Net Sales}}{\text{Total Assets}} = \frac{1500}{2180} = 0.69$$

b. 
$$\text{Fixed Turnover} = \frac{\text{Net Sales}}{\text{Net Block}}$$

c. 
$$\text{Long-Term Debt to Equity} = \frac{\text{Secured Loans Less Cash Credit}}{\text{Net Worth}} \times 100$$

d. 
$$\text{Return on Investment} = \frac{247}{2180} \times 100 = 11.33\%$$

**Note:** Total Assets = Net Block + Investments + Gross Current Assets.

**Income Statement for the year ended March 31, 2001**

(Rs. in lakh)

Net Sales	1500
Cost of Goods Sold	1003
(includes depreciation of Rs.283 lakhs <sup>2</sup> )	
Gross Profit	497
Operating Expenses	240
Operating Profit	257
Interest <sup>1</sup>	158.8
Lease Rentals	–
Profit before Tax	98.2
Tax @ 45%	44.2
Profit after Tax	54

**Balance Sheet as on March 31, 2001**

Sources of Funds	(Rs. in lakh)
1. Shareholders' Funds	
– Share Capital	170
– Reserves & Surplus (400 – 99 + 54)	355
2. Loans Funds	
– Secured Loans (1425 + 510 – 102)	1833
Total (= 1 + 2)	2358

<b>Applications of Funds</b>		(Rs. in lakh)
1. Fixed Assets		
– Gross Block (4170 + 510)	4680	
– Less: Acc. Depreciation (2700 + 153)	2853	
– Net Block		1827
2. Investments		45
3. Current Assets <sup>3</sup>	634.2	
Less: Current Liabilities	148.2	
4. Net Current Assets		486
Total (= 1 + 2 + 3)		2358

**Notes**

		(Rs. in lakh)
1. Interest on term loan	510 x 0.18 = <u>91.8</u>	
Total Interest Expense	67 + 91.8 = <u>158.8</u>	
2. Depreciation charge on additions to fixed assets during the course of the year	510 x 0.3 = 153	
3. Current Assets as per given balance sheet	665.0	
Less: Cash outflow on account of interest and principal payments	<u>193.8</u>	
	471.2	
Add: Lease rentals not paid	<u>163.0</u>	
	<u>634.2</u>	
4. Current Liabilities as per given balance sheet	185.0	
Less: Difference in provisions for tax as per the given and revised income statements	36.8	
	<u>148.2</u>	

The relevant financial ratios based on the revised set of financial statements will be as follows:

$$* \text{ Total Assets Turnover} = \frac{1500}{2506.2} = 0.60$$

$$* \text{ Fixed Assets Turnover} = \frac{1500}{1827} = 0.82$$

$$* \text{ Long-Term Debt to Equity} = \frac{1548}{525} = 2.95$$

$$* \text{ Return on Investment} = \frac{257}{2506.2} \times 100 = 10.25\%$$

- c. A comparative analysis of the relevant ratios based on the two sets of financial statements reveals that non-disclosure of outstanding lease obligations and the value of the leased assets in the balance sheet results in (i) the debt to equity ratio being understated; (ii) the assets turnover ratio being overstated; and (iii) the return on investment being overstated.

Since investors use debt to equity ratio as an indicator of the financial risk of a firm, an understatement of this ratio understates the real financial risk of the firm which in turn affects the valuation of the firm's debt and equity securities. Likewise, investors use the return on investment as a measure of the earnings power of the firm. Therefore, an overstatement of this ratio also affects the valuation of the firm's securities.

Recognizing the distortions caused by the non-disclosure of finance leases in the financial statements of the lessee, the International Accounting Standards Committee (IASC) recommended the practice of capitalizing finance leases in the books of the lessee. The Institute of Chartered Accountants of India (ICAI) has come up with a set of less rigorous guidelines relating to disclosure.

### **Other Firm-Specific Advantages**

A small scale unit which is on the verge of losing its SSI (Small-Scale Industry) status by virtue of its investment exceeding the prescribed investment limit can postpone the inevitable for some time by taking care of its immediate investment requirements through leasing. Likewise closely-held companies are likely to find leasing to be a convenient method of equipment financing because it does not result in dilution of control.

### **CAN LEASING BE DISADVANTAGEOUS?**

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We discussed several strong reasons in favor of leasing over buying. Does it mean that given a choice between leasing and buying, an asset must be always leased? The answer is 'no'. Some of the shortcomings of this form of asset-based financing are as follows:

1. Given the fact that most of the equipment lease transactions are structured as finance leases, the flexibility of the lessee to disinvest is seriously undermined. The non-cancelable feature is a serious disadvantage particularly where the equipments leased have uncertain technological and/or product-market lives.
2. Propelled by the dubious advantage of "Off-Balance Sheet Financing" or one firm can afford to increase its exposure to leasing beyond reasonable limits. Firms which are highly geared (with a high debt equity ratio) and firms which are subject to a high degree of business risk must be particularly wary about leasing because it reduces the debt capacity of such firms and increases the financial risk.
3. In a perfectly competitive financial market, the cost of leasing tends to be equal to the costs of other forms of borrowing. Therefore, in this market a borrower (lessee) can afford to be indifferent between the options of leasing and borrowing. But in an imperfect financial market where the tax shields associated with leasing and owning are different, where some long-term interest rates are regulated, etc. the costs of leasing and borrowing can be significantly different. More often than not leasing turns out to be costlier than most forms of borrowing. So the lessee has to necessarily evaluate the costs of leasing and borrowing before choosing between lease and purchase of an asset.

### **Tax Aspects**

The tax aspects of leasing can be divided into two parts – the income tax aspects and the sales tax aspects.

#### **Income Tax Aspects**

The income tax aspects of leasing are primarily concerned with (a) lessor's claim for depreciation tax shields on the leased assets; (b) lessee's claim for lease rentals and the operating costs of the leased assets being treated as tax-deductible expenses; and (c) tax liability on rental income in the hands of the lessor.

The Income Tax Act, 1961 does not explicitly provide for the lessor's eligibility to claim depreciation allowance on the leased assets. But this eligibility can be deduced from the Tribunal and Court judgements on the subject.

To date, there are no capital allowances (like investment allowance) directly linked to investment in plant and machinery. Hence the lessor does not derive any investment related tax shield other than depreciation tax shields. The rental income derived by the lessor is included under the head 'Profits and Gains of Business or Profession' for the purpose of assessing the income tax liability.

From the lessee's angle, the rental expense can be treated as a tax-deductible expense. The costs incurred in insuring and maintaining the leased assets are also tax-deductible. By virtue of a circular issued by the Central Board of Direct Taxes (CBDT) in 1943, the lease agreement must not provide for a transfer of ownership of the leased asset or a bargain purchase option to the lessee. Inclusion of either of these provisions will result in the lease transaction being treated as a hire purchase transaction. The tax implications of a hire purchase transaction are not the same as those of a lease transaction.

Leasing can be used as a tax planning device by (a) exploiting the flexibility in structuring lease rentals; (b) transferring the investment related tax shields from a firm that has a low appetite for such tax shields to lessor who can absorb them. The firm transferring the tax shields can benefit through a reduction in the lease rentals.

**Sales Tax Aspects**

Sales tax affects a lease transaction at the following stages: (a) when the lessor for the purpose of leasing purchases the asset; (b) when the right to use the asset is transferred to the lessee for a valuable consideration; and (c) when the asset is sold by the lessor at the end of the lease period.

The lessor is at a disadvantage with regard to interstate purchase of equipment because the concessional rate of Central Sales Tax that applies to such transactions (on fulfillment of certain prescribed criteria) is not made available to an equipment supplier supplying equipment to a lessor.

The Constitution (46th Amendment) Act, 1981 provides for sales tax on the "transfer of the right to use any goods for any purpose (whether or not for a specified period) for cash, deferred payment or other valuable consideration". After this enactment several states have amended their sales tax laws to provide for sales tax on lease rentals.

The validity of the provision to levy sales tax on lease transactions and the other related aspects have been challenged by the leasing companies and stay orders have been obtained from different state high courts. Consequently, the lessor's liability to pay sales tax on rental income remains as a contingent liability.

**Return to the Lessor**

A lessor based on the return he would get evaluated a lease transaction. The return depends on three factors. They are:

- a. The term of the lease;
- b. The periodic lease payments (i.e., whether the payments are made yearly, half-yearly, quarterly or monthly) and whether it is paid in advance (at the beginning of the period) or in arrears (at the end of the lease payment period); and
- c. The residual or salvage value assumption.

If the lease payments are made at the end of the period, the implied interest return earned by the lessor can be determined by using the underlying formula.

$$\text{Value of the Asset} = \sum_{t=1}^{mn} \frac{\text{Lease Payments}}{(1 + R/n)^t} + \frac{\text{Lease Value}}{(1 + R/n)^{mn}} \quad \dots \text{Eq. (1)}$$

Where,

n = Length of the lease term; and

m = Number of lease payments in a year.

However, if the lease payments were made in advance,

$$\sum_{t=1}^{mn} \text{ would be changed to } \sum_{t=0}^{mn-1}$$

**Illustration 5**

ABC Leasing has been approached by a client to write a 8 year lease on an asset (drilling machine), which costs Rs.2.5 million and has an estimated salvage value of 25 percent of the cost. ABC Leasing offers leasing on the following terms.

**Solution**

$$\text{Value of the Asset} = \sum_{t=1}^{mn} \frac{\text{Lease Payments}}{(1+R/n)^t} + \frac{\text{Lease Value}}{(1+R/n)^{mn}}$$

Value of asset = 2.5 million

Where,

$$m = 2$$

$$n = 8$$

Lease payment = Rs.3,00,000

RV = 25% of 2.5 = Rs.0.625 million. Substituting the above, we have

$$25,00,000 = \sum_{t=1}^{16} \frac{3,00,000}{(1+R/2)^t} + \frac{6,25,000}{(1+R/2)^{16}}$$

When,

$$R = 20\%,$$

$$\begin{aligned} \text{RHS} &= 3,00,000 \text{ PVIFA}_{10\%, 16} + 6,25,000 \text{ PVIF}_{10\%, 16} \\ &= 3,00,000 \times 7.824 + 6,25,000 \times 0.218 = 24,83,450 \end{aligned}$$

When,

$$R = 18\%,$$

$$\text{RHS} = 3,00,000 \times 8.312 + 6,25,000 \times 0.252 = 25,09,350$$

R lies between 20% and 18%; by interpolation we find

$$R = 18\% + [25,09,350 - 25,00,000 / 25,09,350 - 24,83,450]$$

$$R = 18.36\%$$

If, for instance, the leasing company made an assumption that the drilling machine will end up with a residual value of Rs.9,00,000, then obviously, the return on the lease increases. This can be noticed when we compute the above problem for R (rate of return) with the new residual value that is, Rs.9,00,000. The differences in the residual (salvage) value assumptions can result in a big difference in the return to the lessor. For a lessee, if the lessor has attached too high residual value to the asset, this certainly benefits him with a lower implicit interest cost.

From the lessee's angle, it is important to first determine the return to the lessor, since this provides him adequate information to compare this cost with interest costs for other financing methods. At present, financial practitioners, to evaluate the profitability of the lease transaction, use many more sophisticated methods of analysis. However, certain lease deals can be entered/ruled out merely on the basis of above computation.

### Calculation of Lease Payment

The lessor can compute the periodic lease payment that is required to provide a given or desirable return by using the above equation (Eq. 1). If, for instance, the lessor, in the above case, wanted to earn 18 percent return on the drilling machine and the asset continued to cost Rs.2.5 million and the residual value of the asset is expected to stand at 25% of the cost, then the requisite lease payment is:

$$25,00,000 = X PVIFA_{18/2,16} + 6,25,000 PVIF_{18/2,16}$$

Then, if we solve for X, we will get X

$$= \frac{25,00,000 - (6,25,000 \times 0.252)}{8.312} = \text{Rs.}2,25,577.51$$

So far, we have examined how to determine (compute) implicit interest rate and periodic lease payments. Now, in this section, we shall evaluate whether lease financing or buying the asset and borrowing (buy/borrow) is more favorable for an organization that desires to acquire an asset's economic use.

### Cost to the Lessee

Cost of the lease transaction is as important to the lessee as return to the lessor. Once an investment decision is evaluated and accepted it has to be decided by the user whether to borrow and buy or lease the asset. A decision is made based on the cost of borrowed funds or cost of leasing. Leasing is opted if the cost of leasing is lower than the cost of borrowing and vice versa. Several methods may be used to determine the better of the two alternatives.

A decision to acquire an asset is an investment decision. The organization will decide whether to accept/reject the proposed project using the discounted cash flow methods and the required rate of return. If a decision is made to acquire an asset, the organization has to decide how to finance the project. Here, for our explanation, we assume that the organization has determined an appropriate capital structure that favors financing the project with either debt or a capital lease. Once this decision is made, the organization must immediately select between the debt and lease financing by evaluating and comparing the cost of the two alternatives. Obviously, the organization will choose the alternative that costs lower of the two.

Henceforth in this section, we shall examine the two most frequently used methods – the Net Present Value Method (NPV) and the Internal Rate of Return (IRR) – to analyze the lease versus buy/borrow decision.

### Net Present Value Method

Under this method, the first step includes computation and comparison of the present values of the cash outflows with respect to lease and purchase with borrowed funds are considered. According to NPV criterion, the desirable alternative is the alternative that has the lowest present value. It is known that if the asset is leased, the organization (lessee) has to pay periodic lease payments to the owner of the asset (lessor). The periodic lease payments made are considered as the cash outflows and the tax shield that is associated with the lease payments can be considered as the cash inflows. (From taxation point of view, lease payments are deductible from the income of the lessee. Since inclusion of lease payments reduces the tax liability of the lessee, they are treated as tax shields. However, the payments made are allowed as a tax-deductible expense only in the year for which the payment applies. For example, the payment made at the end of a year denotes a pre-paid expense and is not deductible until the following year.) This reduction in tax liability is referred to as the tax shields of lease payments. If the present value of the cash inflows is greater than the present value of cash outflows in the lease option the user would prefer lease financing to debt financing or vice versa.



**Illustration 6**

Arjun Industries is contemplating investment in an imported machinery costing Rs.66 lakh, has a life of 4 years and an estimated salvage value of Rs.6 lakh at the end of the fourth year. The company can either borrow/buy or lease the equipment. If lease financed it requires paying annual lease payments of Rs.21 lakh payable at the end of the year. If debt financed it requires paying at an interest rate of 15 percent per annum. (Interest would be amortized as a mortgage type of debt instrument.) The company is in the tax bracket of 46 percent and it can depreciate the machinery (for tax purposes) at a rate of 40%. Which option will give the company lower present value of cash outflows?

**Solution**

Lease related cash flows:

End of year	Lease Payments	Tax Shield (2) x 0.46	Cash Outflow (2) – (3)	PV @* 15 (1 – 0.46)% = 8.1%
1-4	21	9.66	11.34	37.4787

\* Present value is calculated as follows:

At 8% PVIFA for 4 years = 3.312

9% PVIFA for 4 years = 3.24

By interpolation, PVIFA

At 8.1% = 3.312 – 0.1[3.312 – 3.24] = 3.305

Present value of cash flows = 11.34 x 3.305 = Rs.37.4787 lakh

**Debt Related Cash Flows**

Debt related cash flows relate to the cash flows that are made if the user debt finances the asset. The debt-related cash flows, including interest and principal payments as and when made, is considered as cash outflows. On the other hand, tax shield on the depreciation, which can be claimed, is treated as cash inflow. In the above example, interest charged is assumed to be similar to that of mortgage type of debt instrument. In such cases, interest is calculated as follows:

$$\text{Loan Amount} \sum_{t=1}^n \frac{X}{(1+e)^t}$$

Here, unlike in lease, estimated residual value is considered as a cash inflow. To understand the tax aspects relating to sale of an asset, consider the following from the IT Act.

To date, depreciation is charged not on an individual asset but on a block of assets. The term ‘block of assets’ is defined as “a group of assets falling within a class of assets being building, machinery, plant or furniture in respect of which the same rate of depreciation is prescribed”. Tax is attracted to a sale of asset only if the block of assets is reduced to nil.

As per IT Act, a block is reduced to nil, if the sale proceeds of an asset/assets in the block exceeds the Written Down Value (WDV) of the block or if all assets in the block are sold. In the first sale, any surplus over the WDV is allowed as short-term capital gain and in the second, any surplus/shortfall is treated as short-term capital gain/loss.

Due to complexity of the above, in the underlying problems, the asset in consideration is assumed to be a part of the existing block and that its sale does not reduce the WDV to nil, as such the residual (salvage) value does not attract any tax liability.

In the above example, interest payments and the debt related cash flows are calculated as:

Annual debt payments, which include interest and principal (par) payments, will be Rs.X lakh in the following:

$$66 = \sum_{t=1}^4 \frac{X}{(1.15)^t}$$

$$66 = X \text{ PVIFA}_{15\%, 4}$$

$$X = \text{Rs.}23.1173 \text{ lakh}$$

**Schedule of Debt Payments**

Year	Loan Payment	Principal Amount at the end	Annual Interest @ 15%	Capital Content in debt payment
1	23.1173	66.0000	9.9	13.2173
2	23.1173	52.7827	7.9174	15.1999
3	23.1173	37.5828	5.6374	17.4799
4	23.1183*	20.1029	3.0154	20.1029

\* Due to rounding off throughout.

Year	Payment	Interest	Depreciation	Tax shield (3 + 4) 0.46	Cash outflow after taxes (2) – (5)	PV @ 8.1%
1	23.1173	9.9	26.4	16.698	6.4193	5.9379
2	23.1173	7.9174	15.84	10.9284	12.1889	10.4337
3	23.1173	5.6374	9.504	6.9650	16.1523	12.7926
4	23.1173* (6.0000)	5.6374 –	5.7024 –	4.0102 –	19.1081 (6.0000)	13.9871 (4.3920)
					Total	38.7593

\* Is the residual value of Rs.6 lakh. It is assumed that the asset would be a part of the block of assets in the firm and its sale does not attract any tax liability/shield on the capital gain/loss as per the Income Tax Act, 1961.

Since the debt option gives a higher present value of cash outflows, the firm should opt for lease financing.

**Internal Rate of Return Analysis**

Some leasing companies evaluate lease investments using the Internal Rate of Return (IRR) criterion. The internal rate of return of a lease investment is the rate of interest at which the NAL (Net Advantage of Leasing) is equal to zero. In other words, IRR is the discount rate that reduces the Net Present Value (NPV) of a project to zero. The lease investment is accepted if and only if the IRR exceeds the marginal cost of capital. This criterion does not require selecting a discount rate.

To start with consideration of the lease, the after-tax cost of leasing can be calculated by using the underlying equation for r:

$$-A + \sum_{t=1}^n \frac{L_t}{(1+r)^t} + \frac{T(L_t - D_t)}{(1+r)^t} - \frac{RV}{(1+r)^n}$$

Where,

- A = The cost of the asset to be leased;
- L<sub>t</sub> = The periodic lease payments at the end of the each period;
- T = The corporate tax rate, n is the lease term;
- D<sub>t</sub> = The depreciation that can be claimed for tax purpose; and
- R = The residual value of the asset.

**Explanation:** The cost of leasing is the discount rate that makes the cost of the asset equal to the present value of lease payments ‘plus’ net of their tax shields ‘minus’ the present value of the estimated residual value at the end of the lease after taxes. Note that if the estimated residual value happens to be 0 (zero), the computation of present value of estimated residual (salvage) value becomes redundant. As a result, the RV term is omitted from the above equation for r.

After solving the after-tax cost of lease financing, the resultant figure should be compared with the post-tax of borrowed funds to determine the alternative that results in the lower cost of financing. According to IRR approach, the alternative that has the lowest rate would be chosen.

The rate of return that is earned in the lease transaction given in example 7.6.3 is calculated as follows:

**Schedule of Cash Flows**

Year	Cost of Asset	Lease Payment	Depreciation	Tax shield [(3) – (4)] 0.46	Salvage Value	Cash flow (2) – (3) + (5) – (6)
0	66					66.000
1		21	26.4000	– 2.484		(23.4840)
2		21	15.8400	2.3736		(18.6264)
3		21	9.5040	5.2882		(15.7118)
4		21		7.0369	6	(19.9631)
			5.7024			

IRR is the rate of discount (r) in the equation

$$66 = \frac{23.4840}{1+r} + \frac{18.6264}{(1+r)^2} + \frac{15.7118}{(1+r)^3} + \frac{19.9631}{(1+r)^4}$$

At 8%, RHS = 64.857

At 7%, RHS = 66.271

∴ IRR lies between 7% and 8%

By interpolation, we can find

$$IRR = 7 + \frac{66.271 - 66.000}{66.271 - 64.857} = 7.19\%$$

After tax cost of borrowing = 8.1%

As cost of leasing is lower to cost of borrowing leasing can be opted by the company.

This rate of return is compared to the post-tax cost of borrowed funds and if this is more than the latter, leasing is opted or otherwise debt financing. In the given example as the return that can be earned on the lease transaction is greater than the post-tax cost of borrowed funds leasing can be opted.

**Floating Interest Rates**

Sometimes, the debt alternative is floating in nature, where the interest rate is attached to the prime rate. Due to fluctuations in the prime rate, the debt payments, unlike lease payments in the lease, are not known. When such a situation arises, most financial analysts use either the present short-term borrowing rate or some average of expected future short-term borrowing rates. In such occasions, sensitivity analysis may be useful. Suppose our evaluation employing present borrowing rate indicates that debt financing is superior alternative to lease financing, then it is better to determine the interest rate gap between debt and lease financing; this helps the analysts to know how much the interest rate would require increasing before the lease financing was desired. However, it is equally important

to introduce a time dimension in our evaluation to determine the pace of interest rate rise that would nullify the advantage of debt alternative over lease alternative. Suppose such an increase is improbable, it is better to opt for debt financing. In contrast, if such a rise is probable, go for lease financing. Accordingly, suppose lease financing is favorable on the basis of present borrowing rate, then it is important to determine how far and how quickly must the interest rates decline before debt financing were favored. If the probability for such decline is more, debt financing is preferred to lease financing. On the contrary, if the probability is less, lease financing dominates debt financing.

## SUMMARY

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- While leasing has a history spanning over more than 5000 years, equipment leasing with which we are concerned is of a recent origin. It is said that the practice of equipment leasing began when the rail road companies in the USA and Europe resorted to leasing of rail cars and locomotives for expanding their operations. By the mid-sixties, equipment leasing came into popular use in the developed countries. Today equipment leasing is not just confined to leasing of equipments; large infrastructural facilities, power plants and other capital-intensive projects are also leased.
- In concept, an equipment lease is a contractual arrangement under which the owner (lessor) transfers the right to use the equipment to the user (lessee) for an agreed period of time in return for rent. At the end of the lease period the asset reverts back to the lessor. It is important to note that in the Indian context a lease cannot be structured with a provision for transfer of ownership or with a feature of purchase option. Introducing any one of these features can result in the lease being classified as hire purchase transaction which has got a different set of accounting and tax implications.
- The features of an equipment lease transaction can vary along the following dimensions: extent to which risks and rewards of ownership are transferred, number of parties to the transaction, domiciles of the equipment manufacturer, the lessor, and the lessee. Based on these dimensions, the following classifications are possible:
  - Finance Lease and Operating Lease
  - Sale and Lease and Operating Lease
  - Single Investor Lease and Leveraged Lease
  - Domestic Lease and International Lease.
- Of the aforesaid classifications, the classification in terms of finance lease and operating lease is of fundamental importance in the financial analysis and accounting for leases. The distinction is drawn on the basis of the risks and rewards of ownership transferred from the lessor to the lessee. If a lease transfers a substantial part of the risks and rewards it is classified as a finance lease; otherwise, it is called an operating lease. The Financial Accounting Standards Board (FASB) of the USA was the first professional body to evolve the criteria for this classification and these criteria with some minor modifications have been adopted by the International Accounting Standards Committee (IASC).
- There are various factors which influence the decision to lease. The important ones are:
  - Flexibility
  - User-Orientation
  - Tax Based Advantages
  - Convenience
  - Expenditious disbursement of Funds
  - Hundred Percent Financing
  - Better Utilization of Own Funds.

- A lease is often marketed on the strength of a dubious advantage called the “Off-Balance Sheet Financing” which purports that a liability off-the balance sheet does not affect the debt capacity of a firm. It must be noted that a finance lease whether on or off the balance sheet affects the borrowing capacity and increases the financial risk.
- There are, of course, deterrents to leasing. These deterrents include the restrictive covenants on the usage of the asset, the non-cancelable feature of a finance lease which restricts the flexibility to disinvest, threat to real borrowing capacity and the high cost of lease finance vis-à-vis most forms of borrowing.

## **Chapter VIII**

# **Internal Treasury Controls**

**After reading this chapter, you will be conversant with:**

- Structure and Organization of Treasury
- Accounting and Control
- Various Measures of Controls
- Insights into Information Systems and Reporting Standards
- Measuring Treasury Performance

Having dealt with external management techniques in treasury we now focus on some of the internal control measures to be adopted by a cautious treasury manager to overcome unexpected and unforeseen malfunctions inside the organization.

## **ACCOUNTING AND CONTROL**

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In small family holdings, sole proprietorship and partnership firms, accounting and control measures are closely held between the promoters. They would do everything on their own and see to the day-to-day transactions. However, as the organization grows, it will become humanly impossible to check individually and thus the need for a system of internal accounting control would be felt. The types of risks a company would face are:

- Entry of counterfeit documents, vouchers, challans, receipts into the accounting system.
- A 'no-care attitude' towards the policies introduced by the management.
- Loss/Misplacement of important documents.
- Inaccuracy in reporting and recording transactions.
- Unauthorized disposal of assets.
- Failure and inefficiency in safeguarding the assets.
- Neglect of work in the event of non-allocation of authority and responsibility.

### **Purpose of Establishing Control**

Ideally, the internal control system is designed to prevent any financial impropriety by the employees. The thrust is not on detection of such a happening, but to prevent it. When implemented a proper control system automatically hints at the weakness of the major policies with respect to managing cash, receivables, discounts, investments, etc.

Implementation of effective system of accounting and controls deters the people from committing any act of fraud. The very fact that their actions are being monitored will prevent them from committing any such acts. Of course, people inclined to steal/misappropriate will go elsewhere where they have easy access.

**Example:** The unauthorized use of telephones by the staff for personal purpose. The cost controller of a company was quite concerned about the highly inflated telephone bill. As it was not possible for him to personally tell each employee to minimize the use of telephone for personal use, he installed a printing machine on to the telephone which would give details on the telephone calls with respect to the number dialed and duration of the call. This automatically created an awareness among the employees that their calls would be monitored. It was not surprising therefore to note, that the bill for the subsequent months had reduced.

However, every company should understand that people who 'want to make hay, while the sun shines' will accomplish it, whatever be the systems of control implemented. One can only hope that the system implemented is strict and fool-proof which will make risk taking even more difficult.

### **Design of Internal Control**

Internal control systems are designed according to the size of the firms. Large firms either have the audit staff to design and implement the control system or appoint experts of the treasury and control function to design the same. Smaller companies whose treasurer and controller may not have the experience in formulating a system of control often employ the services of consultants or their auditors.

Some of the guidelines which are adhered to while designing an internal control system are:

- A plan to segregate responsibilities based on functions.
- Allocation of responsibilities between the maintenance of records (by the controller) and custodianship of cash and other liquid assets (by the treasurer).
- A system for proper documentation and recording procedures.
- Formulation of policies and procedures in tune with the organization's long-term goal and a systematic model for implementation of those policies.
- Appointment of suitable personnel whose qualifications, interest and experience are commensurate with the nature of the job and responsibilities entrusted to them so as to obtain maximum job enrichment.

### **Manning the System**

People are the most important resource available in an organization to successfully implement the control system. Such people must demonstrate their ability to execute the job which has been entrusted to them. The treasurer and controller should set down the basic skills and qualifications a prospective employee needs to possess for a particular type of job. Experienced people are particularly selected when they have in-depth knowledge of the procedures, documentation, loopholes in the system and how the same can be detected. If inexperienced people are placed in responsible positions, the more experienced people may take advantage of this and misguide them to suit their own convenience. Certain companies also introduce sessions of 'Personnel development' and other training programs in order to familiarize them with current business practices and latest software technology.

### **Maintenance and Monitoring of Internal Control Systems**

- a. **Identification of the Problem:** The control system must be able to identify an upcoming problem and suggest solutions to each situation at the earliest.

**Example:** There are two unrelated employees working in a company. One is the supervisor in the controlling department who issues cheques and the other is in the treasurer's office who has custody of the signature plate of the authorized signatories for various levels of payment. As long as both are not related, there would seem to be no problem as there is a segregation of duties. Suppose, later they become very good friends, there are chances that they may connive with each other to make misappropriations.

- b. **Cost Benefit Analysis:** Every control system has costs involved in both monetary terms and in terms of time spent by people to prepare and review the control systems. Whatever be the case, a company is benefited, only when the cost of controls does not exceed the loss it is trying to prevent from occurring.

To effectively implement cost beneficial controls, one should make a study of:

- The opportunity costs in preventing the occurrence of frauds, misappropriations, theft, errors, and negligence.
- Recurrence of such misappropriations and its cost if the control system was not implemented.
- The total costs incurred in establishing a control system.

- c. **Monitoring for Compliance:** Just as policies and procedures of a company require to be complied with, so also is the rule with internal control systems. Each system needs to be monitored constantly to ensure that the system is implemented. It is specially important when the employees do not feel the necessity for a particular type of control.



One of the methods for ensuring compliance is to select a representative sample and test them. The procedure which can be followed is:

- *Define the test:* It is very important to define a particular control to be tested.

**Example:** The controller and treasurer of a company decide to measure their internal deposit float – the time taken to record and deposit a customer’s cheque. The procedure to be followed would be to first check their daily deposit register with the number of cheques received on the relevant day. A study of the bank statement will also be made to know if the deposits have been accounted for at the bank. The number of days from the receipt of the cheques to the deposit at the bank will be the internal deposit float. Of course, an important observation here is that the deposit float should be one day. Such results should then be compared to the projections as given by the management policy. Any deviation, if noted, can be rectified by suitable means.

- *Select the transactions for testing:* In usual cases, a representative sample is taken for testing, a non-compliance of which would mean losses. If such results are obtained for some tests, one can also take up a statistically significant sample. Size of the sample is important. However, one should also provide for certain errors which can occur while using statistically significant samples. In order to prevent such errors, a predetermined rate of tolerable error and the expected rate of error in the population should be accounted for. There are published tables which will provide sample sizes based on tolerable error and expected error.
- *Conduct the test:* Using the selection method, the test methodology and sample size, the test should be conducted. As the rate of tolerable error has already been established, all results falling outside the purview of this error will be the number of exceptions.

**Example:** We assume that 5% is the tolerable error on continuing with internal deposit float. It means that the internal float can be greater than 1 day, not more than 5% of the time and the results of the test show that the float exceeds 1 day, 10% of the time. If the average daily deposit is Rs.1,00,000 and the borrowing rate is 10%.

To compute the cost of non-compliance of the control:

Daily deposit	=	Rs.1,00,000
Exception rate	=	5%
Tolerable rate (10% – 5%)	=	Rs.5,000

**Daily deposit not in compliance**

Annual interest rate	=	10%
∴ Annual cost of non-compliance	=	Rs.500

Certainly the cost of non-compliance of Rs.500 is insignificant when compared to the daily deposit inflow of Rs.1,00,000. However, if more such costs are obtained for non-compliance of the internal control measures, it will certainly add up to a sizeable sum.

## The Daiwa Episode<sup>1</sup>

One of the major financial disasters in the banking sector was the damages incurred due to the actions of a single individual of the DAIWA BANK — one of Japan's largest banks. The collapse of the internal control systems led to losses of nearly \$1.1 billion.

Mr Toshihide Iguchi was Daiwa's head of securities trading and bank office functions. Thus, he was both the 'cashier and the accountant'. It all started with a small loss of \$2,00,000 in the trading of securities. Mr Iguchi covered this loss by selling some securities of the bank and concealing these sales by forging statements. M/s Bankers' Trust – A US Investment bank and Daiwa's custodian of securities – would regularly send in statements to Mr Iguchi. As Mr. Iguchi had already fraudulently disposed off the securities, he would then prepare a forged statement (to cover the loss) on the letterhead of Bankers' Trust and forward the same to his higher authorities. As Daiwa continued to incur more losses, this *modus operandi* continued not for 1 or 2 weeks, but for 11 long years. By this time, the magnitude of the loss was an average of \$4,00,000 per working day. This lapse also failed to come to the notice of the internal auditors of the bank.

It was only when Mr Iguchi confessed about this incident through a letter sent to the President of Daiwa bank that this catastrophe was discovered. The reason for this self-confession was a change in the administrative arrangement whereby the Securities trading division was shifted and Mr Iguchi was no longer the head. Obviously, the exposure of the fraud was inevitable. In spite of this, Daiwa could bear the loss of \$1.1 billion due to its strong capital base.

### Some of the reasons for the collapse were

The investment bank who was the custodian of the securities was unaware of the disposal of the securities.

The internal auditors failed to notice the frauds being perpetuated for nearly 11 years.

- The top management was unaware that it lost \$1.1 billion probably because of the weakness of the accounting system and false bookkeeping.
- Precautions were not observed by the auditors in obtaining certificates of compliance and concurrence from the custodians of the assets (Here – The Bankers' Trust).
- Entrusting one person with all the responsibility of maintaining both trading and accounting.
- Entrusting a job to one person for a very long period (Daiwa bank now wishes that Mr Iguchi had gone for an annual vacation).

## Internal Audit

The Institute of Internal Auditors has defined Internal Audit as "An independent appraisal activity within an organization of the review of accounting, financial and other operations as a basis for service to the management. It is a managerial control which functions by measuring and evaluating the effectiveness of other controls".

Internal audit is therefore an independent appraisal activity within an organization. Not only is its nature to check matters relating to pure finance, but also reviews and undertakes a critical appraisal of the policies and procedures of the company.

Small companies with lots of attention from the senior management who look into the operations of the firm on a daily basis may not have the necessity of conducting an internal audit. However, as companies grow and diversify, it

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<sup>1</sup> Source: Article by Mr S Venkitaramanan, Former Governor of Reserve Bank of India in the Business Line dated October 9, 1995.

becomes difficult for the management to involve themselves in the day-to-day administration. To prevent non-compliance of the company's rules, regulations and procedures, the management delegates this responsibility to internal audit staff. The audit staff on completion of their review submit their reports to the top management. In public limited companies, an audit committee plays the role of the internal audit staff.

## **Objectives of Internal Audit**

Unlike an independent auditor, the internal auditor has to look into the working of the whole organization – let alone only the financial operations.

- a. **Evaluation of Internal Controls:** Internal controls in the areas of treasury, accounting and operations are evaluated and reviewed by the internal auditors to assess the operations and the adequacy and effectiveness of such controls. They should also assess the costs incurred in implementing an internal control system.
- b. **Verification of Documentation:** Verification of documents is particularly important for companies whose branches are geographically located in remote places. Reconciliation of accounts of the head office with the branch office though time consuming is essential. The top management cannot always be present at the site daily to check the proceedings. For the same, internal auditors conduct verification regarding:
  - Equity
  - Accounting books and records
  - Appraisal of quality of work in carrying out assignments
  - The extent to which the company's assets are accounted and methods to safeguard against losses
  - Accuracy of the reports to the head office
  - Recommending operational innovations.
- c. **Compliance:** "Sticking to the rules" is one of the primary aspects to be considered by the internal auditors. It is one aspect to frame rules and regulations for an organization and also to ensure that these regulations are adhered to. Having strict and regulated controls which are not followed renders the whole system redundant. People also have a tendency to revert to the initial procedures if they do not find the controls convenient to stick to. They would also like to simplify their work by following previous practices without being aware of the consequences such changes may have on other control functions of the company. For most corporate offices who have their branches at remote places, design of control system is initiated at the corporate office, and the same system is implemented at the branch. However, if the corporate office has incorporated some system without realizing the necessity of the same in the branch, the system may not be used at all. A compliance review conducted by the internal auditors would then help unearth the flaws in such a system. In this manner, the internal audit staff will act as a link and a medium of express communication between the head office and the branch office.

To summarize in a nutshell, the other objectives of an internal audit are:

- To ensure the management that the internal control systems and the accounting procedures are effective in design and operation.
- To assist management to obtain maximum utilization of resources.
- To help in preparation of reports which would be helpful to the lower, middle and top management.
- To ensure that liabilities have been incurred for legitimate purpose of the business.
- To facilitate the annual audit to be conducted by the external auditor.

## Elements of Internal Audit

Successful completion of internal audit depends on the elements of internal audit to which due importance is given. The elements also represent the basic procedures which will simplify the completion of internal audit, they being:

- a. **Totality:** This concept demands that all aspects of the organization should be considered for purpose of review and control. If the system is imposed partially, it may not give the desired effect to promote overall efficiency in the controls of the organization.
- b. **Expertize:** This represents the professional aspects of the job. Only those with professional qualifications and experience and who are well acquainted with the principles and practices of internal audit are appointed as internal auditors.
- c. **Independence:** This means that the internal auditors have the opportunity and permission to report directly to the senior management.
- d. **Objectivity:** The objective of internal audit is to judge the efficiency and effectiveness of the system when put into operation. The system should not only be able to ensure accuracy and reliability of records, but should also be able to safeguard the assets.
- e. **Utility:** All the systems are finally put to practice, to be of ultimate utility to the management and not lead to redundancy.

## Limitations of Internal Audit

As every procedure has its pros and cons, the system of internal audit is not without the following drawbacks:

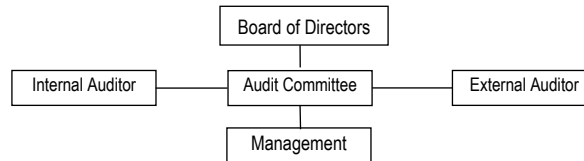
- Inefficient staff will not undertake adequate examination of the records. Thus, the very purpose of ‘Totality’ is defeated.
- Inefficiency will creep in if the records are not checked immediately after they are prepared.
- Internal audit will not serve its real purpose if the internal auditor is performing other executive functions of the company also.

### Differences between Internal Audit and Independent Audit

	Internal Audit	Independent Audit
a. Objectives	Scrutiny of policies and procedures of the management to improve operational efficiency. Equal importance to economy and efficiency of business.	Report on the financial position and operating capacity of the firm. Report to be true and fair.
b. Appointment	Optional. By the board of directors/management.	Statutory according to law. Appointed by the shareholders/proprietor.
c. Scope	To ensure compliance to the policies of the management (which are laid down by the management).  Free to adopt any method of working. Report to the top management on the adequacy of internal control. Concerned about detection of fraud, misrepresentation, forgery, irregularities.	To ascertain accuracy of accounting information, accounting principles and procedures – whether true and fair.  Specialized/Statutory procedure of working. Report to the shareholders. Not to detect fraud, unless it quantitatively effects the financial statements.

	Internal Audit	Independent Audit
d. Approach	To ensure substantial accuracy of records and compliance to the rules already set.	To ensure true and fair presentation of accounts.
e. Independence	They are employees of the firm, but must have no affiliation to either the treasurer, the controller or any department which they audit.	They are not employees of the company whose auditing has been undertaken and are strictly independent from the company.
f. Periodicity	Continuous review of company's operations.	Audit is undertaken on a periodic basis – Once a year.

**Audit Committee**



A new dimension given to the concept of auditing is the formation of audit committees in corporate entities to further strengthen the credibility of financial information. The audit committee is a sub-committee of the Board of Directors who have the primary responsibility of reviewing the financial statements before submitting the same to the Board of Directors. They also have to oversee the process of internal audit and the hiring and working of the external auditor. The audit committee can be considered as a valuable link between the management, the internal auditor, external auditor and the Board of Directors and will also help build a better understanding of the policies of the company and a sound process of decision-making.

**Objectives of Audit Committee**

- Evaluation of financial reports and policies of the company which are distributed to shareholders and other parties interested.
- Assessment of the extent of performance, levels of the management and staff.
- Assurance to the shareholders that the actions of the company are in line with the target and that the company is exercising proper social responsibility.
- Monitoring of solutions to various operational problems.
- Acting as an independent reporting channel for the internal audit department.
- To have an overview of the implementation of the recommendations of the internal and external auditors.

**Functions of audit committees**

The following are the most common functions of an audit committee.

- To assist the Board of Directors (BoD) in carrying out their responsibilities effectively and efficiently.
- To minimize the control exercised by the directors and other influential persons on internal and external auditors.
- To improve the quality of the accounting and audit functions.
- To minimize the audit risks.
- To act as a catalyst in coordinating the activities of internal and external auditors.

**Effectiveness of Audit Committee**

Formation of an audit committee is not the be-all and end-all of the process of accounting and control. It is important that the audit committees comprise efficient members to accomplish the tasks assigned to them.

- Member directors need to be strong to question the policies and practices of the top management (when necessary).
- They should have the authority to direct the external auditor to certain flaws which are already unearthed by the internal auditors.
- Qualified and independent directors who represent the interests of the company and work for the progress of the company should be selected for the audit committee.

## Physical – Custodial Controls

Common controls in the accounting department centers around the recording of transactions wherein the risk of losing/misplacing a document is greater than theft.

As treasury controls generally affect cash and investment, the treasury has to verify various accounting and procedural controls. Both physical and custodial controls comprise the following methods by which the risk of losses is reduced:

### 1. Control of Authorized Signatories

The most efficient method of fixing the limits for the authorized signatories is to follow the hierarchical format in the organization. Thus, one can establish the signature authority for particular departmental heads up to a particular rupee level. Any transactions which exceed the limit will call for permission from the next higher official. After the limits of authorization is fixed, the accounting department has to match the signatures of the authorized individuals to the transactions. This is usually supervised by the treasurer.

### 2. Control over Mail Receivables

As the treasury is concerned with receipt of the monetary instruments like cash and cheque, strict control should be enforced over the mail receivables. Cheques are usually recorded in the cheques receipt register and then forwarded to the bank and accounts department for records and documentation. Reconciliation can be made from time to time to know the flows in the control system.

### 3. Control over Petty Cash

Petty cash is one of those areas where the most liquid asset, i.e. cash is kept. Therefore, a system designed to minimize the risk of loss at acceptable levels should be implemented.

- Recording of Vouchers:* Vouchers should record the date of disbursement, the recipient and the purpose of the disbursement along with the signature of the authorized person for the value of the voucher. After recording these vouchers, the accounting department replenishes the cash box. At the end of the financial year, the accounting department should receive all the vouchers to record the expenses.
- Reconciliation of Petty Cash:* Some companies with an active petty cash usually reconcile the accounts on a day-to-day basis. This reconciliation should be conducted by an individual independent of the functions of the maintenance of petty cash transactions.
- Establishment of Petty Cash Amount:* In practice, a fixed amount is maintained for the petty expenses of one month. Ideally, the cash is as low as possible in order to minimize the risk of loss. If the requirements exceed the fixed amount, vendors have to submit the invoices for their requirement.

### 4. Control of Bad Debts and Account Credits

Individuals who are entrusted with the responsibility of recording new receivables should not be in a position to credit the same accounts. These credits can be:

- Writing-off bad debts
- Credit memos

- Discounts
- Refunds
- Reconciliation of Accounts.

This practice is to prevent them from having an opportunity to reduce their own balances in accounts.

5. **Control over Receipts and Customer Payments:** Cash being the most liquid asset becomes an easy prey to pilferage, misappropriation and embezzlement. To avoid, prevent and minimize such practices, an effective internal control system is required to be enforced.

There are many ways that are used by the unscrupulous employees for siphoning off cash. Cash/cheque receipts can be suppressed; or miscellaneous receipts such as sale of scrap can be omitted; or one can indulge into 'teeming and lading', where money received from one customer, will be misappropriated, the payment received from another customer will be credited in the former's account, payment from a third customer will be credited in the latter's account (2nd customer) and the chain goes on. As a result of such malpractice, the initial amount is and will be always in the hands of the malpractitioner. In business, such practices are quite common. To avoid such practices strong, effective and continuous internal measures should be enforced. Further, the measures must be frequently and continuously redesigned to prevent possible development of loopholes in the system that arises with the passage of time.

Like cash receipts, cash/cheque payments also offer many ways for misappropriation and embezzlement of cash. Of these, kiting is one of the common methods that can be indulged into. Under this method, a cheque is drawn and encashed from the company's bank (1st); but, this transaction will not be entered in the company's account books and records. Later, another cheque will be drawn on another bank (2nd) and deposited with the first bank. Similarly, third cheque will be drawn on the third bank and deposited with the second bank. This chain continues. Except the last bank's statement, the statements issued by all other banks show contra entries. However, the statement of the last bank can easily be showed as cheque issued but not presented. An effective internal audit can weed out such fraudulent acts. Further, the management should keep themselves abreast with up to date information to check these practices.

A typical internal control mechanism with respect to cash/cheques can be examined under the following heads:

1. Control over Cash/Cheque Receipts
2. Control over Cash/Cheque Payments.
  1. **Control over Cash/Cheque Receipts:** To contain malpractices regarding cash receipts, the internal control system should include the following features and measures.
    - a. Internal Control Measures: The internal control system should include the following control measures to become an effective control system.
      - Each and every incoming cheque should be properly recorded in a separate book, maintained by an independent person.
      - Steps should be taken to deposit the cash/cheques in the bank on the very same day or the succeeding day. The internal deposit float should not exceed one day under any circumstances.

- Ensure that cashier should not have any access to cash records, accounts, credit notes, etc.
  - An authorized person should be entrusted to record and issue acknowledgment for the cash/cheques receipts. The receipt book should be kept in a safely guarded place. Further the pages in the receipt book should be serially numbered.
  - Cheques of large amounts should be handled separately and should be given due attention.
  - Dispatch periodical statements to the customers; in case of any discrepancy resolve it immediately. Proper enquiry should be conducted to know the exact cause of discrepancy and should undertake desirable course of action to avoid such discrepancies in future.
- b. *Internal Audit:* The internal audit should comprise the following:
- The treasurer should be entrusted with the responsibility of reconciling the receivables ledger; the reconciliation should be done every now and then.
  - Verify that pay-in-slips with the cash/cheque receipts and ensure that cash/cheque receipts are properly recorded in their respective records and accounts.
- c. *Management Reporting:* The following special and periodical statements and reports should be submitted to the management.
- A monthly and quarterly cash report featuring the total cash/cheques receipts and payments made during the month should be prepared and compared with the budgetary figures. Any deviations from actual and budgetary figures should be detailed with reasons and should be forwarded to the management.
  - Liquidity ratios such as current ratio, debtors and creditors turnover ratio, should be calculated every month and should be presented to the management along with the previous years for the same period.
2. **Control over Cash/Cheque Payments:** The internal control system of cash/cheque payments is detailed below.
- a. *Internal Control Measures:* The internal measures should include the following.
- Chequebooks should be kept in safe custody of an authorized person.
  - Petty cash system should be enforced for small amounts regarding daily routine type of payments.
  - All cash/cheque payments and vouchers should be recorded and should be periodically verified.
  - Signing authority of cheques should be definite and specific, and the delegation of authority should be in tune with their hierarchial levels.
  - Avoid authorizing a single person to sign a cheque; a cheque must be signed at least by two authorized persons.
  - Vouchers received should be recorded and verified every now and then.



- b. *Internal Audit:* Internal audit program should be such that it should cover all the following aspects.
  - Internal audit should be conducted to verify whether the cheques are issued by the delegated authority. Further it should be verified that all the cheques issued are crossed.
  - It should be verified that the account books, records, registers, etc. are properly maintained.
  - Ensure that no payment is made to any dummy worker and also ensure that no extra payment is made to any individual.
  - Verify that no personal expenses have been entered into the business.
- c. *Management Reporting:* The following reports and statements should be submitted to the management.
  - Monthly/quarterly reports featuring the cash payments made during the month/quarter should be prepared and compared with the budgetary figures. And a detailed report should be presented to the management stating the reasons of the deviations.
  - A report detailing the present liquidity position of the business should be submitted to the management.

6. **Control over Investments**

One of the responsibilities of the treasurer is to invest surplus funds into profitable investments on behalf of the company. As the size of these investments are considerable, strict control is very important. The investment controls deal with issues such as:

- a. **Accountability:** The Board of Directors authorize an individual (usually the treasurer) to deal with the investment portfolio. Special instructions for the treasurer are also incorporated, some of which are:
  - Comprehensive responsibility
  - Authorized persons to assist the treasury department
  - Securities for investment
  - Acceptable risk
  - Term for investment
  - Qualification of brokerage firms
  - Reporting of transactions
  - Custodianship
  - Procedures for change in policy.
- b. **Dual controlled custody:** Dual controlled custody involves keeping securities in a bank safety deposit box with two keys. The controller and the treasurer has one key each.
- c. **Authorization:** Only individuals who have the qualifications and competency to make investment decisions on behalf of the company are given authorization for selection of brokerage firms, etc. A brokerage firm's track record with respect to their response for complaints, investigation, arbitration disputes should be studied in detail before committing the business of the company.

- d. **Execution:** After surplus funds are invested in various firms, a periodic monthly review should be conducted by the company with the brokerage firm. An individual independent of the investment function should perform the function of reconciliation. After review, a report on the firm's investment function is forwarded to the Board of Directors for their information. It may be recalled that many banks lost heavily in the securities scam of 1992, because the brokers had virtually a free run and nobody reconciled the transactions for a long time.

7. **Control over Disbursements**

The disbursement function includes maintaining the custody of stock of cheques, preparation of cheques and supervising the disbursing function. The controller has the sole responsibility of being the custodian of cheques. He has to maintain a logbook on the cheques issued. The treasurer reconciles the accounts after the controller has made the record of disbursements.

In addition to the duty of cheque disbursements, the controller also plays an active role in preventing payroll fraud. Some of the common issues which perpetuate fraud in this system are:

- Inaccurate tax deductions and withholding from payroll.
- Payment to fictitious employees.
- Overpayment to employees (for work not done).
- Payment irregularities to government (regarding certain taxes and provision).
- Inaccurate accumulation of payroll statistics.

8. **Control over Capital Stock and Dividends**

Exercising control over the capital stock and dividends can be accomplished by:

- Accurate recording of all transactions;
- In accordance with the directives of the management;
- Adherence to the rules of the government.

- a. **Services of a Registrar:** According to law, all public trading firms should employ the services of a stock registrar. According to the charter of the corporation, the registrar issues stock. Only those stock certificates which bear the signature of the registrar are considered valid. In case individuals purchase stock without the signature of the registrar, it is a sure case of fraudulent issue by the company.

Private placements do not require to comply with the formality of appointing a registrar. The Board of Directors appoint officers for this purpose. They have the authorization to sign the stock certificates.

- b. **Services of a Transfer Agent:** On appointment of a registrar, a transfer agent is also appointed for maintaining a record of the shareholders and for executing all other formalities concerned with transfer of stock ownership.

On request by the company, the transfer agent should give the list of the shareholders to the Board of Directors. Such a list will enable the company to not only determine the number of votes each shareholder is entitled, but also helps determine a dividend declaration date.

For disbursal of dividends, the management usually forwards one cheque covering the payment to the transfer agent and the agent accordingly arranges for individual cheques to the shareholders.

## Insurance Control

A part of the internal control mechanism also deals with protection of assets. This is where insurance becomes an important aspect. Large companies usually engage insurance specialists/professional consultants to give them the necessary guidance to insure their assets. Most companies also insure against catastrophic loss where they feel that the extent of losses may effect the operational capacity of the firm.

## Insurance Review and Analysis

Professionals recommend that all organizations conduct an annual review and analysis of the insurance aspects – both at macro and micro level. Thus, the firm's overall risk of loss can be analyzed. To enable such an analysis, the internal control procedures should have the following components:

- A list of all the policies of the company;
- Assurance that all the policies are stored in a safe place;
- Verification that none of the policies are redundant regarding of coverage;
- A written statement that the coverage taken is adequate and not excessive.

A detailed study of the above will bring to light certain shortcomings for which adjustment will have to be made in areas such as:

- Increase or decrease of fixed assets;
- Number of employees;
- The range of business/activity the firm engages in.

## Coverages

Depending on the size, the line of activity and the extent of risk, companies may opt for various types of insurance coverages.

- a. **Blanket (Umbrella) Policies:** Also called excess liability coverage, such policies insure all other risks which are not covered under any policy. When claims exceed the coverage of all other policies, this coverage can be resorted to.

**Example:** If a personal judgment injury exceeds the limit specified in a policy, the excess liability will be covered by the blanket policy. If the liability exceeds the blanket policy's limits, then the insured is on his or her own.

- b. **Insurance against Business Interruption:** Business interruption insurance covers losses which result from occurrences which affect the proceedings of an organization. Most common occurrences attributable are:
  - Riots and strikes
  - Floods
  - Storm
  - Fire
  - Explosions
  - Loss of data due to failure in computer systems.

Apart from this, some companies may depend on an uninterrupted supply of materials from another company. Therefore, they can buy a policy against interruptions of that supply.

- c. **Employees Health Insurance:** A standard perquisite expected by employees in companies is medical benefits for themselves and their dependents.

However, some companies also provide a policy wherein the employee and the employer contribute a portion as premium each month. The Employees State Insurance Act (which is next only to the Provident Fund Act in terms of being a powerful legal provision) has made it compulsory for all organizations to cover their employees under this act (who draw up to Rs.3,500 per month).

The premium would be 1.5% – Employee’s contribution  
4.5% – Employer’s contribution

on the basic monthly income. All expenses for any casualties are borne by the ESI hospitals.

- d. **Insurance against Non-performance:** When non-performance of tasks can result in material damages such as in the construction of buildings or other capital assets, these insurance coverages are particularly useful. It, thus, covers a third party beneficiary if your company does not perform as agreed upon.
- e. **Insurance against Employees:** Job hopping has become a common phenomenon in today’s world of emerging career opportunities. Moreover, a company’s work would suffer if employees placed at responsible positions leave their work undone. Though the concept of fidelity bonds are yet to emerge in the Indian scenario, these bonds have been enforced in countries like the USA, Canada. Fidelity bonds cover the actions of its employees against the company and its customers. Some companies resort to obtaining a comprehensive bond (which will cover all employees) rather than take up individual bonds for each employee. Employees whose jobs involve considerable risk to the firm such as investment officers usually have to execute a separate bond.
- f. **Life Insurance of Key Personnel:** Loss of life of a key personnel of a firm would do the firm considerable damage. Some companies who have an insurable interest in the life of their key personnel also arrange for an insurance policy for them. Such a policy would provide for and compensate the loss of service and subsequent profits which were to be obtained. However, if the company is the beneficiary in such policies, such premiums are not tax deductible as they cannot be considered as a necessary business expense.

## **INFORMATION SYSTEMS AND REPORTING**

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Information systems were in vogue even before the advent of computers. Such systems provided managers with vital information to plan and control operations. The computers have now only added speed, accuracy and increased database which offer a wide range of alternatives to arrive at a decision.

The basis of an information system in the treasury is the flow of money throughout the organization. Periodically, the management provides a financial plan (also called the master budget). Responsibilities relating to maintenance of investment, income, expenditure within the limits are assigned to the respective departments. These plans form the basis for generation of reports periodically and become the devices through which control is exercised.

Some of the essential features of an effective reporting system are:

- Result orientation
- All encompassing
- Accuracy
- Promptness
- Forecast for future
- Size of reports is inversely proportional to the management level
- Comparative statements
- Cost benefit analysis.

To have an understanding of the process of information systems and control, studying the following flow chart will be useful.

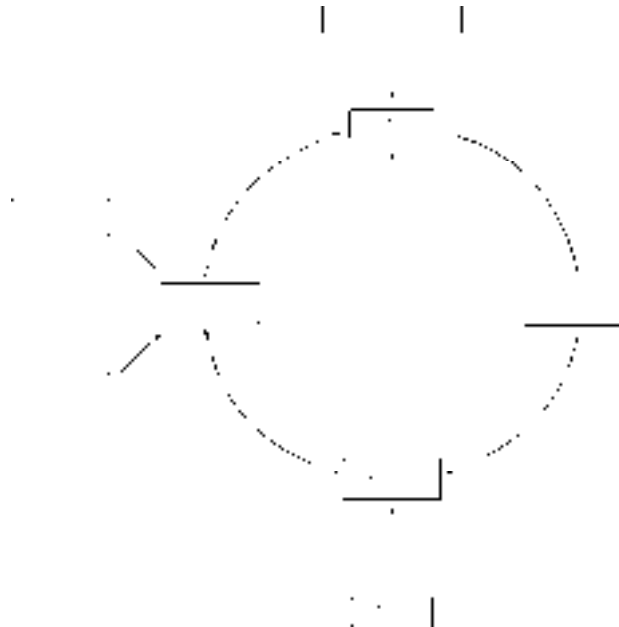
Most of the information systems involve reporting by means of informal communication channels like memoranda, meetings and conversations. However, a more formal methodology involves the following steps:

### **1. Programming**

These are the long-term policies and the short-term programs (for achieving these policies), a company will undertake. It involves formulations of various strategies to achieve the results in a desired manner.

**Example:** If a strategy is adopted in a pharmaceutical company to improve on the existing products and also search for new products, an R&D program is formulated to aim at bringing in more development in an existing product and another program will be made to bring in innovations to market new products.

Figure 1



2. **Budgeting**

Budget is a plan expressed in monetary terms over a specific time period. Every strategy will make a forecast of the costs to be incurred in implementing the same.

3. **Operating and Accounting**

During actual operations, accounts of the resources actually consumed and the revenues earned are maintained. These results are then compared to the budgeted figures to study for any deviations. Such data is later used as a base for future programming and measuring the performance of managers of each responsibility center.

4. **Reporting and Analysis**

After analysis of all transactions, various reports are prepared from each department for review and reporting to the management. These include information collected from the workings within the organization and outside. As reports are a basis for control, the prescribed format of reports is to have a comparison between the budgeted projections and the actual results obtained as a result of the operation and accounting. Any deviations are to be explained and suitable options given to change the plans and initiate a new planning process.

Some of the reports which can be generated by the treasury would be:

- Daily stock report on raw materials, work-in progress, finished goods;
- Bank deposits, withdrawals;
- Report on cash inflow and outflow;
- Total accounts receivables;
- Individual party account;
- Payroll;
- Comparison between sales and accounts receivables;
- Cost analysis of acquisition of capital assets and their maintenance.

The contents of the above report will be in line with the extent of information required by the management. Based on the outcome of such reports, necessary remedial action will be initiated by structuring a new program.

Delegation of responsibility in a reporting system is such that no single person has independent authority over a particular decision.

**Example:** Cheque payment: Invoices are recorded in the accounts payable sub-ledger by the controller. He also prints the payment cheques with details. Treasurer being the authorized signatory for the cheque, signs it and despatches it. Treasurer also maintains a record of the pre-numbered cheques and the whole stock of cheques. Thus, a cheque is kept over the number of leaves issued to the controller. The controller finally conducts a reconciliation statement to verify about the disbursement of funds.

## Measuring Treasury Performance

Hitherto, the ways and means of maximizing performance of treasury have been discussed with the help of various measures like formulating programs, preparing budgets, executing the programs. However, equally important is to know whether the treasury has achieved its targets.

One could argue that it is virtually impossible for organizations to function without some goals and plans. A goal is a future target that an organization wishes to achieve and a plan is the means devised to attain this goal. Every operating unit has a set of goals to facilitate performance. In order to be effective, goals should have five major characteristics:

- Challenging
- Attainable
- Specific and measurable
- Time limited
- Relevant.

Once the goals and forecasts are decided; financial personnel should devise ways and means of financing the ventures in order to achieve their goals. Costs incurred for acquiring capital, risks involved, securities are to be analyzed before making a commitment on investments.

Control systems should also be such that the targets and allocation of responsibilities are segregated to different departments. Common costs can be shared and care should be taken to see that no conflicts arise since, such conflicts will affect the performance of the management in the long run.

In order to quantify the profits and analyze, it can be compared to the profits generated in the previous financial year. A statement of cash inflows and outflows is the common methodology adopted. A statement on the accounts receivables with the mode of payment will also bring to the notice of the management the most common mode of payment which is realized at the earliest.

**Example:** If after a study of the sales report for a financial year, it is noted that "Letter of Credit" payment term is realized soon, the management can then decide to concentrate primarily on L/C backed orders.

Thus, just as it is important to devise policies for a company, it is equally important to review its progress time and again both on quantitative and qualitative terms in order to maximize the performance of the treasury.

## FAILURE OF CONTROLS

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The following illustrations enrich the reader to know how the lack of controls could result in losses to or downfall of the institutions.

### The Sumitomo Debacle

One of the major disasters in the history of derivatives trading were losses incurred by Sumitomo Corporation which were incurred due to the action of a single trader, Yasuo Homanka. The Sumitomo Corporation, one of the world's largest commodities trading firm, a 300-year old company was with a market value of

\$11.85 billion. Most of its trading was done in metals, chemicals and energy products. In June, 1996, Sumitomo collapsed due to lack of control on exposure limits, accounting for a loss of \$1.8 billion.

Yasuo Homanka, a 48-year old Tokyo based copper trader, is the central figure in the Sumitomo debacle. He was Sumitomo's star trader having over 20 years experience in copper trading. He won acclaims from the company for his profits on copper trading which helped Sumitomo cover its cheap sales of copper in Asia. He was trading in the copper since 1975 and was made the head of copper futures trading division. Homanka traded copper for Sumitomo mainly on the London Metal Exchange.

Sumitomo was not a member of LME and its trades were executed by members of the exchange. Homanka held large long positions in copper periodically over several maturity periods with the objective of closing them at a profit and several million dollars worth of copper futures contracts annually. He held tremendous influence over the copper trading sections and for almost a decade he was able to hold copper prices on the LME higher or lower at his will through his control over international copper stocks and volumes of trades. The strategy was to amass large stocks of copper, squeeze the prices of copper on LME and profit from the derivatives trading. For a very long time, the US hedge funds showed little interest in the commodities market. But around 1994-95 these funds, constantly on prowl for a kill based on their research, expected a fall in copper prices because of new copper production. So they entered the copper market and started short selling a large quantity of copper in the forward market hoping to buy them back at lower prices. Homanka took an opposite position and went on a buying spree. It seems that the US hedge funds could not bring the copper prices down even after selling around 1 million tonne of copper; that was the kind of influence Homanka wielded in the market. Two Chinese state owned firms hastened the exit of Homanka. These firms and Sumitomo had a joint venture in copper trades and derivatives. Homanka used this venture to control copper prices and both of them profited from this relationship. But these Chinese companies dealt the final blow to Homanka, when they went against him by selling copper. The US hedge funds, George Soros and the Chinese firms together brought down copper prices and Homanka with it. Homanka made huge losses on his long-positions and it is said that these losses constituted the major part of \$1.8 bn loss made by Sumitomo over a period of 10 years.

In the aftermath that followed, Homanka was the first to make a quiet exit into oblivion. The shares of Sumitomo fell by 200 yen on a single day, once the news spread that Sumitomo was in trouble. This was the market's reaction to the fear that Sumitomo may sell its large copper holdings and even prices of copper fell in market drastically.

Sumitomo let Homanka to have a free rein in copper futures trading out of greed for profits, without actually understanding the extent of risk it is exposed to. Another reason that may have contributed to the loss is the lack of strict vigilance of the Japanese Government over these trading companies that trade outside Japan.

But uncontrolled and irrational use of derivatives with the sole intention of earning speculative profits has been the main reason for the losses.

### **Indian Bank Fiasco**

Indian Bank declared the biggest loss ever made by a commercial bank in India, the loss being Rs.1,336.40 cr. in 1995-96. The major reasons behind this were, loans extended to corporates becoming sticky booking the interest on NPAs and not following the classification norms. The bank also made an operating loss due to high interest cost of borrowings.

This loss has wiped out the net worth of Indian Bank and has turned its capital adequacy ratio to zero. Indian Bank has surpassed the previous record of Rs.1089.15 crore loss by the Bank of India in 1993-94. The losses were mainly

made due to the sticky loans to corporates including the East West Airlines, the Poddar Group of Calcutta, SM Deychem and MVR exports. These bad loans were not provided for earlier and amounted to Rs.980.62 crore. The bank did not follow the classification norms for non-performing assets and booked interest on them. These when reclassified in the year 1995-96 resulted in an interest reversal of Rs.132.1 crore. The bank also made an operating loss of Rs.223.68 crore largely on account of the high interest cost of borrowings from the money market. The RBI has black listed two auditors of the bank – for failing to spot accounting malpractices that helped the bank management conceal the losses.

## **CRB Fiasco**

CRB Group has come a long way since its inception as CRB Consultants in 1985 and went on to become CRB Capital Markets in November 1991. A year after its incorporation, it went public with an issue of Rs.4.6 crore. In September 1994, the group ventured into the mutual fund industry and mopped up Rs.229 crore from its maiden MF Scheme.

However, a year later SEBI had discovered certain irregularities in the Scheme. Nearly 85 percent of the mutual funds operations were handled by the groups stock broking company, CRB Share & Stocking, located in the same premises. Apart from this, the securities of the fund were found to be kept in the possession of the CRB Caps instead of CRB Mutual Fund. With the total corpus of the fund having shrunk by 51 percent and NAV dropping to Rs.4.95, as of March 1997, (assets worth was Rs.113 crore) the company became irregular in publishing its NAV. Following these irregularities SEBI imposed a ban on the CRB Mutual Fund from floating any further schemes since April, 1996.

Continuing its expansion plans, in July, 1996, the Group entered the banking sector and got an in-principle approval from the RBI for starting the CRB Global Bank. After this the decline of CRB Capital Markets had begun. Later during the year, in September, 1996, CRB Caps applied to the RBI for registration as an NBFC. When the RBI started an audit examination for the registration purpose, one by one, the irregularities of the company came into picture – the intercorporate deposits and the NRI deposits crossed the stipulated limits and the company was defaulting on its ICDs; the deposit periods went beyond the specified limits; broker incentives were high. And to worsen things was the severe asset-liability mismatch of the company.

CRB owed huge amounts of money to the market. The assets of CRB (Rs.230 crore) were less than its liabilities (Rs.600 crore). The company was not in a position to pay-off (nearly 200 crore) to its depositors.

If the CRB case is examined keenly it can be observed that there has been a severe mismatch between the assets and liabilities of the company. This was, however, not checked at the right time and as a consequence, saw the downfall of CRB Capital Markets.

## **SUMMARY**

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- An attempt has been made to briefly cover various aspects of internal treasury control systems. Keeping in view the various types of control systems in different organizations a conceptual design of Internal Treasury Control has been devised. However, in accordance to the size and complexities, the organization and corporate philosophy, each organization has to evolve in its own internal control system which will be flexible to keep in tune with the changing corporate environment.



## **Chapter IX**

# **Tax Planning and Treasurer**

**After reading this chapter, you will be conversant with:**

- What is Tax Planning? Avoidance and Evasion
- Tax Planning and Treasurer

Payment of Tax is considered as the price paid by the citizens of a country for the civilization. Hence, it is argued that every citizen should pay taxes honestly. However, the statute itself provides various concessions/avenues wherein a taxpayer can reduce his/her tax liability. Hence it can be construed that the statutes envisage and provide citizens to undertake such transactions which will result in reduction/elimination of liability of tax. The efforts of a taxpayer to identify and undertake such transactions can be deemed as Tax Planning and Management. However, it has been and it will continue to be a matter of debate with regard to the moral fiber of such transactions. Hence it is necessary to have a broad understanding of the terms Tax Planning, Tax Avoidance and Tax Evasion.

## **TAX PLANNING**

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Tax Planning involves the utilization of the various provisions of the statute which enables the taxpayer to reduce the tax liability without violating the letter and spirit of the law. For example, Section 80DD of Income Tax Act provides for a deduction in respect of income of individual/HUF, the expenditure incurred on the medical treatment of a relative who is a handicapped dependent. It is necessary to have the disability certified by a Physician from a Government Hospital. The objective of the provision is to provide relief to the persons who has to support a handicapped person. If the person spends money for the medical treatment and claims relief under this section which results in reduction of the tax liability it will be termed as Tax Planning.

### **Tax Avoidance**

This involves the utilization of various provisions in such a way that the tax liability is reduced but it results in the violation of the spirit of the guidelines though the laws are complied with. In the above example, if the assessee is supporting a handicapped person and claims a deduction with the necessary certificate regarding the disability but does not spend any amount for medical treatment/training or other eligible purposes then it can be deemed as Tax Avoidance.

### **Tax Evasion**

If the assessee does not declare the income at all it will be deemed as Tax Evasion as it will result in possessing unaccounted money.

However, the distinction between Tax Planning and Tax Avoidance is thin and it may become necessary, in most cases, for judiciary to take a view on a case to case basis. There have been enough cases decided by different courts of law.

The tax planning for the corporate has a broader canvas. This involves estimation of the taxable income at the projected level of operations to begin with. What follows is the determination of tax shelters that can be created so that the tax liability is reduced. The tax shelters include acquisition of Fixed Assets resulting in additional depreciation, sale of Fixed Assets which may result in loss, acquisition of a loss making company, incurring certain expenditure which is admissible as deductions such as donations/advertisement investment in pollution control equipment or even considering expansion or diversification. However, all such activities should be in tune with the long-term corporate plan. The role of a treasurer in the context of tax planning involves identification of avenues for booking profits/losses so that it will have an offsetting impact on the income generated from operations providing an avenue for reduction of tax liability. In this context he/she must consider the following while managing funds.

Income from investments is taxed at different rates depending on the nature of income.

Nature of Income	Tax Rate
Interest Income	At Rates applicable to Income from operations
Dividend Income	Zero Tax Rate
Short-Term Capital Gains	Same rate as applicable to Income from operations
Long-Term Capital Gains	20%

While the interest income and dividend income are less amenable to planning the realization of short-term or long-term capital gains is essentially a matter of conscious decision and hence involves planning. The basis for realizing the capital gain/loss by selling a security could be the view held by the treasurer on the expected price movement of the security. For example, when it is observed that the price of the share is nose-diving it may be decided to book a loss and exit. In such a situation even if the tax considerations suggest for holding the security it may be disposed off. Hence the decision-making process should integrate the security analysis with tax planning wherever feasible.

The concept of Capital Gains refers to profits/losses arising consequently to transfer a capital asset. While the term Capital Asset refers to both immovable and movable properties, the discussion here is limited to the shares and securities in view of their immediate relevance to the Treasurer of a Corporate.

A short-term capital asset is one which is held for not more than 12 months and this has been made applicable from the assessment year 1995-96 onwards. The limit was 36 months earlier. An asset which is not a short-term capital asset is a long-term Capital Asset. In this context the following are specifically excluded and hence cannot be deemed as Capital Asset.

- 6.50% Gold Bonds 1977
- 7.00% Gold Bonds 1980
- National Defense Gold Bonds 1980
- Special Bearer Bonds 1991

It is necessary to have an understanding of the following while computing the capital gains

- Relevant date for determining the holding period
  - Determination of full value of consideration
  - Expenditure incurred for acquisition
  - Determination of cost of acquisition
  - Determination of cost of improvement
  - Determination of indexed cost of acquisition
  - Determination of Indexed cost of improvement.
1. **Relevant Date:** In order to determine the holding period the term of 12 months is computed from the date specified hereunder for various types of transactions.

<b>Nature of Transaction</b>	<b>Relevant Date</b>
Purchase through Stock Exchange	Date of purchase by broker on behalf of the investor.
Transfer through Stock Exchange	Date of brokers note providing the transaction is followed up with delivery of shares/securities and transfer deeds.
Purchase outside Stock Exchange	Date of contract as declared by the parties provided that it is followed up with delivery of securities/shares and transfer deeds.
Purchase in several lots with delivery at single point of time and sale at different points of time	The period shall be reckoned on FIFO basis if dates of purchase and sale cannot be correlated with specific distinctive numbers.
Bonus Shares	Date of issue of Bonus Shares.
Rights Shares	Date of issue of Rights Shares.

2. **Full Value of Consideration:** This refers to the consideration received by the transferor towards the value of the asset.
3. **Expenditure Incurred for Acquisition:** Expenses incurred such as brokerage, commission, stamp duty, etc. are included provided they are incurred solely for the purpose of acquisition.
4. **Cost of Acquisition:** This refers to the value for which it was acquired by the transferor.
5. **Cost of Improvement:** This includes expenses incurred in getting the title secured/perfected.
6. **Indexed Cost of Acquisition:** Cost of Acquisition is the <sup>1</sup>Cost of Inflation Index for the year in which the asset is transferred/Cost of inflation index for the year in which the asset is acquired. If an asset is acquired for Rs.1,200 in the year 1989-90 and if the same is disposed off in the year 1991-92, then the indexed cost of acquisition is equal to  $(1,200 \times 199^*/172^* = 1,388)$ .
7. **Indexed Cost of Improvement:** Cost of Improvement x Cost of Inflation Index for the year in which the asset is transferred/Cost of inflation index for the year in which the asset is improved. In the case of the above referred asset if an amount of Rs.100 is spent in the year 1990-91 then the indexed cost of improvement is  $(100 \times 182^*/172^* = 105.81)$ .

The short-term capital gains is arrived at by reducing items 3, 4 and 5 from 2 whereas the long-term capital gains is arrived at by deducting items 3, 6 and 7 from 2. For the purpose of working out the indexed values the following table is used which will be revised from time to time by the competent authority.

**Table 1: Cost of Index**

Financial Year	Cost of Inflation Index	Financial Year	Cost of Inflation Index
1981-82	100	1989-90	172
1982-83	109	1990-91	182
1983-84	116	1991-92	199
1984-85	125	1992-93	223
1985-86	133	1993-94	244

1 Please refer the table 1 furnished below for the indexed values.

1986-87	140	1994-95	259
1987-88	150	1995-96	281
1988-89	161	1996-97	305

The principal objective of tax planning is to reduce the tax liability and thereby increase the post-tax return. In addition the planning may be directed at delaying the tax liability and thereby putting the available funds for alternative uses. In order to achieve this objective the losses made should be permitted to be set-off with the gains so that the overall tax liability can be reduced. The norms provide that losses and gains falling under the same head of income can be set-off. Thus losses from business can be set-off with gains from business. Similarly, losses arising out of transfer of short-term and long-term capital assets can be set-off with the gains arising from transfer of capital assets whether short-term or long-term. In the absence of sufficient profits to set-off the losses have to be carried forward to the next year. Hence the treasurer should keep track of the securities which are in the portfolio and normally ensure that the losses resulting from the transfer of capital assets are set-off within the same year.

Though the facility of carry forward helps in ensuring that the benefit is derived at a future date the impact of the time value of money reduces the effective benefit which is availed in the subsequent years.

Thus the subject of tax planning by the treasurer is a focused activity and plays a complementary role which fits into the overall framework of tax planning by a corporate.

## **SUMMARY**

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- Tax planning is the utilization of various provisions in such a way that the tax liability is reduced but it results in the violation of the spirit of the guidelines through the laws that are compiled with.
- If the assessee does not declare the income at all it will be deemed as tax evasion.
- The role of treasurer in context of tax planning involves identification of avenues for booking profit/losses so that it will have an offsetting impact on the income generated from operation providing an avenue for reduction of tax liability.

## **Chapter X**

# **Managing Bankruptcy**

**After reading this chapter, you will be conversant with:**

- Definition of Bankruptcy
- Factors Leading to Bankruptcy
- Symptoms of Bankruptcy
- Bankruptcy Costs
- Bankruptcy Prediction Models
- Case Study–Barings

## **DEFINITION OF BANKRUPTCY**

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The following chapter on Bankruptcy is essential for the financial managers who have to handle the firm's affairs in case of financial crisis. The manager has to know the alternatives available with him in case of financial distress and the steps to be taken in the event of liquidation. He has to be aware of the rights, obligations and procedures to be followed in the event of insolvency.

The chapter deals with,

- Bankruptcy, as defined by RBI and SICA
- Factors leading to bankruptcy
- Symptoms and prediction of bankruptcy
- Alternatives available during bankruptcy
- BIFR's role in case of bankruptcy and
- Voluntary liquidation.

### **BANKRUPTCY**

A firm is said to be bankrupt if it is unable to meet its current obligations to the creditors. Bankruptcy may occur because of a number of external and internal factors and gross mismanagement.

The Sick Industries Companies (Special Provisions) Act, 1985 or SICA defines a sick industry as "an industrial company (being a company registered for not less than five years) which at the end of any financial year has accumulated losses equal to or exceeding its net worth".

### **DEFINITIONS**

#### **Sick Industrial Company**

Sick Industrial Company means an industrial company being a company registered for not less than five years and which at the end of any financial year, has accumulated losses equal to or exceeding its entire net worth as per amended Section 3(1)(0) of Sick Industrial Company (Special Provisions Act, 1985).

#### **Weak Unit**

A non-SSI industrial unit is defined as 'weak' if its accumulated losses as at the end of any accounting year resulted in the erosion of fifty percent or more of its peak net worth in the immediately preceding four accounting years. It is clarified that weak units will not only include those which fall within the purview of Sick Industrial Companies (Special Provisions) Act, 1985 (of industrial companies) but also other categories such as partnership firms, proprietary concerns, etc. A weak Industrial Company should be termed as "potentially sick" company.

#### **Sick SSI Unit**

A Small Scale Industrial (SSI) unit, as per RBI is classified as sick when:

- a. Any of its borrowal accounts has become a doubtful advance, i.e. principal or interest in respect of any of its borrowal accounts has remained overdue for periods exceeding 2½ years, and
- b. There is erosion in the net worth due to accumulated cash losses to the extent of 50% or more of its peak net worth during the preceding 2 (two) accounting years.

In case of tiny/decentralized sector units, if requisite financial data is not available, a unit may be considered as sick if the loan/advance in which any amount to be received has remained due for past the one year or more.

## FACTORS LEADING TO BANKRUPTCY

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### External Factors

- a. Change in government policies affecting the firm.
- b. Increased competition.
- c. Scarcity of raw material.
- d. Prolonged power-cuts.
- e. Changes in consumer buying pattern.
- f. Natural calamities such as earthquakes, floods, etc.
- g. Shrinking demand.
- h. Cost overruns.
- i. Inadequate fund mobilization.

### Internal Factors

- a. Mismanagement.
- b. Fraudulent practices and appropriation of funds by the management.
- c. Labor/Union unrest.
- d. Obsolete machinery and production techniques.
- e. Disputes among promoters.

**An RBI Study**

Causes of Bankruptcy	Percentage
Mismanagement	52
Faulty initial planning	14
Labor trouble	2
Market recession	23
Others	9
	100

## SYMPTOMS OF BANKRUPTCY

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A firm goes bankrupt gradually. Before a firm goes bankrupt, it exhibits a lot of symptoms, which when diagnosed and corrected in time can save the company from bankruptcy.

Some of these symptoms are:

- Persistent cash losses over the years
- Declining/Stagnant sales
- Accumulation of finished goods
- Failure to meet fixed and current liabilities
- Increased borrowing at exorbitant rates
- Failure of production lines
- Loss of distribution network to competitors
- Failure to pay salaries in time
- Increased borrowing against assets
- Failure to meet taxes
- Decline in the ratios over the years to unacceptable levels
- High operating costs



- Fall in share price
- Low capacity utilization
- Rapid turnover of key personnel.

**BANKRUPTCY COSTS**

The cost of bankruptcy can be classified into two parts viz., (i) direct costs and (ii) indirect costs. Direct bankruptcy costs represent out-of-pocket fees paid to liquidators, trustees in bankruptcy, official receivers, lawyers and so forth. On the other end, indirect costs involve ‘shortfall’ arising from the disposal of assets at prices below their economic values, and economic inefficiencies in running a firm when it is about to go bankrupt. Added, the firm value can further deteriorate due to considerable delays in bankruptcy proceedings.

As a result of direct bankruptcy costs, there will be direct cash drain in the system to suppliers of capital. In addition to this, the impending bankruptcy threatens employees, suppliers and also customers, with the result that operations usually tend to become more and more inefficient. This economic and operational inefficiency in tandem with direct costs add to the detriment of capital suppliers. This in turn works to the disadvantage of stockholders, who have a residual claim on assets in the event of liquidation. Consequently, the investors are not able to diversify away the bankruptcy costs. However, a company can reduce the chances (probability) of bankruptcy by maintaining adequate liquidity.

The firm can pass on certain benefits to the equity holders, the residual owners of the firm, by reducing the probability (chances) of bankruptcy of the firm now and in the future. Thus, the firm can do something for their equity holders that they cannot do for themselves. To illustrate, let us consider a two-period model. Table given below indicates the initial probabilities of insolvency and the bankruptcy costs. Suppose, for example, insolvency happens, the creditors of the company initiate bankruptcy proceedings and liquidate the company. Consequently, the bankruptcy costs will be incurred. For our better understanding, assume that the entire costs of bankruptcy are borne by the equity holders. The table shows the probability of insolvency in 1st and 2nd period, along with a different present value of bankruptcy costs. Note that in each period there are three situations in which insolvency may occur.

Period I			Period II		
State	Probability	Present Value of Bankruptcy Costs	State	Probability	Present Value of Bankruptcy Costs
Zero Liquidity					
Insolvency	0.3	Rs.3,000	Insolvency	0.2	Rs.1,500
Solvency	0.7	Rs.0	Solvency	0.8	0
Rs.10,000 Liquidity					
Insolvency	0.2	Rs.2,000	Insolvency	0.3	Rs.2,000
Solvency	0.8	0	Solvency	0.7	0
Rs.20,000 Liquidity					
Insolvency	0.2	Rs.2,000	Insolvency	0.2	Rs.1,750
Solvency	0.8	0	Solvency	0.8	0

If the firm is at the zero liquidity state, the expected Present Value (PV) bankruptcy costs is:

$$(0.3)(Rs.3,000) + (0.7)(0.2)(Rs.1,500) = Rs.1,110$$

If, for instance, the firm desires to maintain initial liquidity levels of Rs.10,000 and Rs.20,000 and these liquidity levels changed the probabilities of insolvency and bankruptcy costs, then the expected value of present value bankruptcy costs is as follows:

(a) when the firm maintains an initial liquidity level of Rs.10,000

$$(0.2)(Rs.2,000) + (0.8)(0.3)(Rs.2,000) = Rs.880$$

(b) when the firm maintains an initial liquidity level of Rs.20,000

$$(0.2)(2,000) + (0.8)(0.2)(Rs.1,750) = Rs.680$$

Thus, the firm will be able to reduce the expected value of present value bankruptcy cost by increasing the liquidity from zero to Rs.20,000. At this state, the firm can reduce the probability of insolvency in period I and the joint probability of bankruptcy occurring during the two periods (period I and II).

However, the firm has to bear certain unavoidable costs if it wants to maintain liquidity. Like any other asset, a liquid asset has to be financed. Liquidity Cost (LC) is equal to the interest earned on the investments of funds made in liquid assets (I) 'minus' the cost of financing (C).

$$\begin{aligned} \text{Liquidity Cost (LC)} &= \text{Interest earned (I)} - \text{Cost of financing (C)} \\ &= I - C \end{aligned}$$

As a result, the firm has to maintain optimal liquidity level to cut down liquidity costs.

**Illustration 1**

The Raja Fertilizers Limited, by maintaining liquidity, can reduce the possibility of going into bankruptcy. It has been estimated that if bankruptcy were to happen, there should be a shortfall of Rs.2,00,000 in present value which the capital suppliers would realize from the value of the assets. This bankruptcy cost is related to legal expenses and the sale of assets at prices below their economical value. The probabilities of bankruptcy at different levels of liquidity are:

Level of Liquidity	Probability of Bankruptcy
Rs.50,000	0.30
1,00,000	0.20
1,50,000	0.15
2,00,000	0.12
2,50,000	0.10
3,00,000	0.08
3,50,000	0.06
4,00,000	0.05
4,50,000	0.04
5,00,000	0.03
<b>Total</b>	<b>1.00</b>

The firm can raise funds from the market to maintain the desired level of liquidity. Liquidity can be held in the form of marketable securities. The interest (yield) earned on the investment in these marketable securities is less than the rate of interest, the firm must pay on its short-term borrowings. The present value of differential amounts is Rs.3,000 for each Rs.50,000 borrowed. Compute the

optimal level of liquidity, assuming that there are no taxes and no other explicit or implicit costs associated with debt.

**Solution**

Level of Liquidity (1)	Probability of Bankruptcy (2)	Expected Cost of Bankruptcy (2) x Rs.2,00,000 (3)	Change in (3)
50,000	0.30	60,000	
1,00,000	0.20	40,000	-20,000
1,50,000	0.15	30,000	-10,000
2,00,000	0.12	24,000	-06,000
2,50,000	0.10	20,000	-04,000
3,00,000	0.08	16,000	-04,000
3,50,000	0.06	12,000	-04,000
4,00,000	0.05	10,000	-02,000
4,50,000	0.04	8,000	-02,000
5,00,000	0.03	6,000	-02,000

The optimal liquidity level is Rs.3,50,000, since the marginal present value cost of each Rs.50,000 increment of liquidity is Rs.3,000.

**BANKRUPTCY PREDICTION MODELS**

As the incidence of sickness became more frequent, a need was felt to evolve techniques and methods to predict the failure of a firm. While symptoms listed earlier are good indicators of the financial health, they are not the best predictors of sickness. A number of models have been proposed to accurately predict sickness of a firm. These models provide early warning signals, so that a potentially disastrous situation can be averted. Most of these techniques involve financial ratio analysis. A study has revealed that financial ratios are useful in accurately predicting the failure of a firm for a period up to 5 years before sickness. Apart from the international models proposed, a number of Indian models have also been proposed. Some of the more accurate models have been discussed below.

**International Models**

- The Wilcox Model
- Blum Marc's Failing Company Model
- Beaver Model
- Altman's Z Score Model

**Indian Models**

- L.C. Gupta Model

**The Wilcox Model**

Wilcox proposed that the net liquidation value of a firm is the best indicator of its financial health. The net liquidation value can be obtained by the difference in liquidation value of firm's assets and the liquidation value of its liabilities. Liquidation value is the market value of assets and liabilities, if liquidated at that point of study.

**Blum Marc's Failing Company Model**

Blum Marc's model predicts the financial health of a firm using 12 ratios divided into 3 groups; Liquidity ratios, Profitability ratios and Variability ratios. Using these ratios, Blum Marc tried to accurately predict failure and draw a distinction between a bankrupt and a non-bankrupt firm.

**Beaver Model**

Beaver was the first to make a conscious effort to use financial ratios as predictors of failure. He defined failure as “inability of a firm to pay its financial obligation as they mature.”

He used 30 ratios classified under 6 categories. Beaver tested these ratios to predict the failure of a company. The ratio of cash flow to total debt was found to be the best single predictor of failure. The study further revealed that financial ratios are useful in prediction of failure of at least five years prior to the event.

**Altman’s Z Score Model**

Altman improved upon the existing models using ratio analysis to predict failure. Altman’s model is based on the fact that various ratios when used in combinations, can have a better predictive ability than when used individually. 22 ratios were considered in various combinations as predictors of failure. He used a statistical technique called the Multiple Discriminant Analysis (MDA) to distinguish between bankrupt and non-bankrupt firms.

Out of these 22 ratios, a final set of 5 ratios were selected as they were found to be better predictors of failure. Weightage was given to these ratios on the basis of their significance to predict health of the model. He developed a discriminant score called the Z-score on the basis of these ratios.

$$Z = 1.2 X_1 + 1.4 X_2 + 3.3 X_3 + 0.6 X_4 + 1.0 X_5$$

Where,

- Z = Discriminant score
- X<sub>1</sub> = Working capital/Total assets
- X<sub>2</sub> = Retained earnings/Total assets
- X<sub>3</sub> = EBIT/Total assets
- X<sub>4</sub> = Market value of equity/Book value of debt
- X<sub>5</sub> = Sales/Total assets.

If Z score for a firm is less than 1.81, the firm is likely to go bankrupt. If Z score is more than 2.99, it is regarded as a healthy company. The range between 1.81 – 2.99 is treated as an area of ignorance.

Z Score	Classification
< 1.81	Bankrupt firm
1.81 – 2.99	Area of ignorance
> 2.99	Healthy firm

**L.C. Gupta Model**

L.C. Gupta’s model was the first Indian model proposed to predict failure. He used 56 ratios and sought to determine the best set of ratios to predict failure. These were categorized as profitability ratios and Balance Sheet ratios. He applied these ratios to a sample of sick and non-sick companies and arrived at the best set of ratios.

These are given below:

**Profitability Ratios**

- EBDIT/Net Sales
- OCF/Sales (Operating Cash Flow/Sales)
- EBDIT/(Total Assets + Accumulated Depreciation)
- OCF/Total Assets
- EBDIT/(Interest + 0.25 Debt)

### **Balance Sheet Ratios**

- Net Worth/Total Debt
- All Outside Liabilities/Tangible Assets.

The model was found to have a high degree of accuracy in predicting sickness for 2/3 years before failure.

### **Alternatives Available with the Firm**

A firm faced with imminent bankruptcy has two alternatives to choose from: Reorganization and Liquidation.

Reorganization of a firm is a more sensible solution when faced with the possibility of bankruptcy as it will be in a better position to repay its debts, when it is alive and operating, than when it is liquidated. There are a number of cases of firms that have been successfully turned around into profitable business ventures from the state of hopeless bankruptcy.

In case, reorganization is not a viable option and the firm no longer has the ability to operate and earn profits to pay-off its liabilities, liquidation is the only alternative available. All the assets are sold and the proceeds are distributed to creditors and other concerned parties.

In the Indian context, the decision to organize/liquidate a firm vests with BIFR (Board of Industrial Financial Reconstruction). The BIFR takes this decision based on a thorough techno-economic viability study of the firm in co-ordination with the management of the firm, the financial institutions, etc.

If the study reveals that it is practicable for a sick industry to make its net worth exceed the accumulated losses by itself within a reasonable time, the BIFR may give the company the necessary time under conditions, to reorganize itself. In case, BIFR decides that it is not practicable for a sick company to make its net worth positive, it may decide to provide financial assistance, or alternatively, it may decide to wind-up the company and forward its opinion to the concerned court.

### **REORGANIZATION**

The steps involved in reorganization of a firm are:

- Techno-economic viability study
- Formulation and execution of the reorganization plan check word spacing
- Monitoring the activities of the firm.

### **Techno-economic Viability Study**

A reorganization plan is worked out on the basis of a techno-economic viability study of the firm. This study sets out to identify the strengths and weaknesses of the firm, the causes of failure, the viability of future operations and the course of action to be taken to bring about a turnaround. The techno-economic viability study is undertaken by the operating agencies assigned to the firm. These operating agencies are generally financial institutions and banks such as IDBI, IFCI, ICICI, IRBI, SBI, PNB, etc.

The techno-economic viability study covers all the functional areas of a firm; management, financial, production and marketing.

**Management:** The effectiveness and ability of the management is one of the most important factors that determines the success or failure of a firm. A detailed study is done in terms of the objective of the firm, both short-term and long-term, the corporate strategy, the corporate culture, the management-labor relations, the organizational hierarchy, the decision making process, etc. The study tries to determine the effectiveness of management and its integrity. The areas of mismanagement are also determined.

**Finance:** Finance is the main functional area of business. It is a measurable indicator of the firm's health and performance. A thorough analysis of the firm's Balance Sheet and Profit/Loss statement is made. The balance sheet gives the assets and liabilities of the firm, the composition of assets and liabilities in terms of current and fixed capital. The profit and loss account shows the income accrued from sales and other transaction. It also shows the raw material and manufacturing expenses, taxes, depreciation and interests.

These statements when properly analyzed give the financial stability and, liquidity of the firm; profitability and uses of funds. The analysis also identifies the capital structure and the sources of funds. The analysis gives insight into working capital management and management of earnings.

**Production and Technology:** Production and Technology function assumes immense importance in the viability study. The various areas that are looked into are: the firms equipment and machinery, the maintenance of the equipment, the technology used in production, the production capacity and utilization, the products being offered by the firm, the quality control system, production planning and inventory control.

**Marketing:** A number of firms have failed because of lack of good marketing management. So the study of marketing management is of immense importance. The various areas of marketing that are studied are: the product mix of the firm, the past sales of the product in terms of quantity and value, the market share of the firm, the demand for the product range, the study of the customer profile, the price of the products, the distribution channels being used, the kind of promotion-mix being used and the most important of all is the marketing team. This study is done in comparison with the competition existing in the market.

### **Formulating and Executing the Plan**

The viability study serves as the basis for formulation of a rehabilitation plan. A thorough study of the various functional areas of the firm reveals the strengths, weaknesses, opportunities and threats of the firm. It gives a comprehensive idea about the status of the firm, the viability of the firm both technically and economically and the additional funds required for rehabilitation.

The formulation plan involves the changes and action to be taken regarding the various functions of the firm. It may decide to make changes in the management, if it is not found competent. Some of the labor may be retrenched/recruited depending on the situation. The amount of financial assistance to be given is determined and arrangements are made to secure the loan. Various steps are taken to bolster up the production functions in terms of new machinery and introduction of new technology. The viable level of operations are determined and steps are taken to achieve this production level. The production-mix, the prices, the quality of the products, distribution channels and the promotion-mix changed are suit the needs of the customers and to achieve the desired sales levels. Once the plan is formulated, the plan is carefully executed. All the necessary changes prescribed by the plan are made. The funds are disbursed in a phased manner as and when required. The necessary concessions and reliefs are provided. A close watch is kept on the activities of the firm and a continuous evaluation is done.

### **Monitoring**

Monitoring is very important part of a rehabilitation plan. It is done to evaluate the execution of the plan. Regular meetings are held between the firm, the bankers, the financial institutions and other concerned parties to verify and evaluate the process of execution. Monitoring is done to ensure the proper utilization of funds and adherence to the terms of rehabilitation plan. It also ensures the proper working of the firm. Feedback is obtained and remedial measures are taken as and when the situation demands. The course of rehabilitation becomes evident in a short period. Once the success of the firm becomes evident, the role of agencies and banks is confined to constantly hold meetings to assess and review the process. This continues till the firm is successful in shaking off its sickness. In case the firm is found incapable of making a turnaround despite the plan, then the steps to liquidate the firm are undertaken.

## **LIQUIDATION**

A firm is faced with liquidation, when it is established that there is no hope of bringing about a turnaround and coming out of financial crisis. Liquidation requires the firm to dispose off its claims and liabilities on a priority basis.

Section 425 of the Companies Act gives the ways in which a company may be liquidated:

1. Compulsory winding-up under the court order.
2. Voluntary winding-up; (a) member's voluntary winding-up and (b) creditors' voluntary winding-up.
3. Voluntary winding-up under the supervision of the court.

Section 433 of the Companies Act gives the cases in which a company be wound-up by an order of the court:

### **Compulsory Winding-Up**

- If the company passes a special resolution to wind-up by the court.
- If the firm fails in holding the statutory meeting or in delivering the statutory report to the registrar.
- If the firm fails to commence business within a year from its incorporation.
- Reduction in members of the company, below seven in case of a public company and below two in case of a private company.
- If it is unable to pay its debts.
- When the court is of opinion that it is just and equitable that the firm be wound-up.

In all the above cases, the court reserves the discretionary power to order for a wind-up or direct the firm to take up remedial action.

The following are the steps involved in liquidation by the court order:

1. A petition is made by the company or creditors or shareholders or the registrar or the central government for winding-up. This is dealt with in Section 439 of the Companies Act.
2. The court asks for a hearing of the winding-up petition and takes a decision on the issue (Section 443).
3. The court appoints the official liquidator after informing the company about the appointment so as to enable it to make its representation (Section 450).
4. The court sends the winding-up order to the registrar and the official liquidator. The petitioner has to file with the registrar, within thirty days, a certified copy of the order (Sections 444 and 445).
5. Within twenty-one days of the order a statement of the affairs of the company has to be made. It should show the assets of the company, showing separately cash in hand and at bank and negotiable securities, its debts and liabilities, the names and addresses of the creditors indicating the amount of secured/unsecured debts, the debts due to the company and the names and addresses of the persons from whom they are due and the amount likely to be realized (Section 454).
6. Within six months of the order, the official liquidator is required to submit a preliminary report to the court showing the amount of issued and paid-up capital and the estimated amount of assets and liabilities, the causes of failure and whether any further enquiry is desirable into the matters of the firm (Section 455).

7. The liquidator then sells the immovable and movable property and auctionable claims of the company, by public auction or by private contract. He raises money on the security of the assets of the company if required and do all that is necessary for winding-up the affairs for the company and distributing its assets (Section 457).
8. The order of priority in which the distribution is done is given below:
  - i. Administrative expenses and fees required to run the firm's property including that paid to the liquidator, lawyers and accountants.
  - ii.
    - a. Workforce dues including wages, salaries and commissions to the workforce.
    - b. Debts due to secured creditors.  
These should be paid fully in equal proportions in case the assets are insufficient to meet them.
  - iii. All revenues, taxes, losses and rates due to the Central/State Government/Local authority which have become due or those that are payable within the next twelve months.

## **VOLUNTARY LIQUIDATION**

Voluntary liquidation is a form of liquidation under which the firm and creditors come up with a creative plan to dispose off the liabilities in a manner that makes sense to everybody involved. This happens when the firm realizes that there is no hope of turnaround and liquidation is the only option that either occurs without the involvement of the court or under the supervision of the court.

Voluntary winding-up is of two kinds:

### **Member's Voluntary Winding-up (Section 489)**

In this case the majority of the directors declare that the company has no debts or will be able to pay its debts in full, within a certain period, not exceeding three years from the commencement of winding-up action. The declaration must be delivered to the Registrar for registration, accompanied by a copy of the auditors on the profit and loss account and the balance sheet of the company. A liquidator is appointed and his remuneration is fixed by the company. The liquidator has to inform the Registrar of his appointment within thirty days and publish the fact in the official gazette. On the appointment of the liquidator, all the powers of the board of directors come to an end. The liquidator summons a creditors meeting and winding-up procedure starts. Once the affairs of the company are fully wound up, the liquidator makes a statement of the accounts of winding-up. He calls a general meeting of the company and sends the accounts to the Registrar, who registers the documents and the company is deemed to be dissolved.

### **Creditors Winding-Up (Section 499)**

In this case, the company calls a meeting of its creditors. The full statement of the position of the company's affairs and a list of the creditors of the company and the estimated amount of their claims is laid down in the meeting. A copy of the resolution passed at the creditors' meeting must be filed with Registrar. A liquidator is appointed by the members of the board and the creditors. The creditors and the company may appoint 5 members each to a committee of inspection. The liquidator then follows the procedure of winding up which is essentially the same for all kinds of liquidation.

This chapter on bankruptcy is very important in the present situation, with the increased incidence of corporate failures. One of the most important reasons for failure is mismanagement of cash flows. Hence it is for the treasurer to ensure a proper cash flow management and planning. It is also important for the Treasury/Finance manager to know the procedures to be followed and alternatives with him in case of bankruptcy.



## **CASE STUDY – BARINGS**

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### **COLLAPSE – A LESSON FOR OPERATORS IN DERIVATIVES**

The chain of events, which led to the collapse of Barings, Britain's oldest merchant bank, is a demonstration of how not to manage a derivatives operation. The control and risk management lessons to be learnt from the collapse of this 200 year-old institution apply as much to cash positions as they do to derivative ones, but the pure leverage of derivatives makes it imperative that proper controls are in place. Since only a small amount of money (called a margin) is needed to establish a position, a firm could find facing financial obligations way beyond its means. The leverage and liquidity offered by major futures contracts – such as the Nikkei 225, the S&P 500 or Eurodollars – means that these obligations, once in place, mount very quickly; thus bringing down an institution with lightning speed. This is in stark contrast to bad loans or cash investments whose ill-effects takes years to ruin an institution as demonstrated by the cases of British & Commonwealth Bank or Bank of Credit and Commerce International.

The activities of Nick Leeson on the Japanese and Singapore futures exchanges, which led to the downfall of his employer, Barings, are well documented. The main points are recounted here to serve as a backdrop – the policies, procedures and systems necessary for the prudent management of derivative activities. Barings collapsed because it could not meet the enormous trading obligations, which Leeson established in the name of the bank. When it went into revivalship on February 27, 1995, Barings, via Leeson, had outstanding notional futures positions on Japanese equities and interest rates of US\$ 27 billion: US\$7 billion on the Nikkei 225 equity contract and US\$20 billion on Japanese government bond (JGB) and Euro yen contracts. Leeson also sold 70,892 Nikkei put and call options with a nominal value of \$6.68 billion. The nominal size of these positions is breathtaking; their enormity is all the more astounding when compared with the bank's reported capital of about \$615 million. The size of the positions can also be underlined by the fact that in January and February 1995, Barings Tokyo and London transferred US\$835 million to its Singapore office to enable the latter to meet its margin obligations on the Singapore International Monetary Exchange (SIMEX).

The build-up of the Nikkei positions took off after the Kobe earthquake on January 17. Leeson's positions went in the opposite direction to the Nikkei, as the Japanese stock market fell, Leeson's position increased. Before the Kobe earthquake, with the Nikkei trading in a range of 19,000 to 19,500, Leeson had long futures position of approximately 3,000 contracts on the Osaka Stock Exchange. (The equivalent number of contracts on the Singapore International Monetary Exchange is 6000 because SIMEX contracts are half the size of the OSE.) A few days after the earthquake, Leeson started an aggressive buying program, which culminated in a high of 19,094 contracts reached about a month later on February 17.

But Leeson's Osaka position, which was public knowledge since the OSE publishes weekly data, reflected only half of his sanctioned trades. If Leeson was long on the OSE, he had to be short twice the number of contracts on SIMEX. Why? Because Leeson's official trading strategy was to take advantage of temporary price differences between the SIMEX and OSE Nikkei 225 contracts. This arbitrage, which Barings called 'switching', required Leeson to buy the cheaper contract and to sell simultaneously the more expensive one, reversing the trade when the price difference had narrowed or disappeared. This kind of arbitrage activity has little market risk because positions are always matched. But Leeson was not short on SIMEX, in fact he was long approximately the number of

contracts he was supposed to be short. These were unauthorized trades, which he hid in an account named Error Account 88888. He also used this account to execute all his unauthorized trades in Japanese Government Bond and Euro-yen futures and Nikkei 225 options: together these trades were so large that they ultimately broke Barings.

Leeson sold 70,892 Nikkei 225 options worth about \$7 billion without the knowledge of Barings London. His activity peaked in November and December, 1994 when in those two months alone he sold 34,400 options. In industry parlance, Leeson sold straddles, i.e. he sold put and call options with the same strikes and maturities. Leeson earned premium income from selling well over 37,000 straddles over a 14-month period. Such trades are very profitable provided the Nikkei 225 is trading at the options' strike on expiry date since both the puts and calls would expire worthless. The seller then enjoys the full premium earned from selling the options. (Loss profile of a straddle.) If the Nikkei is trading near the options' strike on expiry, it could still be profitable because the earned premium more than offsets the small loss experienced on either the call (if the Tokyo market had risen) or the put (if the Nikkei had fallen). The strike prices of most of Leeson's straddle positions ranged from 18,500 to 20,000. He thus needed the Nikkei 225 to continue to trade in its pre-Kobe earthquake range of 19,000-20,000 if he was to make money on his option trades. The Kobe earthquake shattered Leeson's options strategy. On the day of the quake, January 17, the Nikkei 225 was at 19,350. It ended that week slightly lower at 18,950 so Leeson's straddle positions were starting to look shaky. The call options Leeson had sold were beginning to look worthless but the put options would become very valuable to their buyers if the Nikkei continued to decline. Leeson's losses on these puts were unlimited and totally dependent on the level of the Nikkei at expiry, while the profits on the calls were limited to the premium earned.

This point is key to understanding Leeson's actions because prior to the Kobe earthquake, his unauthorized book, i.e. account '88888' showed a flat position in Nikkei 225 futures. Yet on Friday 20th January, 3 days after the earthquake, Leeson bought 10,814 March, 1995 contracts. No one is sure whether he bought these contracts because he thought the market had over-reacted to the Kobe shock or because he wanted to shore up the Nikkei to protect the long position which arose from the option straddles. (Leeson did not hedge his option positions prior to the earthquake and his Nikkei 225 futures purchases after the quake cannot be construed as part of a belated hedging program since he should have been selling rather than buying.)

When the Nikkei dropped 1000 points to 17,950 on Monday January 23, 1995, Leeson found himself showing losses on his two-day old long futures position and facing unlimited damage from selling put options. There was no turning back. Leeson tried single-handedly to reverse the negative post-Kobe sentiment that swamped the Japanese stock market. On 27th January, account '88888' showed a long position of 27,158 March, 1995 contracts. Over the next three weeks, Leeson doubled this long position to reach a high on 22nd February of 55,206 March, 1995 contracts and 5640 June, 1995 contracts.

The large falls in Japanese equities, post-earthquake, also made the market more volatile. This did not help Leeson's short option position either – a seller of options wants volatility to decline so that the value of the options decreases. With volatility on the rise, Leeson's short options would have shown losses even if the Tokyo stock market had not plunged.

Leeson engaged in unauthorized activities almost as soon as he started trading in Singapore in 1992. He took proprietary positions on SIMEX on both futures and options contracts. (His mandate from London allowed him to take positions only if they were part of 'switching' and to execute client orders. He was never allowed to sell options.) Leeson lost money from his unauthorized trades almost from day one. Yet he was perceived in London as the wonder boy and turbo-arbitrageur that single-handedly contributed to half of Barings Singapore's 1993 profits and half of the entire firm's 1994 profits. In 1994 alone, Leeson lost Barings US\$296 million; his bosses thought he made them US\$46 million, so they proposed paying him a bonus of US\$720,000.

## **SUMMARY**

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- The Barings Bank crash in 1995 serves to remind us of how lack of compliance, control procedures and unauthorized activities of rogue trader Nick Leeson led to the fall of one of Britain's oldest financial institutions. When the actual story unfolds we can clearly witness the dangers of open unhedged positions in derivatives markets. Clear segregation of front office and back office operations, internal checks, control procedures, suitable capital adequacy norms, credit risk and funds management control could have prevented Baring's downfall.

## **Chapter XI**

# **Banking Relationships**

**After reading this chapter, you will be conversant with:**

- Services Rendered by Banks
- The Indian Banking Services
- How to Select Bankers and Lenders
- How to Manage Banking Relationships

## **OVERVIEW**

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Bank relations are viewed differently depending on how various managers within an organization perceive the role of banking in relation with their own functions. A perfect blend of banking services is necessary for the optimal performance of the finance manager, treasurer or controller.

## **SERVICES RENDERED BY BANKS**

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Banking services have evolved extensively through the years.

The dependence of commerce upon banking has become so great that in a modern money economy, the cessation, even for a day or two, of the banker's activities, would completely paralyze the economic life of a nation. Corporate customers have a choice of a variety of services offered by banks. Major banks generally have separate divisions catering to particular needs of business customers.

Bankers have to deal with a large number of matters. They serve as custodians of stocks and shares and other valuables. Imports and exports are financed by banks and documents relating to the goods imported and exported, at one time or the other pass through the hands of bankers. Thus, they have to deal not only with bills of exchange, but also with bill of lading, railway receipts, warehouse warrants and receipts, marine insurance policies and various other documents. As bankers, they advance money on securities, and issue letters of credit, travelers cheques, credit cards and circular notes to customers wishing to travel abroad, as also to effect purchases and shipment of goods. They are often required to countersign indemnities and guarantees given by their customers, and they undertake the administration of estates, thus assuming the position of trustees. They assist industrial undertakings by underwriting their debentures and shares and providing them with working capital requirements. They sometimes even obtain passports for their customers and deal with their incoming mail. On behalf of their customers, they carry on correspondence with Income Tax Authorities, make periodical payments such as rents, taxes, subscriptions, etc. and on instructions from their customers, act as executors of their customer's wills.

In short, they do all they can to assist their customers. In India, the banking industry is entering several new activities in the areas of merchant banking, leasing, automobile finance, housing finance, venture capital and financial services in general. The banking scenario the world over is undergoing rapid diversification and technological change and Indian banking is no exception.

A banking proposal could include some or all of the following services to meet the treasury needs of the company.

<b>Treasury Activities</b>	<b>Bank Services</b>
Collections	Deposit transfers, Cheques processing, Direct debits, Automated collection of draft, Letters of credit, Lock boxes.
Disbursements	Automated payment services, Pre-funded cheques, Account reconciliation.
Cash Control	Centralized banking balance reporting, Centralized concentration accounts, Automatic transfers, Zero balance accounts, Pooling facilities.
Investment/Financing	Automatic investment account, Money market instruments, Security and safekeeping, Overdraft lending, Short-term credit lines.
Foreign Exchange	Advisory services, Spot/Forward contracts, Foreign currency accounts.

The services offered by banks in advanced countries like USA and Canada are assessed below.

**Electronic Funds Transfer**

Electronic Funds Transfer is a convenient device used to receive and disburse payments without writing a cheque. A number of money center banks offer EFT services and some even provide EFT consulting for their cash management customers.

The main advantage of EFT is its ability to reduce the guess work associated with bank floats. The most common EFT services are

- Wire transfers
- Corporate Trade Payments
- Pre-authorized debits.

**Wire Transfers**

Wire transfers is a medium for the transfer of funds from one bank to another. SWIFT (Society for World Wide International Financial Transactions) is used in a number of countries including Canada. In the US, wire transfers are accomplished either by the FEDWIRE or the BANKWIRE. FEDWIRE is a same day transfer vehicle and BANKWIRE is a means of advice given for a transfer.

This is the least expensive, laborious and also the least sophisticated form of electronic funds transfer as no information regarding the nature of payment such as the invoice numbers or the items purchased are transferred with payments. They are used only in exceptional and unusual cases.

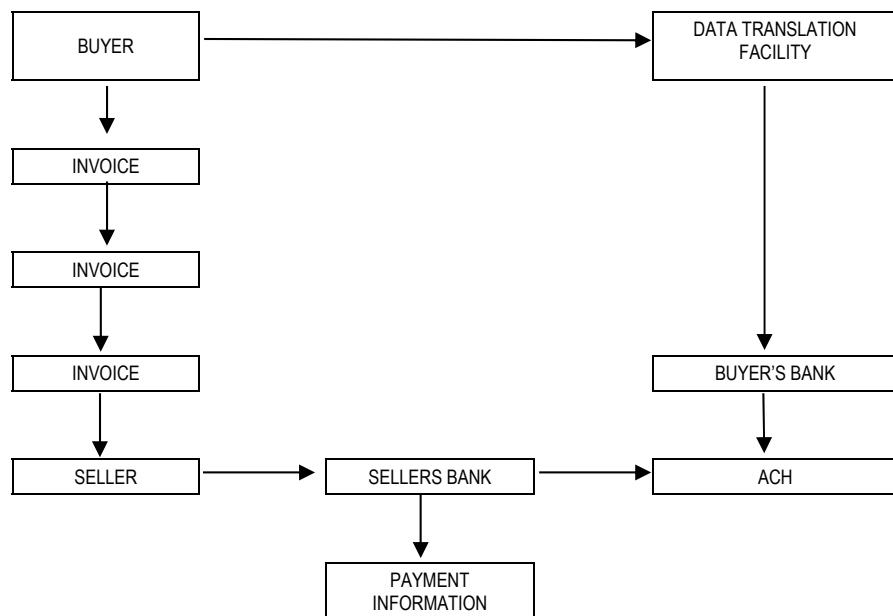
**Corporate Trade Payments**

Corporate Trade Payments are a form of Electronic fund transfers which utilizes a commercial data translation facility which is often a bank itself in order to enter payment information from the payer. The information may be about the reason for an invoice or payment, the amount, or any other information which normally accompanies a normal payment by check.

The information is then electronically transferred to an Automated Clearing House (ACH) which is a link between the banks of the buyer and the seller. On the same day the automated clearing house debits and credits the customers and vendors' accounts appropriately through the banking system.

Given below is a diagrammatic representation showing how the system works.

**Figure 1: Corporate Trade Payment**



The main advantage of the CTP is payment information that is received by the vendor, which allows them to electronically record the payment on their accounts receivable system on the same day. The wire transfer system lacks this advantage. This system is faster, less expensive and a more sophisticated form of electronic funds transfer in contrast with wire transfers.

The most sort out uses of corporate trade payments include:

- Payroll
- Dividend payments to shareholders
- Interest payments to bondholders
- Electronic payment using point of sale debit cards
- Employee expense reimbursements
- State and federal tax payments
- Vendor payments.

### **Pre-authorized Debits**

According to the system of pre-authorized debits, the seller is authorized to receive his own payments by drawing funds from the buyer's bank account. This system can utilize the electronic funds transfer facilities of the ACH as done by the CTP, or it can simply give vendor cheques from a special checking account which entitles them to write their own payments by cheques. However, the smooth functioning of this system is disrupted by two conditions:

1. The vendor should either write a cheque or electronically debit the account only for a limited amount.
2. The vendor should send a monthly statement itemizing each transaction to the customer. The most commonly used pre-authorized debits include:
  - Loan payments
  - Insurance premiums
  - Rent and lease payments
  - Membership dues
  - Utility payments
  - Recurring monthly fees
  - Sending cash from operating divisions to corporate cash concentration account.

### **Direct Debit**

Under this arrangement, the vendor submits a list of debit items to the bank. The bank then initiates an electronic fund transfer through the automated clearing house so as to debit the customers account and credit the vendors account.

This arrangement is meant for routine or recurring payments. However, banks without the necessary electronic equipment make use of pre-authorized drafts on behalf of their customers. Although drafts are subject to the clearing bank's availability schedule, it is far better than the monotonous system of waiting for a customer to receive the invoice, process it, mail and cut the cheque, then finally go through the bank deposit and collection process.

Direct debits are provided by some sophisticated banks offering cash management services for companies that want the advantages of a direct pre-authorized debit arrangement but do not want to accept the risk of possible abuse by their customers.

## Direct Deposit

This system functions in a manner that is almost the reverse of the direct debit. The payer authorizes its bank to debit its account and credit the account of its payees, instead of having a vendor submit a payment list to the bank.

This system of direct debit is at its best when payments are regular and are of the same amount each time and when invoices are not involved.

The service of direct deposits is generally found in:

- Company's payroll systems
- Payments for annuities
- Royalties
- Dividends
- Pensions.

The similarity between EFT, direct debit and direct deposit is that neither of them make use of a cheque. This leads to a great number of efficiencies.

This can be illustrated by taking the example of a payroll system. The elimination of cheques floating around a payroll system lead to the following efficiencies:

- In case of lost or stolen cheques no provision is necessary.
- Special treatment is not necessary for sick or vacationing employees.
- There are no costs of operating the cheque disbursements system.
- Employees need not leave the office to do their banking on pay days.

## Lock Boxes

Lock Box systems receive customer payments which are then processed, deposited and often electronically transferred to the company's cash concentration bank account in the headquarters.

Many companies employ one or an entire system of strategically located lock boxes. A fair number of companies place the lock boxes in close proximity to customers as it reduces mail float.

Sophisticated banks capture payment remittance information which is entered on to an electronic media. It then goes directly into the company's receivable system. This reduces the float involved in the payment process and eliminates the manual entry of receipts and payments which are often done at the company itself. Further, the most sophisticated lock boxes make use of the automated clearing house in order to update the customer payment information directly into the company's computer system.

Some companies like collection agencies use a special lock box system for the receipt of dishonored payment cheque. This reduces the time gap between rejection of the cheque and the beginning of collection procedures.

A hybrid of the bank operated lock box is the remittance intercept lock box. Under this system a post office box which is used as a point of collection, receives payments. The cheques are then couriered to their corporate office.

## Merits

The merits of lock box system have made it a favorable technique of cash management. The following are some of the important advantages of lock box system.

1. *Reduction in the Mail Processing Time:* Under this system, companies request their customers to send their remittances directly to post boxes that are operated by the bank. This helps in reducing the mail processing time.



2. *Reduction in the Cheques Collection Time:* Since banks themselves collect the cheques and initiate its collection, companies are not required to present their cheques to the bank. Consequently, time required in the presentation of cheques for collection to the bank is totally eliminated.
3. *Reduction in Receivable Processing Costs:* Lock box system reduces the operating cost of the firm, since the firm need not require to engage dedicated staff to handle processing and recording activities pertaining to cash/cheque payments/receipts.
4. *Improved Internal Control System:* Since, under lock box system, almost all cheques/cash are handled and operated by the outsiders (banks), at the entry point itself, the internal control system of the firm is improved reducing the possibilities of fraudulent practices.
5. *Improvement in the Availability of Funds:* Another important advantage of using lock box system is the significant improvement in the availability of funds. The firm does not require any mailing and internal cheque processing time. For instance, in the case of a company where lock box system is not adopted, a cheque amount is available only after 4 or more than four days, as mailing of a cheque involves at least 3 to 4 days and other internal cheque processes such as recording, etc. presenting involve two to three days. Finally, cheque amount is available only after 4 or more days.

### **Demerits**

- i. For an organization of small size, the lock box system sounds redundant as their operations are relatively low and small.
- ii. Under this system, banks directly handle the collection operation. As a result, the company does not have any idea about the collections unless informed by the bank concerned. So, required legal proceedings in the events regarding bouncing back of cheques, etc. will be detailed.
- iii. Further, too much efficiency in realizing the cheques may irritate some customers. This, eventually, affects the business of the company.

### **Concentration Banking**

In general, customers are required to remit their payments to the company headquarters. However, for big companies, whose customers are large and scattered, considerable time will be taken to raise bills from the customers and to process the cheques. This float, i.e. deposit float, can be avoided and reduced to a considerable level by employing concentration banking.

To curtail deposit float, under this system, multiple strategic collection centers are established in place of a single collection center situated at the company head office. Customers are instructed to dispatch their cheques and bills to the collection centers located in their zones. The collection centers, when cheques are received, deposit the same in their respective local banks. The local banks maintain certain limited amount with them, as instructed, and transfer the surplus to a concentration bank on a daily basis. A concentration (central) bank is the bank with which the company maintains a major disbursement account.

This system reduces the time required for mailing. As the collection centers dispatch bills to customers in its area, the customers take delivery of bills earlier than if bills were mailed from the company headquarters. Further, when the customers remit their bills, the mailing time required to reach the nearest collection center is relatively shorter than the time required to reach the head office. Furthermore, this system substantially reduces the time required to collect cheques, because the drawee banks (that is, the banks on which cheques are drawn) usually, are situated nearer to the collection centers' local banks.

## Controlled Disbursement

Most controlled disbursement services are a combination of several reporting techniques which include cheque presentations, investment accounts and special zero-balance disbursement accounts.

The service of cheque presentation reporting simply gives the controller a report of the amount of cheques scheduled for clearing against the account, on the morning of that day. This increases the employment of surplus cash.

Zero balancing is done by a control bank that holds a general corporate account and a separate field account for a particular division or a subsidiary. The field of account is always maintained at a zero balance. As the division's cheques are presented for payment, the bank transfers the exact amount from the general account to cover these items.

A more sophisticated form of disbursement assists companies with more than one operating division to minimize excess funds in a particular division's operating account.

## Balance Reporting

A number of banks provide account balance information along with other corporate services via a computer terminal. More sophisticated banks also provide their clients with information of accounts held by them at other banks.

Corporate customers receive the following information via their computer terminal:

- Lock box deposits
- Automated clearing house debits and credits
- Cheques clearing that day
- Line of credit available
- Opening and closing balances
- Availability schedule for deposited funds.

## Consulting Services

Money center banks offer an assortment of consulting services to their corporate clients. Regional banks also offer consulting services, but they are more tailor-made. Consulting services include:

- Assessment of country risk for international companies
- Assessment of compliance with discounts-taken policy
- Analysis of vendor credit terms
- Analysis of cash concentration system
- Analysis of cash inflow system
- Analysis of controlled disbursement program
- Trade credit policies and procedures
- Risk management of interest rate
- Risk management and exposure of foreign exchange
- Installation of an electronic funds transfer system
- Installation of an electronic data interface system
- Collection of international accounts receivable
- Clearing foreign cheques
- Business planning

- Cash flow planning
- Float studies
- Lock box studies
- Training
- Payment processing studies.

## **THE INDIAN BANKING SERVICES**

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The Indian banking system is at the threshold of a revolution. The far reaching changes that are taking place in the banking sector as a part of the reform of the financial sector undertaken after 1991, have evoked a keen interest among all those dealing with banking. It has raised high expectations of the performance of banks in the new liberalized and competitive environment.

With the changing economic scene, the Indian banking scenario is also poised for a change. The change is already visible with the advent of new foreign banks, private sector banks, buoyant capital markets and financial instruments in the market.

Computer usage is making an impact on the Indian banking sector. After the agricultural revolution and industrial revolution, India has now witnessed an information revolution that has been brought on by the advances in computer technology.

A number of modern services have now emerged on the Indian banking scene.

**Merchant Banking:** The merchant banking activities include several areas such as managing of public issues, loan syndication, financial and management consultancy services, project appraisal and counseling arrangement of technical consultancy, mergers and amalgamations, management of NRI investments, etc.

**Portfolio Management:** Banks have been undertaking portfolio management of surplus funds of their corporate customers either directly or through merchant banks and assisting their clients to invest their funds in such a manner that they can achieve the twin objectives of liquidity and optimum yield simultaneously.

**Mutual Funds:** Mutual funds are collective investment schemes conferring benefits of diversified portfolio and expert investment advice and management to a large number of investors, through institutionalized risk pooling mechanisms.

**Factoring:** Factoring is a financial service under which the factor undertakes collection, accounting and management of clients' debts. The factor also finances the clients either by lending against account receivables or purchasing them outright against discount. Usually debts are assigned to the factor and collected by the factor on the due date. Thus the factor is an intermediary between the suppliers and customers who perform financing and debt collection services.

SBI Factors and Commercial Services Pvt Ltd. was set up on February 26, 1991, as a new factoring arm of the bank, for rendering factoring services to the industrial units in Western India. A number of other banks also function today as factors.

**Stock Invest:** Under the stock invest scheme, on application, an investor's account gets debited upon finalization of the basis of allotment. In the case of unsuccessful applicants, the accounts are not debited at all. The investor is, thus obliged to part with his money only in case of successful total or partial allotment. Till such allotments are made, the investor's funds remain in his account on which he will continue to earn interest.

**Stock invest,** mooted at the initiative of SEBI by State Bank, is envisaged to be an instrument just like a draft or banker's cheque. At present stock invest is an additional facility being offered by banks for applying for primary issues and other existing instruments.

**Flexi Deposit:** Flexi deposit is a form of cash management service that is offered by various banks under different names. It has almost become a standard service.

Under this arrangement, a customer who intends depositing a large sum of Rs.1 crore as a fixed deposit can do so by depositing the same in smaller units of one lakh each. The advantage of this arrangement is that, if Rs.1 lakh is required prematurely then, only one unit deposit of Rs.1 lakh will be broken instead of the whole of Rs.1 crore fixed deposit. This scheme is ideally suited for organizations with unpredictable cash flows.

**Modem:** This is one of the services rendered by banks for the transfer of funds. It is a mode wherein a customer has access to his account through a computer terminal and a telephone, one based at his office and the other at the bank's branch. This helps him keep track of the status of his account and also transfer funds from one account to another.

The customer is allowed to enter the identification number from the bank and then the software takes over to complete the hook up. Once hooked up with the bank, the customer gets access to his account by using the disks identification codes, which includes a number unique to the customer. The customer inputs the number into the software himself, and for increased security, the number never appears on the customer's screen. They can then transfer funds, check account balances and send electronic mail to the bank. This is not a standard service. It is offered only to very large and important clients.

**Customer and Corporate Credit Cards** Indian Banks have also entered into the credit card business (plastic money), with a link-up with international networks such as Master Card and VISA for individual customers. Credit Cards enable purchases to be made on presentation of the card. It overcomes the inconvenience of carrying around liquid cash.

Some banks have started issuing what is known as the corporate credit cards. A corporate credit card which is like a dummy card is issued to a company with a particular number. Along with it are issued a number of add-on cards which can be utilized by the company's employees. Every time the card is used, the amount gets debited in the company's account.

**Mail Transfer:** This service facilitates transfer of funds either through ordinary mail or by couriers. Bank drafts and other debit items that effect the head office account or the inter-branch account are transferred by this system. The time taken to conclude these transfers are 2 to 3 days depending on the distance.

**Collection of Instruments:** This is an effective cash management tool used to convert cheques to cash in eight clear working days. Collection is made on upcountry cheques drawn on all major locations throughout India, through correspondent banking arrangements.

**Working Capital:** The treasury of banks provides money market services for clients – corporates, individuals, trusts and non-resident Indians. Treasury acts as an IPA (Issuing and Paying Agency) for corporate clients. They subscribe to the commercial paper at competitive rates to supplement working capital needs. They are also active participants in the commercial paper market.

**Automatic Teller Machines (ATM):** Individual customers holding a savings or current account with a bank are eligible to an ATM card. With the help of an ATM card, a customer can get his basic banking needs met at any of the ATMs installed by the bank, seven days a week, 365 days a year. ATMs are generally installed at convenient locations around the country.

## **ATM Provides**

- deposit cash/cheque
- balance enquiries
- transfer of funds from one account to another

- request for check books and statements of accounts
- and of course withdrawal of cash any time any day.

Bank of India recently introduced an innovative withdrawal facility in Bombay called the Smart card. The bank has set up Branch Teller Machines (BTMs) which work on the chip technology at four of their branches in Bombay. This card enables customers of the bank to withdraw cash at any of the four branches during banking hours. A minimum of Rs.3,000 per transaction can be withdrawn on inserting the card in the teller machine. The maximum withdrawal, which could range from Rs.5,000 to Rs.50,000 is set by the bank based on the account relationship with the customer.

The winds of change blowing across the globe have enveloped India also and the complexion of the Indian banking system is all set to see a remarkable change.

### **Soon to come from Indian Banks**

**Electronic Funds Transfer:** EFT to various locations is expected in the near future. It is a form of branch banking where all branches will be linked through a network of computers.

**Offshore Banking:** Banks are embarking upon a new area of offshore banking and Indian banks plan not to lag behind. Offshore banking is a lucrative business where banks deal in foreign currencies and with foreign countries in various internationally reputed instruments in a free trade zone.

**Home Banking:** This is expected to finally make a real start during the latter part of the 1990s. The widespread acceptance of home banking has been delayed for many reasons, such as expensive fees and terminal costs, complicated terminal operations etc.

**Internet Banking:** This is the latest service that the banking system is offering to its Indian customers. ICICI bank was the first in India to launch banking operations through the Internet.

**Telebanking:** This innovative service was launched in the earlier part of this year. This helps the customers to carry out their banking transactions through the telephone.

The above were a few of the many services that Indian banking system intends providing.

The banking system in India has been assigned a crucial role to play both within and outside the country. Diversification of services of banks will vindicate the statement that banks are no longer accepting deposits for the purpose of lending.

### **PRICE NEGOTIATIONS**

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Banks have generally drifted away from the idea that cost and price are synonymous in their industry. They will suffer immeasurably if substandard prices are used as a means of luring business from another bank. Hence bank services are not cheap. A good number of controllers and treasurers only have a faint idea as to the amount to be paid for bank services.

It is common banking practice to pay for services with the help of a fee credit arrangement either from a compensating balance or from collected balances.

A monthly statement itemizing the service costs and compensation that is paid into the bank (if insisted upon) will identify the amount paid on the fee credit arrangement.

Many banks run their consultancy divisions as profit centers keeping their fee structures in competition with other top consultants in the banking field. Fees are negotiated differently according to the nature of engagement.

Contracts are negotiated for volumes and discounts for standard applications. Often corporate treasurers and controllers find that they have overcompensated the

bank. In such cases, an orderly scheduled withdrawal of compensating balances should be arranged. This helps in reimbursement of overpayments and adherence to the original intent of the service agreement while keeping banking relationships intact.

## **PAYMENT OPTIONS**

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Corporate customers have two options open to them for the payment of bank services. They are

- Direct Fees
- Direct Debits.

### **Direct Fees**

Many companies negotiate payments for their banking services by direct fee payments. The bank renders an invoice which is reviewed for its accuracy and is entered into the account payable system. Bank costs can be tracked and charges appearing out of the line can be questioned by this system.

### **Direct Debits**

Under the system of direct debit, banks debit their customer's checking accounts automatically for the amount they think they have earned.

This system captures some of the control that direct fee payment offers. However, this can be checked by making sure that the bank submits a monthly statement itemizing the bank charges and services rendered.

## **SELECTION OF BANKERS AND LENDERS**

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The current banking scenario in India has undergone a radical transformation especially in the wake of institutionalization, liberalization, globalization of economy, automation and implementation of reformative measures recommended by the Narasimham Committee.

Competition is not something that is new to the Indian banks. It was always there when all the banks were in the private sector and also when most of them were brought under government ownership. Certain banks have reputations for expertise in particular areas.

Banks differ in their ability to cater to customer needs. Companies should have a clear picture of the banks they intend dealing with. Although most small businesses do not interview bankers before they deposit their money or set up bank relationships, raising the following questions might be one of the most important things to do:

1. Is the bank progressive? Has it kept pace with changing conditions and is it alert to the developing requirements of the community?
2. Does the management of the bank combine integrity, experience, ability and initiative?
3. How does the banker approach problems? Does he appear interested and helpful?
4. Can you get the kind of credit you need?
5. How big is the bank?
6. Are services cost effective?

Controllers and Treasurers place a premium on performance and price. Just as banks differ in the services they offer, companies too differ in the services they seek depending on the nature of business, size, etc. However, the following tasks should be accomplished before the final selection is made.

### **Services most needed by the Company**

- Rank in order of importance, the bank services most needed by the company.
- For example, funding may be needed or the cash concentration system may need an injection of electronic funds transfer expertise.
- Check if there is a cash management relation between the bank and the company.
- Determine if the company has a one time requirement or an on-going one.
- Identify those banks that are capable of services that rank the highest.

### **People Servicing the Account**

- Interview the team that the bank proposes for the company's account.  
The team may consist of different members from various areas of the institution if the company has diverse requirements. There should be easy accessibility to every member of the team apart from their senior officer.
- Find out the team's credentials.  
Professional designations and memberships such as certified cash manager and membership in National Corporate Cash Managers Association (NCCMA) could be asked for depending on focus needs.
- Find out if the bankers have worked before on the problems that the company faces and assess how they have solved them.
- Check the bankers reputation with their clients.

### **Technological Resources**

- Seek out the banks that possess the type of equipment that the company needs.  
Equipment of banks may include high speed optical scanners for payment processing or sophisticated computer interface software for converting payment record. Treasurers differ in their requirement for specific types of equipment.
- Check if the data loaded from the bank's computers are compatible with that of the company's.  
Not all banks possess advanced telecommunications equipment for use in electronic fund transfer, automated clearing house operation and electronic data interface.
- Check to make sure that the data loaded from the bank's computers are compatible with the company's. Otherwise conversion will be difficult.

### **Servicing Customers**

- Determine the customer service commitment of the bank.
- Check how approachable the persons at the customer service counter are.  
A situation which may seem a minor inconvenience at first may just be the beginning of a large problem.

### **Commitment to Particular Needs**

- Check to see if the bank is offering its services as an accommodation in anticipation of floating a loan to the company.

### **Banking Agreement Contract**

- See that the contracts made by banks which negotiate multiyear contracts with their corporate customers include the following.

- a. **Float Computation:** Describes how the float is computed by the bank and how it is figured into the service cost.
- b. **Performance Guarantees:** The ideal way to assure optimum performance by a bank is to specify the exact requirement in the contract.
- c. **Penalties:** Make sure the banking agreement specifies any penalties to violations if any. Two of the most popular being minimum balances and number of transactions.

## **MANAGING BANKING RELATIONSHIPS**

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Treasurers and controllers usually manage the overall banking relationships which come into existence by making use of one or more of the services offered by banks which may take the form of any of the services mentioned earlier.

An important part of a banking relationship is keeping the channel of communication between companies borrowing funds and banks widely open. Perfectly planned relationships would be deemed to failure if channels are not open and accessible at all times. Throughout the history of mankind, communication in one form or the other has been the very heart of all human relations and business deals.

The treasurer and CEO are the company's representatives that generally meet the banker from time to time to review the firm's financial performance and deal with problems adhering to the terms and conditions of the lending covenant. It is best to bring them into the decision making process and warn them of possible breach well in advance.

If there is a problem it is necessary that they understand the nature of the problem. The company should put forward its own solution to the problem along with any other information they think is necessary to ensure complete understanding by the bankers and lenders. If well informed, they may be willing to help or may even grant a written waiver of default. However, it is necessary to make sure the waiver is given in writing. Companies can even inform bankers of their upcoming business plan. As bankers come to grips with competition, expansion and change, a clear definition of goals and objectives backed by a concrete plan of approach given by companies may make a difference in the success and failure of lending decisions.

Companies should invite senior bank officers to be a part of their board meeting where they can discuss the firm's financial results and future plans. The board of directors should make it a point to meet the firm's bankers at least once a year.

Last but not the least, a point to be noted is gaining the trust of the banker. Reporting bad news just as readily as good news helps the company in gaining the trust of the banker. Gaining the trust of the banker or any one for a matter of fact is an essential prerequisite for maintaining a long lasting relationship.

## **SUMMARY**

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- From the days of complete regulation, banks have been entering an era of deregulation and healthy competition. The recent aspirants of private sector banks are creating a new banking culture by offering services of international standards. A host of new services is now expected of both private and public sector banks. The banking scenario where banks offer services to a vast economic base is now changing to one where they are concentrating on specific segments to whom they offer their entire array of services. In the years to come, banking is bound to be carried out on both professional and sophisticated lines with a combination of retail and niche banking, where the customer will emerge as the most important factor. This will eventually give rise to an atmosphere of extensive competition and "Survival of the Fittest."



## **Chapter XII**

# **Managing Investor Relationships**

**After reading this chapter, you will be conversant with:**

- Types of Investors
- Information needs of the Investment Community
- Investor Relations Programs
- Dealing with Hostile Press

## OVERVIEW

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In India around 6500 companies compete for investor attention. The Indian stock market consists of 26 regional stock exchanges and two national exchanges namely the National Stock Exchange and the Over the Counter Exchange of India. Among the regional stock exchanges, the Bombay Stock Exchange is undisputedly the principal stock exchange that seems to set the tone and tenor for the rest of the stock market.

Companies have to raise funds tactfully through various sources for the financial requirements. Raising capital successfully requires a well planned marketing strategy and an analytical study of the quantum, appropriate time, the cost of raising capital, its impact on the overall capital structure, profitability of the company and most of all a knowledge of the various sectors of the investment community.

## THE INVESTORS

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The investment process involves channelizing the surplus funds of certain sectors in the economy to the other sectors who are in need of them. Typically, in a growing economy the requirement of funds outstrips the surplus generated elsewhere. This initiates a keen competition between users of the funds.

The investor relations department of a company competes for the attention of a segmented investment community that includes:

- Individual Investors
- Institutional Investors
- Analysts
- Brokerage Firms
- Banks and Lenders
- Regulators etc.

### Individual Investors

Individual investors often represent the largest group of investors. They are widely scattered and usually hold the least amount of company stock compared to other segments of the investment community. It is good for the company to have a widely diverse shareholder base because they make it more difficult to mount a takeover attempt.

Firms generally communicate with individual investors through annual meetings. The annual meeting is perhaps the most important meeting from the point of view of individual investors. It provides a forum for the shareholders to ask the board and management, questions about the operations, performance, finances and plans of the company. It provides general information which is of specific interest to individual investors and seldom goes into the technical aspects of the company's operations.

### Institutional Investors

This segment of the investment community includes mutual funds, insurance companies, pension and retirement funds and professional fund managers. The number of institutional investors is small, but their holdings are quite large, making them the most influential group of investors.

**Mutual Funds:** Mutual funds are an investment vehicle for investors to enjoy the expert management skills of professionals. In India until 1992, all the mutual funds were floated by the public sector financial institutions through various schemes like growth scheme, income and growth scheme, income scheme, tax planning scheme and balanced fund scheme, etc. to suit individual requirements.

**Insurance Companies:** Insurance companies use a substantial part of the funds at their command for investment in corporates. Corporate treasurers and controllers sometimes look to insurance companies for long-term funding of asset-based projects.

**Pension and Retirement Funds:** Like insurance companies, pension and retirement funds assist companies by providing investment capital. Many of these pension funds have a percentage of their investment portfolio set aside for worthy companies in which they are willing to take a venture stake. They are major investors in highly rated bonds and blue chip stocks.

**Professional Fund Managers:** This is an institutional group that occupies a major position in stocks of publicly held companies. A few of them are programmed traders who make use of computer models for their investment decisions. Investor relation managers do not pay much attention to them.

## **Brokerage Firms**

Brokerage firms deal in new issues (primary market), existing securities (secondary market), government securities, PSU bonds, money market, etc. Relations with brokerage firms need to be cultivated and maintained very carefully because their recommendations can effect the public sentiment about a company. Informal meetings with the analysts of brokerage firms help in not only getting a good feedback of market sentiments, but also in keeping these analysts updated about the company's activities. However, care should be taken to avoid unnecessary disclosure of information not available to the general investment public.

## **Analysts**

Analysts are investment professionals who work either independently on their own newsletters or in banks, mutual funds, brokerage firms or journals. They study the fundamentals of a company, or a group of companies. They give buy or sell recommendations which can cause violent fluctuations in stock prices. They not only influence the fortunes of their employers, but also of the shares listed in the stock market.

## **Banks and Lenders**

Banks and lenders are investors too. They invest their money in companies and expect a reasonable return. Companies make sure that banks and lenders receive all the information and attention they need. They are even invited by companies for conferences along with other financial analysts.

## **Regulators**

Along with various investors and intermediaries, the investor relations and corporate communications department of a firm should also keep in tune with regulators.

In India the Capital Issues Control Act, 1947, was the primary legislation, regulating the issue of securities by the corporate sector till recently. This Act was repealed in May, 1992, and capital issues were brought under the purview of the Securities Exchange Board of India (SEBI) which was clothed with statutory powers when the SEBI Act 1992, was passed.

Companies desiring listing have to observe SEBI guidelines. SEBI has issued elaborate guidelines on matters relating to:

- Public issues
- Rights issues
- Bonus issues
- Issue of debentures

- Underwriting
- Private placement
- Promoters
- Quotas
- Mutual fund
- Pricing of issues
- Disclosure
- Investor protection
- Insider trading etc.

Full knowledge of these guidelines along with clarifications, amplification and legal validity are necessary for every firm and its investor relations department.

Companies are governed by the Companies Act, 1956. The Companies Act, 1956, is an act to consolidate and amend the law relating to companies and certain other associations. It has over six hundred sections and is a very comprehensive legislation governing the functioning of companies.

The major objectives of the Companies Act, 1956, are to:

- Ensure minimum standard of business integrity and conduct in the promotion and management of companies.
- Elicit full and fair disclosure of all reasonable information relating to the affairs of the company.
- Promote effective participation and control by shareholders and protect their legitimate interests.
- Enforce proper performance of duties by the company management.
- Investigate into and intervene in the affairs of companies which are managed in a manner prejudicial to the interests of shareholders or the public at large.

## Others

A company's investor relations department has to create an effective communication link with employees, prospective employees, suppliers, customers and industry trade associations apart from regular investors and regulators. Investment advisors too find their names on the list of investment community to be served by the corporate communications department. Those with a number of clients can influence a company's stock ownership by their suggestions.

## **INFORMATION NEEDS OF THE INVESTMENT COMMUNITY**

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Investors are aware that under the present free pricing environment, issuers are free to decide the issue price subject to the guidelines of Securities and Exchange Board of India for disclosure and investor protection.

Similarly, an investor who wants to trade in a company's security through secondary markets also needs some information. Typically, the investors whether in primary market or in secondary market look for the following information:

1. **Promoters Track Record**
  - Company's experience in its particular field
  - Its past performance.
2. **Professional Management**
  - Managing Director's background and experience
  - Composition of the Board of Directors.

3. **Purpose of the Issue**
  - Whether it is likely to result in the enhancement of the profitability and growth of the company.
4. **Product/Technology/Market**
  - Demand-supply projection of the product
  - If the product is susceptible to fair competition
  - Chance of the product becoming obsolete
  - Availability of substitutes
  - Export potential for the product in case of an export oriented project.
5. **Financial Data**

Data relating to

  - Capital
  - Reserves
  - Turnover
  - Profits
  - Dividend record
  - Profitability ratios
  - Book value
  - Earning per share
  - Relative percentage of profit etc.
6. **Profitability Projections**
  - The profitability projections as indicated by the company.
  - The likelihood of achieving the same in the light of its past performance.
7. **Pricing**
  - Justification for pricing and differential pricing in case of composite issues of a company.
  - Movement of prices immediately before the issue to ascertain whether prices are fair market prices or there has been rigging of the market price.
8. **Pending Litigations**
  - Pending litigations if any, that have a bearing on the profitability of the company or likely to result in winding up of the company.
  - The possibility of the company being construed as potentially sick.
9. **Risk Factors**
  - Specific risks and general risks relevant to the company.
10. **Statutory/Institutional/Bank Dues**
  - If the company is a defaulter in payment of statutory/institutional/bank dues.
  - Whether the company has been regular in payment of interest to debenture/fixed deposit holders.
11. **Statutory Clearances**
  - Whether various statutory clearances required for the implementation of the project have been obtained.

## CORPORATE REPORTING

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Most of the above information is provided by the company through various reports/communications etc. A company's corporate communications department publishes large quantities of information. The investment community consists of different segments possessing specific information needs. The volume of published data typically depends on the size of the firm. A company's corporate communications department publishes large quantities of data in the following forms.

### Annual Reports

Annual reports have become a significant medium of corporate reporting today. Despite the existence of different sources of information, the annual report is regarded as the most important source of information about a company's affairs. It is directed to the community at large, to whomsoever it may have been formally addressed. All groups have access to it. Their attitudes may be influenced by it. Its importance looms large not only in company-shareholder relations, but also in company-society relations.

The annual report includes besides financial statements, some more detailed information such as historical summary, statistical data, important business results, company's plans and policies which are not available in other sources of information.

It is to the annual report as a whole that one must look for the discharge of management responsibility to report to its stockholders. The annual report is the single most important document in corporate reporting. It is a benchmark for measuring performance; a periodic summary of progress and an auditing check point.

According to the law, every publicly held company must publish an annual report. Many investor relations departments keep a number of such reports for distribution to the public, investors and analysts who ask for them.

### Quarterly Reports

Every company files quarterly reports which consist of information on management discussion and unaudited financial statements.

Quarterly reports provide a means of communication to shareholders and analysts who form a sector of the investment community that cannot wait for the publication of the annual report.

### Corporate Data Book

The corporate data book provides in-depth information on the company, its markets, products, competitors, management, financial structure, capital expenditures, schedules of debts and their maturities, research and development programs, depreciation schedules, analysis of each operating unit, etc.

A company mails these corporate data books to analysts, brokerage firms, money managers, individual investors or anyone who requires it. They are specifically used by fundamental analysts who look for a new product development by a company which they believe might send the stock prices to soaring heights.

### Newsletters

Newsletters published by a company's investor relations department are sent to large institutional investors and analysts.

Newsletters contain information on market condition, technological advances, impact from economic changes, progress in the field of forecast performance and maintenance of price and cost levels.

## **Graphics**

Graphics on stock price history are provided by company's investor relations department to Technical Analysts. Technical Analysts base their opinions on the stock performance history of the company.

## **Press Releases**

Press releases are a means of disseminating information to the public without favoring one segment over another. Corporate communications specialists must have resources to generate clear, accurate and timely press releases.

## **Accessing Senior Executives**

Investor relations and corporate communications departments provide analysts with easy accessibility to company's senior executives for the purpose of getting inside information. However, the company should issue a press release before the conference to eliminate the insider qualification.

Often companies invite groups like securities analysts societies, industry trade groups and broker groups to their headquarters for an informal talk with their senior executives. Sometimes it is the other way round, senior executives are extended invitations by these groups. Firms often make a transcript of the session and provide it where necessary.

A number of firms whose stock is traded on exchanges around the world send their senior executives on tours to the foreign financial centers for analysts who like to see the decision makers. However, foreign analysts who follow the firm's stock receive all the company's mailings.

## **LEGAL RESPONSIBILITIES**

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The investor community plays an important role in the existence and profitability of an organization. Their opinion and knowledge about a company formulates its stock price. Investor relations professionals have the responsibility to provide complete, timely and truthful disclosure of events that materially affect the company.

The corporate communications professionals have two legal responsibilities to fulfill:

- No misleading information is disseminated
- Material information is made equally available to all investors at the same time.

The following precautions could be taken by the company to fulfill its corporate and legal responsibilities:

*Timing:* Generally, material corporate information changes its status from inside information to publicly available information when the company issues press releases or equivalent public statements containing the information. Hence timing is critical. Before presenting any information to a particular section of the investor community the company has to issue a press release announcing it.

*Trading Patterns:* The public and the sponsoring exchange efficiently sees changes in a company's stock trading patterns. They may call on the firm to clarify reasons for deviations from normal trading patterns. Companies may be even obliged to issue a press release. If the company functions in contrary to the above stated, the investor community has the power to stop trading.

*Rumors and Leaks:* Rumors and leaks are delicate topics that can cause a change in stock trading patterns. The company should find out their origin. Attorneys advise the issue of a press release when the source of true rumors is the company itself. This stops further damage to the investment community.

When the source of true rumors are from outside the company, legally it is not obliged to issue a press release. However, some companies do issue a press release to prevent the impression that the firm is stonewalling the press.

*Commenting on Analysts' Reports:* Most investor relations professionals stay away from analysts' reports. But, sometimes an analysts' report is so devastating that it could damage the entire public image of the company.

In such cases, the management should discuss methods adopted by the analyst to arrive at the wrong conclusions and bring it to his notice privately. However, the correction should be left up to the analyst.

*Respecting the Silence Period:* During the registration period of a new securities issue the company should avoid too much publicity. Care should be taken to avoid optimistic communications like bullish earnings projection, sales forecasts, prediction on the future success of new products and favorable opinions on the company's valuation, as they could jack up the price of a pending securities issue. However, regular communications such as normal advertising, brochures, press releases on regular business matters, routine financial results, shareholder reports and previously scheduled meetings should not be broken.

*Presenting Fairly:* The stock market is very efficient. More often than not they discount the bad news reflected in the current market price even before it is formally released to the public. This affects stock prices. The management thus has the responsibility to present information fairly and on time.

The elements of a fair presentation are:

- Honest discussions
- Do not minimize problems or overstate successes
- Discuss options available
- Disclose management strategy
- Describe expected results
- Disclose bad news as well as good news
- Discuss the firm's weaknesses as well as strengths.

*Avoiding Uncertainty:* Companies who do not disclose bad news or who do so with uncertainty leave the investor community with negative surprises, unforeseen liabilities, unexpected competitive action and adverse product developments. Such news may actually move the stock price down as management loses more credibility.

Therefore, the investor relations and communications department must always present the impression that the management anticipated the issue or event, has a plan of action and knows exactly what it is doing.

*Maintaining Consistency:* Corporate communications should treat every segment of the investing public equally with no selective treatment, to any analyst, as it breeds loss of faith and can get all parties into trouble.

Companies that decline to disclose certain material information for fear of it not being generally available to the investment public earn more respect from analysts.

*Stonewalling:* Sometimes a firm's spokespersons answer questions with a "no comments" or "just trust us" reply. These answers only serve to fuel the fire of speculation.

To avoid stonewalling, a better option is to discuss such potentially negative issues openly and if necessary a press release could be issued before commenting. Alternatively, the question could be answered by using "I can't help you with your story right now" as this does not appear to be a refusal to comment.



## **INVESTOR RELATIONS PROGRAMS**

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The investor relations department is the key link in the communication chain between the company and the investment community. Investor relations programs should be organized in such a way so as to be viewed by the financial press and other information seekers as a facilitator and not a barrier in accessing information.

The following tasks should be skillfully performed for establishing an effective investor relations department.

### **Selecting Staff**

The staff that is selected for the investor relations department is a valuable and an effective resource for company information. They should be independent and entrusted to be the spokesmen for the company rather than just being available to pass on information received from other executives.

### **Establishing Information Needs**

Those authorized to speak on behalf of the firm should have current and accurate information to enable discussions. Without the necessary information the staff is useless to the investor community. Sometimes, they even give wrong information resulting in the loss of public trust and confidence. Worse, an investor relations executive who lacks information gives the impression that the firm has something to hide, not only from the financial public, but also from its own employees.

Hence the corporate communication and investor relation executives should be kept in tune with the firm's technology, production costs, financial matters, marketing strategies, pricing back orders, etc. They should also be provided with the management's plan of action and with accurate answers to most likely questions.

If the financial press does not find the information they seek from investor relations executives they will approach the CEO or CFO. They do not wait till a corporate communications executive seeks authorization to answer a simple question.

### **Positioning**

The more highly placed the investor relations executives the higher will be their understanding of the company's affairs. This would enable them to give precise and accurate information and create a positive impact.

### **Establishing Policies**

Financial analysts and business reporters want information instantly. Non-availability of information causes uncertainty. Sometimes, rather than waiting for an answer, financial analysts simply recommend dumping the stock.

Hence the company's policy should be identified and its impact on company's performance should be assessed. Investor relations department should establish policies to make responsive and accurate information accessible to anyone requiring it. Policies should be reviewed and restructured according to the needs of the company.

Sometimes investor relation staff receive questions whose answers fall within the definition of inside information. This requires disclosure of material information not available to the general public. These should be referred to the company's legal council.

## **DISSEMINATING INFORMATION**

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One of the important dimensions of corporate communications is disseminating information. Instead of waiting till an enquiry is made, it always helps to share what is happening in and around a company. Some of the many media tools used by communicators to disseminate the information are press releases, press conferences, annual reports, newsletters, etc.

## Annual Meetings

As business enterprises have multiplied in number and size, the supply of capital and the related risk taking has increased correspondingly. Inevitably this has created a considerable public interest in business activity among shareholders, lenders and creditors, employees, customers, government authorities and the general public. The law requires that publicly held companies conduct annual meetings to

- State company policies
- Make known its intent and plans for the company
- Explain recent developments
- Identify their effects on the company
- Fulfill legal and procedural meeting requirements.

The law is one public forum that allows individual investors a voice before the senior management. However, it is forcefully claimed that companies sometimes provide inadequate information. Combative shareholders bombard the management with a number of questions. The best way to deal with this is to anticipate these questions and have facts to support the answers. Care should be taken to see that answers are given honestly without an attempt to side step the issue.

Shareholders questions fall into five general categories:

*Company Performance:* Shareholders expect the company to be answerable to them under all circumstances and at every twist and turn of the economy. A number of questions about the company's performance clouds the mind of shareholders. They include:

1. Is the current performance of the company in line with the management's plan?
2. What is the company's market share?
3. If the market share of the company is declining what is the company doing about it?
4. Why are current inventory levels high (or low)?
5. How does it affect the operating performance of the company?
6. Why is the company's stock price falling even when the market is rising?
7. What is the company doing to improve its bond rating?
8. What exactly has the company done to slash costs and to improve operating margin?

*Executive Compensation:* Executive compensation is always a lively topic of conversation at annual meetings especially when the company's earnings and stock prices are down.

The following questions are usually posed:

1. How does the firm's executive incentive plan enhance the shareholder's value?
2. How many outside directors sit on the board's compensation committee?
3. What was the average increase in total compensation for senior executives including stock options exercised and exercisable along with other non-cash compensation?
4. How does it compare with the year's increase (or decrease) in stock value?
5. What perks does the firm provide for its executives and their families?

6. What is the dollar value?
7. What dollar value is not deductible by the company?
8. What percentage of outstanding stock do senior executives own?

*Social Responsibilities:* Many shareholders use annual meetings as a means to bring up special issues like environment, healthcare, and inter city crisis.

The management should be prepared for questions like:

1. How does the firm's manufacturing facility protect the environment?
2. Does the company's insurance policy cover liability for environmental damage?
3. Have any of the company's products been investigated by the consumers protection commission?

*Mergers and Acquisitions:* Mergers result in a number of economies such as fast growth, tax benefits, diversification etc. A growing firm may, therefore, be in a constant search for identifying potential firms which may be merged. Shareholders generally wait for annual meeting to clear all doubts regarding the merger and acquisition plans of the company. They include:

1. Does the company have plans of merging with another company?
2. Is the company planning to takeover another company?
3. Are there chances of the company being taken over by another company?
4. What effect will the merger or acquisition have on the value of the company and hence the value of its shares?
5. Will the merger or acquisition have any affect on the dividend payable to the shareholders?

*Financial Issues:* Finance is the fuel of the business machine and yet it is amazing how reckless many businessmen are in their approach to it. Financial issues of a company are often a favorite topic chosen for discussion at annual meetings.

1. What are the new accounting policies adopted during the year? Why?
2. How has the firm adopted new accounting standards?
3. What accruals for bad debt, contingent liabilities and asset write offs occurred during the year?
4. What was their impact on the share value?
5. Are the company's pension plans over funded?
6. What steps is the firm taking to recover the over funded amount?

## **Shareholder Voting**

Companies differ in their laws allowing shareholders to vote on various issues concerning the company.

The most common voting issues that shareholders vote for are specified below:

***Appointment of the firm's independent auditors:*** Auditors give their opinion on the fairness of presentation of financial statements which provide the basis for investors' decisions. Hence shareholders have a right to vote for the auditors.

***Executive Compensation:*** Shareholders' increasingly demand a vote on how the management of the company get compensated and on the incentives provided to them.

***Mergers and Takeovers:*** Shareholders' often have the right to vote if their company is the target of a corporate merger or takeover.

***Changes in Stocks:*** Shareholders approval is necessary on issues such as stock splits and an increase in the amount of stock authorized.

Subject to the provisions of Section 89 and subsection (2) of Section 92 of the Indian Companies Act, 1956,

- a. every member of a company limited by shares and holding any equity share capital therein shall have a right to vote, in respect of such capital, on every resolution placed before the company.
- b. his voting right on a poll shall be in proportion to his share of paid-up equity capital of the company.

Most shareholders cast their votes using proxies. This allows them to vote without actually being present. In India, the attendance at Annual General Meetings is rather scanty as shareholders do not consider them important.

## **PRESS RELEASES**

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Well timed press releases not only enable the announcement of good news, but also bracket bad news thus reducing its damage. Press releases should be available to the general public as soon as the information is certain and complete and before it is discussed with individuals.

The media receives a number of press releases, hence they do not have the time and patience to read long epistles. The following are some guidelines to an effective press release:

### **Length**

- Press releases should be as short as possible. The maximum length should be two pages.
- Double spacing should be observed to enable easy reading.
- The use of a tiny font should be avoided to squeeze more information in the space provided.

Though the time taken to write a concise press release is more it pays-off by increasing the chances of it being published.

### **Layout**

Most effective press releases convey messages briefly with facts and figures. A systematic layout of a press release helps the company to avoid drifting away from its main purpose – communication. A press release should specify the sender, the person to be contacted for further information, the reason for the press release and its impact on the company.

The following points should be kept in mind:

- Companies should separate press releases containing bad news from those with good news.
- If possible bad news should be released first. This allows the adverse effect of bad news to be compensated by the entry of good news.
- Care should be taken to see that bad news is not sandwiched between two items of good news.

### **Audience/Recipients**

Press releases are meant for the investment community at large.

- It should be disseminated as widely as possible to inform the entire investment community equally.
- All press releases should reach recipients at the same time. A number of firms make use of fax machines for this purpose.

## **Press Conferences**

Press conferences are held to enable reporters to write a story on the company. They cannot appear to be contrived. They are aimed not just at one person (the reporter), but also at the reporters, listeners or readers. The following are the tips that a company and its investor relations executives (speakers) could use for the smooth functioning of press conferences:

### **Anticipating Questions**

- The first step in preparing for media interviews is anticipating questions. Speakers should be prepared for attacks.
- Generally, the speaker is only given an idea of the general topic of discussion and not questions that are written out in advance.
- Perhaps even more important than eliciting clues from reports is to brainstorm possible questions that could be asked by reporters or readers of newspapers and journals.

### **Planning Responses**

The investor relations executive should ponder on the main messages he hopes to get across.

- Details should be drawn out to support the main points.
- Ideas that will interest, benefit or appeal the reporter and the audience should be thought of and planned.
- Main ideas should be structured into effective answers. This will form short crisp statements.
- A research should be made of the facts that will make the conference interesting.

### **Analyzing Two Audiences**

An analysis should be made of the two audiences which include the reporter and his readers and listeners.

Reporters: Most of them are serious hardworking professionals. Their duty is to find new worthy stories that will interest their audience. They are under time pressures for meeting deadlines, commercial pressures for increasing advertising revenues and competitive pressures for scooping their rivals. They need to compress whatever is heard to fit space.

Readers and listeners: They consist of various segments of the investment community. They differ in their knowledge about the company, and their grasping and understanding power.

### **Stating Points Emphatically**

- The main points should be highlighted at the top and amplifications should be put further down. Because, chances are the ends of statements may be cut by the writer or editor.
- News especially on television is a headline medium. It has to be concise.
- Questions that cannot be answered should be left unanswered rather than being guessed or lied.

### Using Good Non-verbal Communication

- This is of utmost importance in press conferences. The audience is more likely to remember the appearance of the speaker than his speech itself. If radio or phone is used as a means of communication the voice is equally important.
- Perhaps the most important ingredient is how a speaker looks and sounds in his attitude.
- Sarcasm, aggressiveness and arrogance are three qualities that a speaker should stay away from.

### Scheduling the Event

- A number of topics that are discussed with the news media can compete with most real news stories. Therefore, the event should be scheduled carefully.
- Time gap should be provided between two press conferences for some amount of competition.
- The number of stories could be limited to compete with the news obtained from press conferences.

### Planning for Equipment

Reporters and photographers use a lot of equipment.

- Arrangements should be made for their light and sound requirements.
- Assistance could be provided for setting up and taking down equipment.

The following may sum up the overall arrangements that should be made for a good functioning environment for reporters and photographers equipment:

- Rest rooms for accommodation
- Loading docks
- Personnel to assist in loading
- Freight elevators
- Secretarial services
- Telephones
- Set up area for broadcast trucks
- Entrances for odd sized vehicles etc.

### Controlled Format

The following is the controlled format to be adopted for a successful press conference. The rule in an arrest should be memorized by every speaker. "Everything you say can and will be used against you".

1. An introduction on the reason for calling the press conference should be given.
2. The news items should be elaborated.
3. Use of engineering or financial terms are to be avoided.
4. Prepared text describing the news are to be distributed.
5. The system followed at the white house press conference could be allowed where the spokespersons calls on questioners who have raised their hand.
6. Both friendly and hostile questions should be encouraged. Care should be taken to highlight main points. Most often the spokespersons are unable to get across what they want to say. They end up playing what is called a 'ping pong game'. The reporter asks a question; they answer it. He asks another; they answer it. Back and forth the ball bounces, but the executive does not know how to squeeze in what he regards as his important points.

## **MANAGING CRISIS**

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The nineties is a period of management paradox. Every boom period should be spent by anxiously scanning the horizon for the burst that will soon follow. One inescapable responsibility of the top management of any business is to decide the direction in which the company should move during a crisis.

### **Planning for Contingencies**

Well managed companies plan for the eventuality of a crisis. This can be accomplished by seeking answers to the following questions.

1. Who will have the greatest exposure to damage from the company during a crisis?
2. Which areas have the greatest risk?
3. Which of the identified areas will escalate in intensity?
4. How intense is it likely to get?
5. How quickly will it reach the critical mass?
6. Who escalates the crisis?
7. Do the national and local newspapers scrutinize the company and its industry?
8. How much will the crisis interfere with the normal operations?
9. Is the company the victim or the culprit?
10. To what extent does the crisis damage the firm's profit?

### **Creating a Crisis Management Team**

When a crisis occurs, it is likely to affect any area of the firm. It is always better for a company to prepare itself for the worst.

- The crisis management team should be selected before the crisis occurs.
- The best people in the company should be assigned to undertake specific responsibilities during the crisis.

### **Designating the Head of the Crisis Team**

When a crisis hits it draws the attention of the media, the regulatory agencies, the firm's executives and the public at large. Hence a true professional in the field of corporate communication and investor relation should be sent as a spokesperson and not as a sacrificial lamb. He should be a senior officer who enjoys the full trust of the top management. Care should be taken to see that a single person is authorized to communicate with the public.

The person chosen as the source of dissemination of information to the public should possess the following prerequisites:

- Professional training in an area of importance to the company.
- Understanding of the insider trading and information disclosure rules.
- Experience in public relations. This includes relationships and contacts with all parts of the media worldwide.
- Excellent communication skills. He should be an excellent writer and an outstanding and credible speaker.
- The individual must exude an aura of honesty and believability.
- The ability to acquire co-operation from all areas of the firm.
- Flexibility to adjust priorities as events dictate.

- Knack of communicating corporate strategy coming from multiple sources within the company.
- Respect to the media.
- The skill to operate within a budget.
- Open mindedness.

## DEALING WITH A HOSTILE PRESS

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“A friend in need is a friend indeed”.

This proverb does not work while dealing with the press. During times of crisis the press gets rather hostile. They make every attempt to find fault and point fingers at the company and its management.

Taking care of the basic questions, getting the facts straight, taking control of the session and message, and identifying red flag questions could be the best possible solutions to the major problem of handling the hostile press.

*Taking Care of the Basic Questions:* A number of questions crop up in the minds of the press and the investment community during a crisis. The most common being:

- What happened?
- Who is responsible?
- What is its impact?
- Could it have been avoided?
- What is the management doing about it?

Identifying these questions and providing the press with satisfactory answers is an important task during a crisis.

*Getting the facts straight:* Nothing produces more hostility in the press like the correction of information that was purported as a fact or the contradiction of a statement that was previously made. Doing this, causes both the management and the press the loss of their respective credibility. The media perceives corrected news with a far different view than the original version. Hence it is necessary to make sure the authenticity of the information before it is put forth to the press.

*Taking Control of the Message:* Some companies go head over heels in granting interview sessions with the press. Instead of taking precautions, they even appear on national talk shows, only to end up losing control of the actual message that they are trying to communicate.

Care should be taken to see that the message is true and there exists a remedy to the problem. If possible it should specify the damage in quantifiable terms.

*Gaining Control Over the Session:* Sometimes speakers find that they are losing control over a situation or question. The following are three possible phrases that a speaker could use to wriggle out of a helpless situation or perhaps acquire some thinking time.

- Usually when someone asks a question like that, people really want to know.....
- That’s an interesting question. Before answering, I believe people should know.....
- Yes. That’s certainly one way to look at it. However, let’s first examine the situation this way.....



*Identifying Red-Flag Questions*

A hostile interviewer poses questions with openings like:

- Isn't it true that....
- Aren't you really saying....
- How do you respond to allegations that...
- Are you aware.....

Obviously, these questions cannot be ignored. However, before answering them, these negatively worded questions can be converted into more positively worded ones by bringing out the good things that the company had done before the crisis. Above all the speaker should be honest, he should take time and think about his answers and communicate them with an air of confidence.

**SUMMARY**

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- Companies have to cater to a diverse investor community who vary in their service and information needs. Investors tend to have a herd mentality and follow the crowd. Their memory is proverbially short, hence companies make use of annual meetings, press releases and press conferences as effective means of disseminating the much needed information to them. Presently companies are deeply involved with the twin tasks of handling unexpected crisis and the hostile press, because these two factors can have a psychological effect on the investors. Handling investors is one of the important aspects of efficient management. The task of maintaining good investor relations requires certain qualities and virtues on the part of investor relations and corporate communications executives. By careful handling of the investor community a right image of the company can be created which in turn influences the company's ability to raise funds, its stock prices or in ultimate analysis even its balance sheet.
- With the increasing number of companies competing for investor attention, corporate communication executives will have to explore new ways of holding on to their investor base.

**APPENDIX**  
**Interest Rate Tables**

**Table 1: Future Value Interest Factor**

n/k	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%
0	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1	1.010	1.020	1.030	1.040	1.050	1.060	1.070	1.080	1.090	1.100	1.110	1.120	1.130
2	1.020	1.040	1.061	1.082	1.102	1.124	1.145	1.166	1.188	1.210	1.232	1.254	1.277
3	1.030	1.061	1.093	1.125	1.158	1.191	1.225	1.260	1.295	1.331	1.368	1.405	1.443
4	1.041	1.082	1.126	1.170	1.216	1.262	1.311	1.360	1.412	1.464	1.518	1.574	1.630
5	1.051	1.104	1.159	1.217	1.276	1.338	1.403	1.469	1.539	1.611	1.685	1.762	1.842
6	1.062	1.126	1.194	1.265	1.340	1.419	1.501	1.587	1.677	1.772	1.870	1.974	2.082
7	1.072	1.149	1.230	1.316	1.407	1.504	1.606	1.714	1.828	1.949	2.076	2.211	2.353
8	1.083	1.172	1.267	1.369	1.477	1.594	1.718	1.851	1.993	2.144	2.305	2.476	2.658
9	1.094	1.195	1.305	1.423	1.551	1.689	1.838	1.999	2.172	2.358	2.558	2.773	3.004
10	1.105	1.219	1.344	1.480	1.629	1.791	1.967	2.159	2.367	2.594	2.839	3.106	3.395
11	1.116	1.243	1.384	1.539	1.710	1.898	2.105	2.332	2.580	2.853	3.152	3.479	3.836
12	1.127	1.268	1.426	1.601	1.796	2.012	2.252	2.518	2.813	3.138	3.498	3.896	4.335
13	1.138	1.294	1.469	1.665	1.886	2.133	2.410	2.720	3.066	3.452	3.883	4.363	4.898
14	1.149	1.319	1.513	1.732	1.980	2.261	2.579	2.937	3.342	3.797	4.310	4.887	5.535
15	1.161	1.346	1.558	1.801	2.097	2.397	2.759	3.172	3.642	4.177	4.785	5.474	6.254
16	1.173	1.373	1.605	1.873	2.183	2.540	2.952	3.426	3.970	4.595	5.311	6.130	7.067
17	1.184	1.400	1.653	1.948	2.292	2.693	3.159	3.700	4.328	5.054	5.895	6.866	7.986
18	1.196	1.428	1.702	2.026	2.407	2.854	3.380	3.996	4.717	5.560	6.544	7.690	9.024
19	1.208	1.457	1.754	2.107	2.527	3.026	3.617	4.316	5.142	6.116	7.263	8.613	10.197
20	1.220	1.486	1.806	2.191	2.653	3.207	3.870	4.661	5.604	6.728	8.062	9.646	11.523
25	1.282	1.641	2.094	2.666	3.386	4.292	5.427	6.848	8.623	10.835	13.585	17.000	21.231
30	1.348	1.811	2.427	3.243	4.322	5.743	7.612	10.063	13.268	17.449	22.892	29.960	39.116

**Table 1: Future Value Interest Factor**

n/k	14%	15%	16%	17%	18%	19%	20%	24%	28%	32%	36%	40%
0	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1	1.140	1.150	1.160	1.170	1.180	1.190	1.200	1.240	1.280	1.320	1.360	1.400
2	1.300	1.322	1.346	1.369	1.392	1.416	1.440	1.538	1.638	1.742	1.850	1.960
3	1.482	1.521	1.561	1.602	1.643	1.685	1.728	1.907	2.097	2.300	2.515	2.744
4	1.689	1.749	1.811	1.874	1.939	2.005	2.074	2.364	2.684	3.036	3.421	3.842
5	1.925	2.011	2.100	2.192	2.288	2.386	2.488	2.392	3.436	4.007	4.653	5.378
6	2.195	2.313	2.436	2.565	2.700	2.840	2.986	3.635	4.398	5.290	6.328	7.530
7	2.502	2.660	2.826	3.001	3.185	3.379	3.583	4.508	5.629	6.983	8.605	10.541
8	2.853	3.059	3.278	3.511	3.759	4.021	4.300	5.590	7.206	9.217	11.703	14.758
9	3.252	3.518	3.803	4.108	4.435	4.785	5.160	6.931	9.223	12.166	15.917	20.661
10	3.707	4.046	4.411	4.807	5.234	5.695	6.192	8.594	11.806	16.060	21.647	28.925
11	4.226	4.652	5.117	5.624	6.176	6.777	7.430	10.657	15.112	21.199	29.439	40.496
12	4.818	5.350	5.936	6.580	7.288	8.064	8.916	13.215	19.343	27.983	40.037	56.694
13	5.492	6.153	6.886	7.699	8.599	9.596	10.699	16.386	24.759	36.937	54.451	79.372
14	6.261	7.076	7.988	9.007	10.147	11.420	12.839	20.319	31.961	48.757	74.053	111.120
15	7.138	8.137	9.266	10.539	11.974	13.590	15.407	25.196	40.565	64.359	100.712	155.568
16	8.137	9.358	10.748	12.330	14.129	16.172	18.488	31.243	51.923	84.954	136.969	217.795
17	9.276	10.761	12.468	14.426	16.672	19.244	22.186	38.741	66.461	112.139	186.278	304.914
18	10.575	12.375	14.463	16.879	19.673	22.901	26.623	48.039	85.071	148.023	253.338	426.879
19	12.056	14.232	16.777	19.748	23.214	27.252	31.948	59.568	108.890	195.391	344.540	597.630
20	13.743	16.367	19.461	23.106	27.393	32.429	38.338	73.864	139.380	257.916	468.574	836.683
25	26.462	32.919	40.874	50.658	62.669	77.388	95.396	216.542	478.905	1033.590	2180.081	4499.880
30	50.950	66.212	85.850	111.065	143.371	184.675	237.376	634.820	1645.504	4142.075	10143.019	24201.432

**Table 2: Future Value Interest Factor for an Annuity**

n/k	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%
1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2	2.010	2.020	2.030	2.040	2.050	2.060	2.070	2.080	2.090	2.100	2.110	2.120	2.130
3	3.030	3.060	3.091	3.122	3.152	3.184	3.215	3.246	3.278	3.310	3.342	3.374	3.407
4	4.060	4.122	4.184	4.246	4.310	4.375	4.440	4.506	4.573	4.641	4.710	4.779	4.850
5	5.101	5.204	5.309	5.416	5.526	5.637	5.751	5.867	5.985	6.105	6.228	6.353	6.480
6	6.152	6.308	6.468	6.633	6.802	6.975	7.153	7.336	7.523	7.716	7.913	8.115	8.323
7	7.214	7.434	7.662	7.898	8.142	8.394	8.654	8.923	9.200	9.487	9.783	10.089	10.405
8	8.286	8.583	8.892	9.214	9.549	9.897	10.260	10.637	11.028	11.436	11.859	12.300	12.757
9	9.369	9.755	10.159	10.583	11.027	11.491	11.978	12.488	13.021	13.579	14.164	14.776	15.416
10	10.462	10.950	11.464	12.006	12.578	13.181	13.816	14.487	15.193	15.937	16.722	17.549	18.420
11	11.567	12.169	12.808	13.486	14.207	14.972	15.784	16.645	17.560	18.531	19.561	20.655	21.814
12	12.683	13.412	14.192	15.026	15.917	16.870	17.888	18.977	21.141	21.384	22.713	24.133	25.650
13	13.809	14.680	15.618	16.627	17.713	18.882	20.141	21.495	22.953	24.523	26.212	28.029	29.985
14	14.947	15.974	17.086	18.292	19.599	21.015	22.550	24.215	26.019	27.975	30.095	32.393	34.883
15	16.097	17.293	18.599	20.024	21.579	23.276	25.129	27.152	29.361	31.772	34.405	37.280	40.417
16	17.258	18.639	20.157	21.825	23.657	25.673	27.888	30.324	33.003	35.950	39.190	42.753	46.672
17	18.430	20.012	21.762	23.698	25.840	28.213	30.840	33.750	36.974	40.545	44.501	48.884	53.739
18	19.615	21.412	23.414	25.645	28.132	30.906	33.999	37.450	41.301	45.599	50.396	55.750	61.725
19	20.811	22.841	25.117	27.671	30.539	33.760	37.379	41.446	46.018	51.159	56.939	63.440	70.749
20	22.019	24.297	26.870	29.778	33.066	36.786	40.995	45.762	51.160	57.275	64.203	72.052	80.947
25	28.243	32.030	36.459	41.646	47.727	54.865	63.249	73.106	84.701	98.347	114.413	133.334	155.620
30	34.785	40.568	47.575	56.805	66.439	79.058	94.461	113.283	136.308	164.494	199.021	241.333	293.199

**Table 2: Future Value Interest Factor for an Annuity**

n/k	14%	15%	16%	17%	18%	19%	20%	24%	28%	32%	36%	40%
1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2	2.140	2.150	2.160	2.170	2.180	2.190	2.200	2.240	2.280	2.320	2.360	2.400
3	3.440	3.473	3.506	3.539	3.572	3.606	3.640	3.778	3.918	4.062	4.210	4.360
4	4.921	4.993	5.066	5.141	5.215	5.291	5.368	5.684	6.016	6.362	6.725	7.104
5	6.610	6.742	6.877	7.014	7.154	7.297	7.442	8.048	8.700	9.398	10.146	10.946
6	8.536	8.754	8.977	9.207	9.442	9.683	9.930	10.980	12.136	13.406	14.799	16.324
7	10.730	11.067	11.414	11.772	12.142	12.523	12.916	14.615	16.534	18.696	21.126	23.853
8	13.233	13.727	14.240	14.773	15.327	15.902	16.499	19.123	22.163	25.678	29.732	34.395
9	16.085	16.786	17.518	18.285	19.086	19.923	20.799	24.712	29.369	34.895	41.435	49.153
10	19.337	20.304	21.321	22.393	23.521	24.709	25.959	31.643	38.592	47.062	57.352	69.814
11	23.044	24.349	25.733	27.200	28.755	30.404	32.150	40.238	50.399	63.122	78.998	98.739
12	27.271	29.002	30.850	32.824	34.931	37.180	39.580	50.985	65.510	84.320	108.437	139.235
13	32.089	34.352	36.786	39.404	42.219	45.244	48.497	64.110	84.853	112.303	148.475	195.929
14	37.581	40.505	43.672	47.103	50.818	54.841	59.196	80.496	109.612	149.240	202.926	275.300
15	43.842	47.580	51.660	56.110	60.965	66.261	72.035	100.815	141.303	197.997	276.979	386.420
16	50.980	55.717	60.925	66.649	72.939	79.850	87.442	126.011	181.868	262.356	377.692	541.988
17	59.118	65.075	71.673	78.979	87.068	96.022	105.931	157.253	233.791	347.310	514.661	759.784
18	68.394	75.836	84.141	93.406	103.740	115.266	128.117	195.994	300.252	459.449	700.939	1064.697
19	78.969	88.212	98.603	110.285	123.414	138.166	154.740	244.033	385.323	607.472	954.277	1491.576
20	91.025	102.44	115.380	130.033	146.628	165.418	186.688	303.601	494.213	802.863	1298.817	2089.206
25	181.871	212.793	249.214	292.105	342.603	402.042	371.981	898.092	1706.803	3226.844	6053.004	11247.199
30	356.787	434.745	530.321	647.439	790.948	966.712	1181.882	2640.916	5873.231	12940.859	28172.276	60501.081

**Table 3: Present Value Interest Factor**

n/k	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%
0	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	0.812	0.797	0.783
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	0.731	0.712	0.693
4	0.961	0.924	0.889	0.855	0.823	0.792	0.763	0.735	0.708	0.683	0.659	0.636	0.613
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	0.593	0.567	0.543
6	0.942	0.888	0.838	0.790	0.746	0.705	0.666	0.630	0.596	0.564	0.535	0.507	0.480
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513	0.482	0.452	0.425
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	0.434	0.404	0.376
9	0.914	0.873	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	0.391	0.361	0.333
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	0.352	0.322	0.295
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350	0.317	0.287	0.261
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	0.286	0.257	0.231
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	0.258	0.229	0.204
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263	0.232	0.181	0.205
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	0.209	0.183	0.160
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218	0.188	0.163	0.141
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198	0.170	0.146	0.125
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180	0.153	0.130	0.111
19	0.828	0.686	0.570	0.475	0.396	0.331	0.276	0.232	0.194	0.164	0.138	0.166	0.098
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149	0.124	0.104	0.087
25	0.780	0.610	0.478	0.375	0.295	0.233	0.184	0.146	0.116	0.092	0.074	0.059	0.047
30	0.742	0.552	0.412	0.308	0.231	0.174	0.131	0.099	0.075	0.057	0.044	0.033	0.026

**Table 3: Present Value Interest Factor**

n/k	14%	15%	16%	17%	18%	19%	20%	24%	28%	32%	36%	40%
0	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1	0.877	0.870	0.862	0.855	0.847	0.840	0.833	0.806	0.781	0.758	0.735	0.714
2	0.769	0.756	0.743	0.731	0.718	0.706	0.694	0.650	0.610	0.574	0.541	0.510
3	0.675	0.658	0.641	0.624	0.609	0.593	0.579	0.524	0.477	0.435	0.398	0.364
4	0.592	0.572	0.552	0.534	0.516	0.499	0.482	0.423	0.373	0.329	0.292	0.260
5	0.519	0.497	0.476	0.456	0.437	0.419	0.402	0.341	0.291	0.250	0.215	0.186
6	0.456	0.432	0.410	0.390	0.370	0.352	0.335	0.275	0.227	0.189	0.158	0.133
7	0.400	0.376	0.354	0.333	0.314	0.296	0.279	0.222	0.178	0.143	0.116	0.095
8	0.351	0.327	0.305	0.285	0.266	0.249	0.233	0.179	0.139	0.108	0.085	0.068
9	0.308	0.284	0.263	0.243	0.226	0.209	0.194	0.144	0.108	0.082	0.063	0.048
10	0.270	0.247	0.227	0.208	0.191	0.176	0.162	0.116	0.085	0.062	0.046	0.035
11	0.237	0.215	0.195	0.178	0.162	0.148	0.135	0.094	0.066	0.047	0.034	0.025
12	0.208	0.187	0.168	0.152	0.137	0.124	0.112	0.076	0.052	0.036	0.025	0.018
13	0.182	0.163	0.145	0.130	0.116	0.104	0.093	0.061	0.040	0.027	0.018	0.013
14	0.160	0.141	0.125	0.111	0.099	0.088	0.078	0.049	0.032	0.021	0.014	0.009
15	0.140	0.123	0.108	0.095	0.084	0.074	0.065	0.040	0.025	0.016	0.010	0.006
16	0.123	0.107	0.093	0.081	0.071	0.062	0.054	0.032	0.019	0.012	0.005	0.007
17	0.108	0.093	0.080	0.069	0.060	0.052	0.045	0.026	0.015	0.009	0.005	0.003
18	0.095	0.081	0.069	0.059	0.051	0.044	0.038	0.021	0.012	0.007	0.004	0.002
19	0.083	0.070	0.060	0.051	0.043	0.037	0.031	0.017	0.009	0.005	0.003	0.002
20	0.073	0.061	0.051	0.043	0.037	0.031	0.026	0.014	0.007	0.004	0.002	0.001
25	0.038	0.030	0.024	0.020	0.016	0.013	0.010	0.005	0.002	0.001	0.000	0.000
30	0.020	0.015	0.012	0.009	0.007	0.005	0.004	0.002	0.001	0.000	0.000	0.000

**Table 4: Present Value Interest Factor for an Annuity**

n/k	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%
0	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736	1.713	1.690	1.668
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487	2.444	2.402	2.361
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170	3.102	3.037	2.974
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791	3.696	3.605	3.517
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355	4.231	4.111	3.998
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868	4.712	5.564	4.423
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335	5.146	4.968	4.799
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759	5.537	5.328	5.132
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145	5.889	5.650	5.426
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495	6.207	5.938	5.687
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814	6.492	6.194	5.918
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103	6.750	6.424	6.122
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367	6.982	6.628	6.302
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606	7.191	6.811	6.462
16	14.718	13.578	12.561	11.652	10.838	10.106	9.447	8.851	8.313	7.824	7.379	6.974	6.604
17	15.562	14.292	13.166	12.166	11.274	10.477	9.763	9.122	8.544	8.022	7.549	7.120	6.729
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.372	8.756	8.201	7.702	7.250	6.840
19	17.226	15.678	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365	7.839	7.366	6.938
20	18.046	16.351	14.877	13.590	12.462	11.470	10.594	9.818	9.129	8.514	7.963	7.469	7.025
25	22.023	19.523	17.413	15.622	14.094	12.783	11.654	10.675	9.823	9.077	8.422	7.843	7.330
30	25.808	22.397	19.600	17.292	15.373	13.765	12.409	11.258	10.274	9.427	8.694	8.055	7.496



**Table 4: Present Value Interest Factor for an Annuity**

n/k	14%	15%	16%	17%	18%	19%	20%	24%	28%	32%	36%	40%
0	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1	0.877	0.870	0.862	0.855	0.847	0.840	0.833	0.806	0.781	0.758	0.735	0.714
2	1.647	1.626	1.605	1.585	1.566	1.547	1.528	1.457	1.392	1.332	1.276	1.224
3	2.322	2.283	2.246	2.210	2.174	2.140	2.106	1.981	1.868	1.766	1.674	1.589
4	2.914	2.855	2.798	2.743	2.690	2.639	2.589	2.404	2.241	2.096	1.966	1.849
5	3.433	3.352	3.274	3.199	3.127	3.058	2.991	2.745	2.532	2.345	2.181	2.035
6	3.889	3.784	3.685	3.589	3.498	3.410	3.326	3.020	2.759	2.534	2.339	2.168
7	4.288	4.160	4.039	3.922	3.812	3.706	3.605	3.242	2.937	2.678	2.455	2.263
8	4.639	4.487	4.344	4.207	4.078	3.954	3.837	3.421	3.076	2.786	2.540	2.113
9	4.946	4.772	4.607	4.451	4.303	4.163	4.031	3.566	3.184	2.868	2.603	2.379
10	5.216	5.019	4.833	4.659	4.494	4.339	4.193	3.682	3.269	2.930	2.650	2.414
11	5.453	5.234	5.029	4.836	4.656	4.486	4.327	3.776	3.335	2.978	2.683	2.438
12	5.660	5.421	5.197	4.988	4.793	4.611	4.439	3.851	3.387	3.013	2.708	2.456
13	5.842	5.583	5.342	5.118	4.910	4.715	4.533	3.912	3.427	3.040	2.727	2.469
14	6.002	5.724	5.468	5.229	5.008	4.802	4.611	3.962	3.459	3.061	2.740	2.478
15	6.142	5.847	5.575	5.324	5.092	4.876	4.675	4.001	3.483	3.076	2.750	2.484
16	6.265	5.954	5.669	5.405	5.162	4.938	4.730	4.033	3.503	3.088	2.758	2.489
17	6.373	6.047	5.749	5.475	5.222	4.990	4.775	4.059	3.518	3.097	2.763	2.492
18	6.467	6.128	5.818	5.534	5.273	5.033	4.812	4.080	3.529	3.104	2.767	2.494
19	6.550	6.198	5.877	5.584	5.316	5.070	4.844	4.097	3.539	3.109	2.770	2.496
20	6.623	6.259	5.929	5.628	5.353	5.101	4.870	4.110	3.546	3.113	2.772	2.497
25	6.873	5.464	5.097	5.766	5.467	5.195	4.948	4.147	3.564	3.122	2.776	2.499
30	7.003	6.566	6.177	5.829	5.517	5.235	4.979	4.160	3.569	3.124	2.778	2.500

## Glossary

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<b>ABC Analysis</b>	:	A selective approach to inventory control which calls for a greater concentration on inventory items accounting for the bulk of usage value.
<b>Accounting Rate of Return</b>	:	The rate of return on an investment defined as profit after tax divided by book value of investment. It is also referred to as the average rate of return.
<b>Acid Test Ratio</b>	:	A liquidity measure which is defined as: (current assets – inventories)/current liabilities.
<b>Ageing Schedule</b>	:	A statement showing age-wise distribution of debtors (accounts receivable).
<b>Agent Bank</b>	:	A participating bank in a syndicated loan, who handles all the operations with the borrower, on behalf of the syndicate.
<b>Allotment Letter</b>	:	A communication sent by a company (or its registrar) stating the number and value of the securities allotted to the investor in response to his application.
<b>American Depository Receipt (ADR)</b>	:	<p>A certificate issued by US bank containing a statement that a specific number of shares in a foreign company has been deposited with them.</p> <p>The certificates are denominated in US dollars and can be traded as a security in US markets.</p>
<b>Arbitrage</b>	:	The act of obtaining risk-free profits by simultaneously buying and selling similar instruments in different markets is known as 'arbitrage'. The person who does arbitraging is known as 'arbitrageur'.
<b>Average Collection Period</b>	:	The ratio of receivables to average credit sales per day.
<b>Balance Sheet Method</b>	:	A method for forecasting future financing requirement or available funds based on projected income statement and balance sheet.
<b>Bear Market</b>	:	A market dominated by bears. (A bear is an operator who has a pessimistic view of future).
<b>Bearer Security</b>	:	A security for which possession is the primary evidence of ownership.
<b>Blue Chip Company</b>	:	Large, stable, well-established company.
<b>Bond</b>	:	An instrument for long-term debt.
<b>Bonus Issue</b>	:	A company may choose to capitalize its reserves by issuing bonus shares to existing shareholders in proportion to their holdings. Bonus shares are issued free of cost, but since the number of shareholders remains the same and their proportionate holdings do not change, bonus shares do not increase the shareholder's ownership of the company.

<b>Book Value Weights</b>	:	The percentage of financing provided by different sources as measured by their book values from the company's balance sheet.
<b>Bought-out</b>	:	A deal wherein an investor or a group of investors buys out a significant portion of the equity of an unlisted company, with an intention to divest by taking it public, within an agreed time-frame.
<b>Bourse</b>	:	A French Stock Exchange (from the French word bourse, meaning purse). The Bourse originally referred to the stock exchange in Paris, but later all stock exchanges came to be known by this name. Members of the Paris Bourse are known as agents de change.
<b>Bridge Loan</b>	:	Short-term financing extended against the proceeds of a proposed public issue or loan disbursement.
<b>Broker</b>	:	A stock exchange member licensed to buy or sell shares on his own or on his clients' behalf. Commission brokers just execute buy or sell orders against a commission whereas full service brokers offer facilities such as offering investment advice, safe keeping of securities, managing portfolios, etc.
<b>Budget</b>	:	A plan expressed usually in financial terms.
<b>Budget Factor</b>	:	A cost factor used to determine the amount of cost allowed under given operating conditions. It is used especially in a system of flexible budgeting for cost control purposes.
<b>Bulldog Bonds</b>	:	Bonds issued in the United Kingdom by foreign issuers and are denominated in Pound Sterlings.
<b>Bullet Payment</b>	:	Repayment of a debt in a single lump sum at the end of its maturity period.
<b>Business Risk</b>	:	The risk arising from variation in earnings before interest and tax.
<b>Call Provision</b>	:	A stipulation in a bond or preferred stock contract enabling the issuing firm to call back (repurchase) the outstanding bonds or preferred stock at a pre-determined price.
<b>Capital Budget</b>	:	The list of planned capital expenditures prepared usually annually.
<b>Capital Gains (Losses)</b>	:	Gains (Losses) arising from the sale of capital assets.
<b>Capital Structure</b>	:	The composition of a firm's long-term financing consisting of equity, preference capital and long-term debt.
<b>Cash Budget</b>	:	A statement showing the forecast of cash receipts, cash disbursements, and net cash balance over a period of time on a roll over basis.
<b>Cash Credit</b>	:	An arrangement whereby the bank allows the borrower to borrow up to a certain limit, the cash credit limit.

<b>Certainty Equivalent</b>	:	A certain cash flow which is equal in desirability to an uncertain cash flow.
<b>Certificate of Deposit</b>	:	These are also known as Negotiable Certificates of Deposit (NCDs) and represent bank deposit accounts which are transferable from one party to another. These are marketable in bearer or registered form and bear a specified rate of interest for a specified period. In India, they are issued in the form of usance promissory notes which are negotiable by endorsement and delivery.
<b>Collateral</b>	:	Asset which serves as security for a loan.
<b>Collection Float</b>	:	The amount of cheques deposited by the firm in the bank but not cleared.
<b>Commercial Bills</b>	:	These are important financial instruments used for financing credit sales. These are self-liquidating and carry low degree of risk. These are also known as banker's acceptances, if co-accepted by banks.
<b>Commercial Paper</b>	:	Short duration usance promissory notes with fixed maturity issued mostly by the leading creditworthy and highly credit rated companies. These are unsecured instruments negotiable by endorsement and delivery.
<b>Commitment Fees</b>	:	Fees payable to the participating banks of the syndicate on the undrawn amount of the loan.
<b>Compensating Balance</b>	:	A balance of a given amount that the firm maintains in its demand deposit account. It may be required by either a formal or informal agreement with the firm's commercial bank. Such balances are usually required by the bank (1) on the unused portion of a loan commitment (2) on the unpaid portion of an outstanding loan, or (3) in exchange for certain services provided by the bank, such as check clearing or credit information. These balances raise the effective rate of interest paid on borrowed funds.
<b>Compounding</b>	:	The process of determining the final value of an amount when compound interest applies.
<b>Compound Interest</b>	:	Interest payable (receivable) on interest.
<b>Comprehensive Budget</b>	:	Detailed schedules appropriate to each of the key functions in the organization, together with the entire company's plan, summarized in a projected cash flow budget and pro forma financial statements.
<b>Concentration Bank</b>	:	A bank where the firm maintains a major disbursing account.
<b>Conglomerate</b>	:	A multifaceted corporation involved in a variety of products and services.
<b>Controller</b>	:	Financial officer responsible for accounting and control.
<b>Convertible Debenture</b>	:	Fixed interest secured loan certificates which carry a provision of conversion into a certain number of shares at par or at a premium on a certain date. When only a part of the loan is converted the certificate is called a partly convertible debenture, and when the entire amount is converted it is called a fully-convertible debenture.

<b>Cost of Capital</b>	:	The minimum rate of return the firm must earn on its investments in order to satisfy the expectations of investors who provide the funds to the firm. It is often measured as the weighted arithmetic average of the cost of various sources of finance tapped by the firm.
<b>Cost of Debt</b>	:	The rate that has to be received from an investment in order to achieve the required rate of return for the creditors.
<b>Cost of Preferred Stock</b>	:	The rate of return that must be earned on the preferred stockholders' investment to satisfy their required rate of return.
<b>Coupon Rate</b>	:	The stated interest rate on a bond.
<b>Covenant</b>	:	A definite provision in a loan contract.
<b>Coverage Ratios</b>	:	A group of ratios that measure a firm's ability to meet its recurring fixed charge obligations, such as interest on long-term debt, lease payments, and/or preferred stock dividends.
<b>Credit Period</b>	:	The length of time customers are allowed for their credit purchases.
<b>Credit Rating</b>	:	An unbiased, objective and independent opinion as to an issuer's capacity to meet its financial obligation arising from a specific instrument.
<b>Current Yield</b>	:	Annual interest or dividend currently received divided by the current market price.
<b>DCF</b>	:	Abbreviation for discounted cash flow.
<b>Days Sales Outstanding</b>	:	The ratio of receivables outstanding to average daily sales.
<b>Debt Capacity</b>	:	The maximum amount of debt that a firm can raise at a given point of time.
<b>Debt-Asset Ratio</b>	:	A leverage ratio defined as total debt divided by total assets.
<b>Default Risk</b>	:	The uncertainty of expected returns from a security attributable to possible changes in the financial capacity of the security issuer to make future payments to the security owner. Treasury securities are considered to be default-free. Default risk is also referred to as "financial risk" in the context of marketable securities management.
<b>Degree of Financial Leverage</b>	:	The percentage change in earnings per share as a result of one percent change in earnings before interest and tax.
<b>Degree of Operating Leverage</b>	:	The percentage change in earnings before interest and taxes as a result of one percent change in sales.
<b>Degree of Total Leverage</b>	:	The percentage change in earnings per share as a result of one percent change in sales.
<b>Dematerialization</b>	:	The process of converting securities from their physical paper form to computerized book entry form. In a dematerialized environment, there is no such thing as a share certificate.

<b>Depository</b>	:	An institution which holds the security in electronic form on behalf of the investor.
<b>Depository Receipt</b>	:	It is a negotiable certificate issued by a depository bank which represents the beneficial interest in shares issued by a company.
<b>Derivative Instruments</b>	:	Instruments derived from conventional direct dealings in securities, currencies and commodities.
<b>Direct Lease</b>	:	A direct lease can be defined as any lease transaction which is not a 'sale and leaseback' transaction. In other words, in a direct lease, the lessee and the owner are two different entities. A direct lease can be of two types: (1) Bipartite lease and (2) Tripartite lease.
<b>Direct Quotation</b>	:	The exchange rate expressed as the price per unit of foreign currency in terms of home or local currency equal to one unit of foreign currency.
<b>Discounting</b>	:	The process of finding the present value of a future cash flow or a series of future cash flows.
<b>Diversification</b>	:	Investment in more than one risky asset with the objective of risk reduction.
<b>Domestic Custodian Bank</b>	:	A banking company which acts as a custodian for the ordinary shares or foreign currency convertible bonds of an Indian company which are issued by it against global depository receipts or certificates.
<b>Economic Order Quantity (EOQ)</b>	:	The quantity of goods ordered which minimizes the sum of inventory ordering cost and inventory carrying cost.
<b>Exchange Rate</b>	:	The rate at which one currency is converted into another currency.
<b>Expected Return</b>	:	The arithmetic mean or average of all possible outcomes where those outcomes are weighted by the probability that each will occur.
<b>Export Credit Guarantee Corporation (ECGC)</b>	:	A Government of India undertaking which provides insurance to Indian exporters of goods and services.
<b>External Funds</b>	:	Funds acquired from external sources by borrowing or issuing additional equity or preference stock.
<b>Eurocurrency</b>	:	A currency held in foreign country other than its country of origin. For example, dollars deposited in a bank in Switzerland are eurodollars, yen deposited in Germany are euroyen, etc. Eurocurrency is used for lending and borrowing; the eurocurrency market often provides a cheap and convenient form of liquidity for the financing of international trade and investment.
<b>Factoring of Accounts Receivable</b>	:	The outright sale of a firm's accounts receivable to another party (the factor) with or without recourse. The factor, in turn, bears the risk of collection.
<b>Financial Engineering</b>	:	Financial Engineering involves design, development and implementation of innovative financial instruments and processes and the formulation of creative solutions to the problems in corporate finance.

<b>Financial Guarantees</b>	:	A contract to perform or to discharge the liability of a third party in the event of their default.
<b>Financial Institutions</b>	:	Institutions engaged in financial activities. Examples: insurance companies, commercial banks, leasing companies.
<b>Financial Intermediaries</b>	:	Financial institutions which borrow money from some and lend it to others.
<b>Financial Lease</b>	:	A non-cancelable contractual commitment on the part of the firm leasing the asset (the lessee) to make a series of payments to the firm that actually owns the asset (the lessor) for the use of the asset.
<b>Financial Leverage</b>	:	This refers to the employment of debt capital entailing fixed financial burden.
<b>Financial Risk</b>	:	The risk which arises from the use of debt capital.
<b>Financial Structure</b>	:	The pattern of total financing employed by a firm.
<b>Fixed Budget</b>	:	A plan of operations drawn up for only one level of estimated annual volume.
<b>Flexible Budget</b>	:	A budget statement showing how costs vary with changes in the activity level.
<b>Flexible Budgeting</b>	:	A method of planning operations, for purposes of cost control, which permits allowed costs to be adjusted to the attained level of volume.
<b>Flexible Budgeting Formula</b>	:	An expression of the composition of a mixed cost element as a variable rate and a fixed cost amount. The budget allowance for an expense equals the fixed cost plus the unit variable cost multiplied by the number of units.
<b>Float</b>	:	Funds represented by checks which have been issued but which have not been collected.
<b>Floatation Costs</b>	:	The legal, printing, postage, underwriting brokerage, and other costs of issuing securities.
<b>Floating Lien</b>	:	A general lien against a company's assets.
<b>Forecast Volume</b>	:	The level of activity (production, sales or other activity) anticipated by management for the coming fiscal period and around which the fixed budget is constructed.
<b>Foreign Currency Convertible Bonds</b>	:	Bonds issued in accordance with this scheme and subscribed by a non-resident in a foreign currency and convertible into ordinary shares of the issuing company in any manner, either in whole or in part, on the basis of any equity-related warrants attached to debt instruments.
<b>Foreign Exchange</b>	:	The mechanism by which one currency is converted into other is referred foreign exchange.
<b>Futures</b>	:	A futures contract is a form of forward contract which conveys an agreement to buy or sell a specific amount of a commodity or financial instrument at a particular price on a stipulated future date.

<b>GDR</b>	:	A GDR is a negotiable instrument which represents publicly traded local-currency-equity share.
<b>Gilt-Edged Securities</b>	:	Usually government securities and bonds; a very safe asset to hold, as the government is responsible for the payment of interest and refund.
<b>Global Depository Receipts</b>	:	Any instrument in the form of a depository receipt or certificate created by the Overseas Depository Bank outside India and issued to non-resident investors against the issue of ordinary shares or Foreign Currency Convertible Bonds of issuing company.
<b>Grey Market</b>	:	The unofficial public trading in the shares of a company prior to its listing.
<b>Hedgers</b>	:	The parties who perform hedging is hedgers.
<b>Hedging</b>	:	It is an act, in which an investor seeks to protect a position or anticipated position in spot market by using an opposite position in derivatives.
<b>Horizontal Merger</b>	:	A merger between one or more firms engaged in the same line of activity.
<b>Hurdle Rate</b>	:	In investment decision making, the minimum acceptable rate of return on a project.
<b>Incremental Cash Flows</b>	:	The cash flows that result from the acceptance of a capital budgeting project.
<b>Indenture</b>	:	A formal agreement between the issuer and purchasers of a bond.
<b>Index</b>	:	An index number is a statistical device for measuring the differences in the magnitude of a variable or a group of related variables. A stock index is a statistical tool to capture and measure the price behavior of the overall market. The return on the index provides a benchmark for portfolio risk-return analysis.
<b>Indirect Quotation</b>	:	The unit of home currency is kept constant and the exchange rate is expressed as so many units of foreign currency.
<b>Industrial Credit and Investment Corporation of India (ICICI)</b>	:	An All-India term lending financial institution which seeks to provide assistance to units in private sector, particularly to meet their foreign exchange requirements.
<b>Industrial Reconstruction Bank of India (IRBI)</b>	:	A central agency to help in the reconstruction and rehabilitation of industrial units which have closed down or which face the risk of closure.
<b>Industrial Development Bank of India (IDBI)</b>	:	An apex term lending financial institution in India.
<b>Industrial Finance Corporation of India (IFCI)</b>	:	An All-India term lending financial institution which seeks to primarily provide medium and long-term credit to industry.
<b>Industrial Policy Resolution</b>	:	A central resolution which provides the framework for governmental regulations, restrictions and incentives.
<b>Inflation Premium</b>	:	A premium for anticipated inflation that investors require in addition to the pure rate of interest.



<b>Initial Public Offering</b>	:	An IPO is the first public offer of securities by a company since its inception. The company becomes a listed company as a consequence of the IPO.
<b>Insider Trading</b>	:	The use, for personal profit, of privileged access to price sensitive information before it is in public domain, by people closely associated with the company. Insider trading may be in the form of buying shares (in case of favorable information) or selling shares (in case of unfavorable information).
<b>Institutional Investor</b>	:	Mutual funds, FIIs, insurance companies, banks and other institutions which invest in shares and bonds are known as institutional investors. They trade in large volumes.
<b>Internal Rate of Return</b>	:	The rate of discount at which the net present value of an investment is zero.
<b>Intrinsic Value</b>	:	The intrinsic value of an asset is the present value of the stream of benefits expected from it. It is also referred to as the fair value or reasonable value or investment value.
<b>Inventory Turnover</b>	:	The ratio of net sales to inventory.
<b>Investment Banker</b>	:	A financial specialist who underwrites and distributes new securities and advises corporate clients about raising new funds.
<b>Investment Center</b>	:	A segment of a company whose manager has control over the amount of investment in the center as well as over revenues and costs.
<b>Investment Opportunity Schedule</b>	:	A listing or graphical representation of a firm's investment opportunities arranged in the order of projects' internal rate of return.
<b>Issue House</b>	:	An agency which performs a variety of functions relating to security issue.
<b>Lease</b>	:	Lease is a transaction where the lessor owns the leased property and agrees to permit the lessee to have unrestricted use of the property for a specified period of time, known as the lease term. At the end of the lease period the asset reverts back to the lessor unless there is a provision for the renewal of the contract or there is a provision for transfer of ownership to the lessee.
<b>Letter of Credit</b>	:	A letter from a bank mentioning that it has established a line of credit in favor of a certain party.
<b>Leverage</b>	:	In financial analysis, leverage represents the influence of one financial variable over some other related financial variable.
<b>Leveraged Leasing</b>	:	A leasing arrangement in which the lessor will generally supply equity funds of 20 to 30 percent of the purchase price and borrow the remainder from a third-party lender.
<b>LIMEAN</b>	:	Limean is the arithmetic mean of Libid and Libor.
<b>Line of Credit</b>	:	An agreement under which a financial institution agrees to provide credit up to a specified limit during a given period.

<b>Listed Shares</b>	:	Shares which are registered with the stock exchange for the purpose of public trading. The prices of listed shares are market determined. The listed shares are governed by a rigorous regulatory system to ensure investor protection.
<b>Loan Amortization</b>	:	Periodic repayment of a loan spread over its entire life after the initial grace period.
<b>Lock-in Period</b>	:	The time period for which the shares forming part of promoter's contribution, cannot be transferred.
<b>London Inter-Bank Bid Rate (LIBID)</b>	:	Libid is the rate at which the blue chip banks in London are willing to borrow funds from other banks.
<b>London Inter-Bank Offer Rate (LIBOR)</b>	:	Libor is the rate at which the blue chip banks in London are willing to lend the funds to other blue chip banks.
<b>Majority Rule Voting</b>	:	A system of voting under which a group which holds a majority of shares has the power of electing the entire board of directors.
<b>Margin</b>	:	Amount to be deposited with the exchange as a cushion against default risk. It is the sum to be deposited by a player in the market, which is computed as a certain percentage of the long/short position.
<b>Marginal Cost of Capital</b>	:	The cost of capital that represents the weighted cost of each additional rupee of financing from all sources, debt, preferred stock and common stock.
<b>Market Value Weights</b>	:	The percentage of financing provided by different capital sources measured by the current market prices of the firm's bonds and preferred and common stock.
<b>Mark-to-Market</b>	:	A continuous process of valuing the assets at the prevailing market prices. Mark-to-market margin refers to the continuous process of recomputing the margins required to be maintained by the market participant, based on the outstanding exposure valued at the changing market prices.
<b>Master Budget</b>	:	A budget covering all aspects of a firm's working. It is also referred to as the comprehensive budget.
<b>Maturity Date</b>	:	The date upon which a borrower is to repay a loan.
<b>Merchant Bank</b>	:	An organization that underwrites corporate securities, manages public offerings and advises clients on issues like corporate mergers, etc.
<b>Merger</b>	:	A combination of two or more firms into one firm. A merger may involve absorption (acquisition) or consolidation. In an absorption, one firm acquires one or more other firms. In a consolidation, two or more firms combine to form a new entity. We use the term merger and amalgamation interchangeably.
<b>Money Market</b>	:	It is a wholesale debt market dealing in short-term instruments. Funds are also available in this market for periods ranging from overnight to one year.
<b>Mutually Exclusive Projects</b>	:	A set of projects that perform essentially the same task, so that acceptance of one will necessarily mean rejection of the others.

<b>Mutual Funds</b>	:	Investment management entity, which collects money from shareholders and invest in a large variety of securities like shares, debentures, bonds set up for a limited period, or with no winding-up date. The investors thus have the advantage of owning a truly diversified portfolio which offers attractive annual dividends and a reasonable price appreciation with minimum risk involved.
<b>National Small Industries Corporation (NSIC)</b>	:	A central agency which seeks to aid, counsel, assist, finance, protect and promote the interest of small industries in the country.
<b>Net Present Value (NPV)</b>	:	A method for evaluating investment proposals. NPV is defined as present value of benefits minus present value of costs.
<b>Net Profit Margin</b>	:	Net income/sales. A ratio that measures the net income of the firm as a percent of sales.
<b>Net Working Capital</b>	:	Net working capital is the difference between Total Current Assets and Total Current Liabilities.
<b>Nominal Interest Rate</b>	:	Interest rate expressed in money terms.
<b>Note Lending System</b>	:	Under this arrangement, the borrower takes a loan, usually of 90 days duration, against a promissory loan.
<b>Open Market Operations</b>	:	It is the means through which the central bank controls the liquidity in the economy, by the sale and purchase of Government Securities. Sale of securities reduces the liquidity while purchase of securities increases the liquidity.
<b>Operating Cycle</b>	:	The operating cycle of a firm begins with the acquisition of raw materials and ends with the collection of receivables.
<b>Operating Lease</b>	:	A contractual commitment on the part of the firm leasing the asset (the lessee) to make a series of payments to the firm that actually owns the asset (the lessor) for use of the asset. An operating lease differs from a financial lease in that it can be cancelled by the lessee at short notice without any significant penalty.
<b>Operating Leverage</b>	:	The responsiveness of the firm's earning before interest and taxes to changes in sales. This responsiveness arises from the firm's level of fixed operating costs.
<b>Optimal Capital Structure</b>	:	The capital structure that minimizes the firm's composite cost of capital (maximizes the common stock price) for raising a given amount of funds.
<b>Overdraft System</b>	:	Under this arrangement the borrower is allowed to overdraw on his current account with the banker up to a certain specified limit during a given period.
<b>Overseas Depository Bank</b>	:	A bank authorized by the issuing company to issue Global Depository Receipts against the issue of Foreign Currency Convertible Bonds or ordinary shares of the issuing company.
<b>Payback Period</b>	:	The length of time required for an asset to generate cash flows just enough to cover the initial outlay.

<b>Payment Float</b>	:	The amount of cheques issued by the firm but not paid for by the bank.
<b>Pay-out Ratio</b>	:	The proportion of earnings paid out by way of dividends.
<b>Permanent Investment</b>	:	An investment that the firm expects to hold longer than one year. The firm makes permanent investments in fixed and current assets. Contrast with temporary investments.
<b>Perpetuity</b>	:	An investment providing a constant, annual (periodic) return perpetually.
<b>Physical Budgets</b>	:	Budgets for unit sales, personnel or manpower, unit production, inventories and physical facilities. These budgets are used as the basis for generating cost and profit budgets.
<b>Planning Budget</b>	:	The detailed plan of operations based on one level of forecast volume.
<b>Portfolio</b>	:	A combination of assets.
<b>Portfolio Effect</b>	:	The extent to which the variability of the returns on a portfolio is less than the sum of the variability of the individual assets in the portfolio.
<b>Portfolio Theory</b>	:	A theory concerned with the delineation of efficient portfolios and selection of optimal portfolios.
<b>Post Audit</b>	:	A comparison of the actual results and expected results of an investment project.
<b>Praecipuum</b>	:	Fees paid to the lead arranger in a syndicated loan.
<b>Present Value</b>	:	It is the value of a future stream of payments or receipts discounted at a given rate to the present time.
<b>Price/Earnings (P/E) Ratio</b>	:	The ratio of market price per share to earnings per share. This ratio shows what investors are willing to pay per rupee of earnings.
<b>Primary Market</b>	:	A market for new issues of shares, debentures and bonds, where investors apply directly to the issuer for allotment and pay application money to the issuer's account. It is different from the secondary market where investors trade in shares on the stock exchange through brokers.
<b>Private Company</b>	:	A corporate entity which (i) limits the number of its members to 50, (ii) does not invite public to subscribe to its capital and (iii) restricts the members' right to transfer shares.
<b>Private Placement</b>	:	A method of raising capital in which companies directly sell their securities to a limited number of investors. Normally, the minimum size of an investment in a private placement is higher.
<b>Processing Float</b>	:	Funds tied up during the time required for the firm to process remittance checks before they can be deposited in the bank.
<b>Profitability Index</b>	:	Also called benefit-cost ratio, it measures the present value per rupee of outlay and is useful for ranking projects in the order of decreasingly efficient use of capital.

<b>Proprietorship</b>	:	A business firm owned by a single individual.
<b>Proxy</b>	:	The authorization given by one person to another to vote on his behalf in the stockholders' meeting.
<b>Public Deposit</b>	:	Unsecured deposit obtained by a company from public at large.
<b>Public Investment Board (PIB)</b>	:	A body which appraises and recommends projects falling under the purview of the central government.
<b>Put Option</b>	:	If the right is to sell, it is referred as put option.
<b>Receivables Turnover Ratio</b>	:	The ratio of net sales to receivables.
<b>Reinvestment Rate</b>	:	The rate of return at which the intermediate cash inflows of a project may be reinvested.
<b>Reorganization</b>	:	An adjustment in the financial structure of a firm, which is financially distressed, in order to enhance its viability.
<b>Repo</b>	:	An agreement which involves sale of a security with an undertaking to repurchase the same security at a specific price on a predetermined future date. The transaction would be a reverse repo from the point of view of the buyer of the security.
<b>Required Rate of Return</b>	:	Rate of return required by investors on their investment.
<b>Reserve Bank of India (RBI)</b>	:	The central banking authority of India.
<b>Restrictive Covenants</b>	:	Provisions in the loan agreement that place restrictions on the borrower and make the loan immediately payable and due when violated. These restrictive covenants are designed to maintain the borrower's financial condition on a par with that which existed the time the loan was made.
<b>Rights Issue</b>	:	The issue of additional equity shares to the existing shareholders on a pre-emptive basis. Typically, the subscription price of a rights issue is significantly below the market price of the shares.
<b>Risk</b>	:	Risk refers to variability. It is measured in financial analysis generally by standard deviation or by beta coefficient.
<b>Risk Adjusted Discount Rate</b>	:	The discount rate applicable to a risky investment. It is equal to the risk-free rate of return plus a risk premium reflecting the risk characterizing the investment.
<b>Risk Aversion</b>	:	A dislike for risk. Generally investors are risk averse. Their required rate of return varies with the level of risk – the higher the level of risk, the higher the required rate of return.
<b>Risk Premium</b>	:	The additional return expected for assuming risk.
<b>Riskless Rate of Return</b>	:	The rate of return on risk-free investments, such as the interest rate on short-term government securities.
<b>SIDCs</b>	:	State level development institutions which seek to serve as catalytic agents in the industrialization process.

<b>Safety Stock</b>	:	Inventories carried to protect against variations in sales rate, production rate and procurement time.
<b>Sale and Leaseback Arrangement</b>	:	An arrangement arising when a firm sells land, buildings or equipment that it already owns and simultaneously enters into an agreement to lease the property back for a specified period, under specific terms.
<b>Sales Mix</b>	:	The composition of the total sales of a multiproduct firm in terms of the relative sales of each product line.
<b>Salvage Value</b>	:	The value realized from the disposal of an asset.
<b>Samurai Bonds</b>	:	Yen denominated bonds issued in Japan by foreign corporates, through a public offering.
<b>Secondary Market</b>	:	It is a place where securities already issued are traded. It is different from the primary market wherein the issuer sells securities directly to the investor.
<b>SEC</b>	:	Securities and Exchange Commission, USA. It is the regulatory body similar to SEBI in India which monitors and regulates the issue of securities in the US market.
<b>Sensitivity Analysis</b>	:	A technique of risk analysis which studies the responsiveness of a criterion of merit like net present value or internal rate of return to variations in underlying factors like selling price, quantity sold, etc.
<b>Share Transfer Agent</b>	:	A firm which maintains the records of ownership of the securities of its client companies.
<b>Shibosai Bonds</b>	:	Yen denominated bonds issued in Japan by foreign companies by way of private placements.
<b>Simulation</b>	:	A technique of risk analysis which seeks to develop the simulated probability distribution of a criterion of merit like net present value or internal rate of return on the basis of the relationship between the underlying factors like quantity, selling price, project life, etc. and the criterion of merit.
<b>Single Investor Lease</b>	:	In this transaction, the leasing company (lessor) funds the entire investment by raising an appropriate mix of debt and equity with. Here, the debt funds raised by the leasing company are without recourse to the lessee.
<b>Sole Proprietorship</b>	:	A business owned by a single individual.
<b>Speculators</b>	:	They are basically traders, who enter the futures or options contract, with a view of making profit from the subsequent price movements.
<b>Spontaneous Financing</b>	:	The trade credit and other accounts payable that arise spontaneously in the firm's day-to-day operations.
<b>Spot Rate</b>	:	Exchange rate which applies to 'on the spot' delivery of the currency – in practice it means delivery two days after the day of trade.
<b>State Financial Corporation (SFCs)</b>	:	State-level financial institutions catering mainly to the needs of the small and medium scale sector.

<b>Stock Exchanges</b>	:	Formal organizations involved in the trading of securities. Such exchanges are tangible entities that conduct auction markets in listed securities.
<b>Subscription Price</b>	:	Price at which the issue of a security can be subscribed to by the investors.
<b>Synergy</b>	:	Gain from combining two or more units. In a synergistic merger the earnings of the combined entity are expected to exceed the sum of the earnings of the combining entities.
<b>Systematic Risk</b>	:	Risk that cannot be diversified away. It is also referred to as market risk or non-diversifiable risk.
<b>Technical Insolvency</b>	:	Situation in which the firm can no longer honor its financial obligations. Although its assets may exceed its total liabilities, thereby indicating a positive net worth, the company simply does not have sufficient liquidity to pay its debts.
<b>Temporary Investments</b>	:	These investments are comprised of the firm's investment in current assets that will be liquidated and not replaced within a period of one year or less. Examples include seasonal expansions in inventories and accounts receivables.
<b>Term Loan</b>	:	A loan which is generally repayable in more than one year and less than ten years.
<b>Term Structure of Interest Rates</b>	:	The relationship between interest rates and the term to maturity, where the risk of default is held constant.
<b>Trade Credit</b>	:	Inter-firm credit arising from credit sales. It is recorded as an account receivable by the seller and as an account payable by the buyer.
<b>Transit Float</b>	:	Funds tied up during the time necessary for a deposited check to clear through the commercial banking system and become usable funds to the company.
<b>Treasurer</b>	:	Financial officer concerned mainly with the task of financing and activities related thereto.
<b>Treasury Bills</b>	:	These represent Central Government borrowings against a bill or a promissory note. These are highly liquid and risk-free instruments. Presently there are five types in vogue: 14 days, 28 days, 91 days, 182 days, and 364 days treasury bills.
<b>Treasury Bill Rate</b>	:	Rate of discount at which treasury bills are sold by the RBI.
<b>Underwriting</b>	:	Underwriting is a contract wherein the underwriter (usually a merchant bank, broker or a financial institution) agrees to purchase a certain number of shares in the event of undersubscription of the issue. The consideration paid to the underwriter is called underwriting commission.
<b>Unit Trust of India (UTI)</b>	:	An investment company, UTI aims at mobilizing the savings of the public and channelizes them into productive corporate investments.

<b>Unlisted Security</b>	:	Security which is not listed on a recognized stock exchange.
<b>Unsystematic Risk</b>	:	Risk that can be diversified away. It is also referred to as unique risk, specific risk, residual risk or diversifiable risk.
<b>Value Date Concept</b>	:	The day on which the delivery of agreed good/currency takes place is referred to as 'Value date'.
<b>Venture Capitalists</b>	:	Investors interested in supplying capital to particularly high-risk situations, such as start-ups or firms denied conventional financing.
<b>Vertical Merger</b>	:	A merger between a supplier and its customer.
<b>Warrant</b>	:	A warrant is a tradeable instrument giving its holder the right to purchase specific security/securities from the issuer, subject to certain specific conditions.
<b>Warrant Price</b>	:	The exercise price of a warrant is what the holder must pay to purchase the stated number of shares.
<b>Working Capital</b>	:	There are two measures of working capital: Gross working capital and Net working capital. Gross working capital is the total of current assets. Net working capital is the difference between the total of current assets and the total of current liabilities.
<b>Yankee Bonds</b>	:	Bonds issued in United States of America by foreign firms and are denominated in dollars.
<b>Yield to Maturity (YTM)</b>	:	The return earned on a debt instrument if it is held till maturity. It is computed using the discounted cash flow method.
<b>Zero Base Budgeting</b>	:	Budgeting in which figures are developed from scratch every year.
<b>Zero Coupon Bond</b>	:	These bonds are issued at a discount to their face value and are redeemed at par on maturity. The difference between their face value and the issue price represents the return to the investors.