

## **LESSON: 1**

### **FINANCIAL MANAGEMENT: MEANING, OBJECTIVE, FUNCTION AND SCOPE**

#### **STRUCTURE**

- 1.0 Objectives
- 1.1 Introduction
- 1.2 Meaning and Nature of Financial Management
- 1.3 Relation of Finance Function with other Disciplines
- 1.4 Scope of Financial Management
- 1.5 Function of Finance
- 1.6 Objectives of Financial Management
- 1.7 Organisation of Finance Function
- 1.8 Summary
- 1.9 Keywords
- 1.10 Self Assessment Questions
- 1.11 Suggested Readings

#### **1.0 OBJECTIVES**

After reading this lesson, you should be able to:

- Understand the meaning and nature of financial management.
- Describe the relation of finance function with other disciplines.
- Know the scope of financial management.
- Identify the function of finance.
- Explain the objectives of financial management.

## **1.1 INTRODUCTION**

Finance is regarded as the life blood of a business enterprise. This is because in the modern money-oriented economy, finance is one of the basic foundations of all kinds of economic activities. Long considered a part of economics, corporation finance emerged as a separate field of study in the early part of 20th century. At first it dealt with only the instruments, institutions, and procedural aspects of capital markets. Accounting data and financial records were not the kind we use today, nor were regulations making it necessary to disclose financial data. But interest in financial innovations, promotions, consolidations, and mergers has always been increasing.

In a modern company's development, the financial manager plays a dynamic role. Besides records, reports, the firm's cash position, and obtaining funds, the financial manager is concerned with (1) investing funds in short-term as well as in long-term assets and (2) obtaining the best mix of financing and dividends in relation to the overall solution of the firm. All of this demands a broad outlook and an alert creativity that will influence almost all facts of the enterprise and its external environment.

## **1.2 MEANING AND NATURE OF FINANCIAL MANAGEMENT**

Finance is the lifeblood of a business firm. The health of every business concern mainly depends on the efficient handling of finance functions. In simple term, Financial Management may be defined as the management of the finance or funds of a business unit in order to realize the objective of the firm in an efficient manner. It is broadly concerned with the mobilization and use of funds by a business firm. Financial management is that managerial activity which is concerned with the planning and controlling of the firm's financial resources. In other words, it is concerned with acquiring, financing and managing assets to accomplish the overall goal of a business enterprise (mainly to maximise the shareholder's wealth).

“Financial management is concerned with the efficient use of an important economic resource, namely capital funds”. Solomon Ezra & J. John Pringle.

“Financial management is the operational activity of a business that is responsible for obtaining and effectively utilizing the funds necessary for efficient business operations” J.L. Massie.

“Financial Management is concerned with managerial decisions that result in the acquisition and financing of long-term and short-term credits of the firm. As such it deals with the situations that require selection of specific assets (or combination of assets), the selection of specific liability (or combination of liabilities) as well as the problem of size and growth of an enterprise. The analysis of these decisions is based on the expected inflows and outflows of funds and their effects upon managerial objectives”. Phillipatus.

The term ‘nature’ as applied to financial management refers to its relationship with closely related fields of economics and accounting, its scope, functions and objectives. Traditionally, ‘finance’ was not considered a separate input until finance theory became well developed. Finance function as an area of management is of recent origin. Financial management has gained considerable importance over the years. It is concerned with overall managerial decision making, in general, and with the management of economic resources in particular. The term financial management can be defined as the management of flow of funds in a firm and therefore it deals with the financial decision making of the firm. Since rising of funds and their best utilization is the key to success of any business organizations’, the financial management as a functional area has got a place of prime relevance. All business activities have financial implications and hence financial management is inevitably related to almost every sphere of business operations.

### **1.3 RELATION OF FINANCE FUNCTION WITH OTHER DISCIPLINES**

Finance function is not a totally independent area of Business. Being an integral part of the over-all management, it draws heavily on related disciplines and fields of study, namely, economics, accounting, marketing, production and operations research. These areas are both inter-related and different as well. Now, we discuss the relationship among finance function and the various related disciplines.

**Finance and Economics:** Traditionally, finance was not considered a separate input. In the traditional theory, finance was supposed to take the form of either circulating capital or fixed capital, and the concept of finance as distinct from capital was not well conceived and developed. In modern theory finance is different from capital. The field of finance is closely allied to the field of economics. Finance management is a form of applied economics, which draws heavily on economic theory. Economics deals with supply and demand, costs and profits, production, consumption and so on. Finance is closely related to economics, for it is seriously concerned with

supply and demand in the financial markets, including the stock exchange, the money market, foreign exchange market, etc. It is equally concerned with the policies of the Reserve Bank of India as they are reflected in commercial banks and financial institutions in general. When money-market is tight, financial environment is hard-hit. In a period of economic depression, business activity recedes and the financial market is adversely affected. The importance of economics in the development of finance function and economic theory is more evident in two areas of economics-macroeconomics and micro-economics.

Macro economics is concerned with the structure of banking system, financial intermediaries, the public finance system and economic policies of the Government. Since the business firm has to operate in the macroeconomic environment, the finance manager has to be aware of the institutional framework it contains. He must be alert to the consequences of the varying levels of economic activities and changes in economic policies. In the absence of an understanding of the broad economic environment, the finance manager will not be able to achieve financial success.

Micro economics is concerned with the determination of optimal operating strategies for firms as individuals, with the efficient operations and with defining an action that will make it possible for a firm to achieve financial success. The concepts involved in supply and demand relationships and profit maximizing strategies are drawn from the micro economic theory. The theories related to the management of utility preference, risk and determination of value are rooted in micro economic theory. The rationale of depreciating assets is taken from this area of economics. Although the finance manager does not directly apply the theories of micro economics, he must act in conformity with the general principles established by these theories. Thus, knowledge of both micro and macroeconomics is necessary for a finance manager so as to understand the financial environment. Stated simply, economics is closely intertwined with finance.

**Finance and Accounting:** Much of modern business management has only been possible by accounting information. Management is a process of converting information into action; and accounting is a source of most of the information that is used for this purpose. Accounting has been described by Richard M. Lynch and Robert W. Williamson as "the measurement and communication of financial and economic data". It is a discipline which provides information

essential to the efficient conduct and evaluation of the activities of any organization. The end-product of accounting is financial statements such as the balance sheet, the income statement and the statement of changes in financial position (sources and uses of funds statement). The information contained in these statements and reports assists the financial managers in assessing the past performance and future directions of the firm and in meeting certain legal obligations, such as payment of taxes and so on. Thus, accounting and finance are functionally closely related. However, there are key differences in viewpoint between finance and accounting. The first difference relates to the treatment of funds while the second relates to decision-making.

As far as the viewpoint of accounting relating to the treatment of funds is concerned, the measurement of funds in it is based on the accrual system. For example, revenue is recognized at the point of sale and not when collected. Similarly, expenses are recognized when they are incurred rather than when actually paid. The accounting data based on accrual system do not reflect fully the financial circumstances of the firm. On the other, the viewpoint of finance relating to the treatment of funds is based on cash flows. The revenues are recognized only when actually received in cash and expenses are recognized on actual payment (i.e. cash outflow). This is on account of the fact that the finance manager is concerned with maintain solvency of the firm by providing the cash flows necessary to satisfy its obligations and acquiring and financing the assets needed to achieve the goals of the firm.

Regarding the difference in accounting and finance with respect to their purpose, it needs to be noted that the purpose of accounting is collection and presentation of financial data. The financial manager uses these data for financial decision-making. But, from this one should not conclude that accountants never make decisions or financial managers never collect data. The fact is that the primary focus of the functions of accountants is on collection and presentation of data while the finance manager's major responsibility is concerned to financial planning, controlling and decision- making.

### **Finance and other concerned Disciplines**

There exists an inseparable relationship between the finance functions on the one hand and production, marketing and other functions on the other. Almost all kinds of business activities, directly or indirectly, involve the acquisition and use of money. For instance, recruitment and promotion of employees in production is clearly a responsibility of the production department. But

it requires payment of wages and salaries and other benefits, and thus, involves finance. Similarly, buying a machine or replacing an old machine for the purpose of increasing productive capacity affects the flow of funds. Sales promotion policies require outlays of cash, and therefore, affect financial resources. How, then, we can separate production and marketing functions and the finance function of making money available to meet the costs of production and marketing operations ? We can't give precise answer to this question. In fact, finance policies are devised to fit production marketing and personnel decisions of a firm in practice.

#### **1.4 SCOPE OF FINANCIAL MANAGEMENT**

Financial management, as an academic discipline, has undergone significant changes over years as regards its scope and coverage. As such the role of finance manager has also undergone fundamental changes over the years. In order to have a better exposition to these changes, let us study both the traditional approach and the modern approach to the finance function.

##### **Traditional Approach**

Initially the finance manager was concerned and called upon at the advent of an event requiring funds. The finance manager was formally given a target amount of funds to be raised and was given the responsibility of procuring these funds. So, his function was limited to raising funds as and when the need arise. Once the funds were raised, his function was over. Thus, the traditional concept of financial management included within its scope the whole gamut of raising the funds externally. The finance manager's role was limited to keeping accurate financial records, prepare reports on the corporations' status and performance and manage cash in a way that the corporation is in a position to pay its bills in time. The term 'Corporation Finance' was used in place of the present term 'Financial Management'.

The traditional approach dominated the scope of financial management and limited the role of the financial manager simply to 'raising of funds'. And it was during the major events, such as promotion, reorganization, expansion or diversification in the life of the firm that the financial manager was called upon to raise funds. Because of its restricted role, the finance text books, for example, in the USA, till the mid-1950s covered discussion of the instruments, institutions and practices through which funds are obtained. Further, as the problem of raising funds was more intensely felt in the case of an 'episodic event', these books also contained detailed descriptions of

the major events like mergers, consolidations, reorganizations and recapitalizations. The notable feature of the traditional view of financial management was the assumption that the financial manager had no concern with the decisions of allocating the firm's funds. These decisions were assumed to be given to him.

The traditional approach did not go unchallenged even during the period of its dominance. It has been criticized because it failed to consider the day-to-day managerial problems relating to finance of the firm. It concentrated itself to looking into the problems from management's the insider's point of view (see Solomon, Ezra, *The Theory of Financial Management*, Columbia University Press, 1969, p.3). The second ground for criticism of the traditional treatment was that the focus was on financing problems of corporate enterprises. To that extent the scope of financial management was confined only to a segment of the industrial enterprises, as non-corporate organizations lay outside its scope. Finally, this approach was having lacuna with regards to its focus only on long- term financing. The issues involved in working capital management were not in the preview of finance function.

### **Modern Approach**

The modern or new approach is an analytical way of looking into the financial problems of the firm. Financial management is considered a vital and an integral part of overall management. To quote Ezra Soloman: "The central issue of financial policy is the wise use of funds, and the central process involved is a rational matching of advantages of potential uses against the cost of alternative potential sources so as to achieve the broad financial goals which an enterprise sets for itself".

Thus, in a modern enterprise, the basic function is to decide about the expenditure decisions and to determine the demand for capital for these expenditures. In other words, the finance manager, in his new role, is concerned with the 'efficient allocation of funds'. This problem was not considered important in achieving the firm's long run objectives. The main contents of modern approach to financial management according to Soloman Ezra are: What is the total volume of funds an enterprise should commit? What specific assets should an enterprise acquire? How should the funds required to finance? These three questions cover between them the major financial problems of a firm. In other words, financial management according to the new approach, is concerned with the solution of three problems namely, investment, financing and dividend

decisions. We may refer to these decisions as managerial finance functions since they require special care and extraordinary administrative ability.

## **1.5 FUNCTIONS OF FINANCE**

Depending upon the nature and size of the firm, the finance manager is required to perform all or some of the following functions. These functions outline the scope of financial management.

### **Investment Decision**

Investment decision is the 'oldest' area of the recent thinking in finance. The investment decision relates to the selection of assets in which funds will be invested by a firm. The assets which can be acquired fall into two broad groups: (i) long term assets which yield a return over a period of time in future, (ii) short-term or current assets defined as those assets which in normal course of business are convertible into cash usually within a year. The decisions related to the former aspect are called 'capital budgeting' decisions while the latter type of decisions are termed as working capital decisions. Because of the uncertain future, capital budgeting decision involves risk. Other major aspect of capital budgeting theory relates to the selection of a standard or hurdle rate against which the expected return of new investment can be assayed. This standard is broadly expressed in terms of the cost of capital. The measurement of the cost of capital is, thus, another major aspect of the capital budgeting decision. For details of these decisions, please see lesson 5.

Working Capital Management, on the other hand, deals with the management of current assets of the firm. Though the current assets do not contribute directly to the earnings, yet their existence is necessitated for the proper, efficient and optimum utilization of fixed assets. There are dangers of both the excessive as well as the shortage of working capital. A finance manager has to ensure sufficient and adequate working capital to the firm. A trade-off between liquidity and profitability is required.

### **Financing Decision**

Provision of funds required at the proper time is one of the primary tasks of the finance manager. Every business activity requires funds and hence every financial manager is confronted with this problem. The investment decision is broadly concerned with the asset-mix or the composition of the assets of a firm. The concern of the financing decision is with the financing-



mix or capital structure or leverage. The term capital structure refers to the proportion of debt and equity capital. The financing decision of a firm relates to the choice of the proportion of these sources to finance the investment requirements. There are two aspects of the financing decision - (i) the theory of capital structure which shows the theoretical relationship between the employment of debt and the return to the shareholders. The use of debt implies a higher return to the shareholders as also the financial risk. A judicious mix of debt and equity to ensure a trade-off between risk and return to the shareholders is necessary. A finance manager has to evaluate different combinations of debt and equity and adopt one which is optimum for the firm. Leverage analysis, EBIT-EPS analysis, capital structure models etc. are some of the tools available to a finance manager for this purpose.

### **Dividend Decision**

Another major area of decision making by a finance manager is known as the Dividend decisions which deal with the appropriations of after tax profits. The finance manager must decide whether the firm should distribute all profits, or retain them, or distribute a portion and retain the balance. Like the debt policy, the dividend should be determined in terms of its impact on the shareholder's value. The optimum dividend policy is one which maximises the market value of the firm's shares. Thus, if shareholders are not indifferent to the firm's dividend policy, the financial manager must determine the optimum dividend pay-out ratio. The dividend pay-out ratio is equal to the percentage of dividends distributed to earnings available to shareholders. The financial manager should also consider the questions of dividend stability, bonus shares and cash dividends.

## **1.6 OBJECTIVES OF FINANCIAL MANAGEMENT**

The Process of decision making by a finance manager must be goal oriented one. He must have a specific goal in mind as he plans future course of action. It is generally agreed in theory that the financial goal of the firm should be the maximisation of owners' economic welfare. Owners' economic welfare could be maximised by maximising the shareholders' wealth as reflected in the market value of shares. In this section, we shall discuss that the shareholder's wealth maximisation is theoretically logical and operationally feasible normative goal for guiding the financial decision making. This part also throws some light on 'profit maximisation goal'.

## **Profit Maximisation Goal**

A business firm is profit-seeking organisation. Hence, profit maximisation is well considered to be an important means for achieving the objective of maximising the owners' economic welfare. According to financial experts too, one approach to determine the decision criterion for financial management is the profit maximisation goal. Under this approach, actions that increase profits should be undertaken and those that decrease profits are to be avoided. In specific operational terms, as applicable to financial management, the profit maximisation criterion implies that the investment, financing and dividend policy decisions of a firm should be oriented to the maximisation of profits.

Firms in market economy are expected to produce goods and services desired by society as efficiently as possible. Price system is the most important organ of a market economy indicating what goods and services society wants. Goods and services in great demand can be sold at higher prices. This results in higher profits for firms. Thus price system provides signals to managers to direct their efforts towards areas of high profit potential. The buyer's behaviour and extent of competition determine the prices, and thus, affect the allocation of resources for producing various kinds of goods and services.

The economists are of the opinion that under the conditions of free competition, businessmen pursuing their own self-interests also serve the interest of society. It is also assumed that when individual firms pursue the interest of maximising profits, society's resources are efficiently utilized. Thus, profit is a test of economic efficiency. It provides the yardstick by which economic performance can be judged. Moreover, it leads to efficient allocation of resources as resources tend to be directed to uses which in terms of profitability are the most desirable. Also, it ensures maximum social welfare.

The profit maximisation objective has, however, been criticised in recent years. It is argued that profit maximisation is a consequence of perfect competition, and in the face of imperfect modern markets, it cannot be a legitimate objective of the firm. It is also argued that profit maximisation, as a business objective, was developed in the early of 19th century, when the characteristic features of the business structure were self-financing, private property and single entrepreneurship. The only aim of sole proprietor then was to enhance his individual wealth and personal power, which could easily be satisfied by the profit maximisation objective. The modern

business environment has the features of limited liability and a divorce between management and ownership. In this changed business structure, the owner manager of the 19th century has been replaced by professional manager who has to reconcile the conflicting objectives of all the parties connected with the business firm. So, now-a-days profit maximisation is regarded as unrealistic, difficult, unfair and immoral.

Besides the aforesaid objections, profit maximisation fails to serve as an operational criterion for maximising the owners' economic welfare. It suffers from the following limitations:

**(i) It is vague:** It does not clarify what exactly it means. For example, which profits are to be maximised, short-term or long-run, rate of profit or the amount of profit?

**(ii) It ignores timings:** The concept of profit maximisation does not help in making a choice between projects giving different benefits spread over a period of time. The fact that a rupee received today is more valuable than a rupee received later is ignored.

**(iii) It ignores risk:** The streams of benefits may possess different degree of certainty. Two firms may have same total expected earnings, but if the earnings of one firm fluctuate considerably as compared to other, it will be more risky. Possibly owners of the firm would prefer smaller but certain profits to a potentially large but less certain stream of benefits.

### **Wealth Maximisation**

On account of the reasons cited above, these days profit maximisation is not considered to be an ideal criterion for making investment and financing decisions. Ezra Soloman has suggested the adoption of wealth maximisation as the best criterion for the financial decision making. This objective is generally expressed in terms of maximisation of the value of a share of a firm.

Wealth maximisation means maximising the 'net present value' (or wealth) of a course of action. The net present value of a course of action is the difference between the present value of its benefits and the present value of its costs. A financial action which has a positive net present value creates wealth and, and therefore, is desirable. On the other hand, a financial action resulting in negative net present value should be rejected. Between a numbers of desirable mutually exclusive projects the one with the highest net present value should be adopted. The wealth of the

firm will be maximised if this criteria is followed in making financial decisions (Soloman, Ezra, 1969).

The wealth maximisation criterion is based on the concept of cash flows generated by the decision rather than accounting profit which is the basis of the measurement of benefits in case of the profit maximisation criterion. Measuring benefits in terms of cash flows avoids the ambiguity associated with accounting profits. This is the first operational feature of the net present wealth maximisation criterion. Another important feature of the wealth maximisation criterion is that it considers both the quantity and quality dimensions of benefits. At the same time, it also incorporates the time value of money. The quality of benefits has reference to the certainty with which benefits are expected to be received in future. The more certain the expected returns (cash inflows), the better the quality of benefits and the higher the value. Similarly, money has time value. For the above reasons, the Net Present Value maximisation is superior to the profit maximisation as an operational objective.

The net present worth can be calculated as shown below:

$$W = \frac{A_1}{(1+k)^1} + \frac{A_2}{(1+k)^2} + \dots + \frac{A_n}{(1+k)^n} - C_0$$

Where W = net present value

$A_1, A_2, \dots, A_n$  represent the stream of cash flows expected to occur from a course of action over a period of time;

k is the appropriate discount rate to measure risks and timing; and

$C_0$  is the initial outlay to acquire that asset or pursue the course of action.

It can, thus, be seen that in the wealth maximisation decision-criterion the time value of money and handling of the risk as measured by the uncertainty of the expected benefits is an integral part of the exercise. It is, moreover, a precise and unambiguous concept. It is, therefore, an appropriate and operationally feasible decision criterion for financial management decisions.

## 1.7 ORGANISATION OF FINANCE FUNCTION

Because of the vital importance of the financial decisions to a firm, it is essential to set up a sound and efficient organisation for finance function. The ultimate responsibility of carrying out the finance functions lies with the top management. Thus, a department to organize financial activities may be created under the direct control of the board of directors. Figure 1.1 depicts the organisation of the financial management function in a large typical firm.

It should be remembered that the job of the chief financial executive does not cover only routine aspects of finance and accounting. As a member of top management he is closely associated with the formulation of policies as well as decision making. Under him controllers and treasurers, although they may be known by different designations in different firms. The tasks of financial management and allied areas like accounting are distributed between these two key financial officers. The functions of the treasurer include obtaining finance, banking relationship, investor relationship, cash management, working capital finance, insurance and credit management. The typical functions performed by the controller are: (a) financial accounting, (b) internal audit, (c) taxation, (d) budgeting, planning and control, (e) economic appraisal, (f) management accounting and control.

## 1.8 SUMMARY

Financial Management is broadly concerned with the acquisition and use of funds by a business firm. Investment decisions are essentially made after evaluating the different project proposals with reference to growth and profitability projections of the company. Financing decisions are concerned with the determination of how much funds to procure from amongst the various avenues available i.e. the financing mix or capital structure. Dividend decision is to decide whether the firm should distribute all profits or retain them or distribute a portion and retain the balance. It has been traditionally argued that the objective of a company is to earn profit. This means that the finance manager has to make decision in a manner that the profit is maximized. The alternative to profit maximization is wealth maximization. This is also known as Value maximization or Net Present Worth maximization.

## 1.9 KEYWORDS

**Financial Management:** It is the operational activity of a business that is responsible for obtaining and effectively utilizing the funds necessary for efficient operations.

**Financing Decision:** It is related to the financing mix or capital structure or leverage and the determination of the proportion of debt and equity.

**Investment Decision:** Investment decision is related with the selection of assets, that a firm will invest.

**Wealth Maximization:** It is maximizing the present value of a course of action.

### **1.10 SELF ASSESSMENT QUESTIONS**

1. Define the scope of financial management. What role should the financial manager play in the modern enterprises?
2. What are the basic financial decisions? Explain.
3. "The profit maximisation is not an operationally feasible criterion". Do you agree? Illustrate your views.
4. "The wealth maximisation objective provides an operationally appropriate decision-criterion". Comment.
5. How should the finance function of an enterprise be organised? What functions are performed by the financial officers?

### **1.11 SUGGESTED READINGS**

1. M Y Khan & P K Jain: Basic Financial Management; McGraw Hill Education (India) Pvt Ltd., New Delhi.
2. R. P. Rustagi: Financial Management–Theory, Concepts and Problems; Taxmann Publications (P) Ltd., New Delhi.
3. Prasanna Chandra: Investment Analysis and Portfolio Management; McGraw Hill Education (India) Pvt. Ltd., New Delhi.
4. Eugene F Brigham & Michael C Ehrhardt: Financial Management– Theory and Practice; Cengage Learning (India) Pvt. Ltd., New Delhi.
5. J Van Horne & John M. Wachowicz: Fundamentals of Financial Management; Pearson Education Ltd. New Delhi.

**LESSON: 2**  
**SOURCES OF FINANCE**

**STRUCTURE**

- 2.0 Objectives
- 2.1 Introduction
- 2.2 Sources of Long-term Finance
  - 2.2.1 Shares and Stock
    - 2.2.1.1 Preference Shares
    - 2.2.1.2 Equity Shares
  - 2.2.2 Debentures
  - 2.2.3 Retained Earnings
  - 2.2.4 Finance from Central and State Governments
  - 2.2.5 Development Banks and Investing Institutions
- 2.3 Medium-term Financing
- 2.4 Short-term Finance
- 2.5 Summary
- 2.6 Keywords
- 2.7 Self Assessment Questions
- 2.8 Suggested Readings

**2.0 OBJECTIVES**

After going through this lesson, you will be able to:

- Describe the various long-term sources of finance.
- Identify the different sources of medium-term financing.
- Discuss the various short-term sources of finance.

## **2.1 INTRODUCTION**

The Financial Manager has to assemble funds from a variety of sources to satisfy varied financial needs of the firm. Some capital is provided by the suppliers, creditors, and owners, while other funds arise from earnings retained in the business. A firm needs long-term funds to purchase fixed assets and to carry a portion of current assets as permanent investment in fixed assets to ensure smooth flow of business activity. A firm needs medium term funds for a period of three to five years for financing aggressive advertising campaign and for complete overhauling of its machines and equipment's. The short-term funds are also needed to meet the day-to-day business needs. Among these different types of capital requirements, funds needed for acquiring fixed assets are of considerable importance because the funds have to be arranged for a long period. The business firm procures funds from external as well as internal sources. The finance manager procures funds from external sources to float new ventures and to expand existing ones. The firm approaches the general investing public, government and financial institutions for the purpose. In the present lesson we shall explain the nature and characteristics of financial instruments, viz., equity shares, preference shares and debentures and their respective implications for long term financing of business. We shall also describe briefly medium and short term sources of finance.

## **2.2 SOURCES OF LONG-TERM FINANCE**

Long-term funds are needed by the firm either to replace existing capital assets or to add to its existing capacity or both. The nature of long-term funds is static and permanent. As a matter of fact, it is this capital which bears the ultimate risk of the business. That is why, a major portion of long-term capital is collected through the sale for equity shares, preference shares, and obtaining long-term loans. Equity shares constitute the most important source of funds to a new business, and provide basic support for existing firm's borrowing. After sometime, the retained earnings may also become a good source of a firm's long-term requirements of funds. When long-term needs are not fully met through shares, the long-term loans are also utilized. So the real bases for division of fund requirements are the time, conditions of its use, and the degree of risk attached to it. If management gets ample time to plan and provide for the repayment of funds, and if management can appropriate these funds for a very long time, it must be included in long-term



financing no matter whether it is ownership claim or a creditorship claim. Now, we will discuss these sources in somewhat detail.

### **2.2.1 Shares and Stocks**

Shares are the universal and typical form of long-term capital raised through capital market. All companies (except companies limited by guarantee) have statutory right to issue shares to raise capital after incorporating provisions thereof in the capital clause of the Memorandum of Association. Capital procured by issue of shares is termed as 'Ownership Capital'.

In simple words, share is a specific portion of capital which, in turn, refers to the amount of money raised by issue of shares. According to Justice Lindley, "The common stocks (contributed by members) is denoted in money and is the capital of the company, the persons who contributed it or to whom it belongs are members. The proportion of capital to which each member is entitled is his share". Section 2 (46) of Indian Companies Act, 1956, has defined a share as "a share in the share capital of a company, and, includes stock except, where a distinction between stock and share is not expressed or implied". A word may be said here about the 'stock' of a company. "When shares have been fully paid up they may, if so authorized by the articles, be turned into stock by the company in general meeting" [Sec. 94 (i) c]. Stock has no face value and stock is not divided in equal shares or parts and dividends are not numbered but it may be divided into any amount. Thus, a shareholder may hold ₹ 100 worth of stock though his shares had originally been worth ₹1000/- each. However, the Registrar must be given the notice of the conversion of paid-up shares into stock (Section 95). Thus, stock is merely a name for the aggregate ownership of a company which is divided into a number of units, each unit is called share. After the allotment of shares of a company the shareholders are given a certificate with regard to their shares, which is called share certificate.

**Features of Shares and Stocks:** The financial manager must be well-versed with the different characteristics of shares and stocks since these have bearing on the interests of the company and the shareholders, therefore, now we shall discuss the main characteristics of shares.

(a) **Permanent capital of Company:** Shares bring in permanent capital which the financial manager can utilize during the whole life of the company. The financial manager need not bother for refunding the share capital to the owners. The company and shareholders have no such

contractual agreement with respect to refund of capital. The shareholders may only get back their capital after the company is liquidated. In addition to this, the residual left after meeting all the obligations is returned to shareholders. But it should be noted that for shareholders it is not always a permanent investment. A shareholder can get back his money invested in the company. He can do so by selling his shares to others, as he is authorised to transfer shares under the Companies Act, 1956. But, it may constitute permanent investment for those who want to retain shares for the whole life of the company.

**(b) No fixed Charge on the Company:** The shares do not involve any fixed charge, nor the company is under obligation to pay dividends. The company has to pay dividends only if it has sufficient profits to do so. The company may even use whole of its earnings for reinvestment and shareholders have no right to object or interfere. The company seeking share capital has not to mortgage its assets for acquiring share capital.

**(c) Shareholders are owners of the Company:** Stockholders become owner of the company. The company gives voting rights to the shareholders. For the administration of the company directors are appointed by the share-owners of the company. But their liability (in case of limited companies) is limited to the part value of shares held by them. Liability is unlimited in case of unlimited company.

A company can issue only two kinds of shares, viz., (i) Preference Shares and (ii) Equity Shares. We shall now discuss the characteristics of these two types of shares separately and examine their significance as source of finance.

### **2.2.1.1 Preference Shares**

As the name implies, preference shares are those share which carry preferential right and privileges with respect to income and assets over equity stock. Section 85 of the Indian Companies Act, 1956 defines preference share as the one which fulfils the following two conditions:

- i. It will carry a preferential right in the payment of dividends over equity stock, either free or subject to income tax, and
- ii. In the re-payment of capital, at the time of winding it will carry or it carries a preferential right irrespective whether there is a preferential right to the payment of any money in respect of dividends remaining unpaid upto the date of such winding up or repayment of

capital or any amount of premium specified in the memorandum or articles of association of the company or both. In the absence of any special qualification, preferred stock carries the same rights as equity stock.

We see that preferred stock is a hybrid form of financing, combining features of debt and common stock. In the event of liquidation, a preference shareholder's claim on assets comes after that of creditors but before that of common stockholders. Usually this claim is restricted to the par value of the stock. The maximum return to preferred stockholders is usually limited to the specified dividend, and these shareholders ordinarily do not share in the residual earnings of the company.

### **Features of Preference Shares**

Following are the features of preference shares:

(a) **Claims of Income:** Preferred stockholders have priority of claim to dividend over equity stockholders. They are paid dividend at a fixed rate specified in the agreement. Only after payment of stipulated dividend to preferred stock holders can the company distribute earnings among equity stockholders. However, the stockholders have no legal recourse against the company for not distributing dividend even though it has earned a large income. Distribution of income is the prerogative of the Board of Directors who can decide whether to pay dividends or to reinvest its earnings wholly. But once the dividend is declared, preferred stockholders must be paid first in accordance with the agreement before any distribution to the residual stockholders. However, the claim of the preferred stockholders unlike equity stockholders is fixed for all time to come and does not change in correspondence with variation in level of earnings. They have no right to share in extra earnings. Occasionally, however, a participating feature is inserted in the preferred stock which gives the stockholder a right to participate in the balance of profits in an agreed proportion along with equity stockholders whose claims are first met on reasonable grounds. Stocks carrying participating features are known as "Participating Preferred Stocks". The formula for participation varies from case to case. In the case of "Non-Participating Stocks", they are entitled only to fixed rate of dividend in preference to equity stockholders but they do not share in additional return. It may be noted that in the absence of any specific right to participate in the surplus profits, preference shares are presumed to be non-participating.

(b) **Cumulative Dividends:** Almost all preferred stocks have a cumulative feature, providing for unpaid dividends in any one year to be carried forward. Before the company can pay a dividend on its common stock, it must pay the dividends in arrears on its preferred stock. If the terms of issue of such shares are silent on this point or the Articles of the company makes no provision concerning whether the preferred stock dividend is to be cumulative, preference shares are presumed to be cumulative. The cumulative feature is beneficial to the shareholders, but the company suffers. It experiences much problem in selling additional ordinary shares if it fails to clear arrears on preferred stock.

(c) **Preference to Assets:** In the event of liquidation of the firm, the preferred stockholders occupy a middle ground between creditors and common stockholders. After the assets are liquidated, the bondholders are paid first. If any money is left, the preferred shareholders are paid second. If money is still remaining, it is shared by the holders of junior security, the common shareholders.

(d) **Basically a Fixed Return:** The maximum return on preferred stock is usually limited to the stated dividend. Thus, a 12% preferred share of ₹ 100 each will return no more than ₹ 12 per share per year. In some cases the preferred stock contains a participating feature that allows the holder to share in earnings above some specific point. As an example, a participating feature may state that, if the common stock dividend is greater than ₹ 2 per share, the preferred stockholders will share equally in the additional dividends.

(e) **Maturity:** Most preferred stock issues have no maturity. It therefore brings in permanent capital. Frequently, provision for retirement of stock is made by call or redemption feature in preference stock. This gives an option to the company of redeeming or buying back the stock from the stockholders under the terms and conditions specified in the Articles of Association. These types of shares are called redeemable preference shares. The right of redemption rests with the company only, no shareholder compels the company for redemption of their shares.

More often than not, conversion feature is incorporated in preferred stock to provide and added inducement to buy such stock. The conversion privilege permits the holder to convert his stock into common stock. It must be remembered that this privilege is exercised almost without exception wholly at the option of the stockholders. Such type of preferred stock is known as "Convertible Preferred Stock". Conversion price is clearly spelt out in the Articles of Association.

It is usually expressed in terms of share. For example, one preferred share will be exchanged for two common shares.

**(f) Controlling Power:** Most preferred stock does not contain provisions to allow its shareholders to vote or have other voices in the management of the company. However, under the companies Act, 1956 (Sec. 87) preference shareholders have been given right to vote on resolutions which directly affect the rights attached to his preference shares and in this connection, any resolution for winding up the company or reduction of its share capital is to be regarded as directly affecting the rights attached to the preference shares. Some other provisions for voting are also found.

### **Evaluation of Preferred Shares as a Source of Corporate Finance**

In context of the above discussions, we may now appraise of preference shares. One of the principal drawbacks to its use is the fact that the preferred dividend is not tax deductible. Non-deductibility of preferred stock dividend for taxation purpose makes cost differential between preferred stock and bond much greater. Even if dividend rate on preferred stock is equal to bond interest rate, effective cost of the former will be higher by 40 per cent (if company is in the tax bracket of 40%) relative to debt. This tax factor has, therefore, limited the potentiality of the preferred stock as the source of finance.

Fixed dividend rate provision on the preferred stock has reduced the utility of this kind of security particularly for company earning less than the dividend rate because that will reduce returns to the residual owners. This is why residual owners are mostly indifferent to issuance of this stock.

However, the advantage of preference-stock financing is that it is a flexible financing arrangement; the dividend is not a legal obligation of the corporation issuing the securities. If earnings turn bad and the financial condition of the company deteriorates, the dividend can be omitted. To be sure, companies that are accustomed to paying dividends on their common stock certainly regard the preferred dividend as a fixed obligation. Nevertheless, under dire circumstances, a company that omits its common stock dividend can also omit its preferred dividend.

Further significance of preferred-stock is that it brings in permanent capital without involving the company in fixed obligation and without creating any charge against its assets. Though dividend payable on preferred stock is fixed, but that does not mean that the management is forced to distribute dividends to the stockholders. Thus, a new and expanding concern needing larger funds for expansion purposes may find it more convenient to raise funds through the preferred stocks.

Another benefit of the preferred stock is that it provides flexibility to the capital structure of the company. By issuing redeemable preference shares, the manager can keep the door of the company open for alternative sources of funds for further financing. Preference shares capital also helps the management to keep controlling power of the current stockholders in fact.

### **Managerial Issues**

So as to decide whether to issue preferred stock, the financial manager should take into account the pros and cons of the stock and financial conditions of the enterprise. Where levels of sales and income of the enterprise have been relatively unstable in the past but on an average earning rate is higher than what is promised on the preferred stock, it will be in the interest of the enterprise to issue preferred stock, Furthermore, if the firm does not have sufficient fixed assets to offer as security for acquiring funds, preferred stock financing would be of considerable use.

The use of this stock will be strongly favoured if the use of debt entails the risk of insolvency in the enterprise and issuance of common stock poses a threat of parting control with new equity stockholders.

The cost factor should also receive the attention of the management. While the cost of preferred stock is likely to be lower than that of the common stock, the use of preferred stock is conditioned essentially by the prevailing interest rates. Therefore, the current interest rates should be compared with the average dividend rates on common stock to take a decision.

#### **2.2.1.2 Equity Shares**

The equity stockholders of a corporation are its residual owners; collectively, they own the company and assume the ultimate risk associated with ownership. Their liability, however, is restricted to the amount of their investment. In the event of liquidation, these stockholders have

residual claim on the assets of the company after the claims of all creditors and preferred stockholders are settled in full. Common stock, like preferred stock, has no maturity date, and stockholders can liquidate their investments by selling their stocks in the secondary market.

### **Features of Equity shares**

The features of equity shares are as follows:

**(a) Maturity:** Equity capital is the permanent capital for the company. Company has no contractual obligation to repayment of capital during its working life. The shareholders have a right of demanding refund of their capital only at the time of liquidation of the company and that too when funds are left after meeting all prior claims. The shareholders cannot be compelled by a company to sell back their shares if they were fully paid-up and the shareholders not engaged in competitive business to the business of the company.

**(b) Right to Income:** Common stockholder's claim on income arises only when claims of creditors and preference shareholders have been met. If the income of the company is sufficient only to meet the claims of the creditors, then equity stockholders will get nothing. More than this is that, if a company has adequate earnings left after covering all obligations, the common stockholders can't compel the company to pay dividends to them. The Directors of the company have full right to utilize the earnings in whatever manner they like. Only if the management, the board of directors, or both are engaged in fraud may stockholders take their case to the court and possibly force the management to pay dividends.

**(c) Voting Power:** The common stockholders being the owner of the company, they are entitled to elect a board of directors. The board, in turn, selects the management which actually controls the operations of the company. In a proprietorship, partnership firm and a small corporation, the owners directly control the operations of the business. But in a large corporation, the owners have an indirect control over the affairs of the company. Outside stockholders have the right to expect that the directors will administer the affairs of the corporation properly on their behalf.

**(d) Right to examine books:** A stockholder is legally entitled to inspect the books and records of a corporation. This access is limited, for most companies feel that the audited financial statement is sufficient to satisfy the requirement.

(e) **Pre-emptive right:** Under a pre-emptive right, existing common stockholders have the right to preserve their proportionate ownership in the corporation. If the corporation issues additional common stock. They must be given the right to subscribe to the new stock so that they maintain their pro-rata interest in the company. The objective of the pre-emptive right is to safeguard the interest of existing stockholders.

### **Evaluation of Equity Stock as a Source of Corporate Finance**

Equity stock is the most potent source of financing that provides substantially large amount of funds without involving the company and the management in any fixed obligations. The management is left free to utilise the funds so raised without being bothered to repay them to their owners till the business of the enterprise continues. Further, the manager is under no statutory obligation to distribute earnings as dividends to the stockholders. They can reinvest business income entirely and the stockholders have no legal recourse to compel the management to pay dividend. Furthermore, the company need not mortgage any portion of its assets to secure equity share capital.

Equity stock facilitates the company to reap the benefits of leverage by taking recourse to debt which is the cheapest source of finance. Creditors are desirous of investing in debentures of a company with a considerable amount of equity capital because it provides a Cushion to absorb and loss. Accordingly, a company with a tidy amount of equity share capital experiences no problem in raising long-term loan capital at convenient terms and conditions. In sum, it strengthens the credit capacity of the company.

The management in a company with an all equity stock structure has complete discretion in distributing as much of the earnings in dividends as it wishes. Since the company is under no legal obligation to pay dividends to the shareholders, the management can retain its earnings entirely for their investment in the business of the enterprise. Thus, a new and growing company seeking large funds for its expansion programmes secures ample resources at cheaper cost and without any inconvenienced and obligations.

In view of the above factors, equity shares have proved to be the most prominent source of financing. It also appeals to a large number of investors who are venturesome and are willing to assume risks for a larger income. By purchasing equity shares, they become owners of the benefits



of prosperity and progress of the company. This is why a good company does not experience great difficulty in garnering funds through equity stock issues.

However, there is a danger of losing control to outsiders if the company elects to raise additional funds in substantially large amounts through equity issues. Controlling position of the current stockholders is jeopardized, new entrants become owners of the Company and reap the benefits of the Company's prosperity and progress. Current stockholders are, therefore, averse to additional financing by means of equity stock.

### **2.2.2 DEBENTURES**

Debentures are the securities through which the corporation can collect long-term funds. Debentures are creditorship securities. By issuing bonds and debentures the firm can procure funds from lenders. What is a debenture? It is an instrument which is written, signed by the company under its common seal acknowledging the debt due by it to its holders. Clear understanding of the two terms bond and debentures is necessary before discussing these securities in detail. In the U.S.A., bond refers to security that has lien on specific assets of the firm. Debenture on the other hand, refers to a security instrument which is not secured by a lien on any specific assets. In the event of liquidation the debenture-holder becomes a general creditor. There is no such difference between these two terms in our country.

Since debenture is a security representing a long term promise to pay a certain sum of money at a certain time or over the course of the loan, with a fixed rate of interest payable to the holder of the bond. Long-term agreement is entered both between the company and creditors, and a deed is executed to set the terms of borrowing. Such a deed is known as 'bond indenture' or 'trust deed'. The 'indenture' contains, among other things, protective provisions that generally include limits on indebtedness, restrictions on dividends, provision for redemption of debentures, etc. For individual debenture-holders it is somewhat difficult to protect their rights since they are scattered all over the country and cannot unite. A representative called a 'trustee' is appointed to deal with the company and enforce the provisions of indenture on behalf of the debenture-holders.

## Features of Debentures

Following are the features of debentures:

(a) **Maturity:** Virtually all bonds have a maturity date and the company agrees to pay off in cash the outstanding bonds at a fixed date. Such bonds which are repayable at fixed date are called 'Redeemable bonds'. Other which have no maturity date are called 'Irredeemable bonds'. Irredeemable debentures are rare in use in India. And in debenture also contains the provisions about the repayment of debt. Companies generally set aside funds out of earnings of the company at periodic interval for retiring all or a portion of bonds before or at maturity. This type of provision is known as 'Sinking Fund Provision' and bonds carrying sinking fund provision are called 'Sinking Fund Bonds'.

Sinking fund requires the corporation to make periodic sinking fund payment to a trustee, in order to retire a specified amount of funds each period. Payments can be cash or bonds that the company purchases in the open market. The trustee uses the cash to call bonds for redemption. Usually bonds are called on a lottery basis by their serial numbers. Because of the orderly retirement of debt as well as the liquidity provided by the regular purchase activity, many investors find the sinking-fund provision valuable. Many sinking funds begin not at the time of issuance of the bond, but after a period of 5 or 10 years.

Sometimes in order to spread the payment of bonds over a long period starting usually one year after the issue, the management may arrange the entire bond issue in such a way that part of the total issue retires serially, i.e., every year. Such bonds are known as 'Serial Bonds'. Serial bonds are not in existence in our country because of rigid provisions of annual retirement of debt which adds to the risks of the company.

(b) **Convertible Bonds:** A convertible bond is one that may be changed, at the option of the holder, into a certain number of shares of common stock of the corporation. The number of shares into which the bond is convertible is specified in the bond, and these shares remain unissued until actual conversion. Conversion takes place usually before maturity. When there is slump in the stock market and acquisition of capital through equity stock poses a problem or temporarily adverse income position of the company at the time the capital is needed, the management may defer the stock issue. In place of stock issue, convertible bond may be floated with an intention to

convert them in future near when, it is believed, earnings of the company will improve and market conditions will change.

(c) **Claims on Income:** Bondholders have priority of claim to income over stockholders. They have legal recourse for enforcing their rights. For protecting their claim to income and assuring regularity of receipt of that income they may even put restrictions on dividend payments to residual owners and for maintenance of adequate liquidity.

Another aspect of bondholder's claim to income is that it is fixed and certain and the borrowing company is under a legal obligation to pay it in cash regardless of the level of earnings of the company. Default in payment of interest may entail the company in extreme predicament and bondholders may even approach the court of law for closure. Bondholders of course, do not have the right to share in the profits of the company.

(d) **Claims on Assets:** Bondholders have priority in respect of their claim on assets in the event of liquidation of the company. But they are entitled only to get principle amount of their money which was lent. Bonds that are secured by a lien on specific assets of the company are called 'Secured Bond' and those do not have a assets pledged are termed as 'Unsecured Bonds'.

(e) **Controlling Power:** Holders of debentures are creditors of the company. They do not have controlling power because they have no right to vote for the election of directors and for the determination of important managerial policies. They may, however, indirectly influence Managerial decision through protective covenants in indenture. For instance, to protect their interest, bond indenture may provide for maintenance of minimum liquidity ratio and for building up stipulated amount of reserves before making dividend payments to stockholders.

### **Evaluation of Debentures as Source of Finance**

The use of debentures in the pattern of corporate financing has got wider and deeper significance. Recourse to debt generally tends to reduce cost of capital and consequently helps improve the overall return of the company. Interest on debentures is deductible as a tax expense. Therefore, the debentures reduce the cost of capital and consequently it helps in improving the overall return of the company. Debenture is a cheaper source of funds due to less interest rate and less issuance cost. During the life cycle of many firms when further equity capital are not available at reasonable cost but the same firm may be in a position to attract debt. With the use of debentures

a company may take its capital structure flexible and also can have controlling power of the existing owners intact.

However, a corporation should not consider that long-term capital requirements should always be met by issue of bonds. Bonds are such securities which impose fix burden of payment of interest by the company. Another limitation of debenture finance is that with successful doses of debt the firm has to pay higher rate of interest because each further issue of debt involves the lender in greater risk.

After discussing positive and negative aspects of debt financing, we may conclude that companies with certain specific features can avail the benefits of debt. Those companies whose profits are usually constant and high enough to cover fixed interest charges on debentures can afford the luxury of financial leverage (ratio of debt-equity). A business firm which is engaged in providing service or in the production of an essential product will certainly have more stability of income than one producing a luxury product. A company with fluctuating earnings should issue common-stock for its meeting financial requirements.

### **2.2.3 Retained Earnings**

A business firm satisfies its initial fund requirements by using external resources of funds but resorts to internal financing to meet its subsequent financial needs for expansion, modernization and rationalization programmes. Internal financing refers to financing by internal sources which comprise earnings retained by the business in the form of depreciation and other reserves and income left over after covering all expenses and which are not distributed among stockholders of the enterprise. The firms which are running successfully and set out a portion of profit for future purposes can use these earnings when needed by the firm. This process is technically termed as 'ploughing back of profits'.

Retained earnings constitute a source of financing for which the company does not bother much. Firms get large amount of funds at relatively cheaper rate and without any legal obligation to refund the same to meet major portion of its expansion and modernisation requirements and without creating charge against any asset. In another direction too retained earnings prove very useful to the company. With the past accumulated funds the management can repay the matured debts and thereby relieve the company of the rigors of debt burden. In brief, retained earnings

provide the best means for company's future growth. The stockholders also stand to gain by internal financing. In the beginning, they have to forego dividend in the short-run, but they will be getting fairly large amount of dividends regularly in future when the company's earnings improve considerably. It also offers tax saving advantage to the stockholders. However, internal financing may not always be useful to the company and its owners. The reckless use of retained earnings will always harm the interests of the stockholders. The management may use the accumulated reserves to finance the needs of companies in which they are keenly interested even though the shareholders may have least interest in them. Another disadvantage of retained earnings is that it may result into over- capitalisation.

#### **2.2.4 Finance from Central and State Governments**

In India, Central and State governments also provide long-term finance directly to business houses. They not only provide direct finance to industrial units but give guarantees also for the loans raised from banks or public. The period of loans varies from 10-15 years. Since independence assistance from central and state governments have been progressively increasing.

#### **2.2.5 Development Banks and Investing Institutions**

With the declaration of the First Industrial Policy Resolution in 1948 for the rapid industrialisation of the country, the government of India established a series of special financial institutions like, Industrial Finance Corporation of India, State Finance Corporations, the Industrial Development Bank of India, etc.

##### **1. Industrial Finance Corporation of India (IFCI)**

IFCI was the first national level development bank set up in 1948 by an Act of Parliament to make medium and long-term funds readily available to industrial concerns particularly when the normal banking support is inappropriate or going to the capital market is impracticable.

In furtherance of the above objective IFCI provides financial assistance by granting loans, underwriting the issue of shares and debentures and subscribing to shares and debentures of industrial concerns. The Corporation also helps business enterprise in raising share capital from capital market and procuring term loans from other financial institutions.

While considering assistance application of an enterprise IFCI looks into the detailed technical, financial, managerial, economic and social aspects of the project in addition to national priorities indicated in five-year plans and policies of the Government. IFCI caters to the needs of medium and large projects either singly or jointly with other all-India Financial Institutions. Normally, the Corporation considers projects costing upto ₹ 5 crore independently. In respect of projects costing over ₹ 5 crores, the Corporation invites other all-India institutions to finance such projects under the system of consortium financing.

## **2. Industrial Credit and Investment Corporation of India (ICICI)**

The basic idea underlying the creation of ICICI was to meet the needs of industry for permanent and long-term funds in the private sector. Thus, the Corporation aims at:

- i) assisting the creation, expansion and modernisation of industrial enterprises within the private sector of industry in India;
- ii) encouraging and promoting participation of private capital, both internal and external in such enterprise; and
- iii) encouraging and promoting private ownership of industrial investment and expansion of investment markets.

ICICI renders financial assistance to industrial undertakings by providing loans repayable over period of 15 years, subscribing to equity shares, sponsoring and underwriting new issues of shares and securities, guaranteeing loans from the private investments sources, providing loans in foreign currency towards the cost of imported capital equipment, providing lease financing and by acting as a merchant banker.

## **3. Industrial Development Bank of India (IDBI)**

IDBI was established in 1964 with a view to propelling the wheels of industrial sector to achieve maximum growth by eliminating gaps in the capital market and supplying sinews of development to all financial agencies engaged in this task. To achieve this basic objective, IDBI is empowered to perform the following functions:

**a) Coordinating Function:** IDBI coordinates operations of all miniature financial institutions including IFCI, ICICI, LIC and UTI into a single integrated financial structure so that each might contribute to the total effect as it could.

**b) Financing Function:** As an industrial financier, IDBI can assist all deserving projects regardless of their size which are experiencing enormous problems in assembling funds from normal channels. Its main endeavour in this regard is to ensure that no worthwhile project, howsoever small, is allowed to languish for insufficiency of institutional support. IDBI can assist an enterprise directly and indirectly.

As direct financier, it renders assistance to business concerns in the following ways:

1. Granting term loans and advances.
2. Subscribing to purchasing, or underwriting the issue of shares or debentures.
3. Guaranteeing deferred payment due from industrial concerns to third parties and loans raised by them in the open market or from financial institutions.

#### **4. State Financial Corporations (SFCs)**

SFCs are the state level development banks set up in India under State Financial Corporations Act, 1951 for the purpose of providing financial assistance to new as well as existing industrial concerns for purpose of establishment, modernisation, renovation, expansion and diversification. These institutions assist a concern in following ways:

- 1) Granting loans or advances or subscribing to debentures of industrial concerns repayable within 20 years;
- 2) Guaranteeing loans raised by industrial concerns on such terms and conditions as may be mutually agreed upon but they should be repayable within 20 years;
- 3) Guaranteeing such deferred payments of any industrial concern as are in connection with the purchase of capital goods within India;
- 4) Underwriting issue of stocks, bonds or debentures of industrial concerns subject to their being disposed of in the market within seven years;
- 5) Providing foreign exchange loans under World Bank scheme;

6) Participation in equity capital of the small scale industrial units coming up in backward areas.

A concern can get financial support from a State Financial Corporation upto ₹ 60 lakhs. Only small scale units engaged in all industrial activities including mining, transport by rope ways and development of industrial areas are entitled to get assistance from this institution. SFCs generally provide loans secured by way of legal mortgage of fixed assets and executed in favour of the institution. Forty per cent margin is usually maintained on loans. However, SFC's policy in this respect has been very flexible. In certain cases particularly those coming up in less developed regions, they lend without any margin.

## **5. Unit Trust of India (UTI)**

The UTI was established in 1964 in public sector for the purpose of mobilisation of savings of the community and redirection of these pooled savings in profitable outlets. During 55 years of its operations UTI provided attractive saving opportunities to the community through sale of units under various schemes and thereby mobilise savings of the community. The UTI utilises these resources in assisting diverse needs of business organisations.

The Trust assists an enterprise by investing in its shares and debentures and underwriting the security issues. In recent years following an amendment the UTI has been empowered to grant term loans, rediscount bills, undertake equipment leasing, hire purchase financing and financing of housing projects. The major considerations influencing the UTI's investment are safety of funds and reasonable return including capital appreciation on its units. In order to translate these considerations into action, the Trust diffuses its investible resources over different types of securities of numerous units belonging to different industry groups.

### **(B) Medium-term Financing**

Intermediate-term debt is defined as borrowings with maturity period greater than 1 year and less than 7 to 10 years. Debts with maturities of less than 1 year are classified as short-term; debts with maturities in excess of 7 to 10 years are considered long term. Many analysts and accountant ignore the distinction between intermediate and long-term debt. They view that debts are of only two types: Short-term for maturities of 1 year or less and long-term for maturities in



excess of 1 year. When intermediate term debt is identified as a separate category, the following types are common:

(a) **Term Loans:** This is a loan from a bank, non-finance company, insurance company or other financial institutions for a period ranging between 1 to 7 years. Such loans are generally employed to finance more a permanent portion of working capital requirements. As a result, most of these loans are paid in regular and periodic instalments, although there are exceptions to the rule.

Term loans may take the form of an ordinary loan or a revolving credit. In ordinary term loan lender lends funds and as per the agreement outright for a period of more than a year and upto 10 years. On the other hand, a revolving credit is a formal commitment by a lender to lend a certain amount of money to a firm over a specified period of time.

In India, term loans are being provided mainly by Commercial banks. Industrial Development Bank of India, Industrial Finance Corporations, State Finance Corporations, State Industrial Development Corporations, Industrial Development Corporation of India, Unit Trust of India, and several financial and investment corporations.

**Commercial Bank Loans:** Commercial banks are primary medium-term lenders to business firms. The loans are generally made for periods upto 7 years, although occasionally loans with longer maturities are also considered. Some features of commercial bank loans are as follows:

1. **Collateral:** Term loans are more frequently secured than short-term loans due to greater risks involved in term lending. Usually, a fixed asset such as a vehicle, a ship, or a piece of machinery, is pledged as collateral for the loan.

2. **Fixed versus Floating Rate:** The interest that is due on term loan with a commercial bank is determined in advance, using one of the two methods. A fixed-rate loan has a single interest rate for the entire period much more common, a floating-rate loan has interest charge that is tied to current money market rate and varies with changes in interest levels. For example, a rate of "2.5 per cent above prime quarter" would vary as the prime rate varies.

Commercial bank loans offer advantages and disadvantages to the firm. The advantages include establishing a working relationship with a bank that can result in advice and financial

expertise from the bank's officers. The disadvantages include disclosure of confidential information and the restrictions that may be imposed as part of the loan agreement. Commercial banks in India have been pumping in growingly large amount of funds to meet financial needs of industrial enterprises.

**Insurance Companies:** A number of Life Insurance Companies make term loans to business. While commercial banks make loans to firms of varying size and credit risk, insurance companies concentrate on low-risk loans to large and financially viable companies. Because of the high credit standing of their customers, insurance companies are willing to offer maturities of 10 or more years, offer loans that are large than those available from commercial banks, and in some cases even offer unsecured loans. The major disadvantage of term loans extended by insurance companies is higher interest rate, and major advantage is larger loans and higher amount of money as compared to commercial bank financing.

**Pension Funds:** A minor source of medium-term financing is the employees' Pension funds that make secured loans to business. These loans are generally secured by mortgages of property and carry terms and conditions similar to loans made by Life Insurance Companies.

#### **(b) Lease Financing**

A lease is a contract whereby the owner of an asset (the lessor) grants to another party (the lessee) the exclusive right to use the asset, usually for an agreed period of time, in return for the payment of rent. Most of us are familiar with leases of houses, offices, or telephone. Recent decades have seen an enormous growth in the leasing of business assets such as cars and trucks, and manufacturing plants. An obvious advantage to the lessor is the use of an asset without having to buy it. Because of the contractual nature of a financial lease obligation, it must be regarded as a form of financing. It is used in place of other methods of financing to acquire the use of an asset.

#### **(c) Public Deposits**

Industrial and business concerns accept direct term deposits from the public upto a period of 5 years. In India, in cotton textile industry this system has been very popular. But now almost all types of business concerns are accepting public deposits. This system has been very popular during last 7- 10 years. The Reserve Bank of India has enacted rules for regularising these fixed deposits.

## **2.4 SHORT-TERM FINANCE**

In India, two important sources for mobilising short-term funds for financing working capital requirements have been commercial banks and trade credit apart from support being provided through equity base. But, highly stringent credit policies of the banks on one hand and the growing complexities and ever tightening discipline and other controls attached with bank credit and institutional finance on the other have paved way for the companies to go in for new and innovative sources other than traditional bank credit. Such a move of more reliance of corporate sector on capital market and money market resources has helped it to meet ever increasing and dynamic quest for working capital finance. Some of the money market instruments like commercial papers, customer advances, corporate deposits and inter-corporate loans are briefly described in the subsequent pages along with trade credit and commercial bank as sources of finance.

### **1. Trade Credit**

Trade credit is a form of short-term financing common to almost all business. In fact, it is the largest source of short-term funds for business firms collectively. In an advanced economy, most buyers are not required to pay for goods upon delivery but are allowed a short deferment period before payment is due. During this period, the seller of the goods extends credit to the buyer. It is because suppliers are generally more liberal in the extension of credit than are financial institutions. Most of the small companies in rely on trade credit.

There are three types of trade credits: open account, notes payable, and trade acceptances. Among these the most common type is the open-account arrangement, and are known as accounts payable. The seller ships goods to the buyer and sends an invoice that specifies the goods shipped the price, the total amount due, and the terms of sale. There is no formal agreement nor there is specific document recognizing the buyer's liability to the seller. The only evidence with the seller is that credit has been intended on the buyer's order and shipping invoices. Open-account credit is ordinarily extended only after the seller conducts a fairly extensive investigation of the buyer's credit standing and reputation.

In some situations, promissory notes are employed instead of open-account credit. The buyer signs a note that evidences a debt to the seller. The note itself calls for the payment of

obligation at some specified future date. Promissory notes have been used in business such as those dealing in furs and jewellery. Promissory notes are generally an interest-bearing instrument. They appear on the seller's balance sheet as notes receivable.

In some lines of business the trade acceptances are used in place of open account. This form of credit also involves a formal recognition of the debt. Under this arrangement of credit, the buyer will not receive the delivery of goods until the buyer accepts a draft written by the seller. The draft is an order of payment at some date in future. When the buyer accepts the draft he designates a bank where draft will be paid on due date.

The trade credit is a source of capital that arises naturally in the course of business because the customers generally do not pay for merchandise until sometime after they are delivered. Another benefit of trade credit as a source of financing is 'its liberality'. Many business firms, particularly smaller and newly set-up organisations, whose access to different sources of money-market is limited and, therefore, experience enormous problems in acquiring needed funds can obtain trade credit. Suppliers are willing to offer credit liberally for a number of reasons. Basically, they regard credit as a sales aid. Trade credit is also liberal because the supplier does not examine credit worthiness of his customers with the same degree of care than a banker would. Prompt availability of trade credit is another attraction of this source of financing. Customarily there are no formal applications to fill out, no notes to sign, and no rigid repayment dates particularly in open account. If a customer is occasionally a little late in paying a supplier his credit reputation is not put to harm.

## **2 Commercial Bank's Assistance**

Commercial banks play an important role in the short-term financing of companies. They provide this help in the form of overdraft, mortgages, cash credit, hypothecation and discounting of bills and hundies etc.

**Loan:** In a loan account entire advance is disbursed at one time either in cash or by transfer to his current account. It is a single advance. Except by way of interest and other charges no further withdrawals are allowed in this account. Since loan accounts are not running accounts like overdrafts and cash credit accounts, no cheque books are issued.

**Overdraft:** Under this facility, the customers are allowed to withdraw in excess of credit balance standing in their Current Deposit Account. A fixed limit is therefore granted to the borrowers within which the borrower is allowed to overdraw his account. Though overdrafts are repayable on demand, they generally continue for long periods by annual renewals of the limits. Interest on overdraft is charged on daily balances.

**Cash Credit:** Cash credit is an arrangement under which a customer is allowed an advance upto a certain limit against credit granted by the bank. Under this arrangement, a customer need not borrow the entire amount of advance at once, but he can only draw to the extent of his requirements and deposit his surplus funds in this account. The interest is charged not on the full amount but on the amount actually availed by him. Generally the cash credit limits are sanctioned against the security of goods by way of pledge or hypothecation.

### **3. Sale of Commercial Papers**

Commercial Paper (CP) is a short-term money market instrument ideally suited for corporate sector borrowing from banks for their working capital needs and investors. Highly rated companies can take advantage of this source and it serves the needs of investors for parking their short-term funds. CP as a source of short-term fund is popular in the Western countries and Japan. In U.S.A., it is in vogue for over 100 years whereas its origin in European Countries and Japan is of recent one. Reserve Bank of India (RBI) has permitted issue of CP in our country.

CP is a usance promissory note negotiable by endorsement and delivery typically with a fixed maturity between three months and six months and is issued on a discount basis. It enables companies to raise short-term debt at attractive rates of interest. CP is an unsecured instrument and is not tied to any specific business transaction. It does not carry any underlying collateral security like cash credit advance. However, since CP is carved out of the working capital limits being enjoyed by the issuing company with its bankers, it becomes a substitute source and not an additional source.

### **4. Commercial Factoring**

A firm finances its short-terms requirements of funds by selling the account receivables to specialized dealers known as factors. These are brokers or agents who collect the book debts. Thus,

firm can get the whole amount in ready cash and factor collects it afterwards. The firm is not required to establish and operate a separate credit and collection department.

#### **5. The loans from Directors/Managing Directors or other officers of the firm**

It is also an important source of short-term finance. The directors or officers of the company can give advance to companies to meet the working capital requirements.

#### **6. Customers advances**

If the firm undertakes job or production order on contract basis, then customers may be required to deposit some advance with the company. These advances may be used by the company for their working capital requirements.

### **2.5 SUMMARY**

The financial needs of a business may be grouped into three categories which are Long-term, Medium-term and Short-term financial needs. Long-term Sources of finance of a business include Share capital, Debentures/Bonds of different types and loans from financial institutions. Short-term Sources of finance includes Trade credit, Commercial banks, fixed deposits for a period of one year or less, Advances received from customers and Various short-term provisions.

### **2.6 KEYWORDS**

**Preference Share Capital:** These are a special kind of shares, the holders of such shares enjoy priority, both as regards to the payment of a fixed amount of dividend and repayment of capital on winding up of the company.

**Retained Earnings:** These are the portion of earning available to equity shareholders, which are ploughed back in the company.

**Trade Credit:** It refers to the credit extended by the supplier of goods or services to his/her customer in the normal course of business.

**Commercial Paper:** It represents a short-term unsecured promissory note issued by firms that have a fairly high credit (standing) rating.

### **2.7 SELF ASSESSMENT QUESTIONS**

1. Describe the distinguishing features of equity shares.
2. Bring out the distinguishing features of preference shares. In what respect does preferred stock differ from common stock?
3. Evaluate the potentiality of debentures as a source of raising long-term capital.
4. Write notes on:
  - (a) IFCI (b) ICICI (c) UTI (d) SFC
5. What are the various sources of raising short-term funds? Describe.

## **2.8 SUGGESTED READINGS**

6. R. P. Rustagi: Financial Management–Theory, Concepts and Problems; Taxmann Publications (P) Ltd., New Delhi.
7. Prasanna Chandra: Investment Analysis and Portfolio Management; McGraw Hill Education (India) Pvt. Ltd., New Delhi.
8. I M Pandey: Financial Management; Vikas Publication House Ltd., New Delhi.
9. Eugene F Brigham & Michael C Ehrhardt: Financial Management– Theory and Practice; Cengage Learning (India) Pvt. Ltd., New Delhi.
10. J Van Horne & John M. Wachowicz: Fundamentals of Financial Management; Pearson Education Ltd. New Delhi.

**LESSON: 3**  
**RATIO ANALYSIS**

**STRUCTURE**

- 3.0 Objectives
- 3.1 Introduction
- 3.2 Meaning of a Ratio
- 3.3 Nature of Ratio Analysis
- 3.4 Interpretation of Ratios
- 3.5 Significance of Ratio Analysis
- 3.6 Limitations of Ratio Analysis
- 3.7 Classification of Ratios
- 3.8 Financial position of a company: Short-term analysis.
- 3.9 Financial position of a company: Long-Term analysis
- 3.10 Profitability Ratios
- 3.11 Capital Structure Ratios
- 3.12 Du-Pont Control Chart
- 3.13 Summary
- 3.14 Keywords
- 3.15 Self Assessment Questions
- 3.16 Suggested Readings

**3.0 OBJECTIVES**

After reading this lesson, you should understand the following:

- Meaning and nature of ratio Analysis.
- Importance and limitations of ratio analysis.
- Types of various ratios and their interpretation.



### **3.1 INTRODUCTION**

Ratio analysis is the process of determining and interpreting numerical relationships based on financial statements. A ratio is a statistical yardstick that provides a measure of the relationship between two variables or figures. This relationship can be expressed as a per cent or as a quotient. Ratios are simple to calculate and easy to understand. The persons interested in the analysis of financial statements can be grouped under three heads, i) Owners or investors ii) Creditors and iii) Financial executives Although all these three groups are interested in the financial conditions and operating results, of an enterprise, the primary information that each seeks to obtain from these statements differs materially, reflecting the purpose that the statement is to serve. Investors desire primarily a basis for estimating earning capacity. Creditors are concerned primarily with liquidity and ability to pay interest and redeem loan within a specified period. Management is interested in evolving analytical tools that will measure costs, efficiency, liquidity and profitability with a view to make intelligent decisions.

### **3.2 MEANING OF A RATIO**

A ratio is a simple arithmetical expression of the relationship of one number to another. It may be defined as the indicated quotient of two mathematical expressions. According to Accountant's Handbook by Wixon, Kell and Bedbord, "A ratio" is an expression of the quantitative relationship between two numbers". In simple language ratio is one number expressed in terms of the other and can be worked out by dividing one number into the other.

A financial ratio is the relationship between two accounting figures expressed mathematically. For example, if the current assets of a firm on a given date are ₹ 5,00,000 and the current liabilities are ₹ 2,50,000 then the ratio of current assets to current liabilities will work out to be  $5,00,000/2,50,000$  or 2. It is also expressed as a proportion. Considering the same example, ratio for current assets to current liabilities is, say  $5,00,000:2,50,000$  or 2:1. Similarly, it can also be expressed as a percentage by simply multiplying the ratio by 100. As in above example, the ratio is  $2 \times 100$  or 200% or say current assets are 200% of current liabilities.

### **3.3 NATURE OF RATIO ANALYSIS**

Ratio analysis is a technique of analysis and interpretation of financial statements. It is a process of establishing and interpreting various ratios for helping in making certain decisions. However, ratio analysis is not an end in itself. It is only a means of better understanding of financial strengths and weaknesses of a firm. Calculation of mere ratios does not serve any purpose, unless several appropriate ratios are analysed and interpreted. The following are the four steps involved in the ratio analysis;

- (i) Selection of relevant data from the financial statements depending upon the objective of the analysis.
- (ii) Calculation of appropriate ratios from the above data.
- (iii) Comparison of the calculated ratios with the ratios of the same firm in the past, or the ratios developed from projected financial statements or the ratios of some other firms or the comparison with ratios of industry to which the firm belongs.
- (iv) Interpretation of the ratios.

### **3.4 INTERPRETATION OF RATIOS**

The interpretation of ratios is an important factor. Though calculation is also important but it is only a clerical task whereas interpretation needs skills, intelligence and foresightedness. The interpretation of the ratios can be done in the following ways:

- 1. Single Absolute Ratio:** Generally speaking, one cannot draw meaningful conclusions when a single ratio is considered in isolation. But single ratios may be studied in relation to certain rules of thumb which are based upon well proven contentions, as for example 2:1 is considered to be a good ratio for current assets to current liabilities.
- 2. Groups of Ratio:** Ratios may be interpreted by calculating a group of related ratios. A single ratio supported by related additional ratios becomes more understandable and meaningful.
- 3. Historical Comparisons:** One of the easiest and most popular ways of evaluating the performance of the firm is to compare its present ratios with the past ratios called comparison over time.

**4. Projected Ratios:** Ratios can also be calculated for future standard based upon the projected financial statements. Ratio calculation on actual financial statements can be used for comparison with the standard ratios to find out variance, if any. Such variance helps in interpreting and taking corrective action for improvement in future.

**5. Inter-firm Comparison:** Ratios of one firm can also be compared with the ratios of some other selected firms in the same industry at the same point of time.

### **Guidelines for Interpretation**

Following guidelines or factors may be kept in mind while interpreting various ratios:

**1. Accuracy of Financial Statements:** The ratios are calculated from the data available in financial statements. The reliability of ratios is linked to the accuracy of information in these statements. Thus, one should see whether proper concepts and conventions have been used for preparing them and also whether they are properly audited by a competent auditor.

**2. Objective or Purpose of Analysis:** The type of ratios to be calculated will depend upon the purpose for which these are required. Different objects may require the study of different ratios.

### **3.5 SIGNIFICANCE OF RATIO ANALYSIS**

Ratio analysis is used as a device to analyse and interpret the financial health of an enterprise. Its use is not confined to a finance manager only. There are different parties interested for different purposes. The creditors, bankers, financial institutions, investors, shareholders and management, all make use of ratio analysis as a tool of evaluating the financial position and performance of a firm for granting credits, providing loan so making investment in the firm. Thus, ratios have a wide application and are of immense use today.

#### **(a) Managerial uses**

**1. Help in Decision-making:** Financial statements are prepared primarily for decision-making. But information provided in financial statements is not an end in itself and no meaningful decisions from these statements can be taken.

- 2. Help Financial Forecasting & Planning:** Ratio analysis is of much help in financial forecasting and planning. Planning is looking ahead and the ratios calculated for a number of years work as guide for future.
- 3. Help in Communication:** The financial strength and weakness of a firm are communicated in an easier and understandable manner by use of ratios.
- 4. Selection of Ratio:** It means the ratios should match the purpose for which these are required. Calculation of large numbers of ratios without determining their need in the present context may confuse the things instead of solving them.
- 5. Use of Standards:** The ratios will give an indication of the financial position only when discussed with reference to certain standards. These standards may be a rule of thumb as in case of current ratio (2:1) and acid-test ratio (1:1) or may be an industry standard.
- 6. Calibre of Analyst:** The ratios are only the tools of analysis and their interpretation will depend upon the calibre and competence of the analyst. He should be familiar with various financial statements and the significance of changes etc. The utility of ratios is linked to the expertise of the analyst.
- 7. Ratios Provide Only a Base:** The ratios are only guidelines for an analyst. He should not base his decisions entirely on them. He should study any other relevant information, situation in the concern, general economic environment, etc. before reaching full conclusions.
- 8. Helps in Co-Ordination:** Ratios even help in co-ordination which is of utmost importance in effective management of business. Better communication of efficiency and weakness of an enterprise results in better co-ordination in an enterprise.
- 9. Helps in Controlling:** Ratio analysis even helps in making effective control of business. Standard ratios can be based upon performa financial statements and deviations, if any, can be found by comparing the actual with the standard, so as to take a corrective measure in time.

**(b) Utility to Shareholders/Investors**

An investor in the company will like to assess the financial position of the concern before investment. His first interest will be the security of his investment and then a return in the form of dividend/interest. He will feel satisfied only if the concern has large assets. Long term solvency

ratios will also be of help. Profitability ratio on the other hand, will be useful to determine the profitability position.

**(c) Utility to Creditors**

The creditors/suppliers extend short-term credit only if the financial position of the concern warrants their payments. Thus by looking at current & acid-test ratios, creditors can establish the short-term solvency of the concern.

**(d) Utility to Employees**

The employees are also interested in financial position, especially profitability. Their wages increase and amount of fringe benefits are related to volume of profits earned. Various profitability ratios relating to gross profit, operating profits, net profits etc. enable employees to know reality.

**(e) Utility to Government**

Government is interested to know the overall strength of concern. It may base its future policies on the basis of industrial information available from various units. The ratios may be used as indicators of overall financial strength of public as well as private sector.

### **3.6 LIMITATIONS OF RATIO ANALYSIS**

Though ratios are simple to calculate and easy to understand, they suffer from some serious limitations:

- 1. Limited use of Single Ratio:** A single ratio, usually, does not convey much of a sense. For better interpretation, a number of ratios have to be calculated which is likely to confuse the analyst than help him in making any meaningful conclusions.
- 2. Lack of Adequate Standards:** There are no well accepted standards or a rule of thumb for all ratios which can be accepted as norms. It renders interpretation of ratios difficult.
- 3. Inherent Limitation of Accounting:** Like financial statements, ratios also suffer from the inherent weakness of accounting records such as the historical nature. Ratios of the past are not necessarily indicators of the future.

4. **Change in Accounting Procedure:** Change in accounting procedures by a firm often makes ratio analysis misleading e.g., a change in the valuation methods of inventories, from FIFO to LIFO increases the cost of sales and reduces the value of closing stock which makes turnover ratio lucrative but leads to an unfavourable gross profit ratio.
5. **Window Dressing:** Financial statements can easily be window dressed to present a better picture of its financial and profitability position to outsiders. Hence one has to be careful while making decision on the basis of ratios calculated from such window dressing made by a firm.
6. **Personal Bias:** Ratios are only means of financial analysis and is not an end in itself. Ratios have to be interpreted carefully because the same ratio can be looked at, in different ways.
7. **Incomparable:** Not only industries differ in their nature but also the firms of the similar business widely differ in their size and accounting procedures. It makes comparisons of ratios difficult and misleading.
8. **Absolute Figures Distortive:** Ratios devoid of absolute figures may prove distortive as ratio analysis is primarily a quantitative analysis and not a qualitative analysis.
9. **Price Level Changes:** While making ratio analysis, no consideration is made to the changes in price levels and this makes the interpretation of ratios invalid.
10. **Ratios No Substitutes:** Ratio analysis is merely a tool of financial statements. Hence, ratios become useless if separated from the statements from which they are computed.

### 3.7 CLASSIFICATION OF RATIOS

Different types of ratios are computed depending on the purpose for which they are needed. Broadly speaking, they are grouped under four heads:

1. Liquidity ratios
2. Solvency ratios
3. Turnover or Activity ratios
4. Profitability ratios

The ratios are worked out to analyse the following aspect or areas of business organization.

- 1) Solvency:
  - a) Long-term solvency
  - b) Short-term solvency
  - c) Immediate solvency
- 2) Stability
- 3) Profitability
- 4) Operational efficiency
- 5) Credit standing
- 6) Structural analysis.
- 7) Utilization of resources and
- 8) Leverage or external financing.

The ratios are used for different purposes, for different users and for different analysis. The ratios can be classified as under:

- a) Traditional classification
- b) Functional classification
- c) Classification from user's point of view

#### **Traditional classification**

As per this classification, the ratios readily suggest through their names, their respective resources. From this point of view, the ratios are classified as follows:

- a) **Balance Sheet Ratio:** This ratio is also known as financial ratios. The ratios which express relationships between two items or group of items mentioned in the balance sheet at the end of the year.  
**Example:** Current ratio, Liquid ratio, Stock to Working Capital ratio, Capital Gearing ratio, Proprietary ratio, etc.
- b) **Revenue Statement Ratio:** This ratio is also known as income statement ratio which

expresses the relationship between two items or two groups of items which are found in the income statement of the year.

**Example:** Gross Profit ratio, Operating ratio, Expenses Ratio, Net Profit ratio, Stock Turnover ratio, Operating Profit ratio.

- c) **Combined Ratio:** These ratios show the relationship between two items or two groups of items, of which one is from balance sheet and another from income statement (Trading A/c and Profit & Loss A/c and Balance Sheet).

**Example:** Return on Capital Employed, Return on Proprietors' Fund ratio, Return on Equity Capital ratio, Earning per Share ratio, Debtors' Turnover ratio, Creditors Turnover ratio.

### **Functional Classification of Ratios**

The accounting ratios can also be classified according their functions as follows:

- a) **Liquidity Ratios:** These ratios show relationship between current assets and current liabilities of the business enterprise.

**Example:** Current Ratio, Liquid Ratio.

- b) **Leverage Ratios:** These ratios show relationship between proprietor's fund and debts used in financing the assets of the business organization.

**Example:** Capital gearing ratio, debt-equity ratio, and proprietary ratio. This ratio measures the relationship between proprietor's fund and borrowed funds.

- c) **Activity/Turnover Ratio:** This ratio is also known as turnover ratio or productivity ratio or efficiency and performance ratio. These ratios show relationship between the sales and the assets. These are designed to indicate the effectiveness of the firm in using funds, degree of efficiency, and its standard of performance of the organization.

**Example:** Stock Turnover Ratio, Debtors' Turnover Ratio, Turnover Assets Ratio, Stock working capital Ratio, working capital Turnover Ratio, Fixed Assets Turnover Ratio.

- d) **Profitability Ratio:** These ratios show relationship between profits and sales and profit & investments. It reflects overall efficiency of the organizations, its ability to earn reasonable return on capital employed and effectiveness of investment policies.



**Example:** i) Profits and Sales: Operating Ratio, Gross Profit Ratio, Operating net profit Ratio, Expenses Ratio etc.

ii) Profits and Investments: Return on Investments, Return on Equity Capital etc.

e) **Coverage Ratios:** These ratios show relationship between profit in hand and claims of outsiders to be paid out of profits. **Example:** Dividend Payout Ratio, Debt Service Ratio and Debt Service Coverage Ratio.

### **Classification from the view point of user**

Ratios from the users' point of view are classified as follows:

a) **Shareholders' point of view:** These ratios serve the purposes of shareholders. Shareholders, generally expect the reasonable return on their capital. They are interested in the safety of shareholders investments and interest on it.

**Example:** Return on proprietor's fund, Return on Capital, Earning per share.

b) **Long term creditors:** Normally leverage ratios provide useful information to the long term creditors which include debenture holders, vendors of fixed assets, etc. The creditors interested to know the ability of repayment of principal sum and periodical interest payments as and when they become due.

**Example:** Debt equity ratio, return on capital employed, proprietary ratio.

c) **Short term creditors:** The short-term creditors of the company are basically interested to know the ability of repayment of short-term liabilities as and when they become due. Therefore, the creditors have important place on the liquidity aspects of the company's assets.

#### **Example**

a) Liquidity Ratios - Current Ratio, Liquid Ratio

b) Debtors Turnover Ratio

c) Stock working capital Ratio.

d) Management: Management is interested to use borrowed funds to improve the earnings.

**Example:** Return on capital employed, turnover Ratio, Operating Ratio, and Expenses Ratio.

### 3.8 FINANCIAL POSITION OF A COMPANY: SHORT-TERM ANALYSIS

The short-term creditors of a company like suppliers of goods on credit and commercial banks providing short-term loans are primarily interested in knowing the company's ability to meet its current or short-term obligations as and when these become due. Even a very high degree of liquidity is not good for a firm because such a situation represents unnecessarily excessive funds of the firm being tied up in current assets. Therefore, it is very important to have proper balance in regard to the liquidity of the firm. Two types of ratios can be calculated for measuring short-term financial position or short-term solvency of a firm.

(A) Liquidity Ratios

(B) Current Assets Movement or efficiency ratios.

#### (A) Liquidity Ratios

Liquidity refers to the ability of a concern to meet its current obligations as and when they become due. If current liabilities are not easily met out of current assets, then liquidity position will be bad. The bankers, suppliers of goods and other short-term creditors are interested in liquidity of the concern. So to measure the liquidity of a firm, the following ratios can be calculated:

(a) Current Ratio; (b) Quick/acid test or liquid ratio; and (c) absolute Liquid Ratio

#### (a) Current Ratio

Current ratio may be defined as the relationship between current assets and current liabilities. This ratio, also known as Working Capital Ratio is a measure of general liquidity and is most widely used to make the analysis of short-term financial position or liquidity of a firm.

It is calculated by dividing the total of current assets by total of the liabilities.

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current liabilities}}$$

Or, Current Assets: Current liabilities

The two basic components of this ratio, current assets and current liabilities, include items listed below.

**Table-1**  
**Components of Current Ratio**

<b>Current Assets</b>	<b>Current Liabilities</b>
Cash-in-hand, cash-at-bank, Securities, Short Term Investments, B/R, Sundry Debtors, Inventories, Work-in-Progress & Prepaid Expenses.	O/s Expenses, B/P, Sundry Marketable Creditors, Short-term Advances, Income-Tax payable, Dividends Payable & Bank Overdraft.

### **Significance and Limitations**

Current ratio is a general & quick measure of liquidity of a firm. It represents the ‘margin of safety’, or ‘cushion’ available to the creditors and other current liabilities. But it suffers from the following limitations:

- (a) **Crude Ratio:** It is a crude ratio because it measures only the quantity and not the quality of current assets.
- (b) **Window Dressing:** Current assets and liabilities are manipulated in such a way that current ratio loses its significance. Window dressing may be indulged in the following ways:
  - (I) Over-valuation of closing stock
  - (ii) Obsolete or worthless stock is shown in the closing inventory at their costs instead of writing them off.
  - (iii) Recording in advance, cash receipts applicable to next year’s sales.
  - (iv) Omission of a liability for merchandise included in inventory.
  - (v) Treating a short term obligation as long term liability.
  - (vi) Inadequate provision for bad and doubtful debts.
  - (vii) Inclusion in debtors of advance payment for purchase of fixed assets.
- (b) **Quick or Acid Test or Liquid Ratio**

Liquid Ratio is more rigorous test of liquidity than the current ratio. It may be defined as the relationship between quick/liquid assets and current liabilities. It can be calculated by dividing the total of the quick assets by total of current liabilities. Thus,

$$\text{Quick/Liquid or Acid Test Ratio} = \frac{\text{Quick or liquid Assets}}{\text{Current liabilities}}$$

Quick assets can also be calculated as:

$$\text{Current Assets} - (\text{Inventories} + \text{Prepaid Expenses})$$

The two basic components of this ratio, quick assets and current liabilities, includes items which are as follows:

**Table-2**  
**Components of Quick Ratio**

<b>Quick/Liquid Assets</b>	<b>Current Liabilities</b>
Cash-in-hand	Outstanding/Accrued Expenses
Cash-at-Bank	Bills payable
Bills Receivable	Sundry Creditors
Sundry Debtors	Short-term Advances
Marketable Securities	Income-tax Payable
Temporary Investment	Dividends Payable
	Bank Overdraft

**Interpretation of quick Ratio:** Usually, a high quick ratio is an indication that the firm is liquid and has the ability to meet its current or liquid liabilities in time and on the other hand a low quick ratio represents that the firm's liquidity position is not good. As a rule of thumb, or as a convention, quick ratio of 1:1 is considered satisfactory.

**Significance of Quick Ratio:** The quick ratio is very useful in measuring the liquidity position of a firm. It measures the firm's capacity to pay off current obligations immediately and is a more rigorous test of liquidity than liquid current ratio.

(c) **Absolute Liquid Ratio:** Although receivables, debtors and bills receivable are generally more liquid than inventories yet there may be doubts of realisation into cash immediately. Hence

some authorities think that the absolute liquid ratio should be calculated so as to exclude even receivables from the current assets and find out the absolute liquid assets.

Absolute Liquid Assets = Cash-in-hand + Bank + marketable Securities

$$\text{Absolute Liquid Ratio} = \frac{\text{Absolute liquid Assets}}{\text{Current Liabilities}}$$

**Illustration 1:** The following is the Balance sheet of New India Ltd. for the year ending Dec. 31,

Liabilities	₹	Assets	₹
9% Preference share capital	5,000,00	Goodwill	1,00,000
Equity share capital	10,00,000	Land Building	6,50,000
8% Debentures	2,00,000	Plant	8,00,000
Long-term loan	1,00,000	Furniture & fixtures	1,50,000
Bills payable	60,000	Bills recievables	70,000
Sundry creditors	70,000	Sundry Debtors	90,000
Bank overdraft	30,000	Bank Balance	45,000
Outstanding expenses	5,000	Short-term investment	25,000
		Prepaid expenses	5,000
		Stock expenses	5,000
		Stock	30,000
	19,65,000		19,65,000

From the balance sheet calculate

- (a) Current Ratio                      (b) Acid Test Ratio
- (c) Absolute liquid Ratio

**Solution**

$$(a) \quad \text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current liabilities}}$$

$$\begin{aligned} \text{Current Assets} &= ₹(70,000 + 90,000 + 45,000) + (25,000 + 5,000 \\ &\quad + 30,000) = ₹2,65,000 \end{aligned}$$

$$\text{Current liabilities} = ₹(60,000 + 70,000 + 30,000 + 5,000) = ₹1,65,000$$

$$\text{Current Ratio} = \frac{2,65,000}{1,65,000} = 1.61$$

$$(b) \quad \text{Acid-Test Ratio} = \frac{\text{Liquid Assets}}{\text{Current liabilities}}$$

$$\text{Liquid Assets} = ₹(70,000 + 90,000 + 45,000 + 25,000) = ₹2,30,000$$

Stock and prepaid expenses have been excluded from current assets in order to arrive at liquid assets.

$$\text{Current liabilities} = ₹1,65,000$$

$$\text{Acid-Test Ratio} = \frac{₹2,30,000}{₹1,65,000} = 1.39$$

$$(c) \quad \text{Absolute Liquid Ratio} = \frac{\text{Absolute liquid Assets}}{\text{Current liabilities}}$$

$$\text{Absolute liquid Assets} = ₹(45,000 + 25,000) = ₹70,000$$

$$\text{Absolute liquid Ratio} = \frac{70,000}{1,65,000} = 0.42$$

### **(B) Current Assets Movement or Efficiency Ratios**

Funds are invested in various assets in the business to make sales and earn profits. The efficiency with which assets are managed directly affects the volume of sales. The better the management of assets, the larger is the amount of sales and the profits. Activity ratios measure the

efficiency or effectiveness with which a firm manages its resources or assets. These ratios are also called turnover-ratios because they indicate the speed with which assets are converted or turned over into sales.

**Table-3**  
**Analysis of Short-Term Financial Position**

Liquidity Ratio	Efficiency Ratio
Current Ratio	Inventory/Stock Turnover Ratio
Quick/Acid Test Ratio	Debtors Turnover Ratio

(a) **Inventory Turnover or Stock Turnover Ratio:** Inventory ratio, also known as stock velocity, is normally calculated as sales/average inventory or cost of goods sold/average inventory. It would indicate whether the inventory is efficiently used or not. Inventory Turnover Ratio (I.T.R.) indicates the number of times the stock has been turned over during the period and evaluates the efficiency with which a firm is able to manage its inventory.

The ratio is calculated by dividing the cost of goods sold by the amount of average inventory at cost.

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of Goods sold}}{\text{Average Inventory at cost}}$$

Generally, the cost of goods sold may not be known from the published financial statements. In such circumstances, the inventory turnover ratio may be calculated in any of the following manner depending upon the availability of information.

$$\text{Inventory Turnover Ratio} = \frac{\text{Net Sales}}{\text{Average Inventory at cost}}$$

$$\text{Inventory Turnover Rate} = \frac{\text{Net Sales}}{\text{Average Inventory at selling price}}$$

**Interpretation:** It measures the velocity of conversion of stock into sales. Usually, a high inventory turnover/stock velocity indicates efficient management of inventory and vice-versa. A low inventory turnover ratio indicates an inefficient management over-investment in inventories,

dull business, poor quality of goods, stock accumulation, accumulation of obsolete and slow moving goods and low profits as compared to total investment.

**(b) Debtors or Receivable Turnover Ratio**

The volume of sales can be increased by following a liberal credit policy. But the effect of a liberal credit policy, may result in tying up substantial funds of a firm in the form of trade debtors. Hence, the liquidity of a concern to pay its short term obligations in time depends upon the quality of its trade debtors. Two kinds of ratios can be computed to evaluate the quality of debtors.

**(i) Debtors Turnover or Debtor. Velocity:** It indicates the velocity of debt collection of firm. In simple words, it indicates the number of times average debtors (Receivables) are turned over during the year. Thus,

$$\text{Debtors (Receivable) Turnover Ratio} = \frac{\text{Net Credit Annual Sales}}{\text{Average Trade Debtors}}$$

Here,

$$\text{Trade Debtors} = \text{Sundry Debtors} + \text{B/R and A/c Receivable};$$

$$\text{and Average Trade Debtors} = \frac{\text{Op. Trade Debtors} + \text{Cl. Trade Debtors}}{2}$$

This ratio can also be calculated as:

$$\text{Debtors Turnover Ratio} = \frac{\text{Total Sales}}{\text{Debtors}}$$

**Interpretation:** Generally, the higher the value of debtors turnover, the more efficient is the management of debtors/sales or more liquid are the debtors and vice-versa. But, a very high debtors turnover ratio is not good because a very high ratio may imply a firm's inability due to lack of resources to sell on credit thereby losing sales and profits. There is no "rule of thumb" which may be used as a norm as it differs firm to firm, depending upon the nature of business.

**(ii) Average Collection Period:** It represents the average number of days for which a firm has to wait before its receivables are converted into cash. This ratio can be calculated as:

$$\text{Average collection period} = \text{Average trade Debtors (Drs + B/R)}$$



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Sales per Day

$$\text{Sales per Day} = \frac{\text{Net sales}}{\text{No. of Working Days}}$$

**Interpretation of Average Collection Period Ratio:** This ratio represents the average number of days for which a firm has to wait before its receivables are converted into cash. Generally, the shorter the period the better is the quality of debtors and vice-versa. But interpreting a very short collection period needs precaution because it may imply a firm's conservatism to sell on credit or its inability to allow credit to its customers and thereby losing sales and profits. There is no 'rule of thumb' as 'standard' which may be used as a norm. It depends upon a firm's credit policy, nature of business and business conditions. The figure of trade debtors should be taken before deducting bad and doubtful debts or provision for bad debts and doubtful debts.

(c) **Creditors/payables Turnover Ratio:** A supplier of goods i.e. creditor, is naturally interested in finding out how much time the firm is likely to take in paying its trade creditors. The analysis for creditors turnover is basically the same as of debtors turnover ratio except that in place of trade debtors, the trade creditors are taken as one of the components of ratio and in place of daily sales, daily purchases are taken. Thus it is calculated as:

$$(i) \quad \text{Creditors/Payable Turnover Ratio} = \frac{\text{Net Credit Annual Purchases}}{\text{Average Trade Creditors}}$$

If information about credit purchases is not available, it can be calculated as follows:

$$\text{Creditors Turnover Ratio} = \frac{\text{Total Purchases}}{\text{Trade Creditors}}$$

$$(ii) \quad \text{Average Payment period} = \frac{\text{Average Trade Creditors (Cr. + B/P)}}{\text{Average Daily Purchases}}$$

$$\text{or Average Payment period} = \frac{\text{Annual Purchases}}{\text{No. of Working Days in a year}}$$

$$\text{or Average Payment period} = \frac{\text{Trade Creditors x No. of Working Days}}{\text{Net Annual Purchases}}$$

$$\text{or Average Payment period} = \frac{\text{No. of Working Days}}{\text{Creditors Turnover Ratio}}$$

**Interpretation:** Generally, lower the ratio, the better is the liquidity position of a firm and vice-versa. A higher payment period also implies greater credit period enjoyed by the firm and consequently larger the benefit reaped from credit suppliers. But one has to be careful, as a higher ratio may also imply lesser discount facilities or higher price paid for goods purchased on credit.

**(d) Working Capital Turnover Ratio:** Working Capital of a concern is directly related to sales. The current assets like debtors, bills receivables, cash, stock, etc. change with the increase or decrease in sales, the working capital is taken as:

$$\text{Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$

Working Capital Turnover Ratio indicates the velocity of the utilization of net working capital. This ratio indicates the number of times the working capital is turned over in course of a year. This ratio measures the efficiency with which the working capital is used. A low ratio indicates low efficiency & vice-versa. But a very high working capital turnover ratio is not a good situation for any firm and hence care must be taken while interpreting the ratio.

**This ratio can be calculated as:**

$$\text{Working Capital Turnover Ratio} = \frac{\text{Cost of sales}}{\text{Average Working Capital}}$$

$$\text{or Working Capital Turnover Ratio} = \frac{\text{Costs of Sales}}{\text{Net Working Capital}}$$

**Illustration 2:** The following information is given about M/S S.P. Ltd. for the year ending Dec. 31, 2018;

- (i) Stock turnover ratio = 6 times
- (ii) Gross Profit Ratio = 20% on sales
- (iii) Sales for 2018 = ₹ 3,00,000
- (iv) Closing stock is ₹10,000 more than the opening stock

(v) Opening Creditors = ₹ 20,000

(vi) Closing Creditors = ₹ 30,000

(vii) Trade debtors at the end = ₹ 60,000

(viii) Net working capital = ₹ 50,000

**Find out**

- (a) Average stock; (b) Purchases;  
(c) Creditors turnover ratio; (d) Average payment period;  
(e) Average collection period (f) Working capital turnover ratio

**Solution**

$$\begin{aligned} \text{Cost of goods, sold} &= \text{Sales} - \text{Gross Profit} \\ &= 3,00,000 - (20\% \text{ of sales}) \\ &= 3,00,000 - 60,000 \\ &= ₹ 2,40,000 \end{aligned}$$

(a) Average Stock

$$\begin{aligned} \text{Stock Turnover ratio} &= \frac{\text{Costs of Goods sold}}{\text{Average stock}} \\ 6 &= \frac{2,40,000}{\text{Average stock}} \end{aligned}$$

$$\text{or, Average Stock} = \frac{2,40,000}{6} = ₹ 40,000$$

(b) Cost of goods sold = Opening stock + Purchases - Closing Stock

or, Cost of goods sold = Opening Stock + Closing Stock

$$\text{Average share} = \frac{\text{Opening Stock} + \text{Closing Stock}}{2}$$

Since, Closing stock is ₹ 10,000 more than opening stock or,

$$₹ 40,000 = \frac{\text{Opening Stock} + (\text{₹}10,000 + \text{Opening Stock})}{2}$$

$$₹ 80,000 = 2 \text{ Opening Stock} + ₹10,000$$

$$\text{Opening Stock} = \frac{70,000}{2} = 35,000$$

$$\text{Closing Stock} = 35,000 + 10,000 = ₹45,000$$

$$\text{Purchases} = ₹2,40,000 + ₹45,000 - ₹ 35,000 = ₹2,50,000$$

$$(c) \text{ Creditors turnover ratio} = \frac{\text{Net annual credit purchase}}{\text{Average Trade creditors}}$$

All purchases are taken as credit purchases.

$$\text{Creditors Turnover Ratio} = \frac{₹2,50,000}{(20,000+30,000)/2} = \frac{₹ 2,50,000}{25,000} = 10$$

$$(d) \text{ Avg. Payment period} = \text{Avg. Trade Creditors} \times \text{No. of Working days}$$

$$= \frac{25,000 \times 365}{2,50,000} = 36.5 = 37 \text{ days}$$

$$(e) \text{ Average Collection Period} =$$

$$\frac{\text{Average Trade Debtors} \times \text{No. of working Days}}{\text{Net Annual Sales}}$$

$$= \frac{60,000 \times 365}{3,00,000} = 73 \text{ days}$$

$$(f) \text{ Working Capital Turnover Ratio} = \frac{\text{Cost of Goods sold}}{\text{Net working Capital}}$$

$$= \frac{₹ 2,40,000}{₹ 50,000} = 4.8 \text{ times}$$

### 3.9 FINANCIAL POSITION OF A COMPANY: LONG-TERM ANALYSIS

The term 'solvency' refers to the ability of a concern to meet its long term obligations. The long term creditors of a firm are primarily interested in knowing the firm's ability to pay regular interest on long-term borrowings, repayments of the principal amount at the maturity and the security of their loans. Accordingly, long-term solvency ratios indicate a firm's ability to meet the fixed interest costs and repayment schedules associated with its long-term borrowings.

**1. Debt-Equity Ratio:** It is also known as External-Internal Equity ratio. It is calculated to measure the relative claims of outsiders and the owners (i.e. shareholders) against the firm's assets. This ratio indicates the relationship between the external equities or the outsiders' funds and the internal equities or the shareholders' funds. Thus:

$$\text{Debt-Equity Ratio} = \frac{\text{Outsider Funds}}{\text{Shareholders Funds}}$$

$$\text{or Debt to Equity Ratio} = \frac{\text{External Equities}}{\text{Internal Equities}}$$

**Interpretation:** The debt-equity ratio is calculated to measure the extent to which debt financing has been used in business. The ratio indicates the proportionate claims of owners and the outsiders against the firm's assets. The purpose is to get an idea of the cushion available to outsiders on the liquidation of the firm. As a general rule, there should be an appropriate mix of owner's funds and outsider's funds in financing the firm's assets. However, the owner wants to do business with maximum of outsider's fund in order to take lesser risk of his investment and to increase his earnings (per share) by paying a lower fixed rate of interest to outsiders. Thus, interpretation of ratios depends upon the purpose of analysis, financial policy and the nature of business of the firm.

#### 2. Funded Debt to Total Capitalisation Ratio

This ratio establishes a link between the long-term funds raised from outsiders and total long-term funds available in the business. The two words used in this ratio-are (i) Funded Debt & (ii) Total Capitalisation.

Funded Debt = Debentures + Mortgage Loans + Bonds + Other long-term  
loans.

Total capitalisation=Equity share capital + Preference share Capital + Reserves and Surplus + Other Undistributed Reserves + Debentures + Mortgage loans + Bonds + Other Long term loans.

Funded debt is that part of total capitalisation which is financed by outsiders.

$$\text{Funded debt to total capitalisation Ratio} = \frac{\text{Funded Debt} \times 100}{\text{Total capitalisation}}$$

Though there is no 'thumb rule' but still the lesser the reliance on outsiders the better it will be. If this ratio is smaller, better it will be. Upto 50% or 55%, this ratio may be to tolerable but not beyond.

### 3 Proprietary Ratio or Equity Ratio

A variant to the debt-equity ratio is the proprietary ratio which is also known as equity ratio or shareholder's to total equities ratio or net worth to total assets ratio. This ratio establishes the relationship between shareholder's funds to total assets of the firm. This ratio can be calculated as under:

$$\text{Proprietary Ratio/Equity Ratio} = \frac{\text{Shareholder's funds}}{\text{Total Assets}}$$

**Interpretation:** As equity ratio represents the relationship of owner 's funds to total assets, higher the ratio or the share of the shareholder 's in the total capital of the company, better is the long-term solvency, position of the

### 4. Solvency Ratio

This ratio is a small variant of equity ratio and can be simply calculated as 100-equity ratio i.e. the ratio indicates the relationship between the total liabilities to outsiders to total assets of a firm and can be calculated as follows:

$$\text{Solvency Ratio} = \frac{\text{Total liabilities to outsiders}}{\text{Total Assets}}$$

**Interpretation:** Generally, lower the rate of total liabilities to total assets, more satisfactory or stable is the long-term solvency position of a firm.

## 5. Ratio of Fixed Assets to Proprietor's Funds

The ratio establishes the relationship between fixed assets and shareholder's funds i.e. share capital plus reserves, surpluses and retained earnings. The ratio can be calculated as follows:

$$\text{Fixed Assets to Net Worth Ratio} = \frac{\text{Fixed Assets (After Depreciation)}}{\text{Shareholder's Funds}}$$

**Interpretation:** The ratio of fixed assets to net worth indicates the extent to which shareholder's funds are sunk into the fixed assets. Generally, the purchase of fixed assets should be financed by shareholder's equity including reserves, surpluses and retained earnings. If the ratio is less than 100%, it implies that owner's funds are more than total fixed assets and a part of the working capital is provided by the shareholders. There is no 'rule of thumb' to interpret this ratio but 60 to 65 per cent is considered to be a satisfactory ratio in case of industrial undertakings.

## 6. Fixed Assets Ratio

A variant to the ratio of fixed assets to net worth is the ratio of fixed assets to total long-term funds which is calculated as:

$$\text{Fixed Assets Ratio} = \frac{\text{Fixed Assets (After depreciation)}}{\text{Total long-term funds}}$$

**Interpretation:** The ratio indicates the extent to which the total of fixed assets is financed by long-term funds of the firm. Generally, the total of the fixed assets should be equal to total of the long-term funds or say the ratio should be 100%. And if total long-term funds are more than total fixed assets, it means that part of working capital requirement is met out.

## 7. Ratio of Current Assets to Proprietary's Funds

The ratio is calculated by dividing the total of current assets by the amount of shareholder's funds. For example, if current assets are ₹2,00,000 and shareholder's Funds are ₹ 4,00,000, the ratio of current assets to proprietors funds in terms of percentage would be:

$$\begin{aligned} &= \frac{\text{Current Assets}}{\text{Shareholders Funds}} \times 100 \\ &= 2,00,000 \times 100 = 50\% \quad = \quad 4,00,000 \end{aligned}$$

**Interpretation:** The ratio indicates the extent to which proprietors funds are invested in current assets. There is no ‘rule of thumb’ for this ratio and depending upon the nature of the business there may be different ratios for different firms.

### 8. Debt-Service Ratio

Net income to debt service ratio or simply debt service ratio is used to test the debt-servicing capacity of a firm. The ratio is also known as interest coverage ratio or coverage ratio or fixed charges cover or times interest earned. This ratio is calculated by dividing the net profit before interest and taxes by fixed interest charges.

Debt Service or Interest Coverage Ratio =

$$\frac{\text{Net Profit (before interest and taxes)}}{\text{Fixed Interest Charges}}$$

**Interpretation:** Interest coverage ratio indicates the number of times interest is covered by the profits available to pay the interest charges. Long-term creditors of a firm are interested in knowing the firm’s ability to pay interest on their long-term borrowings. Generally, higher the ratio, more safe are long term creditors because even if earnings of the firm fall, the firm shall be able to meet its commitment of fixed interest changes. But a too high interest coverage ratio may not be good for the firm because it may imply that firm is not using debt as a source of finance so as to increase the earnings per share.

### 3.10 PROFITABILITY RATIOS

A business enterprise can discharge its obligations to the various segments of the society only through earning profits. Profits are, thus, a useful measure of overall efficiency of a business. Profits, to the management, are the test of efficiency and a measure of control, to owners, a measure of worth of their investment; to the creditors, the margin so safety; to employees, as source of fringe benefits; to government, a measure of tax-paying capacity and the basis of legislative action; to customers, a hint to demand for better quality and price cuts to an enterprise, less cumbersome finance for growth and existence to the country. Generally, the various profitability ratios are:



**Table-4**  
**Profitability Ratio**

<b>General Profitability Ratio</b>	<b>Overall Profitability Ratio</b>
Gross Profit Ratio	Return on Shareholder's Investment
Operating Ratio	Return on Equity Capital
Operating Profit Ratio	Earnings Per Share
Expense Ratio	Return on Capital Employed
Net Profit Ratio	Capital Turnover Ratio
	Dividend Yield Ratio
	Earning Yield Ratio

### 10.1 General Profitability Ratios

Following is the brief description of general profitability ratios:

#### (a) Gross Profit Ratio

Gross profit ratio measures the relationship of gross profit to net sales and is usually represented as a percentage. Thus, it is calculated by dividing the gross profit by sales.

$$\text{Gross profit Ratio} = \frac{\text{Gross Profit} \times 100}{\text{Net Sales}}$$

$$= \frac{\text{Sales} - \text{Cost of goods sold}}{\text{Sales}} \times 100$$

**Interpretation:** The gross profit ratio indicates the extent to which selling prices of goods per unit may decline without resulting in losses on operations of a firm. It reflects the efficiency with which a firm produces its products, as the gross profit is found by deducting cost of goods sold from the net sales. Highest the gross profit ratio (GP Ratio) better the result.

#### (b) Operating Ratio

Operating ratio establishes the relationship between cost of goods sold and other operating expenses on the one hand and the sales on the other. The ratio is calculated by dividing operating cash with net sales and it is generally represented as a percentage.

$$\text{Gross profit Ratio} = \frac{\text{Operating Cost} \times 100}{\text{Net Sales}}$$

$$= \frac{\text{Cost of goods sold} + \text{Operating exp.} \times 100}{\text{Sales}}$$

**Interpretation:** Operating ratio indicates the percentage of net sales that is consumed by operating cost. Obviously higher the operating ratio, the less favourable it is, because, it would have a small margin (Operating profit) to cover interest income-tax dividend and reserves. There is no 'rule of thumb' for this ratio as it may differ from firm. to firm depending upon the nature of its business and its capital structure.

**(c) Operating Profit Ratio**

This, ratio is calculated by dividing operating profit by sales. Operating profits are calculated as:

$$\text{Operating Profit} = \text{Net sales} - \text{Operating Cost}$$

$$\text{Also, Operating Profit} = \text{Net Profit} + \text{Non-Operating expenses} - \text{Non-Operating incomes.}$$

$$\text{So, Operating profit Ratio} = \frac{\text{Operating Profit} \times 100}{\text{Sales}}$$

Also,

$$\text{Operating Profit Ratio} = 100 - \text{Operating Ratio}$$

**(d) Expenses Ratio**

Expenses ratio indicates the relationship of various expenses to net sales. The operating ratio reveals the average total variations in expenses. The lower the ratio, the greater is the

profitability and higher the ratio, lower is the profitability. While, interpreting the ratio, it must be taken care that for a fixed expense like rent, the ratio will fall if the sales increases and for a variable expense, the ratio in proportion to sales shall remain nearly the same.

$$\text{Particular expense Ratio} = \frac{\text{Particular expense} \times 100}{\text{Net sales}}$$

It can also be calculated as:

$$\text{cost of goods sold ratio} = \frac{\text{Cost of goods sold} \times 100}{\text{Sales}}$$

$$\text{Non-Operating expense Ratio} = \frac{\text{Non-Operating Expenses} \times 100}{\text{Sales}}$$

**(e) Net Profit Ratio**

Net profit ratio establishes a relationship between net profit (after taxes) and sales, and indicates the efficiency of the management in manufacturing, selling administrative and other activities of the firm. This ratio is the overall measure of firm’s profitability and is calculated as:

(i) 
$$\text{Net Profit Ratio} = \frac{\text{Net Profit after Tax} \times 100}{\text{Net Sales}}$$

(ii) 
$$\text{Net Profit Ratio} = \frac{\text{Net Operating Profit} \times 100}{\text{Net Sales}}$$

**Interpretation:** The ratio is very useful because if the profit is not sufficient, the firm shall not be able to achieve satisfactory return on its investment. This ratio also indicates the firm’s capacity to face adverse economic conditions such as price competition, low demand, etc.

Obviously, higher-the ratio, the better is the profitability. But while interpreting the ratio, it should be kept in mind that the performance of profits must also be seen in relation to investment on capital of the firm and not only in relation to sales.

**Illustration 3:** Following is the profit and loss account of Electro Matrix Ltd. for the year ended 31<sup>st</sup> Dec., 2018

Dr.	₹		₹
To Opening Stock	1,00,000	By Sales	5,60,000
To Purchases	3,50,000	By Closing Stock	1,00,000
To Wages	9,000		
To Gross Profit c/d	2,01,000		
	<b>6,60,000</b>		<b>6,60,000</b>

To Administrative Exp.	20,000	By Gross profit b/c	2,01,000
To selling & distribution exp.	89,000	To interest on inv.	10,000
To non-operating exp.	30,000	To profit on sale of investment	8,000
To net profit	80,000		
	<b>2,19,000</b>		<b>2,19,000</b>

You are required to calculate:

1. Gross profit Ratio.
2. Net Profit Ratio
3. Operating Ratio
4. Operating Profit Ratio &
5. Administrative expenses Ratio

### Solution

$$1. \quad \text{Gross Profit Ratio} = \frac{\text{Gross Profit} \times 100}{\text{Net sales}}$$

$$= \frac{2,01,000 \times 100}{5,60,000} = 35.9\%$$

$$2. \quad \text{Net Profit Ratio} = \frac{\text{Net Profit (after tax)} \times 100}{\text{Net sales}}$$

$$= \frac{80,000 \times 100}{5,60,000} = 14.3\%$$

3. Operating Ratio = Cost of goods sold + Operating exp.

---

Net Sales

Cost of goods sold = Op. Stock + Purchase + Wages – Closing Stock

= 1,00,000 + 3,50,000 + 9,000 - 1,00,000 = 3,59,000

Operating exp. = Adm. + Selling & Distribution expenses

= ₹20,000 + 89,000

= ₹1,09,000

Operating Ratio =  $\frac{3,59,000 + 1,09,000 \times 100}{5,60,000}$

=  $\frac{4,68,000 \times 100}{5,60,000} = 83.65\%$

4. Operating Profit Ratio = 100 - Operating Ratio = 100 - 83.6 = 16.4%

5. Administrative exp. Ratio =  $\frac{\text{Administrative expenses} \times 100}{\text{Net Sales}}$

=  $\frac{20,000 \times 100}{5,60,000} = 3.6\%$

## 10.2 Overall Profitability Ratios

The brief description of overall profitability ratios is as under:

### (a) Return on Investment Ratio

Return on shareholder investment, popularly known as ROI or Return on shareholder funds is the relationship between net profits and proprietors funds. Thus,

Return on investment = Net Profit (after tax & interest)

---

Shareholders funds

**Interpretation:** This is the most important ratio used for measuring the overall efficiency of a firm as the primary objective of the business is to maximise its earnings. This ratio indicates the extent

to which this primary objective of business is being achieved. As this ratio reveals how well the resources of a firm are being used, higher the ratio, better are the results.

**(b) Return on Equity Capital**

The rate of dividend varies with the availability of profits in case of ordinary shares only. Thus, ordinary shareholders are more interested in the profitability of a company and the performance of a company should be judged on the basis of return on equity capital of the company. Return on equity capital which is the relationship between profits of a company and its equity capital, can be calculated as

$$\text{Return on Equity Capital} = \frac{\text{Net Profit after Tax - Preference Div}}{\text{Paid up equity share capital}}$$

**(c) Earnings Per Share (E.P.S.)**

Earnings per share is a small variation of return on equity capital and is calculated by dividing the net profit after taxes and preference dividend by the total number of equity shares. Thus,

$$\text{E.P.S.} = \frac{\text{Net Profit (after tax) - preference dividend}}{\text{No. of equity shares}}$$

The earning per share is good measure of profitability and when compared with E.P.S. of similar companies, it gives a view of the comparative earnings or earnings power of a firm. E.P.S., calculated for a number of years indicates whether or not earnings power of the company has increased.

**(d) Return on Capital Employed**

Return on capital employed establishes the relationship between profits and the capital employed.

It can be calculated as:

$$\text{Return or Gross Capital Employed} = \frac{\text{Adjusted Net Profits} \times 100}{\text{Gross Capital Employed}}$$

$$\text{Return on Net Capital Emp.} = \frac{\text{Adjusted Net Profits} \times 100}{\text{Net Capital Employed}}$$

The terms 'capital employed' refers to the total of investment made in a business and can be defined in a number of ways. The three most widely used of definitions of this term are:

- (i) Gross Capital Employed
- (ii) Net Capital Employed
- (iii) Proprietors Net Capital Employed.

**(i) Gross Capital Employed:** The terms 'Gross Capital Employed'. Usually comprises of fixed assets as well as current assets used in business Numerically, Gross capital employed = Fixed Assets + Current Assets.

**(ii) Net Capital Employed:** The term 'net capital employed' comprises of the total assets used in a business, less its current liabilities. Numerically,  
Net capital employed = Total Assets - Current liabilities.

**(iii) Proprietor's Net Capital Employed:** Proprietor's net capital employed means shareholders' funds or investment in the business. This term is the same as return on shareholders' investment and it has been discussed in detail in previous pages. Numerically, Proprietors net capital employed = Fixed Assets + Current Assets - Outside liabilities.

### **Significance of Return on Capital Employed**

The return on capital employed is the prime ratio which measures the efficiency of the business. It is significant due to the following reasons:

1. It is a prime test of the efficiency of business.
2. The performance of the enterprise can be assessed by making inter firm and intra-firm comparisons.
3. By this ratio, outsiders like bankers, creditors etc. find the concern's viability for giving credit or extending loans.
4. Return on capital employed may help in devising future business policies for expansion or diversification, etc.

5. It helps in providing fair remuneration to various factors of production.

**(e) Capital Turnover Ratio**

Capital turnover ratio is the relationship between cost of goods sold and the capital employed. It can be calculated as:

$$\text{Capital Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Capital Employed}}$$

Since capital employed in a business consists of investment in (i) fixed assets and (ii) working capital, Capital turnover ratio can be classified as:

- (a) Fixed Assets Turnover and
- (b) Working capital turnover

Fixed Assets Turnover is the relationship between sales or cost of goods sold and fixed capital assets employed in a business. Working capital turnover ratio indicates the velocity of the utilisation of net working capital.

$$\text{Fixed Assets Turnover Ratio} = \frac{\text{Cost of Goods sold}}{\text{Fixed capital employed}}$$

$$\text{Working Capital Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{(Avg.) working capital}}$$

**(f) Dividend Yield Ratio**

Shareholders are the real owners of a company and they are interested in real sense in the earnings distributed and paid to them as dividends. Therefore, dividend yield ratio is calculated to evaluate the relationship between dividend per share paid and the market value of the share.

$$\text{Dividend yield Ratio} = \frac{\text{Dividend per share}}{\text{Market value per share}}$$

**(2) Earnings Yield Ratio**



Price earning ratio is the ratio between market price per equity share and earnings per share. The ratio is calculated to make an estimate of appreciation in the value of a share of a company and is widely used by investors to decide whether or not to buy shares in a particular company. This ratio is calculated as:

$$\text{Price Earning Ratio} = \frac{\text{Market Price Per Equity share}}{\text{Earnings Per Share}}$$

Generally, higher the price-earnings ratio, the better it is. If the P/E ratio falls, the management should look into causes that may have resulted into the fall of this ratio.

**Illustration 4:** The capital of Star Co. Ltd. is as follows:

	₹
80,000 Equity shares of ₹10 each	8,00,000
9% 30,000 preference shares of ₹10 each	3,00,000
	11,00,000

The following information has been obtained from the books of the company:

Profit after tax at 60%	₹ 2,70,000
Depreciation	₹ 60,000
Equity Dividend Paid	20%
Market Price of Equity Shares	₹ 40

You are required to calculate:

- (a) Dividend yield on equity, share
- (b) Cover for preference dividend
- (c) Cover for equity dividend
- (d) Earnings Per share

(e) Price-Earnings Ratio and Net Cash Flow

**Solution**

(a) Dividend yield on equity share

$$\begin{aligned} &= \frac{\text{Dividend Yield Per Share} \times 100}{\text{Market Price Per Share}} \\ &= \frac{2 \text{ (i.e. 20\% of ₹10)} = 0.05 \text{ or say, 5\%}}{40} \end{aligned}$$

(b) Cover for Preference Dividend

$$\begin{aligned} &= \frac{\text{Profits After Tax}}{\text{Preference Dividend}} \\ &= \frac{2,70,000}{27,000 \text{ (i.e. 9\% of 3,00,000)}} = 10 \text{ times} \end{aligned}$$

(c) Cover for Equity Dividend

$$\begin{aligned} &= \frac{\text{Profits after tax \& Preference Dividend}}{\text{Equity Dividend}} \\ &= \frac{2,70,000 - 27,000}{1,60,000 \text{ (i.e. 20\% of 8,00,000)}} \\ &= \frac{2,43,000}{1,60,000} = 1.52 \text{ times} \end{aligned}$$

(d) Earning Per Share = Profit after tax & Preference Dividend

$$\begin{aligned} &\frac{\text{Number of Equity shares}}{\text{Number of Equity shares}} \\ &= \frac{2,43,000 \text{ (i.e. 2,70,000 - 27,000)}}{80,000} = 3.04 \end{aligned}$$

$$(e) \quad \text{Price-earning Ratio} = \frac{\text{Market Price Per Share}}{\text{Earnings Per Share}}$$

$$= \frac{40}{3.04} = 13.1$$

Also, Net Cash Flow = Total Cash Flow - Dividend

$$= (\text{Net Profit} + \text{Depreciation} - \text{Dividend})$$

$$= (2,70,000 + 60,000) - (27,000 + 1,60,000)$$

$$= 3,30,000 - 1,87,000 = ₹1,43,000$$

### 3.11 CAPITAL STRUCTURE RATIOS

The term ‘capital structure’ refers to the relationship between various long-term forms of financing such as debentures (long-term), preference share capital and equity share capital including reserves and surplus. Financing the firm’s assets is a very crucial problem and as a general rule, there should be proper structure ratios. They are calculated to test the long-term financial position of a firm.

Following ratios are generally calculated to analyse the capital structure of a firm.

#### 11.1 Capital Gearing Ratio

The term ‘capital gearing’ is used to describe the relationship between equity share capital including reserves and surpluses to preference share capital and other fixed interest-bearing loans. If preference-share capital and other fixed interest bearings loans exceed the equity share capital including reserves, the firm is said to be highly geared. The firm is said to be in a low gear if preference share capital and other fixed interest- bearing loans are less then equity capital and reserves.

Capital Gearing Ratio =

Equity Share Capital + Reserves & Surplus

Preference Capital + Long-term debt bearing fixed interest

## 11.2 Debt-Equity Ratio

This ratio has been discussed earlier under the analysis of long-term solvency position

## 11.3 Total Investment to Long-Term Liabilities

This ratio is calculated by dividing the total of long-term funds by the long term liabilities. Thus,

Ratio of Total Inv. to long-term liabilities =

$$\frac{\text{Shareholders Fund} + \text{Long-term Liabilities}}{\text{Long-term liabilities}}$$

## 11.4 Ratio of Fixed Assets to Funded Debt

The ratio measures the relationship between the fixed assets and the funded debt and is very useful to the long-term creditors. This ratio can be calculated as below:

$$\text{Ratio of fixed assets to funded debt} = \frac{\text{Fixed Assets}}{\text{Funded Debt}}$$

## 11.5 Ratio of Current Liabilities to Proprietors Funds

The ratio of current liabilities to proprietors fund indicates the amount of long-term funds raised by the proprietors as against short-term borrowings.

## 11.6 Ratio of Reserves to Equity Capital

It establishes a relationship between reserves & equity share capital.

$$\text{Ratio of Reserve to Equity Capital} = \frac{\text{Reserves} \times 100}{\text{Equity Share Capital}}$$

## 3.12 DU-PONT CONTROL CHART

A system of management control designed by an American company named DU-PONT COMPANY is popularly known as DUPONT CHART. This system uses the ratio inter-relationship to provide charts for managerial attention. The standard ratios of the company are compared to present ratios and changes in performance are judged. The chart is based on two

elements i.e. Net Profit and Capital Employed. Net profit is related to operating expenses. If the expenses are under control, then profit margin will increase. The earnings as a percentage of sales or earnings divided by sales give us percentage of profitability. Earnings can be calculated by deducting cost of sales from sales. Cost of sales includes cost of goods sold plus office and administrative expenses and selling, and distributive expenses. Capital employed, on the other hand, consists of current assets and net fixed assets. Current assets include debtors, stock, bills receivable etc. Fixed assets are taken after deducting depreciation. So profit margin is divided by capital employed and is multiplied by 100. The ratio will be

$$= \frac{\text{Profit Margin} \times 100}{\text{Capital Employed}}$$

The efficiency of a concern depends upon the working operation of the concern. The return on investment becomes a yardstick to measure efficiency because return influences various operations. The profit margin will show the efficiency with which assets of the business have been used. The efficiency can be improved either by a better relationship between sales and costs or through more effective use of available capital. The profitability can be increased by controlling cost and/or increasing sales. The investments turnover can be raised by having a control over investments in fixed assets and working capital without adversely affecting sales. The sales may also be increased with the help of same capital. The management is able to pinpoint weak spots and take corrective measures. The performance can be better judged by having inter-firm comparison. The ratios of return on investment, assets turnover and profit margins of comparable companies can be calculated and these can be used as standards of performance.

### **3.13 SUMMARY**

Financial statements by themselves do not give the required information both for internal management and for outsiders. They must be analysed and interpreted to get meaningful information about the various aspects of the concern. Analysing financial statements is a process of evaluating the relationship between the component parts of the financial statements to obtain a proper understanding of a firm's performance. Financial analysis can be carried out through a number of tools like ratio analysis, funds flow analysis, cash flow analysis etc. Among the various tools available for their analysis, ratio analysis is the most popularly used tool. The main purpose

of ratio analysis is to measure past performance and project future trends. It is also used for inter-firm and intra-firm comparison as a measure of comparative productivity. The financial analyst x-rays the financial conditions of a concern by the use of various ratios and if the conditions are not found to be favourable, suitable steps can be taken to overcome the limitations.

### 3.14 KEYWORDS

**Ratio Analysis:** It is the process of computing, determining and presenting the relationship of items and groups of items in financial statements.

**Liquidity Ratios:** These measure the short-term solvency of the firm.

**Leverage Ratio:** This ratio measures the long-term solvency of the firm and also provide an idea of the equity cushion for long-term indebtedness.

**Average Collection Period:** It is obtained by dividing average accounts receivables with net credit sales and multiplying the resultant with 365 **days of the year**.

**Activity or Turnover Ratios:** These ratios measure the intensity with which resources of the firm are being utilised.

### 3.15 SELF ASSESSMENT QUESTIONS

1. What is ratio analysis? How is it beneficial to the management?
2. What are the factors which must be considered while interpreting ratios?
3. How can ratios be classified? Explain
4. Write a note on merits and demerits of ratio analysis.
5. From the following details, prepare the balance sheet of the firm concerned:

Stock velocity	6
Capital turnover ratio	2
Fixed assets turnover ratio	4
Gross profit	20%
Debt collection period	2 months

Creditors payment period 73 days

The gross profit was ₹60,000. Closing stock was ₹5,000 in excess of the opening stock.

6. The financial statements of Good Luck Ltd. for the current year-end reveal the following information:

Ratio of current assets to current liabilities 1.75 to 1.0

Liquidity ratio (debtors and bank balances to current liabilities) 1.25 to 1.0

Issued capital in equity shares of ₹10 each ₹ 1,20,000

Net current assets (as over current liabilities) ₹ 60,600

Fixed assets (Net blocks) - Percentage of shareholder's equity as on the closing date  
60%

Gross profit-Percentage of turnover 20%

Annual rate of turnover of stock (based on cost at 31<sup>st</sup> Dec.) 5.26 times

Average age of outstanding debtors for the current year 2 months Net profit percentage on issued share capital is 16%.

On 31<sup>st</sup> December, company's current assets consisted of stock, debtors and bank balances.

You are required to reconstruct, in as much detail as possible:

- (1) The balance sheet as on 31<sup>st</sup> December, current year, and
- (2) The trading and profit and loss account, for the current year ended 31<sup>st</sup> December.

7 From the ratios and other data set forth below for the Auto Accessories Ltd. indicate your interpretation of the company's financial condition

	<b>Year 3</b>	<b>Year 2</b>	<b>Year I</b>
Current ratio	302%	278	265%
Acid-test ratio	99%	110%	155%
Working capital turnover (times)	3.25	3.00	2.75

Receivables turnover	7.2	8.41	9.83	
Collection period (days)		50	43	37
Inventory to working capital	110%	100%	95%	
Inventory turnover (times)	5.41	6.01	6.11	
Income per equity share		₹ 2.5	4.05	5.10
Net income to net worth		7%	8.5%	11.07%
Operating expenses to net sales	25%	23%	22%	
Sales increase during the year	23%	16%	10%	
Cost of goods sold to net sales		73%	71%	70%
Dividends per share	₹3	₹3	₹3	
Fixed assets to net worth	22.7%	18.0%	16.4%	
Net profit on net sales	2.0%	5.09%	7.03%	

### 3.16 SUGGESTED READINGS

11. M Y Khan & P K Jain: Basic Financial Management; McGraw Hill Education (India) Pvt Ltd., New Delhi.
12. R. P. Rustagi: Financial Management–Theory, Concepts and Problems; Taxmann Publications (P) Ltd., New Delhi.
13. Prasanna Chandra: Investment Analysis and Portfolio Management; McGraw Hill Education (India) Pvt. Ltd., New Delhi.
14. I M Pandey: Financial Management; Vikas Publication House Ltd., New Delhi.
15. Eugene F Brigham & Michael C Ehrhardt: Financial Management– Theory and Practice; Cengage Learning (India) Pvt. Ltd., New Delhi.



**LESSON: 4**  
**FUNDS FLOW STATEMENT**

**STRUCTURE**

- 4.0 Objectives
- 4.1 Introduction
- 4.2 Funds Flow Statement
  - 4.2.1 Meaning and Concept of Funds
  - 4.2.2 Meaning and Concept of Flow of Funds
  - 4.2.3 Current and Non-Current Accounts
  - 4.2.4 Detecting the Flow of Funds
  - 4.2.5 Meaning and definition of Funds Flow Statement
  - 4.2.6 Uses, Significance and Importance of Funds Flow Statement
  - 4.2.7 Limitations of Funds Flow Statement
- 4.3 Preparation of a Funds Flow Statement
  - 4.3.1 Statement or Schedule of Changes in Working Capital
  - 4.3.2 Statement of Sources and Applications of Funds
    - 4.3.2.1 Sources of Funds
    - 4.3.2.2 Applications of Funds
- 4.4 Summary
- 4.5 Keywords
- 4.6 Self Assessment Questions
- 4.7 Suggested Readings

**4.0 OBJECTIVES**

After going through this lesson, you should know about:

- Meaning and nature of funds flow statement.
- Preparation of a funds flow statement.

## **4.1 INTRODUCTION**

The basic financial statements i.e. the balance sheet and profit or loss account or income statement of business, reveal the net effect of the various transactions on the operations and financial position of the company. The balance sheet gives a static view of the resources (liabilities) of a business and the uses (assets) to which these resources have been put at a certain point of time. It does not disclose the cause for changes in the assets and liabilities between two different points of time. The profit or loss account, in a general way indicates the resources provided by operations. But there are many transactions that take place in an undertaking and which do not operate through profit or loss account. Thus, another statement has to be prepared to show the change in the assets and liabilities from the end of one period of time to the end of another period. A funds flow statement, in simple words is a statement of sources and application of funds.

## **4.2 FUNDS FLOW STATEMENT**

Before knowing about 'Funds Flow statement' it is important to know the meaning of funds and how a flow of funds takes place. The ensuing sections are devoted towards this discussion.

### **4.2.1 Meaning and Concept of Funds**

The term funds have been defined in a number of ways:

- (a) In a narrow sense, it means cash only and a funds flow statement is prepared on this basis.
- (b) In a broader sense, the term 'funds' refers to money values in whatever form it may exist. Here 'funds' means all financial resources used in business whether in the form of men, material, money etc.
- (c) In a popular sense, the term 'funds' mean working capital, i.e. excess of current assets over current liabilities. The working capital concept of funds has emerged due to the fact that total resources of a business are invested partly in fixed assets in the form of fixed capital and partly kept in the form of liquid or near liquid form as working capital. In this lesson 'funds' are referred to as working capital and a funds flow statement as a statement of sources and application of funds.

#### 4.2.2 Meaning and Concept of 'Flow of Funds'

The term 'flow' means movement and includes both 'inflow' and 'outflow'. The term 'flow of funds' means transfer of economic values from one asset to another. Flow of Funds is said to have taken place when any transaction makes changes in the amount of funds available after happening of the transaction. If the effect of transaction results in an increase of funds, it is called a source of funds and if it results in the decrease of funds it is known as an application of funds and in case the transaction does not change the position of funds it is said to have not resulted in a flow of funds.

**RULE:** The flow of funds occurs when a transaction changes, on the one hand a non-current account and on the other a current account and vice-versa. When a change (in a transaction) in a non-current account is followed by a change in another non-current account, it does not amount to flow of funds. In simple language funds move when a transaction affects (i) a current assets and a fixed asset, or (ii) a fixed and a current liability, or (iii) a current asset and a fixed liability or (iv) a fixed liability & liability which is current.

#### 4.2.3 Current and Non-current Accounts

To understand flow of funds it is essential to classify various accounts and balance sheet items into current and non-current categories.

Current Accounts can either be current assets or current liabilities. Current assets are those assets which in the ordinary course of business can be or will be converted into cash within a short period.

**Table-1**  
**List of Current or Working Capital Accounts**

<b>Current Liabilities</b>	<b>Current Assets</b>
1. Bills payable	1. Cash in hand
2. Sundry creditors	2. Cash at bank
3. Accrued or outstanding expenses	3. Bills receivable
4. Dividends payable	4. Sundry debtors or accounts receivable
5. Bank overdraft	5. Short term loans & advances
6. Short-term loans & advances of deposits	6. Temporary of marketable investments

7. Provision against current assets	7. Inventories or stock such as
8. Provision for taxation if it does not amount to appropriation of profits	i. Raw material
9. Proposed dividends (may be a current or a non-current liability)	ii. Work-in-progress
	iii. Stores and spares
	iv. Finished goods
	8. Prepaid expenses
	9. Accrued Incomes

**Table-2**  
**List of Non-Current or Permanent Capital Accounts**

<b>Non-Current Liabilities or Permanent-Liabilities</b>	<b>Non-Current Assets or Permanent-Assets</b>
1. Equity share capital	1. Goodwill
2. Preference share capital	2. Land
3. Redeemable preference share capital	3. Building
4. Debentures	4. Plant and machinery
5. Long term Loans	5. Furniture and fittings
6. Share premium account	6. Trade marks
7. Share forfeited account	7. Patent Rights
8. Profit or Loss Account's credit balance	8. Debit balance or profit & loss
9. Capital Reserve	9. Long term investment
10. Capital Redemption reserve	10. Discount on issue of shares
11. Provision for depreciation against fixed assets	11. Discount on issue of Debentures
12. Appropriation of profits to General Reserve Dividend equalisation fund Insurance Compensation fund Sinking fund Investment fluctuation fund Provision for taxation Proposed dividend	

of normally new accounting year. Current liabilities are those liabilities which are normally

intended to be paid in the ordinary course of business within a short period of normally one year out of current assets or the income of the business.

#### 4.2.4 Detecting the Flow of Funds

1. Analyse the transaction and find out the two accounts involved.
  2. Make journal entry of transaction.
  3. Determine whether the accounts involved in the transaction are current or non-current.
  4. If both the accounts involved are current or non-current accounts, it does not result in the flow of funds.
  5. If the accounts involved are such that one is current account while the other is non-current, it results in a flow of funds. There are few examples showing whether there is flow of funds or not.
- (a) **Cash collected from debtors:** This transaction involves only the current accounts and hence does not result in the flow of funds.
- (b) **Conversion of debenture into shares:** This transaction involves only the non-current accounts and hence it also does not result in the flow of funds.
- (c) **Issue of shares for cash:** This transaction involves a current asset and a current liability. Thus it results in a flow of funds.

#### 4.2.5 Meaning and Definition of Funds Flow Statement

Funds flow statement is a method by which we study changes in the financial position of a business enterprise between the beginning and ending financial statement dates. It is a statement showing sources and uses of funds for a period of time. Foulke defines this statement as "A statement of sources and applications of funds is a ... device designed to analyse the changes in the financial condition of a business enterprise between two dates".

In the words of Anthony, "The funds flow statement describes the sources from which additional funds were derived and the use to which these sources were put".

I.C.W.A. in the glossary of management accounting terms defines funds flow statement as "a statement either prospective or retrospective. Setting up of resources and application of the funds of an enterprise. The purpose of the statement is to indicate clearly the requirements of funds

and how they are proposed to be raised and their efficient utilisation and application." Funds flow statement is called by various names such as Sources and Application of funds, Statement of changes in financial position, Sources and uses of funds, summary of financial operations, where came in and where gone out statement, movement of working capital statement, movement of funds statement, Funds received and disbursed statement, funds generated and expended statement, funds statement etc.

#### **4.2.6 Uses, Significance and Importance of Funds Flow Statement**

The basic purpose of funds flow statement is to reveal the changes in the working capital on the two balance sheet dates. It also describes the sources from which additional working capital has been financed and the uses to which working capital has been applied. Such a statement is particularly useful in assessing the growth of the firm, its resulting financial needs and in determining the best way of financing these needs. The significance or importance of funds flow statement can be well followed from its various uses given below:

1. It helps in the analysis of financial operations. The financial statements reveal the net effect of various transactions on the operational and financial position of a concern. A funds flow statement discloses the causes for changes in the assets and liabilities between two different points of time.
2. It throws light on many perplexing questions of general interest which otherwise may be difficult to be answered such as;
  - (i) Why were the net current assets lesser in spite of high profits and vice-versa?
  - (ii) Why more dividends could not be declared in spite of available profits.
  - (iii) What happened to the net profits? Where did they go?
3. It helps in the formation of a realistic dividend policy.
4. It helps in the proper allocation of resources. A projected funds flow statement constructed for the future helps in making management decisions. The firm can plan the deployment of its resources and allocate them among various applications.

5. It acts as a future guide to the management. The firm's future needs of funds can be projected will in advance and also the timing of these needs. The firm can arrange to finance these needs more effectively and avoid future problems.

6. It helps in appraising the use of working capital. A funds flow statement helps in explaining how efficiently the management has used its working capital and also suggests way to improve working capital position of the firm.

7. It helps knowing the overall credit worthiness of the firm. The financial institutions and banking firms such as State Financial Institutions, Industrial Finance Corporation on of India, Industrial Development Bank of India, etc. ask for funds flow statements constructed for a number of years before granting loans to know the credit worthiness and paying capacity of firm.

#### **4.2.7 Limitations of Funds Flow Statement**

Funds flow statement has certain limitations which are as follows:

1. It should be remembered that a funds flow statement is not a substitute of an Income statement or a Balance sheet. It provides only some additional information as regard changes in working capital.
2. It cannot reveal continuous changes.
3. It is not an original statement but simply rearrangement of data given in the financial statements.
4. It is essentially historic in nature and projected funds flow statement cannot be prepared with much accuracy.
5. Changes in cash are more important and relevant for financial management than the working capital.

#### **4.3 PREPARATION OF A FUNDS FLOW STATEMENT**

Funds flow statement is a method by which we study changes in the financial position of a business enterprise between beginning and ending financial statements dates. The preparation of a funds flow statement consists of two parts:

- a) Statement or Schedule of changes in working capital, and
- b) Statement of sources and application of funds.

### 4.3.1 Statement or Schedule of Changes in Working Capital

Working capital means the excess of current assets versus current liabilities. Statement of changes in working capital is prepared to show the changes in working capital between the two balance sheet dates. The change in the amount of any current asset or current liability in the current date as compared to that of the previous balance sheet date either results in increase or decrease in working capital. We know that the relation is

#### STATEMENT OR SCHEDULE OF CHANGES IN WORKING CAPITAL

Particulars	Previous Year	Current Year	Effect on Working Capital	
			Increase	Decrease
<b>Current Assets</b>				
Cash in hand				
Bills receivable				
Sundry Debtors				
Prepaid Expenses				
Stock/Inventories				
Accrued Income				
<b>Total current assets</b>				
<b>Current liabilities</b>				
Bills payable				
Sundry creditors				
Outstanding expenses				
Bank overdraft				
Short-term advances				
<b>Total Current Liabilities</b>				
<b>Working Capital (CA-CL)</b>				
<b>Net Increase in Working Capital or Decrease</b>				

$$\text{Working Capital} = \text{Current Assets} - \text{Current liabilities}$$

From this relation following conclusions can be drawn:

- (i) An increase in current assets increases working capital;
- (ii) A decrease in current assets decreases working capital;
- (iii) An increase in current liabilities decreases working capital; and
- (iv) A decrease in current liabilities increases working capital.



It is worth noting that schedule of changes in working capital is prepared only from current assets and current liabilities and the other information is not of any use for preparing this statement. A typical form of statement or schedule of changes in working capital is as follows.

#### 4.3.2 Statement of Sources and Applications of Funds

Funds flow statement is a statement which indicates various sources from which funds (working Capital) have been obtained during a certain period and the uses or applications to which these funds have been put during that period.

This statement is prepared in two formats:

- (a) Report form
- (b) T-form or an account form or Self Balancing type.

**Table-4**

#### **SPECIMEN OF REPORT FORM OF FUNDS FLOW STATEMENT**

<b>Sources of Funds</b>	₹
Funds from operations	
Issue of share capital	
Raising of long term loans	
Receipts from partly paid shares called up. Sales of non-current (fixed assets)	
No trading receipt such as dividends received	
Sale of Investment (long term)	
Decrease in working capital	
<b>Total</b>	
<b>Application of Funds</b>	
Funds lost in business	
Redemption of preference share capital	
Redemption of Debentures	
Repayment of Long-term loans	
Purchase of non-current (fixed) assets Purchase of long-term investments	

Non trading payment.	
Increase in working capital.	
<b>Total</b>	

**Table-5**  
**T-Form or an account form or self balancing type**  
**Funds Flow Statement**  
**(For the year ended.....)**

Sources	₹	Application	₹
1. Funds from operations		1. Funds lost in operation	
2. Issue of share capital		2. Redemption of Preference share capital	
3. Issue of debentures		3. Redemption of debentures	
4. Raising of long term loans		4. Repayment of long term loans	
5. Receipt from partly paid, called up shares		5. Purchases of non- current (fixed assets)	
6. Sale of non-current (fixed) assets		6. Purchase of long term investment	
7. Non trading receipt such as dividends			
8. Sale of long-term investment			
Net decrease in working capital		Net increase in working capital	

#### 4.3.2.1 Sources of Funds

The following are the sources from which funds generally flow into the business:

**1. Funds from operations or trading profit:** Sales are the main sources of inflow of funds the business as they increase current assets. Thus trading profits or profits from operations of the business are the most important and major source of funds. Basically there are two methods of calculation:

- (a) The first method is to prepare the P/L Account afresh by taking into consideration only funds and operational items which involve funds and are related to the normal operations of the business.
- (b) The Second method is to proceed from the figure of net profit or net loss as arrived at from the profit and loss account already prepared. Funds from operations by this method are calculated as:

## Table-6

### Calculation of funds from operations

Closing balance of P & L A/c or

Retained earnings (as given in the balance sheet) Add, Non-funds & Non-operating items which have already been debited to P & L A/c.

- (1) Depreciation and Depletion
- (2) Amortization of fictitious and intangible Assets such as
  - (i) Goodwill
  - (ii) Patents
  - (iii) Trade-marks
  - (iv) Preliminary expenses
  - (v) Discount on issue of shares, etc.
- (3) Appropriation of retained earnings such as:
  - (i) Transfer to general reserve
  - (ii) Dividend equalisation fund
  - (iii) Transfer to sinking fund
  - (iv) Contingency Reserve etc.
- (4) Loss on sale of any non-current (fixed assets such as:
  - (i) Loss on sale of land and building
  - (ii) Loss on sale of furniture
  - (iii) Loss on sale of long term investments etc.
- (5) Dividends including
  - (i) Interim Dividend
  - (ii) Proposed Dividend (if it is an appropriation of profits and not taken as current liability)
- (6) Provision for taxation (if it is not taken as current liability).
- (7) Any other non-fund/non-operating item which have been debited to P/L A/c

**Total (A)**

Less, non-fund or non operating items which have already been credited to P & A/c.

- (1) Profit or gain from the sale of non-current (fixed) assets such as:
  - (i) Profit on sale of land and building
  - (ii) Profit on sale of plant and machinery.
  - (iii) Profit on sale of long term investments, etc.
- (2) Appreciation in the value of fixed assets, such as increase in the value of land if it has been credited to P/L A/c.
- (3) Dividend Received
- (4) Excess provision retransferred to P/L A/c or written off.
- (5) Any other non-operating item which has been credited to P/L Ac.
- (6) Opening balance of P & L A/c or retained earnings. (as given in the balance sheet)

**Total B**

**Total (A) - Total (B) = Funds generated by operations**

Funds from operations can also be calculated by preparing Adjusted Profit & Loss Account as follows:

**Table-7**  
**Adjusted Profit and Loss Account**

	₹		₹
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<p>To depreciation or amortization of fictitious and intangible assets such as goodwill, patent, trade marks, preliminary expenses etc.</p> <p>To Appropriation of retained earnings such as: Transfer to general reserve, dividend equalisation fund, sinking fund etc.</p> <p>To loss on sale of only non-current or fixed assets.</p> <p>To Dividends (including interim dividend)</p> <p>To proposed dividend (if not taken as a current liability)</p> <p>To provision for taxation (if not taken as a current liability)</p> <p>To closing balance (of P &amp; L A/c)</p> <p>To funds lost in operations (balancing figure, in case credit side exceeds the debit side).</p>		<p>By opening balance (of P &amp; L A/c).</p> <p>By transfer from excess provisions.</p> <p>By appreciation in the value of fixed assets.</p> <p>By dividends received.</p> <p>By profit on sale of fixed or non-current assets.</p> <p>By funds from operations (balancing fig. in case debit side exceeds credit side.)</p>	
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**2. Issue of share capital:** If during the year, there is any increase in the share capital whether preference or equity, it means capital has been raised during the year. Issue of shares is a source of funds as it constitutes inflow of funds. Even the calls received from partly paid shares constitute an inflow of funds into the business.

But sometimes shares are issued otherwise than in cash. The following rules must be followed in such a case:

- (i) Issue of shares for making partly paid shares as fully paid out of accumulated profits in the form of bonus shares is not a source of funds.
  - (ii) Issue of shares for consideration other than current assets such as against purchase of land, machines etc. does not amount to inflow of funds.
  - (iii) Conversion of debentures or loans into shares also does not amount to inflow funds.
- In above three cases both the Accounts are non-current.

**3. Issue of debentures and Raising of Loans:** Issue of debentures or raising of loan (long term), whether secured or unsecured results in the flow of funds into the business. The inflow of funds is the actual proceeds from the issue of such debentures or raising of loans i.e. including the amount of premium or excluding discount, if any. However, loans raised for consideration other than a current asset such as for purchase of building, will not constitute inflow of funds because in that case the accounts involved are only fixed or non-current.

**4. Sale of fixed (non-current) assets and long term or trade investments:** When any fixed or non-current asset like land, building, plant and machinery, furniture, long-term investments etc. are sold, it generates funds and becomes a source of funds. However, it must be remembered that if one fixed asset is exchanged for another fixed asset, it does not constitute an inflow of funds because both current asset are involved.

**5. Non-trading receipt:** Any non-trading receipt like dividend received, refund of tax etc. also increases funds and is treated as a source of funds because such an income is not included in funds from operations.

**6. Decrease in Working Capital:** If the working capital decreases during the current period as compared to the previous period, it means that there has been a release of funds because it constitutes a source of funds.

#### 4.3.2.2 Application of Funds

Following are the applications of funds:

##### (1) Funds lost in operations

Sometimes the result of trading in a certain year is a loss and some funds are lost during that period in trading operations. Such loss of funds in trading amounts to an outflow of funds and is treated as an application of funds.

**(2) Redemption of preference share capital**

If during the year any preference shares are redeemed, it will result in the outflow of funds and is taken as an application of funds. When the shares are redeemed at premium or discount, it is the net amount paid which is taken as an application. However if shares are redeemed in exchange of some other type of share or debentures, it does not constitute an outflow of funds as no current account is involved in that case.

**(3) Repayment of loans or redemption of debentures**

In the same way as redemption of preference share capital is an application of funds, redemption of debentures or repayment of loans also constitutes an application of funds.

**(4) Purchase of any non-current or fixed asset**

When any fixed or non-current asset like land, building, plant and machinery, furniture long-term investments etc. are purchased, there is a funds outflow from the business. However, if fixed assets are purchased for a consideration of issue of shares or debentures or if some fixed asset is exchanged for another, it does not involve any funds and hence it is not an application of funds.

**(5) Payments of Dividends and Tax**

Payments of dividends and tax are also applications of funds. It is the actual payment of dividend and tax which should be taken as an outflow of funds and not the mere declaration of dividend or creating of a provision for taxation.

**(6) Any other non-trading payment**

Any payment or expense not related to the trading operations of the business amount to outflow of funds is taken as an application of funds.

The examples could be drawings in case of sole trader or partnership firm, loss of cash etc.

**Illustration 1:** A statement of the retained earnings of Harish Ltd. is given below:

	₹	₹	
Balance of retained earnings,			
July 1, 20X1	41,72,800		
Add: Net income after taxes	83,26,600		
Tax refund	2,84,300		
		1,27,83,700	
Less: Dividend	58,52,100		
Write-off, cost of investments			
in foreign subsidiary	12,23,000		
Loss on sale of plant equipment	1,33,400		
		72,08,500	
Balance of retained earnings, June 30, 20 X 2		55,75,200	

(a) Depreciation of ₹ 7,95,200 was deducted in arriving at net income for the fiscal year; (b) Plant and equipment having a net book value of ₹ 4,32,100 was sold in August, 20X1; (c) Plant properties were increased during the fiscal year at a cost of ₹ 23,19,000 and the increases were financed by bonds; (d) Preference shares were retired for ₹7,64,000.

You are required to prepare a statement of the sources and uses of net working capital for the year ended June 30, 20X2.

**Solution**

**STATEMENT OF SOURCES AND USES OF FUNDS**

	₹	₹	Sources
Funds from operations		91,21,800	
Sale of machine		2,98,700	
Tax refund		2,84,300	
<b>Total Sources</b>			<b>97,04,800</b>

**Uses:**



Retirement of preferences shares	7,64,000	
Payment of dividends	58,52,100	
<b>Total Applications</b>		66,16,100
<b>Net Increase in Working Capital</b>		30,88,700

### Notes

1. Purchase of plant properties at ₹23,19,000 is neither a source nor an application. In this case the transaction gives rise to noncurrent asset and non-current liability, and hence funds remain unaffected by it.

2. Calculation of funds from operation:

Net income after income tax	₹ 83,26,600
Add: Depreciation	7,95,200
Source from operation	₹ 91,21,800

3. Calculation of source from sale of machine:

Book value of plant sold	₹ 4,32,100
Less: Loss on sale of plant	1,33,400
Source from the sale of plant	₹ 2,98,700

**Illustration 2:** From the following balance sheets of A Ltd. make out: (i) Statement of changes in the working capital, and (ii) funds flow statement.

### ALTD Balance Sheets

Liabilities and Assets	20X1 (₹)	20X2 (₹)
<b>Liabilities</b>		
Equity share capital	3,00,000	4,00,000
8% Redeemable preference share capital	1,50,000	1,00,000
General reserve	40,000	70,000
Profit and Loss A/c	30,000	48,000
Proposed dividend	42,000	50,000
Creditors	55,000	83,000

Bills payable	20,000	16,000
Provision for taxation	40,000	50,000
<b>Total</b>	<b>6,77,000</b>	<b>8,17,000</b>
<b>Assets</b>		
Goodwill	1,15,000	90,000
Land and buildings	2,00,000	1,70,000
Plant	80,000	2,00,000
Debtors	1,60,000	2,00,000
Stock	77,000	1,09,000
Bills receivable	20,000	30,000
Cash in Hand	15,000	10,000
Cash in Bank	10,000	8,000
<b>Total</b>	<b>6,77,000</b>	<b>8,17,000</b>

Additional Information. (i) Depreciations of ₹ 10,000 and ₹ 20,000 have been charged on plant and land and buildings respectively in 20X2. (ii) An interim dividend of ₹ 20,000 has been paid during the year. (iii) Income-tax ₹ 35,000 has been paid during the 20X2.

### Solution

#### STATEMENT OF CHANGES IN WORKING CAPITAL

	20X1 (₹)	20X2 (₹)	Changes	
			(₹)	(₹)

<b>Assets</b>				
Goodwill	1,15,000	90,000		-25,000
Land and buildings	2,00,000	1,70,000		-30,000
Plant	80,000	2,00,000		+1,20,000
Debtors	1,60,000	2,00,000	+40,000	-----
Stock	77,000	1,09,000	+32,000	-----
Bills receivables	20,000	30,000	10,000	-----
Cash in Hand	15,000	10,000	-5,000	-----
Cash at Bank	10,000	8,000	-2,000	-----
<b>Total</b>	<b>6,77,000</b>	<b>8,17,000</b>	<b>+75,000</b>	<b>+65,000</b>
<b>Liabilities</b>				
Equity share capital	3,00,000	4,00,000	+1,00,000	
8% Redeemable preference share capital				
General reserve	1,50,000	1,00,000		-50,000
Profit and Loss A/c	40,000	70,000	-----	+30,000
Proposed dividend	30,000	48,000	-----	+18,000
Creditors	42,000	50,000	-----	+8,000
Bills payable	55,000	83,000	+28,000	-----
Provision for taxation	20,000	16,000	-4,000	-----
	40,000	50,000	-----	+10,000
<b>Total</b>	<b>6,77,000</b>	<b>8,17,000</b>		
<b>Net Increase in Working Capital</b>	<b>+51,000</b>	<b>-51,000</b>		
<b>Total</b>	<b>75,000</b>	<b>65,000</b>		

#### STATEMENT OF SOURCES AND USES

	₹	₹	₹
<b>Sources</b>			
Funds from operation			2,18,000

Issue of equity share capital			1,00,000
Sale of building			10,000
<b>Total Sources</b>			<b>3,28,000</b>
<b>Applications</b>			
Purchase of Plant		1,30,000	
Redemption of preference share		50,000	
Payment of dividend:			
(i) Of previous year	42,000		
(ii) Interim dividend	20,000	62,000	
Payment of Tax		35,000	
<b>Total Application</b>			
<b>Net Increase in Working Capital</b>			
<b>Notes: 1. Funds from operations</b>		₹ 18,000	
Increase in profit		30,000	
Increase in general reserve		45,000	
Provision for taxes		30,000	
Depreciation		₹ 18,000	
Increase in Profit		30,000	
Increase in general reserve		45,000	
Provision for taxes		30,000	
Depreciation		50,000	
Provision for dividend		20,000	
Interim dividend		25,000	
		<b>₹ 2,18,000</b>	

2. Provision for taxation in the beginning of the year was ₹ 40,000. Since ₹ 35,000 were paid during 20X2, a balance of ₹ 5,000 should have remained at the end of the year. As ₹ 50,000 is the actual balance at the end of the year, a provision of ₹ 45,000 would have been created during the year.

3. It is assumed that provision for dividends, ₹ 42,000, created in 19X1 is paid in 20X2. Thus the provision for dividends for 20X2 is ₹ 50,000
4. Goodwill decreases because it has been written off. Since the goodwill written off is a book entry in Profit and Loss Account and does not use any funds, it is added to funds from operations.

#### 4.4 SUMMARY

Funds flow statement is a financial statement which shows as to how a business entity has obtained its funds and how it has applied or employed its funds between the opening and closing balance sheet dates (during the particular year/period). It can be described as -WHERE GOT-WHERE GONE- statement Funds usually refers to cash resources and funds statement is prepared to show the net effect of various business events on the current resources of the organization. In this topic fund should be understood as working capital & funds flow as to mean any change in working capital. Funds Flow Statement is a statement prepared to analyse the reasons for changes in the financial position of a company between two Balance Sheets. It shows the inflow & outflow of funds i.e. sources and applications of funds for a particular period. In other words, Funds flow statement is prepared to explain the changes in the working capital position of a company.

#### 4.5 KEYWORDS

**Funds Flow Statement:** This statement is prepared to show the various sources from which the funds came into business and the various applications where they have been used.

**Current assets:** This refers to those assets which can be easily converted in to cash normally within a period of one year.

**Funds:** This is considered to be equivalent to money.

**Gross working capital:** It refers to the total amount a firm invested in current assets.

**Statement of changes in working capital:** It is prepared to show the changes in working capital between the two balance sheet dates.

#### 4.6 SELF ASSESSMENT QUESTIONS

1. In what way the Statement of Changes in Financial Position is different from the Financial Statements.
2. Explain the concept of flow of funds and illustrate how this statement can be prepared.
3. Give an account of major sources and uses of funds.
4. What are the benefits & limitations of a funds flow statement? Discuss.
5. From the following Profit and Loss Account compute Funds from Operations:

	₹		₹
To Salaries	50,000	By Gross Profit	3,00,000
To General Expenses	35,000	By Profit on Sale of Land	10,000
To Rent	30,000	By Interest on Investments	15,000
To Depreciation	60,000		
To Preliminary Expenses	20,000		
To Loss on Sale of Machinery	30,000		
To Dis. On Shares written off	20,000		
To goodwill	10,000		
To Net Profit	70,000		
	<b>3,25,000</b>		<b>3,25,000</b>

6. From the following Balance Sheets as on 31<sup>st</sup> December, 2017 and 31<sup>st</sup> December, 2018, you are required to prepare A Schedule of Changes in Working Capital and a Funds Flow Statement considering:

- (i) The provision for tax and proposed dividends as non-current liabilities; and
- (ii) The provision for tax and proposed dividends as current liabilities

#### Balance Sheet

	As on 31 <sup>st</sup> December			As on 31 <sup>st</sup> December	
	2017 (₹)	2018 (₹)		2017 (₹)	2018 (₹)
Share Capital	5,000	7,500	Fixed Assets	5,000	10,000
P/L Account	2,000	3,000	Current Assets		
Provision for Tax	1,000	1,500			

Proposed Dividends	500	750		6,500	7,250
Sundry Creditors Outstanding	2,000	3,000			
Expenses	1,000	1,500			
	<b>11,500</b>	<b>17,250</b>		<b>11,500</b>	<b>17,250</b>

Tax paid during the year 2018 was ₹ 1,250 and dividend paid was ₹ 500.

#### 4.7 SUGGESTED READINGS

16. Prasanna Chandra: Investment Analysis and Portfolio Management; McGraw Hill Education (India) Pvt. Ltd., New Delhi.
17. M Y Khan & P K Jain: Basic Financial Management; McGraw Hill Education (India) Pvt Ltd., New Delhi.
18. R. P. Rustagi: Financial Management–Theory, Concepts and Problems; Taxmann Publications (P) Ltd., New Delhi.
19. I M Pandey: Financial Management; Vikas Publication House Ltd., New Delhi.

**LESSON: 5**  
**CAPITAL BUDGETING DECISION AND TECHNIQUES**

**STRUCTURE**

- 5.0 Objectives
- 5.1 Introduction
- 5.2 Meaning of Capital Budgeting
- 5.3 Types of Capital Budgeting Decision
- 5.4 Importance of Capital Budgeting
- 5.5 Process of Capital Budgeting
- 5.6 Investment evaluation Criteria
- 5.7 Limitations of Capital Budgeting
- 5.8 Summary
- 5.9 Keywords
- 5.10 Self Assessment Questions
- 5.11 Suggested Readings

**5.0 OBJECTIVES**

The object of the study lesson is to enable the students to understand:

- Types and importance of Capital Budgeting.
- Process of capital budgeting
- Various methods of Capital Budgeting.

**5.1 INTRODUCTION**

The management of any business organisation has to make two types of decision i.e. short-term as well as long-term. Income determination and the planning and controlling of operations



primarily have a current time-period orientation, i.e. short-term decisions. On the other hand, a long range planning has a long-term perspective. These long-range decisions relate to capital budgeting which implies the budgeting of expenditure on capital assets. There is a great deal of controversy among the financial analysts as to the exact meaning of capital expenditure. To some people, if the returns from expenditures extend beyond a year, it should be treated as capital expenditure. According to another point of view, any expenditure which yields returns beyond 5 years is a capital expenditure. Whatever may be the time dimension of capital expenditure, the decision on capital expenditure has importance because it affects the profitability of the organisation for a fairly long period. Prudence exercise in capital expenditure decisions not only fulfils the short- term objective of better profitability but also caters to the long-term objective of stabilised growth. Decisions in this area are among the most difficult because the future is hard to predict. Because the unknowable factors are many, it becomes imperative that they be collected, properly analysed and measured before a decision is made. Capital budgeting helps a lot in the budgeting of expenditure on capital assets or fixed assets in order to maximise the worth of the firm.

Capital budgeting is applicable to decide whether:

- A new project should be undertaken.
- Existing projects should be abandoned.
- Certain research and development costs should be undertaken.
- Certain existing assets should be replaced with new ones.

An efficient allocation of capital is the most important function in the modern times. It involves decisions to commit the firm's funds to the long term assets. The capital budgeting decision has a direct impact on determining how many new proposals or projects the firm should undertake. Since these projects need to be financed, the capital budgeting process also leads to the identification of the firm's need for capital resources. It also assists in allocating capital among various proposals and projects under consideration by management. Such decisions are of considerable importance to the firm since they tend to determine its value size by influencing its growth, profitability and risk.

## **5.2 MEANING OF CAPITAL BUDGETING**

Capital budgeting is concerned with designing and carrying through a systematic investment programme. According to Charles T. Horngren, "Capital budgeting is a long-term planning for making and financing proposed capital outlays".

According to G.C. Philippatos, "Capital budgeting is concerned with the allocation of the firm's scarce financial resources among the available market opportunities. The consideration of investment opportunities involves the comparison of the expected future streams of earnings from a project with the immediate and subsequent stream of expenditure for it".

Thus, the capital budgeting decision may be defined as the firm's decision to invest its current funds most efficiently in long-term activities in anticipation of an expected flow of future benefits over a series of years. Such decisions may consist addition, disposition, modification, mechanisation or replacement of any fixed asset.

### **5.3 TYPES OF CAPITAL BUDGETING DECISION**

Broadly speaking, capital budgeting decisions are long-term investment decisions. They include the following:

(a) **Mechanisation of a Process** - A firm may intend to mechanise its existing production process by installing machine. The machine is estimated to cost ₹1,50,000 and expected to save operating expenses of ₹25,000 per annum for a period of ten years. Thus, it is an investment decision involving cost outlay for ₹1,50,000 and an annual saving of ₹25,000 for 10 years. The firm would be interested in analysing whether it is worth to install the machine.

(b) **Expansion Decisions** - Every company wants to expand its existing business. In order to increase the scale of production and sale, the company may think of acquiring new machinery, addition of building, merger or takeover of another business etc. This all would require additional investment which be evaluated in terms of future expected earnings.

(c) **Replacement Decisions** - A company may contemplate to replace an existing machine with a latest model. The use of new and latest model of machinery may possibly bring down operating costs and increase the production. Such replacement decision will be evaluated in terms of savings in operating costs and increase in annual profits.

**(d) Buy or Lease Decisions** - Capital budgeting is also helpful in making buying or lease decisions. The fixed assets can be purchased or arranged on lease arrangements. Such decisions create a great different in the demand of capital. Hence, a comparative study can be made with reference to future benefits from these two mutually exclusive alternatives.

**(e) Choice of Equipment** - A company needs an equipment (plant or machinery) to perform certain process. Now a choice can be made between semi-automatic machine and fully automatic machine. Capital budgeting process helps a lot in such selections.

**(f) Product and Process Innovation** - The research and development department of accompany may suggest that a new product should be manufactured and/or a new process should be introduced. The introduction of new product and/or a new process will involve heavy capital expenditure and will earn profits also in the future. So, inflows (i.e. future operating income) will be very useful and the ultimate decision will depend upon the profitability of the product and/or process.

**(g) House-Keeping Projects** - House-keeping projects are such projects which exert indirect impact on the production. They are financed either on account of legal necessity or to boost up the morale and motivation level of the employees, say:

- (i) Health and Safety Projects.
- (ii) Service Department Projects
- (iii) Welfare Projects
- (iv) Education, Training and Development Projects
- (v) Status Projects
- (vi) Research and Development Projects.

The decisions relating to financing of above-mentioned long-term projects are not made on the basis of profitability. They are approved or rejected in terms of their urgency, need, compulsion and desirability. Hence, no profitability analysis is made for them. The capital budgeting decisions exclude decisions regarding current assets. The management and investment problems of current assets are discussed under the head working capital management. The capital budgeting decisions

are concerned with only those type of decision areas which have long-term implications for the firm in terms of current expenditure and future benefits. Current expenditure constitutes the outflow of cash and is represented by cost. The future benefits are measured in terms of annual cash inflows. Hence, in capital budgeting, it is the flow of cash- outflow and inflow which is important, not the earnings determined in accordance with the accrual concept of accounting.

#### **5.4 IMPORTANCE OF CAPITAL BUDGETING**

Capital budgeting decisions are among the most crucial and critical business decisions. The selection of the most profitable assortment of capital investment can be considered a key function of management. On the other hand, it is the most important single area of decision-making for the financial executives. Actions taken by management in this area affect the operations of the firm for many years to come. The need and importance of capital budgeting can be numerated as follows:

- 1. Heavy Investment** - Almost all the capital expenditure projects involved heavy investment of funds. These funds are accumulated by the firm from various external and internal sources at substantial cost of capital. So their proper planning becomes inevitable.
- 2. Permanent Commitment of Funds** - The funds involved in capital expenditures are not only large but more or less permanently blocked also. Therefore, these are long-term investment decisions. The longer the time, the greater the risk is involved. Hence, a careful planning is essential.
- 3. Long-term impact on profitability** - The capital expenditure decisions may have a great impact on the profitability of the firm for a very long time. If properly planned, they can increase not only the size, scale and volume of scales but firm growth potentiality also.
- 4. Complicacies of Investment Decisions** - The long-term investment decisions are more complicated in nature. They entail more risk and uncertainly. Further, the acquisition of capital assets is a continuous process. So the management must be gifted ample prophetic skill to peep into future.
- 5. Worth Maximisation of Shareholders** - Capital budgeting decisions are very important as their impact on the well-being and economic health of the enterprise is far reaching. The main

aim of this process is to avoid over- investment and under-investment in fixed assets. By selecting the most profitable capital project, the management can maximize the worth of equity shareholder's investment.

Thus, the significance of capital budgeting decisions becomes quite obvious. The other facts for its significance can be summarised as follows:

- a. Management loses its flexibility and liquidity of funds in making investment decisions, so it must consider each proposal very thoroughly.
- b. Asset expansion is fundamentally related to future sales and assets acquisition decisions are based on capital budgeting.
- c. The funds available for a firm are always in scarcity so they must be properly planned. Modern industrial organisations are characterised by large scale production and intensive mechanisation. This all requires balanced and properly planned allocation of scarce capital resources to the most profitable investment proposals. Hence, the process of capital budgeting has become very significant now-a-days. Therefore, the financial executives plan capital budgets often years in advance.

## **5.5 PROCESS OF CAPITAL BUDGETING**

Capital budgeting decisions of a firm have a pervasive influence on the entire spectrum of entrepreneurial activities. Hence, they require a complex combination and knowledge of various disciplines for their effective administration, such as, Economics, Finance, Mathematics, Economic Forecasting, projection Techniques and Techniques of Financial Engineering and Control. In order to combine all these elements, a finance manager must keep in mind the three dimensions of a capital budgeting programme: Policy, Plan and Programme. These three P's constitute a sound capital budgeting programme. However, the important steps involved in the capital budgeting process are: (i) project generation; (ii) project evaluation, (iii) project selection; and (iv) project execution. These steps are necessary, but more may be added to make the process more effective. Joel Dean a famous economist has described the specific elements in an orderly investment programme which are as follows:

**1. Creative Search for Profitable Opportunities** - The first stage in the capital expenditure programme should be the conception of a profit making idea. It may be rightly called the

origination of investment proposals. The proposals may come from a rank and file worker of any department or from any line executive. To facilitate the origination of such ideas a periodic review and comparison of earnings, costs, procedures and product line should be made by the management on a continuous basis.

**2. Long-range Capital Plans-** When a specific proposal is made to management, its consistency with the long-range plans of the company must be verified. It requires the determination of over-all capital budgeting policies beforehand based upon the projections of short and long-run developments.

**3. Short-range Capital Budget-** Once the timelines and priority of a proposal have been established, it should be listed on the one-year capital budget as an indication of its approval.

**4. Measurement of Project Worth-** This stage involves the tentative acceptance of the proposal with other competitive projects, within the selection criteria of the company. Small projects under a certain rupee amount could be approved by the departmental head. Larger projects should be ranked according to their profitability. Any one or more tests of profitability may be used for it. For project evaluation, different techniques may be used, such as, payback period, accounting rate of return and discounted cash flow techniques.

**5. Screening and Selection -** This stage involves the comparison of the proposal with other projects according to criteria of the firm. This is done either by financial manager or by a capital expenditure planning committee. Such criteria should encompass the supply and cost of capital and the expected returns from alternative investment opportunities. Once the proposal passes this stage, it is authorised for outlays.

**6. Establishing Priorities -** Then comes the stage of establishing the priorities. When the accepted projects are put in priority, it facilitates their acquisition or construction, avoids costly delays and serious cost overruns.

This stage is also called the ranking of projects. It helps in capital rationing and better utilisation of capital.

**7. Final Approval -** Once the financial manager has reviewed the projects, he will recommend a detailed programme, both of capital expenditures and of sources of capital to meet

them, to the top management. Possibly, the financial manager will present several alternative capital-expenditure budgets to the top management, it will finally approve the capital budget for the firm.

**8. Forms and Procedures** - This is a continuous phase that involve the preparation of report for every other phase of the capital expenditure programme of the company.

**9. Retirement and Disposal** - This phase marks the end of the cycle in the life of a project. It involves more than the recovery of the original cost plus and adjustment for replacement programmes. The old assets should be sold and realised sale price should be used for replacement financing.

**10. Evaluation** - An important step in the process of capital budgeting is an evaluation of the programme after its implementation. The evaluation process answers such questions, say, was the investment greater than anticipated? Were the expected net cash inflows actually realised? Was the proper test of evaluating the profitability of project applied? Management can improve its capital budgeting programme for the future from past experience. Such evaluation has also the advantage of forcing departmental heads to be more realistic in their approach and careful in actual execution of the projects.

## **5.6 INVESTMENT EVALUATION CRITERIA**

Because of the utmost importance of the capital budgeting decisions, a sound appraisal method should be adopted to measure the economic worth of each investment project. In most business firms, there are more than one investment proposals for a capital project than the firm is capable and willing to finance. Here the problem of ranking them in order of preference arises. Hence, the management has to select the most profitable project or to take up the most profitable project first. As we know that the ultimate goal of financial management is the worth maximisation of the firm, hence, in order to achieve this objective, the management must select those projects which deserve first priority in term so their profitability. For evaluating the comparative profitability of capital projects many methods have been evolved. Each method has its own merits and demerits. However, the method going to be used should, at least, possess the following characteristics:

- a. It should provide a means of distinguishing between acceptable and unacceptable projects.

- b. It should provide clear cut ranking of the projects in order of the profitability or desirability.
- c. It should also solve the problem of choosing among alternative projects.
- d. It should be a criterion which is applicable to any conceivable investment projects.
- e. It should emphasize upon early and bigger cash benefits in comparison to distant and smaller benefits.
- f. In the last but not the least, the method should be suitable according to the nature and size of capital project to be evaluated.

### **Method of Evaluating Investment Proposals**

The various methods which are commonly used for evaluating the relative worth of investment proposals are as follows:

#### **I. Non-discounted cash flow Techniques (NDCF)**

- (A) Payback Period Method (PB)
- (B) Accounting Rate of Return Method (ARR)

#### **II. Discounted Cash Flow Techniques (DCF)**

- (A) Net Present Value Method (NPV)
- (B) Present Value Index Method or Benefit-Cost Ratio Method (BCR) or Profitability Index Method (PI)
- (C) Internal Rate of Return Method (IRR)

It is important to note here that different methods may give different conclusions and different firms may use different methods. Which method is appropriate for a particular purpose of the firm will depend upon the circumstances. A large sized firm may use more than one method to evaluate each of its investment projects, while a small firm may apply only one technique which involves minimum funds and time. Moreover, these techniques assist the management only in taking objectively sound decisions. They do not provide the answer. The management has still to exercise its common sense, intuition and judgement in making final decisions.

#### **1. Non-discounted cash flow Techniques (NDCF)**



### (A) Payback Period Method (PB)

This method is also known as pay-off, pay-out or recoupment period method. It gives the number of years in which the total investment in a particular capital project pays back itself. This method is based on the principle that every capital expenditure pays itself back over a number of years. It means that it generates income regularly during its estimated economic life. When the total cash inflows from investment equals the total outlay, that period is the payback period of that project. While comparing between two or more projects, the project with lesser payback period will be acceptable.

**Calculation or Payback Period** - The payback period can be calculated in the following manner:

(a) **In the case of even cash inflows:** If the pattern of annual cash inflow is of conventional character or they are in the form of annuity, the computation of payback period is very simple, as follow:

$$\text{Payback Period} = \frac{\text{Initial Investment}}{\text{Annual Cash Inflow}}$$

For example, if an investment of ₹10,000 in a machine is expected to produce annual cash inflow of ₹ 2,500 for 6 years, then

$$\begin{aligned}\text{Payback Period} &= \frac{\text{₹ 10,000}}{\text{₹ 2,500}} \\ &= 4 \text{ yrs.}\end{aligned}$$

(b) **In the case of uneven cash inflows** - When a project's cash flows are not equal, but vary from year to year, i.e., they are of non-conventional nature, the calculation of payback period takes a cumulative form of annual cash inflows. In such a situation, payback period is calculated by the process of cumulating cash inflows till the time when cumulative cash inflows become equal to the original investment outlay. The following example will illustrate the point.

**Illustration 1:** A project requires an investment of ₹10,000. Its estimated annual cash inflows have been given below:

Year	Annual Cash Inflows (ACF) (₹)	Cumulative Cash Inflows (CCF) (₹)
1	2,500	2,500
2	3,500	6,000
3	4,000	10,000
4	5,000	15,000
5	3,000	18,000

Thus, ₹10,000 is recovered fully in 3rd year, hence, payback period is 3 yrs.

**Illustration 2:** A project requires an investment of ₹10,000 and its estimated annual cash inflows are as follows:

Year	(ACF) (₹)	(CCF) (₹)
1	2,000	2,000
2	3,000	5,000
3	4,000	9,000
4	2,000	11,000
5	3,000	14,000

Here, payback period will be = 3 years + (10000 – 9000)/ 2000

$$= 3.5 \text{ yrs.}$$

**Accept-Reject Criterion** - The payback period can be used as a decision- criterion to accept or reject investment proposals. If only one independent project is to be evaluated its actual payable period should be compared with a pre-determined (standard) payback, i.e., the payback set up by the management in terms of maximum period during which the initial investment must be recovered. If the actual payback period is less than the standard payback period, the project would be accepted, if not, it would be rejected. Alternatively, the payback can be used as a ranking method also. When mutually exclusive projects are under consideration they may be ranked according to the length of the payback period. Thus, the project having the shortest payback may be assigned rank one, followed in that order so that project with the longest payback would be ranked the lowest.

**Merits of Payback Method** - The payback period method for choosing among alternative projects is very popular among corporate managers. The chief merits of this method are as follows:

- (i) It is easy to understand and simple to compute and communicate to others. Its quick computation makes it favourite among executive who prefer snap answers.
- (ii) It gives importance to the speedy recovery of investment in capital assets. So, it is a useful technique in industries where technical developments are in full swing necessitating the replacements at an early date.
- (iii) It is an adequate measure for firms with very profitable internal investment opportunities, whose sources of funds are limited by internal low availability and external high costs.
- (iv) It is useful for approximating the value of risky investments whose rate of capital wastage (economic depreciation and obsolescence rate) is hard to predict. Since the payback period method weights only early return heavily and ignores distant returns it contains a built-in hedge against the possibility of limited economic life.
- (v) When the payback period is set at large number of years and income streams are uniform each year, the payback criterion is a good approximation to the reciprocal of the internal rate of discount.

**Demerits of Payback Method** - The payback approach, however, suffers from serious limitations also. Its major shortcomings are as follows:

- (i) It treats each asset individually in isolation with the other assets. While assets in actual practice cannot be treated in isolation.
- (ii) The method is delicate and rigid. A slight change in the division of labour and cost of maintenance will affect the earning and as such it may also affect the payback period.
- (iii) It overplays the importance of liquidity as a goal of the capital expenditure decisions. While no firm can ignore its liquidity of safeguarding liquidity levels. The overlooking of profitability and overstressing the liquidity of funds can in no way be justified.
- (iv) It ignores capital wastage and economic life by restricting consideration to the projects' gross earnings.

- (v) This approach fails to take fully into account the time factor in the value of money; by measuring how quickly the firm recovers its initial investment, it only implicitly considers the timing of cash flows.
- (vi) It overlooks the cost of capital which is a main factor in sound capital budgeting decisions.
- (vii) Another major weakness of this approach is that it completely ignores all cash inflows arising after the payback period. This could be very misleading in capital budgeting decisions. It may be possible that two projects have similar payback period but their post-payback profitability differs significantly. The following examples will illustrate the point.

	<b>Project A</b>	<b>Project B</b>
	(₹)	(₹)
Cost of Project	15,000	15,000
Year	Annual Cash Inflows	
1	5,000	4,000
2	6,000	5,000
3	4,000	6,000
4	0	6,000
5	0	4,000
6	0	3,000
Payback period	3 yrs.	3 yrs.

Thus, project B is certainly advantageous as its post-payback profitability is more in spite of similar payback period of 3 years.

	<b>Project x</b>	<b>Project y</b>
	(₹)	(₹)
Total Investment	10,000	10,000
Year	Annual Cash Inflows	
1	5,000	3,000

2	5,000	4,000
3	2,000	3,000
4	1,000	4,000
5	50000	2,000
Payback period	2 yrs.	3 yrs.

Thus, the payback period for project x is 2 years and for project y it is 3 years. Obviously, project x will be preferable on the basis of payback period. However, if we look beyond the payback period, we see that project x returns only ₹3,500 while project y returns ₹6,000. Thus, project y should be preferred.

(viii) Another weakness of this method is that it does not measure correctly even the cash flows expected to be received within the payback period as it does not differentiate between projects in terms of the timing or magnitude of cash flows. It considers only payback period as a whole while the pattern of cash flows may affect the value of firm considerably. The following example will illustrate the point.

	<b>Project O (₹)</b>	<b>Project P (₹)</b>
Total Cost of the Project	10,000	10,000
Year	Annual Cash Inflows	
1	2,000	5,000
2	3,000	3,000
3	5,000	2,000
Payback period	3 years	3 years

Above example shows that both the projects O and P have the same cash outlays in the zero time period, the same total cash inflows of ₹10,000; the same payback period of 3 years. But intuitively the project P would be preferable as it returns cash earlier than first project. Hence, the internal composition of cash inflows is also very important which should not be ignored.

But inspite of the above mentioned weaknesses, the payback method can be gainfully employed under certain circumstances. In a politically unstable economy, a quick return of investment is a must. Shortest payback period is the only answer to such investments. In case of

foreign investments, the firms experiencing severe shortage of liquidity, for assessing short-run and medium term capital projects, the payback period is the only good technique for assessing their profitability. In fact, the payback period is a measure of liquidity of investment rather than their profitability. Thus, the payback period should more appropriately be treated as a constraint to be satisfied than as profitability measure to be maximised.

**(B) Accounting Rate of Return Method (ARR)**

This method is also known as Financial Statement Method, Return on Investment Method or Unadjusted Rate of Return Method. It is based on operating earnings computed in the Profit & Loss Account, hence, no separate calculations are necessary to compute annual cash inflows. Finding the average rate of return is a quite popular approach for evaluating proposed capital expenditures. Its appeal stems from the fact that the average rate of return is typically calculated from accounting data (i.e. profits after taxes). According to this method, capital projects are ranked in order of their rate of earnings. Projects which yield the highest earnings are selected and others are ruled out. This return on investment can be expressed in several ways as below:

**(i) Average Rate of Return on Total Investment** - This method established the relationship between the average annual profits to total outlay of capital project, as follows:

$$\text{Average Rate of Return} = \frac{\text{Average Profits (after taxes)}}{\text{Total Outlay of the Project}} \times 100$$

Thus, this method considers whole earnings over the entire economic life of an asset. The project with highest return will be acceptable.

**(ii) Earnings Per Unit of Money Invested** - As per this method, we find out the total net earnings (after taxes) and then divide it by the total investment. This gives us the average rate of return per unit of amount invested in the project, as follows:

$$\text{Earnings Per Unit of Investment} = \frac{\text{Total Earnings (after taxes)}}{\text{Total Outlay of the Project}}$$

Higher the earnings per rupee, the project deserves to be selected.

**(iii) Average Return on Average Investment-** Under this method the percentage of average return on average amount of investment is calculated. To calculate the average investment, the outlay of the project is divided by two. ARR is calculated as follows:

$$\text{Average Rate of Return} = \frac{\text{Average Profits (after taxes)}}{\text{Average Investment}} \times 100$$

**The average profits after taxes -** Average profits after taxes are found by taking the sum of the expected after-tax profits of the project during its life and dividing the sum by the number of years of its life. In the case of an annuity, the average after-tax profits are equal to any year's profits.

**The average investments -** Any of the following three formulae may be applied to calculate average investment:

- (a)  $\frac{\text{Initial Investment}}{2}$
- (b)  $\frac{\text{Initial Investment} + \text{Scrap Value}}{2}$
- (c)  $\frac{\text{Recovered Capital} + \text{Scrap Value}}{2}$

The averaging process outlined above assumes that the firm is using straight line method of depreciation.

### **Merits of ARR Method**

The approach has the following merits:

- (1) Like payback method it is also simple and easy to understand.
- (2) It is based on the accounting concept of operating income and accounting profit figures are used in analysing the profitability of alternative capital projects, hence no separate calculations are required.
- (3) It takes into consideration the total earnings from the project during its entire economic life.
- (4) This approach gives due weight to the profitability of the project.

(5) In investments with extremely long lives, the simple rate of return will be fairly close to the true rate of returns. It is often used by financial analysts to measure current performance of a firm.

### **Demerits of ARR Method**

This method has a following demerit:

- (1) One apparent disadvantage of this approach is this that its results by different methods are inconsistent.
- (2) It is simply an averaging technique which does not take into account the impact of various external factors on overall profits of the firm.
- (3) The method ignores the time factor of future cash streams which is crucial in business decisions as the amount of interest and discount is substantially affected by it.
- (4) This method does not determine the fair rate of return on investments.

It is left at the discretion of the management. Hence, the use of this arbitrary rate of return may cause serious distortions in the selection of profitable projects.

## **II. Discounted Cash Flow Techniques (DCF)**

Although, return on investment has been considered a satisfactory technique of capital budgeting in accounting circles for long. Next came the payback approach which is based on cash flow technique. But the lacuna of the above methods is that they do not take the time factor of the income into account. The earlier receipts are certainly more important than the income to be received in later years. A bird in hand is worth than the two in the bush, is aptly applicable to the management of capital. Accordingly, a rupee in the hand has more worth than a rupee to be received five year later, because the use of money has a cost (interest) just as the use of building or an automobile may have a cost (rent). The DCF techniques take care of these both aspects, i.e., time value of money and cost of capital. As a capital project yields returns spread over a number of years, correct assessment of its profitability can be made only if the annual returns of the future years are brought to their present value after applying a discounting rate (i.e. cost of capital or interest rate). Similarly, if the investment is to be made over a number of years, the cash outflows have to be brought down to their present value. Thus these techniques recognise time-adjusted rate



of return as well as the cost of capital. The aggregate of future cash flows discounted at a given rate of cost of capital is called the present value of those cash inflows.

The calculation of present value consists of the following steps:

- (a) Estimating future cash inflows from the project.
- (b) Selecting a discount rate which is commonly known as opportunity cost or cost of capital also.
- (c) Discounting those cash inflows with the discount factors or present value factors picked up from the present value tables according to the rate of cost of capital.

There are three methods to judge the profitability of different proposals on the basis of discounted cash flow technique. These are as follows:

**(A) Net Present Value Method (NPV)**

The calculation of net present value (NPV) of project is one of the most commonly used capital budgeting techniques. This method is also known as Excess Present Value of Net Gain Method. The definition of net present value can be expressed as follows:

NPV = Total Present value of Future Cash inflows - Initial Investment. The total present value of future cash inflows is calculated with the help of the following formula:

$$P = \frac{S}{(1+i)} + \frac{S_2}{(1+i)} + \dots + \frac{S_n}{(1+i)^n}$$

Where, P = Present Value of future cash inflows.

S = Future Value of cash inflows for n years.

i = Rate of interest

n = number of years (1,2,3,.....)

Based on the above equation, the present value factors tables have been prepared. In these tables, the present value of ₹1 at different rates of interest have been given. The second type of present value tables provide us the cumulative amount of an annuity of Re. 1 for a given rate of

interest. If the annual cash inflows are of even nature, the compound present value factor should be used and if it is of uneven nature, the simple present value factor should be applied. If the NPV is in positive the project should be accepted. If it is in negative, it should be rejected. In mutually exclusive projects, the project with higher NPV should be preferred.

The following example will explain the procedure:

**Illustration 3:** Suppose a project costs ₹5,000. Its estimated economic life is 2 years. The firm's cost of capital is estimated to be 10%. The estimated cash inflows from the project are ₹2,800 p.a. Calculate its NPV.

**Solution:** As the firm's cash inflows are of conventional pattern (i.e. even amount), the compound value factor can be used for calculating their NPV.

		₹
Total Present Value = ₹2,800 x 1.813	5,272	
Less Cost of the Project	5,000	
Net Present Value	272	

### Merits of NPV Method

- (1) The NPV method takes into consideration the time factor of earnings as well as cost of capital.
- (2) It is very easy to calculate, simple to understand and useful for simply "accept" or "reject" type of projects.
- (3) It can be applied to both types of cash inflows patterns - even and uneven cash inflows.
- (4) The NPV method is generally preferred by economists. If one wishes to maximise profits, the use of NPV always finds the correct decisions.
- (5) It takes care of entire earnings.
- (6) The concept of the present value of series of cash flows is an important feature in the analysis of different investment potentialities. The net present worth technique analyses the merit of relative capital investments in a nice and exact manner.

### **Demerits of NPV Method**

- (1) It involves a good amount of calculations. Hence, it is a complicated method.
- (2) The use of this method requires the knowledge of cost of capital. If it is unknown, the method cannot be used.
- (3) It leads to confusing and contradictory answers for the ranking of complicated projects.
- (4) Keeping in view the substantial difference in time-span and involved risk in various capital projects, the use of one common rate of cost of capital for discounting cash inflows is not desirable.

### **B. Profitability Index Method**

This method is also known as Benefit-Cost Ratio. One major demerit of NPV method is that it cannot be applied to compare those mutually exclusive projects which differ in costs substantially. To compare and evaluate such projects, the profitability index should be calculated. The profitability index is the relationship that exists between the present values of net cash inflows and cost outlays of the projects. It can be calculated in two manners:

- (i) 
$$\text{Gross BCR} = \frac{\text{Total Present Values of Cash Inflows}}{\text{Initial Investment}}$$
- (ii) 
$$\text{Net BCR} = \frac{\text{Net Present Values of Cash Inflows}}{\text{Initial Investment}}$$

(Where, NPV of cash inflows in Total Present value of cash inflows minus initial investment)

These both can be expressed in percentage also. Their expression in percentage helps in comparing the relative profitability of capital projects. The higher the profitability index, the more desirable is the investment.

### **(C) Internal Rate of Return (IRR) Method**

The third DCF technique is the Internal Rate of Return Method which is commonly known as Time-adjusted Rate of Return method also. Like the present value method, the IRR method also considers the time value of money by discounting the annual cash inflows. But present value method can be applied only when the discount rate (i.e. cost of capital) is known to us. On the

other hand, in IRR technique we find out that rate of return which will equate the present value of future cash streams to the present cash outlay of the project. It is usually the rate of return that the project earns. "It may be defined as the discount rate (r) which equates the aggregate present value of the net cash inflows with the aggregate present value of cash outflows of a project". In other words, "IRR is the maximum rate of interest that could be paid for the capital employed over the life of an investment without loss on the project". Thus, it is that rate which gives the projects NPV of zero. (134)

Assuming conventional cash inflows, mathematically, the IRR is represented by that rate, r, such that,

$$C = \frac{ACF_1}{(1+r)^1} + \frac{ACF_2}{(1+r)^2} + \frac{ACF_3}{(1+r)^3} + \dots + \frac{ACF_n}{(1+r)^n} + \frac{S + W_n}{(1+r)^n}$$

Here:

- C = Cost of the Project
- ACF = Annual Cash Inflows
- S = Scrap Value of the Project
- W = Working capital involved and recovered
- r = estimated rate of interest

Fortunately tabular values of present values of future earnings are readily available. So, usually these tables are used for this purpose.

### Computation of IRR

(a) **In the case of even cash inflows** - If the cash inflows are uniform each year then the computation of IRR involves the following two steps:

(i) Calculate Present Values Factor by applying the following formula:

$$\text{P.V. Factor} = \frac{\text{Initial Investment}}{\text{Annual Cash Inflow}}$$

(ii) Locate the factor calculated in (i) in the compound Present Value Table on the line corresponding the life span of investment in years. The interest rate of the line of that factor will be the required IRR.

It is to be noted that the present value of cash inflows at this computed rate must be equal to the present value of cash outflows.

**Illustration 4:** A project costs ₹ 10,000 and is expected to generate cash- inflows of ₹ 1,750 annually for 10 years. Its salvage value is nil. Calculate its IRR.

**Solution**

P.V. Factor = Investment ÷ Annual Cash Inflow

$$= 10,000 \div 1,750 = 5.714$$

Locating this factor in the compound present value table on the line corresponding to the 10th year. We find that this factor is most close to the factor in the table at 12%. Hence, the approximate rate of return is 12%.

As the factor given in the table is less than the factor computed above, actual rate will be a bit less than 12%. It can, however, be ascertained by applying the interpolation technique as follows:

$$\begin{aligned} \text{IRR} &= r + \frac{V_1 - V}{V_1 - V_2} (r_2 - r_1) \\ &= 10\% + \frac{6.145 - 5.714}{6.145 - 5.652} \times (12\% - 10\%) \\ &= 10\% + 1.74\% = 11.74\% \end{aligned}$$

Alternative Formula:

$$\text{IRR} = r_2 - \frac{V - V_2}{V_1 - V_2} (r_2 - r_1)$$

$$\begin{aligned}
&= 12\% - \frac{5.714 - 5.650}{6.145 - 5.650} \times (12\% - 10\%) \\
&= 12\% - \frac{0.064}{0.495} \times 2 \\
&= 12\% - 0.26\% = 11.74\%
\end{aligned}$$

Where,

$r_1$  = Lower rate of return

$r_2$  = Higher rate of return

$V_1$  = Present value factor at lower rate of return

$v_2$  = Present value factor at higher rate of return

$V$  = Present value factor for which IRR is to be interpolated

**(b) In the case of uneven cash inflows** - Here the computation of IRR involves a trial and error procedure. To find the rate of interest that equates the cash inflows with the cash outflows, we start with an assumed rate and calculate the NPV. This NPV may be more than zero, less than zero or just equal to zero. If more than zero, a higher rate of interest should be tried to calculate NPV. Conversely, when the NPV is less than zero, a lower rate would be used. The procedure will go on till we find the rate which gives zero for the NPV.

Under IRR approach, the calculated IRR (i.e. actual rate) is compared with the required rate of return, also known as the cut-off rate or hurdle rate (i.e. the cost of capital or interest rate on which the funds will be available). If the actual IRR is higher than the cut-off rate, the project is accepted, if lower it is rejected.

If the IRR and cut-off are just equal, the firm will be indifferent as to whether to accept or reject the project.

**Illustration 5:** A project requires an initial outlay of ₹ 32,400. Its estimated economic life is 3 years. The cash streams generated by it are expected to be as follows:

Years	Estimated ACF
-------	---------------

(₹)

1	16,000
2	14,000
3	12,000

Computed its IRR. If the cost of capital to the firm is 12% Advise the management whether the project should be accepted or rejected.

**Solution:** To compute IRR, we have to follow the trial and error procedure with various rate of interest. The following table presents the calculations:

**Table showing calculations of IRR for unequal cash inflows**

Total Present Values at different rate of interest							
Year	ACF	DF at 14%	P.V.	DF at 16%	P.V.	DF at 15%	P.V.
	(₹)		(₹)		(₹)		(₹)
1	16,000	0.877	14,032	0.862	13,795	0.870	13,920
2	14,000	0.769	10766	0.743	10,402	0.756	10,584
3	12,000	0.675	<u>8100</u>	0.641	<u>7,692</u>	0.658	<u>7,896</u>
			32,898		31,886		32,400
Less Cost of Project			<u>32,400</u>		<u>32,400</u>		<u>32,400</u>
			+498		-514		

Since NPV is zero at 15% discount rate, it is its IRR. If the cost of capital is 12%, the project must be accepted as its internal return is 15% while cost of funds is only 12%. The project will contribute 3% to the value of the firm.

### **Merit of Discount Cash Flow Techniques**

- (1) This method takes into account the entire economic life of an investment and income therefrom. It gives the true rate of return offered by a new project.
- (2) It gives due weight to time factor of financing. It is more suitable for long-term planning. In the words of Charles Horngren. "Because the discounted cash flow method explicitly and routinely weights the time value of money, it is the best method to use for long-range decisions.

- (3) It permits direct comparison of the projected returns on investments with the cost of borrowing money which is not possible in other methods.
- (4) It makes allowance for difference in the time at which investments generate their income.
- (5) This approach by recognising the time factor makes sufficient provision for handling uncertainty and risk. It offers a good measure of relative profitability of capital expenditures by reducing the earnings to their present value.

The concept of "discounted cash flow" has evoked considerable interest in regular commercial enterprises as well as among financial institutions. The World Bank and other financial institutions use the DCF techniques extensively while measuring the success of new development ventures in order to arrive at sound capital expenditure decisions.

### **Demerits and Criticism of Discounted Cash Flow Techniques**

This method is criticised on the following grounds:

- (1) It involves a good amount of calculations. Hence, it is a difficult and complicated one. But this criticism has no force, particularly with the advent of very sophisticated and speedy calculating and other aiding mechanisations.
- (2) It is very difficult to forecast the economic life of any investment exactly.
- (3) The selection of cash-inflow is based on sales forecasts which is in itself an interminable element.
- (4) The selection of an appropriate rate of interest is also difficult.
- (5) The DCF approaches do not consider the impact of an investment on accounting profits. The investment may generate a low, or even a negative net cash inflow in early years, but produce high cash inflows in subsequent years. In such cases, the accounting profits of a firm are adversely affected.

But despite these defects, this approach affords an opportunity for making valid comparisons between several long-term competing capital projects. J. Batty has very rightly remarked - "Allowing for these apparent defects there is still a very strong case for using the present value concept. Values and costs should be shown at their true worth, only then can the



management accountant say that he is truly representing facts which represent economic realities and not simply a list of unrelated figures. The process of discounting brings them all into present day terms allowing valid comparisons to be made".

## **5.7 LIMITATIONS OF CAPITAL BUDGETING**

Following are the limitations of capital budgeting:

- (1) Various data such as investment, return, estimated economic life of the asset, to a great extent, are only estimates. Even with all the "knowledgeable factors" collected and duly analysed, there are many unknown factors which cannot be foreseen and which cannot be avoided or controlled.
- (2) Financial planning for liquidity and profitability is fraught with many of the same risks that apply to other phases of business activity. The risks of faulty projections of financial requirements are particularly great in the planning of capital expenditures for long-term fixed-asset expansion.
- (3) Capital Budgeting process does not take into consideration various non- figure aspects of the project while they play an important role in successful and profit able implementation of them. Hence, non-profitability considerations should also be considered by the management while taking a final decision.
- (4) It is also not correct to assume that mathematically exact techniques, always produce highly accurate results.

## **5.8 SUMMARY**

Capital budgeting describes the firm's formal planning process for the acquisition and investment of capital and results in a capital budget. Traditional Techniques to analyze Capital budgeting are Payback period and Accounting Rate of Return (ARR). Three discounted cash flow methods used in capital budgeting are Net Present Value Method (NPV); the Profitability Index or Desirability factor and Internal Rate of Return (IRR). The net present value relies on the time value of money and the timings of cash flows in evaluating projects. Internal rate of return is the interest rate that discounts an investment's future cash flows to the present so that the present value of cash inflows exactly equals the present value of the cash outflows.

## 5.9 KEYWORDS

**Capital Budgeting:** It refers to planning and deployment of available capital for the purpose of maximizing long-term profitability of the firm.

**Internal Rate of Return:** The internal rate of return refers to the rate which equates the present value of cash inflows and present value of cash outflows.

**Profitability Index:** Profitability Index is defined as the ratio of present value of the future cash benefits at the required rate of return to the initial cash outflow of the investment.

**Pay Back Period:** Pay Back technique estimates the time required by the project to recover, through cash inflows, the firm's initial outlay.

## 5.10 SELF ASSESSMENT QUESTIONS

- (1) What is capital Budgeting? Explain the relevance of capital budgeting decisions from the point of view of an industrial concern.
- (2) Examine various methods of ranking investment proposals in respect to their relative merits & demerits.
- (3) "The investment alternative yielding the highest discounted rate of return is the most acceptable". Will this always be true?
- (4) What do you understand by the term "return on investment"? Do you consider it a yardstick for measuring efficiency? Discuss the various purposes for which this yardstick could be used.

## 5.11 SUGGESTED READINGS

20. J Van Horne & John M. Wachowicz: Fundamentals of Financial Management; Pearson Education Ltd. New Delhi.
21. M Y Khan & P K Jain: Basic Financial Management; McGraw Hill Education (India) Pvt Ltd., New Delhi.
22. R. P. Rustagi: Financial Management–Theory, Concepts and Problems; Taxmann Publications (P) Ltd., New Delhi.
23. Prasanna Chandra: Investment Analysis and Portfolio Management; McGraw Hill Education (India) Pvt. Ltd., New Delhi.

## **LESSON: 6**

### **CAPITAL STRUCTURE DECISIONS**

#### **STRUCTURE**

- 6.0 Objectives
- 6.1 Introduction
- 6.2 Meaning and Feature of Capital Structure
- 6.3 Guiding Principles of Capital Structure Decision
- 6.4 Factors affecting the Pattern of Capital Structure
- 6.5 Models of Capital Structure Decisions
- 6.6 Summary
- 6.7 Keywords
- 6.8 Self Assessment Questions
- 6.9 Suggested Readings

#### **6.0 OBJECTIVES**

- To focus on guiding principles of Capital Structure decisions.
- To provide an understanding of various factors that impact capital structure decisions.
- To discuss various models of Capital Structure Decisions.

#### **6.1 INTRODUCTION**

Capital Structure of a company is very important for company's survival. If the capital structure of a company is not optimized, then it becomes difficult for a company to sustain i.e. sometimes it has to face shortage of capital, sometimes it has to bear high interest. So in view of above, it becomes very important for a finance manager to ensure that the firm's capital structure is as per the market and organisation condition.

Given the capital budgeting decision of a firm, it has to decide the way in which the capital projects will be financed. Every time the firm makes an Investment decision, it has to undertake a financing decision also. For example, a decision to purchase a new machinery or plant implies specific ways of financing that project. Should the firm employ equity or debt or both? What may be its implications/ What is the appropriate mix of debt and equity? These are some questions that a firm need to answer before taking up any Financing decision. Capital structure means the structure or constitution or break-up of the capital employed by a firm. The capital employed consists of both the owners' capital and the debt capital provided by the lenders. Debt capital is understood here to mean the long term debt which has been deployed to build long term assets. Apart from the elements of equity and debt in the capital structure, a firm could have quasi equity in the form of convertible debt. The Financing or Capital Structure decision is a significant managerial decision as it influences the shareholder's return and risk. Consequently, the market value of the share may be affected by the capital structure decision.

## **6.2 MEANING AND FEATURE OF CAPITAL STRUCTURE**

The basic objective of financial management is to maximize the shareholders wealth. Therefore, all financial decisions in any firm should be taken in the light of this objective. Whenever a company is required to raise long-term funds the finance manager is required to select such a mix of sources of finance that overall cost of capital is minimum (i.e., value of the firm/wealth of shareholders is maximum). Mix of long-term sources of finance is referred as "capital structure".

### **Optimum Capital Structure**

The capital structure is said to be optimum when the firm has selected such a combination of equity and debt so that the wealth of firm (shareholder) is maximum. At this capital structure, the cost of capital is minimum and market price per share is maximum. It is very difficult to find out optimum debt and equity mix where capital structure would be optimum because it is difficult to measure a fall in the market value of an equity shares on account of Increase in risk due to high debt content in capital structure. Hence, in practice, the expression "appropriate capital structure" is more realistic expression than 'optimum capital structure'.

## **Features of an Appropriate Capital Structure**

Following are the features of a capital structure:

- 1. Profitability:** The most profitable capital structure is one that tends to minimize cost of financing and maximize earning per equity share.
- 2. Flexibility:** The capital structure should be such that company can raise funds whenever needed.
- 3. Conservation:** The debt content in the capital structure should not exceed the limit, which the company can bear.
- 4. Solvency:** The capital structure should be such that firm does not run the risk of becoming insolvent.
- 5. Control:** The capital structure should be so devised that it involves minimum risk of loss of control of the company.

### **6.3 GUIDING PRINCIPLES OF CAPITAL STRUCTURE DECISION**

A finance manager has to plan the pattern of capital structure for the firm in such a way that owners' interest is maximised. Accordingly, that pattern of capital structure should be chosen which may minimise cost of capital and maximise value of stocks. Sometimes, a finance manager is swayed by other interests and points of view and chooses a pattern that is not best suited to the shareholders. For instance, the management in its endeavour to continue for existence would be more interested in issuing stock than in bond which might add risks in the company and consequently their position might be at stake. Likewise, management might be forced by lenders to go for equity stock instead of bonds because that would strengthen the security of bondholders in the company. Nevertheless, analysis in the present chapter is based on the premise that the capital structure decision is primarily governed by wealth maximisation goal.

Broadly speaking, there may be three fundamental patterns of capital structure in a new company:

- i) Financing of capital requirements exclusively by equity share/stock;
- ii) Financing of capital requirements by equity, preferred stocks; and

iii) Financing of capital needs by equity, preferred stock and bonds.

Which of the above patterns would be most suited to the company, should be decided in the light of the fundamental principles laid down for this purpose.

While choosing a suitable pattern of capital structure for the company finance manager should keep into consideration some fundamental principles. These principles are the guiding force and need to be considered jointly. A good finance manager strikes golden mean among them by giving weightage to them. Weights are assigned in the light of general state of the company, specific conditions prevalent in the industry and the circumstance within which the company is running. Management freedom to adjust debt-equity mix is primarily conditioned by availability of various types of funds in desired quantity. For example, a finance manager decides to raise debenture loan to meet additional capital requirements of the company but owing to increased risk in the company lenders may be ready to lend. Under such a condition he finds it difficult to strike a desired adjustment in capital structure. In view of this, good sense of finance management lies in satisfactory compromise between management desire for funds and constraints in supply of funds. Let us discuss the following principles:

**(a) Cost Principle**

As per this principle, ideal pattern of capital structure is one that tends to minimise cost of financing and maximise earning per share. Cost of capital is subject to interest rate at which payments have to be made to suppliers of funds and tax status of such payments. Debt capital is cheaper than equity capital from both the points of view. In the first instance, cost of debt is limited. Bond holders do not participate in superior profits if earned, rate of interest on bonds is usually much less than the dividend rate. Secondly, interest on debt is deductible for income tax purposes whereas no deduction is allowed for dividends payable on stock. Consequently, effective rate of interest which the company has ultimately to bear would be less than rate of interest at which bonds are issued. For example, if bonds carry 10 per cent interest rate and corporate tax rate is 40 per cent, effective cost of debt would be 6 per cent. Thus, use of debt capital in the financial process is significantly helpful in raising income of the company.

**(b) Risk Principal**

This principle states that such a pattern of capital structure should be devised by which the company does not run the risk of bringing on a receivership with all its difficulties and losses due to insolvency. Since bond is a commitment for a long period, it involves risk. If the expectations and plans on which the debt was issued change, debt may prove fatal to the company. If, for example, income of the corporation declines to such a low level that debt service, which is a contractual obligation, cannot be met out of current income, the debt may be highly risky for the company because the bondholder in that case may foreclose and consequently equity stockholders may lose part or all of their assets. Similarly, if the company issues large amount of preferred stock, residual owners may be left with no or little income after satisfying fixed dividend obligations in the year of low earnings. Assumption of large risk by the use of more and more debt and preferred stock affects the share values and share prices may consequently tend to go down. This would result in capital loss of the common stock holders.

As against this since common stock neither entails fixed charges nor the issuer is under legal obligation to pay dividends, the corporation does not incur risk of insolvency though of course issue of additional common stock may result in decline in earnings per share of the old common stockholders owing to dilution of earnings.

Also risk principle places relatively greater reliance on common stock for financing capital requirements of the corporation and forbids as far as possible the use of fixed income bearing securities.

### **(c) Control Principle**

While designing appropriate capital structure for the company and for that matter choosing different types of securities, finance manager should also keep in mind that controlling position of residual owners remain undisturbed. The use of preferred stock and also bonds offers a means of raising capital without affecting control. The management desiring to retain control must raise funds through bonds.

Since common stock carries voting rights, issue of new common stock will reduce the control of existing shareholders. For example, a company is capitalised exclusively with equity share capital of ₹2,00,000 divided in 20,000 shares of ₹ 10 each. If the management contemplates to issue 10,000 new equity shares, voting rights of the old stockholders would be reduced to 67

per cent (20,000/30,000). Now if one shareholder holds 60 per cent of the old shares, his holding would decline to 40 per cent of the total stock after floatation of new stock. Thus, a shareholder, who had predominant control over the affairs of the company, would lose this position because new stockholders would share control with him. But this does not mean that the corporation should be over indebted with heavy doses of debt because that would certainly increase the possibility of the corporation's bankruptcy and the corporation might suffer the consequences of reorganisation and liquidation. Instead of foregoing entire business of the corporation by introducing greater doses of debt, it would be more desirable to issue common stock and share control with new stockholders.

**(d) Flexibility Principle**

According to flexibility principle, the management should strive toward achieving such combinations of securities that the management finds it easier to manage sources of funds in response to major changes in need for funds. Not only several alternatives are open for assembling required funds but also bargaining position of the corporation is strengthened while dealing with the supplier of funds.

For example, if a company is top heavy with debt and has mortgaged all its fixed assets to secure presently outstanding debt it may find it difficult to obtain loan further, even though market condition in respect of availability of debt is favourable because lenders feel shy of lending money to such highly risky concern.

Accordingly, the company might be compelled to raise equity share capital at a time when there is scarcity of such capital in the market. Thus, for sake of the solvency the company should not assume more debt. Further, the management should, as far as possible, avoid getting cheaper loan on terms and conditions that limit the company's ability to procure additional resources. For example, if a company borrowed money in the past on the condition that no further borrowing would be made in future or dividend payments beyond certain limit would not be made to equity stockholders, it restricts its manoeuvre-ability in the capital funds. Such pledges should be avoided.

**(e) Timing Principle**

Timing is always important in financing and more particularly in a growing company. Manoeuvrability principle is sought to be adhered to in choosing the type of funds so as to enable



the company to seize market opportunity and minimise cost of raising capital and obtain substantial savings. Important point that is to be kept in mind is to make the public offering of such securities as are greatly in demand. Depending on business cycles, demand of different types of securities oscillates. In times of boom when there is all-around business expansion and economic prosperity and investors have strong desire to invest, it is easier to sell equity shares and raise ample resources. But in periods of depression bonds should be issued to attract money because investors are afraid to risk their money in stocks which are more or less speculative. Thus timing may favour debt at one time and common stock or preferred stock at other times.

#### **6.4 FACTORS AFFECTING THE PATTERN OF CAPITAL STRUCTURE**

It comes from the above discussion that the principles determining the choice of different sources of capital funds are antagonistic to each other. For example, cost principle supports induction of additional doses of debt in the business which may not be favoured from risk point of view because with additional debt the company may run the risk to bankruptcy. Similarly, control factor supports strongly issue of bonds but manoeuvrability factors discounts this step and favours the issue of common stock. Thus, to design suitable pattern of capital structure for the company, finance manager must bring about a satisfactory compromise among these conflicting factors of cost, risk, control and timing. This compromise is to be reached by assigning weight to these factors in terms of economic and industrial characteristics and also in terms of specific characteristics of the company. We shall now discuss as to how significance of these principles is influenced by different factors.

##### **i) Characteristics of the Economy**

Any decision relating to pattern of capital structure must be made in the light of future developments which are likely to take place in the economy because the management has little control over the economic environment. The finance manager should, therefore, make predictions of the economic outlook and adjust the financial plan, accordingly. Tempo of business activity, state of capital market, state regulation, taxation policy and financial policy of financial institutions are some of the vital aspect of the economy which have strong bearing on the capital structure decision.

**(a) Tempo of Business Activities:** If the economy is to recover from current depression and the level of business activity is expected to expand, the management should assign greater weightage to manoeuvrability so that the company may have several alternative sources available to procure additional funds to meet its growth needs and accordingly, equity stock should be given more emphasis in financing programmes and avoid issuing bonds with restrictive covenants.

At a time when Indian economy is looking up and tending towards globalisation, manoeuvrability principle will receive greater preference.

**(b) State of Capital Market:** Study of trends of capital market should be undertaken in depth since cost and availability of different types of funds is essentially governed by them. If stock market is going to be plunged in bearish state and interest rates are expected to decline, the management may provide greater weightage to manoeuvrability factors in order to take advantage of cheaper debt later on and postpone debt for the present. However, if debt will become costlier and will be scarce in its availability owing to bullish trend of the market, income factor may receive higher weightage and accordingly, the management may wish to introduce additional doses of debt.

**(c) Taxation:** The existing taxation provision makes debt more advantageous in relation to stock capital in as much as interest on bonds is a tax deductible expense whereas dividend is subject to tax. Although it is too difficult to forecast future changes in tax rates, there is no doubt that the tax rates will not be adjusted downwards. In view of prevailing still high corporate tax rate in India, the management would wish to raise degree of financial leverage by playing greater reliance of borrowing.

**(d) Policy of Term-financing Institutions:** If financial institution adopt harsh policy of lending and prescribe highly restrictive terms management must give more weightage to manoeuvrability principle and abstain from borrowing from those institutions so as to preserve the company's manoeuvrability in capital funds. However, if funds can be obtained in desired quantity and on easy terms from the financial institution it would be in fitness of things to assign more weight to cost principle and obtain funds from the institution that supplies cheaper funds.

## ii) **Characteristics of the Industry**

**(a) Cyclical Variations:** There are industries whose products are subject to wider variations in sales in response to national income. For example, sales of refrigerators, machine tools and most capital equipment fluctuate more violently than the income. As against this, some products have low income elasticity and their sales do not change in proportion to variation in national income.

The management should attach more significance to manoeuvrability and risk principles in choosing suitable sources of funds in an industry dealing in product whose sales fluctuate very markedly over a business cycle so that the company may have freedom to expand or contract the resources used in accordance with business requirements. Further, the management would be averse to secure loan for additional funds since this would go against the interests of them, owners and the company would run the risk of bankruptcy during the lean years which could spell death knell of the company.

**(b) Degree of Competition:** Public utility concerns are generally free from intra industry competition. Accordingly, profits of these concerns in the absence of inroads of competitors are likely to be relatively more stable and predictable. In such concerns, the management may wish to provide greater weightage to cost principle to take advantage of financial leverage. But where nature of industry is such that there is neck to neck competition among concerns and profits of the business are, therefore, no easy to predict, risk principle should be given greater consideration. Accordingly, the company should insist on equity stock financing because it would incur the risk of not being able to meet payments of borrowed funds in case bonds are issued.

**(c) Stage of Life Cycle:** Factors influencing the pattern of capital structure are also influenced by stage of the life cycle of industry to which the company belongs. In an infant industry, rate of failure is very high. The main source of funds to such industry is equity capital obtained through underwriters. Debt should be avoided by the infant industry because great risk is already associated with the industry. Thus in the case of new industry risk principle should be the guideline in selecting sources of funds. During periods of rapid growth manoeuvrability factors should be given special consideration so as to leave room open for easy and rapid expansion is given on research and development programmes in order to develop new products and to postpone ultimate decline in sales. These capital expenditure programmes must be financed out of common stock because of greater uncertainty in respect of improvement in the business earnings. If level of

business activity is expected to decline in the long run, capital structure should be designed in such a manner that desired contraction in funds used is possible in future.

**iii) Characteristic of Company:** Finally, peculiar characteristics of the company effect the factors influencing the choice of different source of funds. Accordingly, weights are assigned to different principles of manoeuvrability, cost, risk control and timing in the light of the peculiar features of the company. Let us confine our analysis of these characteristics which are distinct from the industry.

**(a) Size of Business:** Smaller companies confront tremendous problem in assembling funds because of their poor creditworthiness. Investors feel loath investing their money in securities of these companies. Lenders prescribe highly restrictive terms in lending. In view of this, special attention should be paid to manoeuvrability principle so as to assure that as the company grows in size it is able to obtain funds when needed and under acceptable terms. This is why common stock represents major portion of capital in smaller concerns. However, management should also give special consideration to the factor of control because if the company's common stock were publicly available some large concern might buy a controlling interest. In view of this, management might insist on debt for further financing so as to maintain control or common stock should be sold in closed circle so that control of the firm does not pass in the hands of outsiders.

**(b) Form of Business organisation:** Control principle should be given higher weightage in private limited companies where ownership is closely held in a few hands. This may not be so imminent in the case of public limited companies whose shareholders are large in number and so widely scattered that it becomes difficult for them to organise in order to seize control. In such form of organisation manoeuvrability looms large because a public limited company in view of its inherent characteristics finds it easier to acquire equity as well as debt capital.

In proprietorship or partnership form of organisation manoeuvrability factors may not be helpful owing to limited access of proprietary or a few partners.

**(c) Stability of Earnings:** With greater stability in sales and earning a company can insist on leverage principle and accordingly it can undertake the fixed obligation debt with low risk. But a company with irregular earnings will not choose to burden itself with fixed changes. Such company should, therefore, pay greater attention to risk.

**(d) Asset Structure of Company:** A company, which has invested major portion of funds in long lived fixed assets and demand of whose products is assured, should pay greater attention to leverage principle to take advantage of cheaper source. But risk principle will outweigh leverage principle in company whose assets are mostly receivables and inventory, value of which is dependent on the continued profitability of the individual concern.

**(e) Age of Company:** Younger companies find themselves in difficult situation to raise capital in the initial years because of greater uncertainty involved in them and also because they are not known to supplier of funds. It would, therefore, be worthwhile for the management to give more weightage to manoeuvrability factor so as to have as many alternatives as possible in future to meet their growth requirements.

Contrary to this, established companies with good earnings record are always in comfortable position to raise capital from whatever sources they like. Leverage principle should, therefore, be insisted upon in such concerns.

**(f) Credit Standing:** A company with high credit standing has greater ability to adjust sources of funds upwards or downwards in response to major changes in needs for funds than the one with poor credit standing. In the former case, the management should pay greater attention to manoeuvrability factor and should aim at improving credit standing of the latter by improving its liquidity, and earnings potential.

**(g) Attitude of Management:** Attitude of the persons who are at the helm of affairs of the company should also be analysed in depth while assigning weights to different factors affecting the pattern of capitalisation. The management weights to different factors affecting the pattern of capitalisation. The management attitude towards control of the enterprise and risk in particular has to be minutely analysed. Where the management has strong desire for assured and exclusive control, preference will have to be given to borrowing for raising capital in order to be assured to continued control. Further, if principle objective of the management is to stay in office, they would insist more on risk principle and would be loath in issuing bonds or preferred stock which might plunge the company in greater risk and endanger their position.

## **6.5 MODELS OF CAPITAL STRUCTURE DECISIONS**

These approaches analyze the relationship between the leverage, the cost of capital and the value of the firm in different ways. However, the following assumptions are made to understand these relationships:

1. There are only two sources of funds viz., debt and equity.
2. The total assets of firm are given. The degree of leverage can be changed by selling debt to repurchase shares or selling shares to retire debt.
3. There are no retained earnings. It implies that entire profits are distributed among shareholders.
4. The operating profit of firm is given and expected to grow.
5. The business risk is assumed to be constant and is not affected by the financing mix decision.
6. There are no corporate or personal taxes.
7. The investors have the same subjective probability distribution of expected earnings.

The present section will address the different models of capital structure decision and an attempt has been made to evaluate these models.

### **1. Net Income Approach (NI Approach)**

According to this approach, there is an optimal structure where the market price per share of stock is maximum. The significance of this approach is that a firm can lower its cost of capital continually and increase its total valuation by the use of debt funds. Thus, with increased use of leverage overall cost of capital decline and total value of the firm (value of stock plus value of debt) rises. Leverage is, therefore, an important variable and debt policy decision has a significant influence on the value of the firm.

The basic assumptions of NI approach are:

- (a) Only two types of capital are employed - long - term debt and common stock.
- (b) The interest cost on debt and the rate at which investors capitalise earnings available to common shareholders are fixed, regardless of the debt-equity ratio.
- (c) There is no corporate tax rate.

- (d) The borrowing rate is less than the equity capitalisation rate.
- (e) The firm's operating earnings of the firm are not expected to grow, i.e. the firm's expected EBIT is the same in all future periods.
- (f) The firm's business risk is constant and is independent of its capital structure and financial risk.
- (g) The firm is expecting to continue indefinitely.

This approach works like this:

As the proportion of cheaper debt funds in the capital structure increases, the weighted average cost of capital ( $K_o$ ) decreases and approaches the cost of debt ( $K_i$ ).

Thus, the optimal capital structure, according to the NI approach, is one at which the total value of the firm is the highest and the cost of capital ( $K_o$ ) is the lowest.

The NI approach determines the value of the firm by capitalising net income available to common stock holders and adding to it market value of debt.

**Illustration 1:** A firm has ₹8 lakhs of debt at 8 per cent, an expected annual net operating earnings (EBIT) of ₹ 18 lakhs and an equity capitalisation rate of 10 per cent. There are no corporate income taxes.

	₹
Net Operating Earnings (EBIT) (O)	18,00,000
Interest on Debt (₹ 8 lakh 8%) (f)	<u>64,000</u>
Earnings Available to Common Stockholders (e)	17,36,000
Market Value of Equity (Equity capitalisation rate X earnings available to common stockholders) $17,36,000/1.10$ )	1,73,60,000
Market Value of Bonds (b)	<u>8,00,000</u>
Total Value of Firm (v)	1,81,60,000

The overall capitalisation rate (also termed as overall cost of capital) in the above example

is:

$$KO = O/V$$

Where,

KO = Capitalisation rate

O = Net operating income

V = Overall value of the firm.

Substituting the formula with the figures given in the example, implied capitalisation rate

is:

$$KO = \frac{18,00,000}{₹ 1,81,60,000} \times 100$$
$$= 9.9\%$$

Let us now examine the impact of a change in financing mix on the firm's capitalisation rate and value of the firm.

**Illustration 2:** A firm increases in debt from ₹8 lakhs to 16 lakhs and uses the cost of debt and equity are held constant at 8 percent and 10 per cent, respectively. The impact of the above change in capital structure on value of the firm will be as follows:

	₹
Net Operating Income	18,00,000
Interest on Debt (₹16 lakh x 8%)	<u>1,28,000</u>
Earnings available to Equity	16,72,000
Stockholders	
Market Value of Equity	1,67,20,000
Market Value of Debt	<u>16,00,000</u>
Total Value of Firm	₹ 1,83,20,000

This implied overall capitalization rate is:

$$KO = \frac{18,00,000}{₹ 1,83,20,000} \times 100$$



= 9.8%

Thus, use of additional debt has resulted in rise in total value of firm and fall in capitalisation rate. As a result of this, market price per share increases. For example, in the earlier case when the firm had ₹8 lakhs debt with 17,360 outstanding shares, the market price per share was ₹1,000 ( $1,73,60,000/17,360$ ).

When the firm issues additional debt of ₹8 lakhs and uses the same to retire stock, i.e. 800 stock, the market price per share will be ₹ 1,004 ( $₹ 1,67,20,000/ 16,560$ ). The NI approach is graphically shown in Fig. The degree of leverage is plotted along the horizontal axis, while cost of equity, debt and overall cost are on the vertical axis. It is evident from the exhibit that cost of equity ( $K_e$ ) and cost of debt ( $K_i$ ) remain unchanged regardless of degree of leverage. As the percentage share of debt financing in total capitalisation increases, the overall cost of capital ( $K_o$ ) tends to drop and approach the cost of ( $K_i$ ). The optimal capital structure would be the one at which cost of capital is the lowest and the total value of the firm is maximum.

### **Evaluation of NI Approach**

This approach gives idea on the impact the debt has on overall cost of capital. Furthermore, the approach emphasises that recourse to debt financing increases net income before tax and hence the value of equity shares in the market.

However, NI approach fails to recognise that incorporation of additional doses of debt increases the risk in the firm. In real world, when a firm is heavily indebted, the equity stockholders would perceive increase in risk. They would dispose of their stock. As a result, the market value of equity stock will decrease. Thus, the very objective of maximising the value of the firm will be defeated. NI approach cannot, therefore, be considered adequate for capital structure management.

## **2. Net Operating Income (NOI) Approach**

According to NOI approach total value of a firm remains unaffected by its capital structure. Whatever benefits results from debt financing, it will be offset by the rise in cost of equity capital with the result that overall cost of capital remains unaffected for all the degrees of the financial leverage and therefore, there is no optimal capital structure and investors are indifferent to change in capital structure.

Operating features of this approach are:

i) Total market value of the firm (V) is obtained by capitalising net operating income (EBIT) at the overall cost of capital (K<sub>o</sub>) which is constant.

Thus,

$$V = \text{EBIT}/K_o$$

ii) Total value of the stock is found by subtracting the value of debt from total market value of the firm.

iii) The cost of equity (EBIT-F)/s tends to rise in correspondence with an increase in the degree of leverage.

iv) The overall cost of capital is an average of the costs of debt and equity.

Thus, the NOI approach states that the real cost of debt and the real cost of equity are the same. These costs are equal to K<sub>o</sub> (overall cost of capital). K<sub>o</sub> is based on expected return from operations of the firm rather than on capital structure.

To illustrate how value of the firm is determined under NOI approach, we use the same data as employed in the NI approach. Thus, the firm is assumed to have ₹ 8 lakhs of debt of 8 per cent, as expected EBIT of ₹ 19 lakhs and an overall capitalisation rate of 10 per cent Total value of the firm is calculated as follows:

### Illustration 3

NOI (EBIT)	₹ 18,00,000.00
Total Value of the Firm=EBIT/K <sub>o</sub> =	₹ 18,00,000.00.10
	₹ 1,80,00,000.00
Market Value of Debt (B)	<u>₹ 8,00,000.00</u>
Market Value of Stock (s)	<u>1,72,00,000.00</u>

Given the value of the stock, we can now calculate the cost of equity capital as below:

$$K_e = \frac{\text{EBIT} - F}{S} = \frac{\text{₹ } 18,00,000 - .08 (\text{₹ } 8,00,000)}{1,72,00,000}$$

=101 or 10.1%

The weighted average cost of capital or overall capitalisation rate can now be calculated:

$$\begin{aligned}K_o &= K_i (B/V) + K_e (S/V) \\ &= \frac{8}{8\% (180)} + \frac{172}{10.1\% (180)} \\ &= 10\%\end{aligned}$$

Thus, the average cost of capital or overall capitalisation rate is 10 per cent, just as the NOI approach says it should be. If debt is increased from ₹8 lakhs to ₹ 16 lakhs and proceeds are used for retiring stock, the value of the firm would remain constant at ₹ 1,80,00,000, the value of the stock would drop to ₹ 1,64,00,000 and cost of equity capital would rise to 10.2 per cent.

#### Illustration 4

NOI (EBIT)	₹ 18,00,000
Value of the Firm (V) (EBIT/ $K_o$ )	₹ 1,80,00,000
Market Value of Debt (b)	₹ 16,00,000
Market Value of Stock (s)	₹ 1,64,00,000

Equity capitalization rate of cost of equity capital will be:

$$K_e = \frac{\text{EBIT} - F}{S} = \frac{18,00,000 - 8 (16,00,000)}{1,64,00,000}$$

= 10.2%

Overall cost of capital or capitalisation rate will remain constant at 10 per cent as calculated below:

$$K_o = 8\% (16/180) (164/180) = 10.2$$

= 10%

We, thus, see that cost of equity capital ( $K_e$ ) rises with the degree of leverage with the result that it consumes the leverage benefit flowing from debt financing. Since cost of capital and overall value of the firm remain unaffected by change in capital and overall value of the firm remain unaffected by change in capital structure, market price per share of the firm when no additional debt is taken, is ₹ 1,72,00,000/17,360 = ₹ 991. With induction of additional debt of ₹8 lakhs, the market price per share will at ₹ 991 (₹1,64,00,000/16,560) the same as before. Thus, all capital structures are optimal and investors are indifferent to change in capital structure.

The NOI approach is clearly identified with the theory propounded by Modigliani and Miller who strongly support NOI on the basis of their theoretical and empirical research.

This approach focuses on the role of net operating income in the determination of total value of the firm. NOI approach rightly recommends that net investment proposals should be accepted on the basis of the relationship of NOI to total value and not on the basis of the relationship between the source of financing and the return from an investment project.

However, NOI approach does not accept the existence of the concept of optimal capital structure. This is against the perceived risks of different financing mixes. If the risks and benefits of leverage do not exist, then the purpose of regulating debt-equity mix is meaningless.

### **3. Traditional model to capital structure and valuation of enterprise**

Traditional theorist believes that up to a certain point a firm can, by increasing proportion of debt in its capital structure, reduce cost of capital and raise market value of the stock. Beyond that point, further induction of debt will cause the cost of capital to rise and market value of the stock to fall. Thus, through a judicious mix of debt and equity the firm can minimise overall cost of capital structure. After a certain point overall cost of capital begins to rise faster than the increase in earnings per share as a result of application of additional debt.

Traditional view with respect to optimal capital structure can better be appreciated by categorising the market reaction to leverage in three stages.

**Stage I:** The first stage begins with the introduction of debt in the firm's capitalisation. As a consequence of the use of low cost debt the firm's net income tends to rise. Cost of equity capital

(Ke) rises with the additional dose of debt but the rate of increase will be less than the rise in the earnings rate. Cost of debt (Kd) remains constant or rises only modestly. Combined effect of all these will be reflected in increased market value of the firm and decline in overall cost of capital (Ko).

**Stage II:** In the second stage, further application of debt will enhance cost of debt and equity share capital so sharply as to offset the gains in net income. Hence, the total market value of the firm remains unchanged.

**Stage III:** After a critical turning point, any further dose of debt to capitalisation will prove fatal. The cost of both debt and equity will tend to rise as a result of the increasing riskiness of each causing an increase in the overall cost of capital which will be faster than the rise in earnings from the introduction of additional debt. Consequent upon this, market value of the firm will show depressing tendency.

The following illustration will explain the traditional approach.

**Illustration 5:** Following financial data are available about A.B.C. Ltd.

Expected net operating income ₹6,00,000

Debt ₹ 6,00,000 @ 12% Equity Capitalisation Rate 15%

Equity Share Capital ₹24,00,000

What will be the effect of the following actions on the valuation and Ko?

- (a) If the Company raises further debt of ₹ 8,00,000 at 12% and the net operating income is expected to increase by ₹ 1,20,000 and
- (b) With increase in leverage, the equity capitalisation rate increase to 18%.

**Solution**

(a) (i) Valuation of the Company with existing capital structure, viz., ₹16,00,000 as debt and ₹ 24,00,000 as equity.

NOI	6,00,000
Less: Interest on Debt (24,00,000 x 12%)	<u>1,92,000</u>

Earnings Available to Equity Stock Holders	4,08,000
Ke	<u>100/15</u>
Market value of Equity Stock	27,20,000
Add Market Value of Debt	<u>16,00,000</u>
Total Value of Company	43,20,000
Overall Cost of Capital	$\frac{6,00,000 \times 100}{43,20,000}$ = 13.89%

(ii) Valuation of the company with new capital structure, viz., ₹ 24,00,000 debt equity.

₹

NOI	
Less: Interest on Debt (24,00,000 x 12%)	7,20,000
Earnings Available to Equity Stock Holders	2,88,000
Ke	<u>100/15</u>
Market value of Equity Stock	28,80,000
Add Market Value of Debt	<u>24,00,000</u>
Total Value of Company	52,20,000
Overall Cost of Capital	$\frac{17,20,000 \times 100}{52,80,000}$ = 13.64%

(b) Valuation of the Company with increase in equity capitalisation rate to 18% and debt equity ratio of 1: 1

₹

NOI	
Less: Interest on Debt (24,00,000 x 12%)	7,20,000
Earnings Available to Equity Stock Holders	2,88,000
Equity Capitalisation Rate	<u>100</u>

Market value of Equity Stock	$4,32,000 \times \frac{100}{18}$
Add: Market Value of Debt	= 24,00,000
Total Value of Company	48,00,000
Overall Cost of Capital	$\frac{7,20,000 \times 100}{48,00,000}$
	= 15%

It may be noted from the above that with the increase in leverage from 40:60 to 50:50 the total value of the Company has gone up from ₹43,20,000 to ₹ 52,80,000. This is because the earnings on additional funds of ₹8,00,000 is more than  $K_e$ , i.e. 12%.

When the financial leverage was increased and  $K_e$  was also increased the value of the company decreased from ₹52,80,000 to ₹ 48,00,000. Thus, with increased risk exposure, value of the company decreased even though financial leverage was favourable.

Overall cost of capital goes down with the increase in favourable financial leverage and without increase in  $K_e$ .

Overall cost of capital tends to rise with an increase in  $K_e$ .

According to the traditional model the cost of capital would tend to rise and market value of the firm to decline as the firm become more risky consequent upon financing operations with debt capital. Although there is no convincing empirical evidence to support the traditional mode, institution and practice, as evidenced by the behaviour of suppliers of capital as well as by finance managers, seem to suggest that there is indeed a limit to which firm can assume debt without increasing its cost of capital. To exceed certain limits of debt an acceptable range tends to increase both the cost of debt and cost of common stock because the financial risks tend to rise.

However, the model has not been explained as satisfactorily as it should have been. Thus, for instance, a little was offered by way of explanation as to why low cost debt should be substituted for higher cost of equity up to the point. Furthermore, rigorous attempts were not made to define where the optimal point or range may be located. As a result, vague rules of thumb were developed which both firms and financial institutions tended to follow blindly.

#### **4. Modigliani-Miller Model (MM model) to capital structure and valuation of enterprise**

Modigliani and Miller supplied rigorous challenge to the traditional model. According to them, the cost of capital and so also the value of the firm remain unaffected by leverage employed by the firm. Thus, Modigliani and Miller says that any rational choice of debt and equity would result in the same cost of capital under their assumptions and that there is no optimal mix of debt and equity financing. The independence of cost of capital argument is based on the hypotheses that regardless of the effect of leverage on interest rates, the equity capitalisation rate will rise by an amount sufficient to offset any possible savings from the use of low cost debt. They contend that cost of capital is equal to capitalisation rate of a pure equity stream of income class and the market value is ascertained by capitalising its expected income at the appropriate discount rate for its risk class.

So long as the business risk remains the same, the capitalisation rate (cost of capital) will remain constant. Hence, as the firm increases the amount of leverage in its capital structure, the cost of debt capital remains constant the capitalisation rate (cost of equity capital) will rise just enough to offset the gains resulting from application of low cost debt.

The Modigliani and Miller argument is based on a simple switching mechanism which is simply called 'arbitrage'. They contend that market value of the two firms which are identical except for the difference in the pattern of financing will not vary because arbitrage process will drive the total values of the two firms together. Rational investors, according to them, will employ arbitrage in the market to prevent the existence of the two assets in the same risk class and with same expected returns from selling at different prices. For example, shares of the two firms in the same risk class with equal expected returns cannot to sell at different prices in the market simply because one has applied larger doses of debt than the other. The M-M approach is based on the following assumptions:

- (i) Personal and corporate leverages are perfect substitutes.
- (ii) There does not exist transaction cost.
- (iii) Rate of interest at which company and individuals could borrow is the same.
- (iv) Institutional investors are free to deal in securities.



- (v) There are no taxes.
- (vi) Borrowings are riskless.
- (vii) Investors are fully knowledgeable and rational.

The following example will explain the M-M approach.

**Illustration 6:** Two firms A and B falling in the same risk class have net operating income of ₹5,00,000 each. Firm B has ₹10,00,000 of 5 per cent bonds outstanding and firm. A has all equity. In the initial situation both firms have an equity capitalisation rate of 10 per cent.

The following situation will exist.

	<b>Firm A</b>	<b>Firm B</b>
Net Operating Income (O)	₹ 5,00,000	₹ 5,00,000
Less: Interest on Debt (E)	---	50,000
Net Income Available to Equity	₹ 5,00,000	₹ 4,50,000
Stock Holders (F) Value of Stock		
( $S=F/k_a=F/10$ )	₹ 50,00,000	₹ 45,00,000
Value of Debt (B)	0	10,00,000
(V) B+S	₹ 50,00,000	₹ 55,00,000

Thus, total value of firm B is higher than that of firm A by ₹ 5 lakh. But Modigliani and Miller argue that this situation will exit no longer. Rational investors would adjust their portfolios to take advantages to improve their earnings. Thus, an investor owning 10 per cent of B's stock would sell his stock at ₹ 5,50,000 and buy stock of firm A worth ₹ 4,50,000 and further pledge the new stock as collateral for a loan of ₹ 1,00,000 in order to buy additional stock in firm A. The investor has thus introduced the same leverage in his personal account as existed in the corporate account ₹ 1 of debt for every ₹ 4.50 of equity. Similarly, other investors will sell shares of firm B and buy shares of firm A and obtain loan against the new stock for further investments. All this is

done just to improve earnings position by assuming the same degree of risk as it was in the earlier case, investor's income position will be as follows :-

Old Income of Firm B = ₹ 4,50,000

New Income of Firm A = ₹ 4,50,000

Thus, investor's stock investment income remains exactly the same as before. Then what was the rationale to switch over to firm's A stock? Definitely investor's earning position will improve in substituting B's stock by A's stock. Investors have obtained loan of ₹1,00,000 against the security of new stock which will be invested elsewhere to increase existing income. This arbitrage process would continue until firm B's shares increased in price so that differences in market values of the two firms are eliminated. At this equilibrium the overall cost of capital ( $K_0$ ) of the two firms will be the same.

Thus, on the basis of arbitrage, Modigliani and Miller conclude that the financing decision does not help in any way in maximisation of market price per share. In their words, the market value of any firm is independent of its capital structure and is given by capitalising its expected return at the rate appropriate to its (risk) class.

Theoretical validity of the M-M's proposition is difficult to counter. However, the approach has been criticised bitterly by numerous experts questioning the very assumptions on which edifice of the theory is founded.

### **Limitations of M-M Model**

Limitations of the M-M approach which have been brought to the force from time to time are as under:

(i) The M-M model seems to have ignored the vital fact that business risk is a function of the degree of the financial leverage. If a firm fail to service the debt during the lean periods, it is very likely to collapse and will, therefore, not survive to reap the benefits of leverage during the lean periods. Further, bankruptcy involves high costs and probability of the firm having to bear these costs tends to rise with leverage.

(ii) M-M's argument that there is no difference between personal and corporate leverage does not true in actual practice. As a matter of fact, investors' prefer corporate leverage to personal

leverage. Higher interest rates on individual than corporate debt and stiffer margin regulations in the case of personal borrowing encourage the use of debt financing by companies. This would make the investors loath towards personal leverage. Modigliani and Miller would make the investors loath towards personal leverage. Modigliani and Miller have answered these charges by pointing out that the existing practices justify their assumptions. Further, the arbitrage process may not be confined to individuals. The free entry of the financial intermediaries in the market without cost which they do so if opportunities for profit in respect of dealing in securities exist, will assure the efficient functioning of the arbitrage process which, in turn, will result in the prevalence of corporate leverage.

(iii) Another objection hailed against the M-M's proposition is that it would not be realistic to assume that there are no restrictions on institutional investors with respect to their dealing in securities. In real life situations, many institutional investors are not allowed to engage in the 'home made' leverage. Furthermore, Reserve Bank of India regulates margin requirements in respect of different types of loans and has stipulated the percentage of advances under a margin loan. As a result, a significant number of investors cannot substitute personal leverage for corporate leverage.

(iv) It is also unrealistic to presume that there are no transaction costs. In actual practice security dealers have to incur brokerage, underwriting commission and similar other costs in buying and selling corporate securities. Consequently, effectiveness of the arbitrage mechanism may be impeded. Arbitrage will take place only upto the limits imposed by transaction costs, after which it is no longer profitable.

As a result, the leverage firm could have slightly higher total value.

(v) The assumption of no corporate tax is basically wrong. Nowhere in the world, has corporate income remained untaxed. Further, everywhere taxation laws have provided for deductively of interest payments on debt for calculating taxable income. If this is so, debt becomes relatively much cheaper means of financing and the financial manager is naturally encouraged to employ leverage. For that very reason debt may be preferred to preferred and common stocks.

### **Consideration of Tax Factor in M-M Approach**

Following strong objections of Ezra Solomon and other prominent financial theorists, M-M modified their earlier stand and agreed with the view that favourable financial leverage can lower the overall cost of capital of a firm if corporation tax is there.

M-M demonstrate that the value of levered firm is higher than the value of unlevered firm because of the fact that interest is a tax deductible expense and due to this more income flows to investors.

**Illustration 7:** The expected value of annual net operating income for two firms is ₹4,000 before taxes; the corporate tax rate is 50 per cent. The after tax capitalisation rate is 10 per cent for both firms and that firm A has no debt whereas firm B has ₹ 16,000 in 5 per cent bonds. According to the M-M position, the total values of the two firms would be:

	<b>A</b>	<b>B</b>
1. Net Operating Income	₹ 4,000	₹ 4,000
2. Taxes		2,000      2,000
3. Profit before interest but after Taxes		₹ 2,000      ₹ 2,000
4. After Tax Capitalisation Rate for Debt Free Firm		0.10      0.10
5. Capitalised Value	20,000	20,000
6. Interest on Debt	0	800
7. (I-Tax rate) (6)	0	400
8. Tax Saving on Interest	0	400
9. Interest Rate		5%
10. Capitalised Value of (8)	0	8,000
11. Total Value of Firm (5) + (10)	₹ 20,000	₹ 28,000

Thus, the higher total value of firm B is due to the deductibility of interest payments. Owing to the tax benefits associated with debt financing firm B could increase its total value with leverage even under the M-M approach.

With taxes the value of a firm according to M-M is

$$V = \frac{O(I-t)}{r} + D$$

Where,

v	=	value of the firm
t	=	Corporate tax rate
r	=	Capitalisation rate applicable to the unlevered company
O	=	Expected net operating income
D	=	Market value of debt

It is, thus, evident that M-M model recognises that because of corporate income taxes, the firm can lower its cost of capital and raise its value by continually increasing leverage in its capitalisation. They suggest that in order to achieve optimal capital structure the firm should strive for the maximum amount of leverage. In refreshing contrast to this, traditional model pleads that cost of capital would tend to rise with the extreme leverage owing to increased financial risk. Therefore, the optimal capital structure according to the traditional model is not the one that calls for maximum use of debt. The weakest part of the M-M approach, as is evident from the above discussion, is noticeable when leverage is extreme. The firm cannot afford to go on borrowing funds, recklessly in its bid to maximise its value as is suggested by M-M because beyond a certain point of leverage the firm would assume considerable financial risk resulting in higher interest and bankruptcy cost. In support of their argument M-M suggest that the firm should adopt a target debt equity ratio so as to keep itself within the limits on leverage imposed by creditors. The introduction of debt limits implies that the cost of capital rises beyond a point and there exists optimal capital structure.

## 6.6 SUMMARY

Mix of long-term sources of finance is referred as capital structure. At optimum capital structure, the cost of capital is minimum and market price per share is maximum. In planning the capital structure, one should keep in mind that there is no one definite model that can be suggested/used as an ideal for all business undertakings. To obtain a balanced capital structure it is necessary to consider the ability of the company to market corporate securities. Small companies rely heavily on owners' funds while large companies are generally considered to be less risky by the investors and therefore, they can issue different types of securities. The Net Income (NI) approach is the relationship between leverage and cost of capital and value of the firm. According to the NOI approach, the market value of the firm depends upon the net operating profit or EBIT and the overall cost of capital, WACC. According to Modigliani-Miller approach, the value of a firm is independent of its capital structure.

## 6.7 KEYWORDS

**Capital Structure:** It is that part of financial structure, which represents long-term sources.

**Optimum Capital Structure:** It is that capital structure where market value per share is maximum and the cost of capital is minimum.

**MM Theory:** According to this theory the value of the firm is independent of its capital structure.

**Net Income Approach:** According to this approach, the cost of debt and the cost of equity do not change with a change in the leverage ratio.

**NOI Approach:** According to this approach, the market value of the firm is not affected by the capital structure changes.

## 6.8 SELF ASSESSMENT QUESTIONS

1. "In making capital structure decision finance manager faces the problem of striking compromise among conflicting but equally important principles of control, cost, risk and flexibility". Comment upon this statement.
2. Spell out the financial considerations that should be taken into account while reaching capital structure decision.
3. Should finance manager take into consideration environmental factors while taking capital structure decisions?

4. What sort of capital structure would you propose for a company if its primary objectives were?
  - (a) To maximise the possible income for common stockholders?
  - (b) To assure control with a minimum investment?
  - (c) To minimise fluctuations in earnings per share on common stock?
5. If management agrees that the chances are about 8 out of 20 that earnings will remain above the break-even point, should they agree to resort to debt financing? What might deter them from doing so?
6. How would the capital structure of a trading concern differ from that of a manufacturer of trucks? What are the reasons for any differences that might exist?
7. What differences in typical structures within the industry might you expect to find if the industry was characterised by greater price competition?
8. What is traditional approach to the concept of capital structure?
9. Explain the position of M-M approach on the issue of an optimal capital structure, admitting to the existence of the corporate income tax.
10. Evaluate the merits and demerits of each of the capital structure model.

## **6.9 SUGGESTED READINGS**

24. Eugene F Brigham & Michael C Ehrhardt: Financial Management– Theory and Practice; Cengage Learning (India) Pvt. Ltd., New Delhi.
25. R. P. Rustagi: Financial Management–Theory, Concepts and Problems; Taxmann Publications (P) Ltd., New Delhi.
26. Prasanna Chandra: Investment Analysis and Portfolio Management; McGraw Hill Education (India) Pvt. Ltd., New Delhi.
27. I M Pandey: Financial Management; Vikas Publication House Ltd., New Delhi.
28. J Van Horne & John M. Wachowicz: Fundamentals of Financial Management; Pearson Education Ltd. New Delhi.

**LESSON: 7**  
**COST OF CAPITAL**

**STRUCTURE**

- 7.0 Objectives
- 7.1 Introduction
- 7.2 Meaning of Cost of Capital
- 7.3 Significance of Cost of Capital
- 7.4 Classification of Cost
- 7.5 Computation of Cost of Capital for Various Sources of Finance
- 7.6 Summary
- 7.7 Keywords
- 7.8 Self Assessment Questions
- 7.9 Suggested Readings

**7.0 OBJECTIVES**

After reading this lesson, you will be able to:

- Recognize the significance of cost of capital
- Categorize the costs
- Make the computation of cost of capital for various sources of finance.

**7.1 INTRODUCTION**

The cost of capital of a firm represents the minimum rate of return required or expected by its investors. It only refers to the weighted average cost of various sources of finance employed by a firm. The capital employed by a firm normally comprises equity shares, preference shares, debts



borrowed from Commercial Banks and financial institutions and also its retained earnings. The concept of cost of capital is very important in the realm of financial management. At the same time, it is also one of the most difficult and disputed topics in the financial management, since conflicting opinions have been expressed by the financial experts and wizards as regards the way in which the cost of capital can be computed.

## **7.2 MEANING OF COST OF CAPITAL**

The items on the liability side of the balance sheet are called capital components. The major capital components are equity, preference and debt. Capital, like any other factor of production, has a cost. A company's cost of capital is the average cost of the various capital components (or securities) employed by it. Putting differently, it is the average rate of return required by the investors who provide capital to the company. The cost of capital of a firm is the minimum rate of return expected by its investors. It is the weighted average cost of various sources of finance used by the firm, viz., equity, preference and debt. The concept of cost of capital is very important in financial management. It is used for evaluating investment projects, for determining capital structure, for assessing leasing proposals etc.

"Cost of Capital", according to Solomon Ezra "is the minimum required rate of earning or the cut-off rate for capital expenditures." In the words of Milton H. Spencer, "cost of capital is the minimum rate of return which a firm requires as a condition for undertaking an investment".

It is well known that the final selection of any capital project from among the various alternatives mainly depends on the cost of the capital of a firm or the cut-off rate representing the minimum rate of return required on investment projects. It is the cut-off or the target or the hurdle rate. In case a firm is not able to achieve the cut-off or the target or the hurdle rate the market value of its shares remains constant at a particular level. Moreover, to achieve the objective of the financial management, viz., wealth maximisation, a firm has to necessarily earn a rate of return more than its cost of capital. The cost of capital in turn depends on the risk involved in the firm. Generally, higher the risk involved in a firm, the higher will be the cost of capital.

## **7.3 SIGNIFICANCE OF COST OF CAPITAL**

The concept of cost of capital is very important and the central concept in financial management decisions. The decisions in which it is useful are as follows:

a) **Criterion in capital budgeting decision:** Any capital budgeting decision involves the consideration of the cost of capital. According to the net present value method of capital budgeting, if the present value of expected returns from the investment throughout its life period is greater than or equal to the cost of investment, the project may be accepted; otherwise the project may be rejected. The present value of expected returns is calculated by discounting the expected cash inflows at the cut-off rate which is the cost of capital. It is clear from the above that the cost of capital serves as a very useful tool in the process of making capital budgeting decisions.

b) **Determinant of capital mix in designing of capital structure:** The cost of capital acts as a determinant of capital mix in the designing of a balanced and appropriate capital structure. As a rule there should be a proper mix of debt and equity capital in financing a firm's assets. While designing an optimal capital structure of a firm, the management has to consider the objective of maximising the value of the firm and minimising the cost of capital. Computation of a weighted average cost of various sources of finance is very essential in planning and designing the capital structure of a firm.

c) **Basis for evaluating the financial performance:** The cost of capital can be used as a tool to evaluate the financial performance of top management. The actual profitability of any project is compared to the actual cost of capital funds raised to finance the project. If the actual profitability of the project is on the higher side when compared to the actual cost of capital raised, the performance can be evaluated as satisfactory.

b) **Basis for making financial decisions:** The cost of capital can be conveniently employed as a tool in making other important financial decisions such as dividend policy, capitalisation of profits, rights issue and working capital.

#### 7.4 CLASSIFICATION OF COST

Cost of capital can be classified in many ways. Some of them are discussed below:

a) **Historical cost and future Cost:** Historical cost represents the cost which has already been incurred for financing a project. It is computed on the basis of past data collected. Future cost represents the expected cost of funds to be raised for financing a project. Historical cost is significant since it helps in projecting the future cost and in providing an appraisal of the

past financial performance by comparing with the standard or predetermined costs. In financial decisions, future costs are more relevant than the historical costs.

**b) Explicit Cost and Implicit Cost:** Explicit cost refers to the discount rate which equates the present value of cash inflows with the present value of cash outflows. Thus the explicit cost is the internal rate of return which a company pays for procuring the required finances. The explicit cost of a specific source of finance may be determined with the help of the following formula:

$$\begin{aligned}
 I_0 &= \frac{O_1}{(1+k)} + \frac{O_2}{(1+k)^2} + \dots + \frac{O_n}{(1+k)^n} \\
 &= \sum_{t=1}^n \frac{O_t}{(1+k)^t}
 \end{aligned}$$

t = 1

Where,

- $I_0$  = is the net cash inflow at zero point of time.
- $O_t$  = is the outflow of cash in periods 1 to n.
- $k$  = is the explicit cost of capital.

Implicit cost represents the rate of return which can be earned by investing the capital in alternative investments. The concept of opportunity cost gives rise to the implicit cost. The implicit cost represents the cost of opportunity foregone in order to take up a particular project. For example, the implicit cost of retained earnings is the rate of return available to the shareholders by investing the funds elsewhere.

**c) Specific Cost and Composite Cost:** Capital can be raised by a firm from various sources and each source will have a different cost. Specific cost refers to the cost of a specific source of capital, while composite cost of capital refers to the combined cost of various sources of capital. It is the weighted average cost of capital. It is also termed as overall cost of capital. When more than one type of capital is employed in the business, it is the composite cost which should be considered for decision-making and not the specific cost of that capital alone be considered.

**d) Average Cost and Marginal Cost:** Average cost of capital refers to the weighted average cost calculated on the basis of cost of each source of capital funds. Marginal cost of capital refers to the average cost of capital which has to be incurred to obtain additional funds required by a firm. Marginal cost of capital is considered as more important in capital budgeting and financing decisions.

## **7.5 COMPUTATION OF COST OF CAPITAL FOR VARIOUS SOURCES OF FINANCE**

For calculating the overall cost of capital of a firm, the specific costs of different sources of finance raised by it have to be computed. These sources are:

- (i) Debt (borrowed) Capital,
- (ii) Preference Share Capital,
- (iii) Equity Share Capital, and
- (iv) Retained Earnings.

### **1. Cost of Debt**

It is relatively easy to calculate the cost of debt. The cost of debt is the rate of interest payable on debt. Debt capital is obtained through the issue of debentures. The issue of debentures involves a number of floatation charges, such as printing of prospectus, advertisement, underwriting, brokerage, etc. Again, debentures can be issued at par or at times below par (at discount) or at times above par (at premium). These floatation charges and modes of issue have an important bearing on the cost of debt capital.

The formula adopted for calculating the cost of debt capital is given below:

$$(i) \quad K_d = I/P$$

Where,

$$K_d = \text{cost of debt (before tax)}$$

$$I = \text{Interest}$$

$$P = \text{Principal}$$

In case the debt is raised by issue of debentures at premium or discount, one should consider P as the amount of net proceeds from the issue and not the face value of debentures. The formula may be modified as:

$$(ii) \quad K_d = \frac{I}{NP} \text{ (where NP = New Proceeds)}$$

When debt is used as a source of finance, the firm saves considerable amount in payment of tax since interest is allowed as a deductible expense in computation of tax. Hence, the effective cost of debt is reduced. In other words, the effective cost of debt, i.e., the after-tax cost of debt would be substantially less than the before-tax cost. The after-tax cost of debt may be calculated with the help of the following formula:

$$(iii) \quad \text{After-tax cost of debt} = K_d (1-t)$$

Where, t is the tax rate.

### Illustration I

- (a) A Ltd. issues ₹ 1,00,000, 8% debentures at par. The tax rate applicable to the company is 50%. Compute the cost of debt capital.
- (b) B Ltd. issues ₹ 1,00,000, 8% debentures at a premium of 10%. The tax rate applicable to the company is 60%. Compute the cost of debt capital.
- (c) C Ltd. issues ₹ 1,00,000, 8% debentures at a discount of 5%. The tax rate is 50%. Compute the cost of debt capital.
- (d) D Ltd. issues ₹ 1,00,000, 9% debentures at a premium of 10%. The costs of floatation are 2%. The tax rate applicable is 60%. Compute costs of debt-capital.

### Solution

$$\begin{aligned}
 (a) \quad K_d &= \frac{I}{NP} (1-t) \\
 &= \frac{8,000}{1,00,000} (1-0.5) \\
 &= \frac{8000}{1,00,000} \times 0.5
 \end{aligned}$$

$$\begin{aligned}
&= 4\% \\
\text{(b) } K_d &= \frac{I}{(1-t) NP} \\
&= \frac{8,000}{1,10,000} (1-0.6) \\
&= \frac{8,000}{1,10,000} \times 0.4 \\
&= 2.95\% \\
\text{(c) } K_d &= \frac{I}{(1-t) NP} \\
&= \frac{8,000}{95,000} (1-0.5) \\
&= 4.21\% \\
\text{(d) } K_d &= \frac{I}{(1-t) NP} \\
&= \frac{9,000}{1,07,000} \times 0.4 \\
&= 3.34\%
\end{aligned}$$

Usually, the debt issued is to be redeemed after the expiry of a certain period during the life time of a firm. Such a debt issue is known as Redeemable Debt. The cost of redeemable debt capital may be computed as:

(iv) Before-tax cost of debt:

$$K_{bd} = \frac{I + \frac{1}{n} (P-NP)}{\frac{1}{2} (P+ NP)}$$

### Illustration 2

XYZ Ltd. issues ₹5,00,000, 10% redeemable debentures at a discount of 5%. The cost of floatation amount to ₹15,000. The debentures are redeemable after 5 years. Calculate before-tax and after-tax cost of debt assuming a tax rate of 50%.

### Solution

Before-tax cost of debt,

$$\begin{aligned}
K_{db} &= \frac{1 + 1/n (P - NP)}{\frac{1}{2} (P + NP)} \\
&= \frac{50,000 + 1/5 (5,00,000 - 4,60,000)}{\frac{1}{2} (5,00,000 + 4,60,000)} \\
&= \frac{50,000 + 8,000}{4,80,000} \\
&= \frac{58,000 \times 100}{4,80,000}
\end{aligned}$$

After-tax cost of debt,

$$\begin{aligned}
K_{da} &= K_{db} (1 - t) \\
&= 13.09 (1 - 0.5) \\
&= 12.09 \times 0.5 \\
&= 6.045\%
\end{aligned}$$

**Illustration 3:** ABC Ltd. issues 5,000, 8% debentures of ₹ 100 each at a discount of 10% and redeemable 10 years. The expenses of issues amounted to ₹ 10,000. Find out the cost of debt capital.

**Solution**

$$\begin{aligned}
K_{db} &= \frac{1 + 1/n (P - NP)}{\frac{1}{2} (P + NP)} \\
&= \frac{40,000 + 1/10 (5,00,000 - 4,40,000)}{\frac{1}{2} (5,00,000 + 4,40,000)} \\
&= \frac{40,000 + 6,000}{4,70,000} \\
&= \frac{46,000 \times 100}{4,70,000} \\
&= 9.79\%
\end{aligned}$$

## 2. Cost of Preference Capital

Normally, a fixed rate of dividend is agreed payable by a company on its preference shares. Though dividend is declared at the discretion of the Board of directors and there is no legal binding on the payment of dividend, yet it does not mean that Preference Share Capital is cost free. The cost of preference share capital is the dividend expected by its investors. Moreover, preference shareholders have a priority to dividend over the equity shareholders. In case dividends are not paid to preference shareholders, it will affect the fund raising capacity of the firm. Hence, dividends are usually paid regularly on preference shares except when there are no profits to pay dividends.

The cost preference capital can be calculated as:

$$K_p = D/P$$

Where,

$K_p$	=	Cost of Preference Capital
$D$	=	Annual Preference Dividend
$P$	=	Preference Share Capital (Proceeds)

Further, when preference shares are issued at premium or discount or when cost of floatation is incurred to issue preference shares, the nominal or par value of preference share capital has to be adjusted to find out the net proceeds from the issue of preference shares. In such a case, the cost of preference capital can be computed with the following formula:

$$K_p = D/NP$$

When Redeemable Preference Shares are issued by a company, they can be redeemed or cancelled on maturity date. The cost of redeemable preference share capital can be calculated as:

$$D + \frac{MV - NP}{N} = \frac{D + \frac{MV - NP}{2}}{(MV + NP)/2} K_{pr}$$



Where,  $K_{pr}$  = Cost of Redeemable Preference Shares  
 $D$  = Annual Preference Dividend  
 $MV$  = Maturity Value of Preference Shares  
 $NP$  = Net Proceeds of preference Shares

**Illustration 4:** Coca Cola Ltd. issued 1000 9% preference shares of ₹ 100 each at a premium of 10% redeemable after 5 years at par. Compute the cost of preference capital

**Solution**

$$\begin{aligned}
 K_{pr} &= \frac{D + 1/n (MV - NP)}{\frac{1}{2} (MV + NP)} \times 100 \\
 &= \frac{9,000 + 1/5 (1,00,000 - 1,10,000)}{\frac{1}{2} (1,00,000 + 1,10,000)} \times 100 \\
 &= \frac{9,000 - 2,000}{1,05,000} \times 100 \\
 &= 6.7\%
 \end{aligned}$$

**3. Cost of Equity Share Capital**

As the payment of dividend on equity shares is not legally binding and the rate of dividend is not predetermined, some financial experts hold the opinion that equity share capital does not carry any cost. But this is not true. The shareholders invest their surplus in equity shares with an expectation of receiving dividends and the company must earn this minimum rate so that the market price of the shares remains unchanged. Therefore, the required rate of return which equates the present value of the expected dividends with the markets value of share is the cost of equity capital.

For the purpose of measuring the cost of equity capital will be divided into two parts: (a) the external equity of the new issues (of shares) and (b) the retained earnings because of the

floatation costs involved in the former. It is very difficult to measure the cost of equity in practice, since it is difficult to estimate the future dividends expected by the equity shareholders.

Moreover, the earnings and dividends on equity share capital are generally expected to grow. The cost of equity capital can be computed in the following ways:

(a) **Dividend Yield Method or Dividend Price Ratio Method:** Under this method, the cost of equity capital is the 'discount rate that equates the present value of expected future dividends per share with the net proceeds (or current market price) of a share'. Symbolically,

$$K_e = \frac{D}{NP} \text{ or } \frac{D}{MP}$$

where,  $K_e$  = Cost of Equity Capital  
 $D$  = Expected Dividend per share  
 $NP$  = Net Proceeds per share  
and  $MP$  = Market Price per share

The basic assumptions underlying this method are that the investors give utmost importance to dividends and the risk in the firm remains constant.

The dividend price ratio method cannot be considered as a sound one for the following reasons: (i) it does not consider the growth in dividend (ii) it does not consider future earnings or retained earnings and (iii) it does not take into account the capital. It is suitable only when the company has stable earnings and stable dividend policy over a period of time.

**Illustration 5:** Maruti Ltd. issues 5,000 equity shares of ₹ 100 each at a premium of 10%. The company has been paying 20% dividend to equity shareholders for the past five years and expects to maintain the same in the future also. Compute the cost of equity capital. Will it make any difference if the market price of equity share is ₹ 160?

**Solution**

$$K_e = \frac{D}{NP}$$

$$\begin{aligned}
 &= \frac{20}{110} \times 100 \\
 &= 18.18\%
 \end{aligned}$$

if the market price of a equity share is ₹ 160.

$$\begin{aligned}
 K_e &= \frac{D}{MP} \\
 &= \frac{20}{160} \times 100 \\
 &= 12.5\%
 \end{aligned}$$

where,  $K_e$  = Cost of equity capital  
 $D$  = Expected Dividend per share  
 $N_p$  = Net proceeds per share  
 $G$  = Rate of growth in dividends.

**(b) Dividend Yield plus growth in dividend method:** When the dividends of the firm are expected to grow at a constant rate and the dividend pay-out ratio is constant, this method may be the cost of equity capital is based on the dividend and the growth rate.

$$K_e = \frac{D}{N_p} + G$$

Further, in case cost of existing equity share capital is to be calculated, the NP should be changed with MP (market price per share) in the above equation.

$$K_e = \frac{D}{MP} + G$$

### Illustration 6

- (a) Hero Honda Ltd. issues 2000 new equity shares of ₹ 100 each at par. The floatation costs are expected to be 5% of the share price. The company pays a dividend of ₹ 10 per share initially and the growth in dividends is expected to be 5%. Compute the cost of new issue equity share.
- (b) If the current market price of an equity share is ₹ 160, calculate the costs of existing equity share capital.

### Solution

$$\begin{aligned}
 \text{(a) } K_e &= \frac{10}{100-5} + 5\% = 15.33\% \\
 &= 15.33\%
 \end{aligned}$$

$$\begin{aligned}
 \text{(b) } K_e &= \frac{D}{MP} + G \\
 &= \frac{10}{160} + 5\% = 11.25\%
 \end{aligned}$$

(c) **Earning yield method:** Under this method, the cost of equity capital is the discount rate that equates the present value of expected future earnings per share with the net proceeds (or current marketing price) of a share. Symbolically:

$$\begin{aligned}
 K_e &= \frac{\text{Earnings per Share}}{\text{Net Proceeds}} \\
 &= \frac{\text{EPS}}{\text{NP}}
 \end{aligned}$$

Where, the cost of existing capital is to be calculated.

$$\begin{aligned}
 K_e &= \frac{\text{Earnings per Share}}{\text{Price per Share}} \times \text{Market} \\
 &= \frac{\text{EPS}}{\text{MPS}}
 \end{aligned}$$

This method of computing cost of equity capital may be employed in the following cases:

- (a) When the earnings per share are expected to remain unchanged.
- (b) When the dividend pay-out ratio is 100 per cent or when the retention ratio is zero, i.e., all the available profits are fully distributed as dividends.
- (c) When a firm is expected to earn an amount of new equity share capital, which is equal to the current rate of earnings.
- (d) The market price of share is influenced by the earnings per share alone.

**Illustration 7:** Jindal Ltd. is considering an expenditure of ₹ 80 lakhs for expanding its operations. Other particulars are as follows:

Number of existing equity shares	=	10 lakhs
Market value of existing share	=	₹ 60
Net earnings	=	₹ 90 lakhs

Compute the cost of existing equity share capital and of new equity capital assuming that new shares will be issued at a price of ₹ 54 per share and the cost of new issue will be ₹ 2 per share.

**Solution**

Cost of existing equity share capital

$$K_e = \frac{\text{EPS}}{\text{MPS}}$$

$$\text{EPS, or Earnings per share} = \frac{90}{10} = ₹ 9$$

$$K_e = \frac{9 \times 100}{60}$$

$$= 15\%$$

Cost of New Equity Capital

$$K_e = \frac{\text{EPS}}{\text{NP}}$$

$$= \frac{9}{54 - 2} \times 100$$

$$= \frac{9}{52} \times 100$$

$$= 17.30\%$$

**(d) Realised Yield Method:** The main drawback of the dividend yield method or earnings yield method lies in the estimation of the investors' expected future dividends on earnings. It is very difficult, if not impossible, to estimate future dividends and earnings precisely, since both of them depend on many uncertain factors. To overcome this shortcoming, realised yield method which takes into consideration the actual average rate of return realised in the past, is employed to compute the cost of equity share capital. While calculating the average cost of return realised, dividends received in the past along with the gain realised at the time of sale of shares, should be considered. The cost of capital is equal to the realised rate of return by the shareholders.

This method is based upon the following limitations:

- (a) The firm will continue to remain and face the same risk, over the period:
- (b) The investors' expectations are based upon the past realised yield;
- (c) The investors get the same rate of return as the realised yield even when invested elsewhere; and
- (d) The market price of shares remains unchanged.

#### 4. Cost of Retained Earnings

It is generally misunderstood that retained earnings do not involve any cost since a firm is not required to pay dividends on retained earnings. However, the shareholders expect a return on retained profits. Retained earnings accrue to a firm only because of the sacrifice made by the shareholders in not getting the dividends declared out of the available profits fully. The cost of retained earnings is equal to the rate of return which the existing shareholders will obtain by investing the after-tax dividends in alternative investments. It thus represents the opportunity cost of dividends foregone by the shareholders. Cost of retained earnings can be computed with the help of following formula:

$$K_r = \frac{D}{NP} + G$$

Further, it is important to note that shareholders, usually, cannot obtain the entire amount of retained profits by way of dividends even if there is 100 per cent pay-out ratio. It is so because the shareholders are required to pay tax. However, tax adjustment in determining the cost of retained earnings is a difficult problem because all shareholders do not fall under the same tax bracket. Moreover, if the shareholders want to invest their after-tax dividend income in alternative investments securities, they may have to incur some additional costs towards purchasing the securities such as brokerage. Hence, the effective rate of return realised by the shareholders from the new investment will be somewhat lesser than their present return from the firm. To make adjustment in the cost of retained earnings for tax and costs of purchasing new securities, the following formula may be adopted:

$$K_r = \frac{(D + G) \times (1-t) \times (1-b)}{NP}$$

$$\text{or, } K_r = K_e (1-t) (1-b)$$

Where,

$K_r$  = Cost of retained earnings

$D$  = Expected dividend

$G$  = Growth rate

$NP$  = Net Proceeds of Equity Issue

$t$  = tax rate

$b$  = Cost of purchasing new securities, or brokerage costs.

$k_e$  = Rate of return available to shareholders

**Illustration 8:** A firm's  $K_e$  (return available to shareholders) is 12%, the average tax rate of shareholders is 50% and it is expected that 2% is brokerage cost that shareholders will have to pay while investing their dividends in alternative securities. What is the cost of retained earnings?

### Solution

$$\text{Cost of Retained Earnings, } K_r = K_e (1-t) (1-b)$$

where,  $K_e$  = rate of return available to shareholders

$t$  = tax rate

$b$  = brokerage cost

$$\text{so, } k_r = 12\% \times (1-0.5) (1-0.02)$$

$$= 12\% \times .5 \times .98$$

$$= 5.88\%$$

## 5. Weighted Average Cost of Capital

The term weighted average cost of capital is generally used in composite or overall sense, especially in financial decision making. It is used only to refer to the costs of specific forces of capital such as cost of equity, etc. Before implementing any capital expenditure project, it is common experience to compare the cost of the specific source of fund raised to finance a particular project with its profitability. But this is rather fallacious. For, a firm's decision to use debt capital adversely affects its potential using low cost debt in future and also makes the position of the existing shareholders more risky. This increases the risk to the shareholders which in turn increases

the cost of equity. Again, the firm's decision to use equity capital to finance its projects will enlarge its potential for borrowing, in future. Because of this linkage between the methods of financing and their costs, the term cost of capital should be used in a composite term. Thus, the composite cost or overall cost of capital is the weighted average cost of various sources of funds, weights being the proportion of each source of funds in the capital structure. It should also be remembered that it is the weighted average concept and not the simple average, which is more relevant in calculating the overall cost of capital. As the firms do not use various sources of funds in equal proportion, the simple average cost of capital will not be appropriate to use, in the capital structure decision-making.

The following steps are involved in calculating the weighted average cost of capital:

- i) To calculate the cost of the specific sources of funds individually (i.e., cost of debt, cost of equity, cost of preference capital, etc.).
- ii) To multiply the cost of each source by its proportion in the capital structure and
- iii) Add the weighted costs of all sources of funds to get the weighted cost of capital.

The cost of capital should always be calculated on the after-tax basis, in financial decision-making. Hence, the component costs one used for calculating the weighted average cost of capital.

**Illustration 9:** The following is the capital structure of a TATA Ltd.

Sources of Finance	Amount	Proportion	Cost
Equity Share capital (4000 Share of ₹ 100/-each)			
Retained earnings (Reserves)	₹ 4,00,000	40%	14.0%
Preference capital	2,00,000	20%	13.0%
Debt	1,00,000	10%	12.0%
	3,00,000	30%	9.0%

Calculate the weighted average cost of capital of the company.



## Solution

The weighted average cost of TATA Ltd. is computed as follows:

Source (1)	Amount (2)	Proportion (3)	After-tax (4)	Weighted cost (5)
Equity capital 4,00,000 (4,000 Share of ₹ 100/- each)				
Retained Earnings	4,00,000	40%	14.0	5.60
Pref. Capital	2,00,000	20%	13.0	2.60
Debt	1,00,000	10%	12.0	1.20
Weighted Average cost of capital	3,00,000	30%		2.70
				12.1

The weighted average cost of TATA Ltd. can also be calculated as follows:

### Alternative Method

Source (1)	Amount (2)	Proportion(3)	After-tax (4)
Equity Capital	4,00,000	14.0%	56,000
Retained	2,00,000	13.0%	26,000
Pref. capital	1,00,000	12%	12,000
Debt	3,00,000	9.0%	27,000
	₹ 10,00,000		₹1,21,000

$$\text{₹ } 1,21,000 \times 100 \underline{\hspace{2cm}}$$

$$\begin{aligned} \text{Weighted Average Cost of Capital} &= ₹ 10,00,000 \\ &= 12.1\% \end{aligned}$$

### Book Value Vs. Market Value Weights

The weighted cost of capital can be calculated by using either the book value or market value weights. If there is any difference between book value and market value weights, the weighted average cost of capital would also differ according to the weights used. When the market value of the share is higher than book value, the weighted average cost of capital calculated by using the book value weight will be much lower and vice versa

### Computation of Weighted Average Cost of Capital (Market Value weight)

Source	Amount	Proportion	After-tax	Weighted cost
Equity capital (4,000 Share of ₹ 22.50)	₹9,00,000	69.2%	14.0%	9.69%
Pref. capital	1,00,000	7.7%	12.0%	0.92
Debt	3,00,000	23.1%	9.0%	2.08
	₹ 13,00,000			12.69%

It can be observed that the total market value of the equity shares outstanding takes into account the retained earnings also. It is obvious that the market value of cost of capital (12.69%) is higher than book value cost of capital (12.1%) since market value of equity share capital (₹ 9,00,000) is higher than its book value (₹ 6,00,000). From the above it is clear that the market value weight should be preferred over the book value weights since the market values reflect the expectation of investors. At the same time, market value fluctuates very widely and frequently and there is difficulty in using the market value weights in the computation of weighted cost of capital. In practice, the use of the book value weights is always preferred for the following reasons:

- (a) the firm determines the capital structure targets in terms of book value only.
- (b) the book value particulars can be easily obtained from the published statement of the company.

- (c) moreover, the debt-equity ratio based on book values alone are analysed by the investors to evaluate the risk involved in their investment.

## 7.6 SUMMARY

The cost of capital is viewed as one of the corner stones in the theory of financial management. Cost of capital may be viewed in different ways. The cost of capital is useful in designing optimal capital structure, investment evaluation, and financial performance appraisal. The financial manager has to compute the specific cost of each type of funds needed in the capitalisation of a company. Retained earnings are one of the internal sources to raise equity finance. Cost of equity capital, is the minimum rate of return that a firm must earn on the equity financed portions of an investment project in order to leave unchanged the market price of the shares.

## 7.7 KEYWORDS

**Cost of Capital:** It is that minimum rate of return, which a firm must earn on its investments so as to maintain the market value of its shares.

**Implicit Cost:** It is the cost of opportunity which is given up in order to pursue a particular action.

**Opportunity Cost:** The benefit that the shareholder foregoes by not putting his/her funds elsewhere because they have been retained by the management.

**Specific Cost:** It is the cost associated with particular component or source of capital.

## 7.8 SELF ASSESSMENT QUESTIONS

1. How is Cost of debt computed?
2. What is mean by opportunity cost?
3. How is cost of preferred stock computed?
4. How is the weighted average cost of capital calculated? What is its importance?
5. Define the term 'Cost of Capital'.
6. "The equity cost is free". Do you agree? Give reasons.
7. "Debt is the cheapest source of funds". Comment.

8. The following is the capital structure of Saras Ltd. As on 31-12-2018:

	₹	
Equity Shares-20,000 shares of ₹ 100 each	20,00,000	
10% Preference Shares of ₹ 100 each	8,00,000	
12% Debentures	12,00,000	
	40,00,000	_____

The market price of the company's share is ₹ 110 and it is expected that a dividend of ₹ 10 per share would be declared after 1 year. The dividend growth rate is 6%.

- i. If the company is in the 50% tax bracket, compute the weighted average cost of capital.
  - ii. Assuming that in order to finance an expansion plan, the company intends to borrow a fund of ₹ 20 lacs bearing 14% rate of interest, what will be the company's revised weighted average cost of capital? This financing decision is expected to increase dividend from ₹ 10 to ₹ 12 per share. However, the market price of equity share is expected to decline from ₹ 110 to ₹ 105 per share.
10. The following is the capital structure of a company:

Source of Capital	Book Value (₹)	Market Value (₹)
Equity Shares @ ₹ 100 each	8,00,000	16,00,000
9% Cumulative Preference Shares @ ₹ 100 each	2,00,000	2,40,000
11% Debentures	6,00,000	6,60,000
Retained Earnings	4,00,000	—
	20,00,000	25,00,000

The current market price of the company's equity share is ₹ 200. For the last year the company had paid equity dividend at 25% and its dividend is likely to grow 5% every year. The corporate tax rate is 30% and shareholders personal income tax rate is 20%.

You are required to calculate:

- i. Cost of Capital for each source of capital.
- ii. Weighted average cost of capital on the basis of book value weights.

## **7.9 SUGGESTED READINGS**

29. M Y Khan & P K Jain: Basic Financial Management; McGraw Hill Education (India) Pvt Ltd., New Delhi.
30. R. P. Rustagi: Financial Management–Theory, Concepts and Problems; Taxmann Publications (P) Ltd., New Delhi.
31. Prasanna Chandra: Investment Analysis and Portfolio Management; McGraw Hill Education (India) Pvt. Ltd., New Delhi.
32. I M Pandey: Financial Management; Vikas Publication House Ltd., New Delhi.
33. Eugene F Brigham & Michael C Ehrhardt: Financial Management– Theory and Practice; Cengage Learning (India) Pvt. Ltd., New Delhi.

## **LESSON: 8**

### **WORKING CAPITAL MANAGEMENT**

#### **STRUCTURE**

- 8.0 Objectives
- 8.1 Introduction
- 8.2 Concept of Working Capital
- 8.3 Types of Working Capital
- 8.4 Importance of Working Capital
- 8.5 Factors Affecting Working Capital
- 8.6 Fixed Capital vs. Working Capital
- 8.7 Working Capital Forecasting
- 8.8 Summary
- 8.9 Keywords
- 8.10 Self Assessment Questions
- 8.11 Suggested Readings

#### **8.0 OBJECTIVES**

This lesson will make you familiar with:

- Concept and types of working capital
- Importance of working capital
- Factors affecting working capital
- Techniques of working capital forecasting.

#### **8.1 INTRODUCTION**

This chapter is aimed to take up issues relating to the management of current assets. The management of current assets is similar to that of fixed assets as far as their analysis of effects on their return and risk is concerned. However, the management of current assets differs from that of

fixed assets on account of time involved, liquidity position and its flexibility, as the current assets can be adjusted with sales fluctuations in the short run. Hence, the firm has a greater degree of flexibility in managing current assets. Working capital management is the functional area of finance that covers all the current accounts of the firm. It is concerned with management of the level of the individual current assets as well as management of total working capital.

## 8.2 CONCEPT OF WORKING CAPITAL

Working capital or circulating capital indicates circular flow of funds in the day-to-day or routine activities of business. However, this term is used in two ways; in the gross and in the net concept.

In the broad sense, the term 'working capital' is used to denote the total current assets. The following are some definitions of this group:

- (1) "Working Capital means current assets". -Mead, Baker, Malott.
- (2) "The sum of the current assets is working capital of a business". -J.S. Mill.
- (3) "Any acquisition of funds which increases the current assets increases working capital also, for they are one and the same". - Bonneville
- (4) "Working capital refers to a firm's investment in short-term assets- cash, marketable securities, accounts receivable and inventories". - Weston & Brigham

In the narrow sense, the working capital is regarded as the excess of current assets over current liabilities. This has been the most commonly used concept by financial experts and authors emphasizing the accounting phase of finance.

They include the name of E.E. Lincoln, E.A. Saliers, C.W. Gerstenbergh, etc. Gerstenbergh defines it as follows: "It has ordinarily been defined as the excess of current assets over current liabilities". According to Hoagland, "Working capital is description of that capital which is not fixed. But the more common use of the working capital is to consider it as the difference between the book value of the current assets and the current liabilities". Likewise, "It is that portion of a firm's current assets which is financed by long-term funds".

Thus, there is no difference in these viewpoints over the true concept of working capital. The true difference is on its quantity. The total capital assets approach refers to the gross working capital while current assets minus current liabilities approach refers to net working capital. The total current assets approach has a broader application and it is more inviting to the financial management. It takes into consideration all the current resources of the enterprise, from whatever source derived and their application to the current and future activities of the enterprise. In the words of Walker and Baughn, "A good current ratio may mean a good umbrella for creditors against rainy day, but to the management it reflects faulty financial planning or presence of ideal assets or over capitalisation". Actually speaking, a successful financial executive is interested not in maintaining a good current ratio but in maintaining an adjustable account of current assets so that the business may operate smoothly. That's why, if the term 'working capital' is used without further qualification, it refers to the gross working capital.

### **8.3 TYPES OF WORKING CAPITAL**

Working capital can be classified either on the basis of its concept or on the basis of periodicity of its requirements.

**(a) On the Basis of Concept.** On the basis of its concept, it may be either gross working capital or net working capital. Gross working capital is represented by the total current assets. The net working capital is the excess of current assets over current liabilities.

(i) Gross Working Capital = Total Current Assets

(ii) Net Working Capital = Current Assets - Current Liabilities

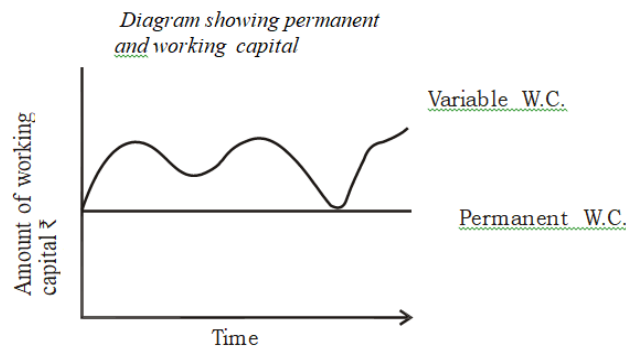
**(b) On the Basis of Requirements.** According to Gerstenbergh, the working capital can be classified into two categories on the basis of time and requirement:

**(i) Permanent Working Capital.** It refers to the minimum amount of investment which should be there in the fixed or minimum current assets like inventory, accounts receivable, or cash balance etc., in order to carry out business smoothly. This investment is of a regular or permanent type and as the size of the firm expands, the requirement of permanent working capital also increases. Tandon Committee has referred to this type of working capital as "hard core working capital".



(ii) **Variable Working Capital.** The excess of working capital over permanent working capital is known as variable working capital. The amount of such working capital keeps on fluctuating from time to time on the basis of business activities. It may again be sub-divided into seasonal and special working capital. Seasonal Working Capital is required to meet the seasonal demands of busy periods occurring at stated intervals. On the other hand, special working capital is required to meet extra-ordinary needs for contingencies. Events like strike, fire, unexpected competition, rising price tendencies or initiating a big advertisement campaign require such capital.

The following diagram illustrates the difference between permanent and variable working capital.



## Operating Cycle

Every business undertaking requires funds for two purpose-investments in fixed assets and investment in current assets. Funds required investing in inventories, debtors and other current assets keep on changing shape and volume. For example, a company has some cash in the beginning. This cash may be paid to the suppliers of raw-materials, to meet labour costs and other overheads. These three combined would generate work-in-progress which will be converted into finished goods on the completion of the production process. On sale, these finished goods get converted into debtors and when debtors pay, the firm will again have cash. This cash will again be used for financing raw materials, work-in-progress, finished goods and debtors etc. So the cycle is completed on the conversion of these currents assets into cash. This time period is simply known as the working capital cycle of the firm. In other words, Working Capital Cycle indicates the length

of time between a firm's paying for materials entering into stock and receiving the cash from the sale of finished goods. In a manufacturing firm, the duration of time required to complete the sequence of events is called operating cycle.

In case of a manufacturing company, the operating cycle is the length of time necessary to complete the following cycle of events:

- (i) Conversion of cash into raw materials.
- (ii) Conversion of raw materials into work-in-progress;
- (iii) Conversion of work-in-progress into finished goods;
- (iv) Conversion of finished goods in accounts receivable, and
- (v) Conversion of accounts receivable into cash.

### **Hard Core Working Capital**

"Hard Core" working capital represents the minimum amount of investment in raw materials, work-in-progress, finished goods, stores and spares, accounts receivable and cash balance which an industrial undertaking is required to carry on a certain level of activity. This part of the investment in current assets is as permanent as the investment in fixed assets. In other words, this is the irreducible minimum amount of current assets required throughout the year for maintaining the circulation of current assets. For example, every industrial undertaking is required to maintain a minimum stock of raw materials, work-in-progress, finished goods, loose tools and spares etc. It has to invest in accounts receivable and carry some cash balance to make payment for wages, salaries and other expenses throughout the year. Thus, 'hard core working capital' is the permanent working capital which is required to produce goods and services necessary to satisfy their demand at the lowest point. It is always gainfully employed in the business. The permanent working capital possesses the following important characteristics:

*First*, unlike fixed assets, it keeps on changing its form from one asset to another.

*Second*, it cannot be substantially reduced as long as firm is a going concern.

*Third*, with the growth of business, the size of this component of working capital also grows.

The quantum of 'hard core' working capital is determined by taking into consideration the sales/production volume, technology of production process and different operating policies of the firm. At different levels of sales, different levels of inventory, receivables and cash balance are required. A fast production process may process raw material at a faster rate and this may decrease the level of inventory on permanent basis. The firm's policies also have direct impact on the quantum of working capital. For example, if a firm changes its credit period from 30 days to 60 days the amount of working capital will go up permanently. Similarly, if as a policy measure the firm changes the level of its safety stock or cash balance, permanent working capital level will also be affected. The Tand on Committee has laid down norms for the various components of working capital in major industries. These may be of great help in the determination of 'hard core' working capital.

The identification of permanent working capital is very significant from the point of its financing. The supplier of hard core working capital should not expect its return until the business ceases to exist. Therefore, the 'hard core' component of working capital should be financed from long term sources of funds. Forth is purpose, besides ploughing back of profits, shares and debentures can be issued to raise necessary funds. In fact, all long-term sources of funds are suitable for the purpose of financing of hard core working capital.

#### **8.4 IMPORTANCE OF WORKING CAPITAL**

Working Capital is just like the heart of business. If it becomes weak, the business can hardly prosper and survive. It is an index of the solvency of a concern. Its proper circulation provides to the business the right amount of cash to maintain regular flow of its operations. The following are a few advantages of adequate working capital funds in the business:

- 1. Cash Discount** - If proper cash balance is maintained the business can avail of the cash discounts facilities offered to it by the suppliers.
- 2. Liquidity and Solvency** - The proper administration of working capital enhances the liquidity in funds, solvency and credit - worthiness of the concern.
- 3. Meeting Contingencies**- It provides funds for unforeseen emergencies so that a business can successfully sail through the periods of crisis.
- 4. High Morale** - The provision of adequate working capital improves the morale of the executives and their efficiency leads it to higher climax.

5. **Good Bank Relations-** Good relations with banks can also be maintained. The enterprise by maintaining an adequate amount of working capital is able to maintain a sound bank credit, trade credit and can escape insolvency.
6. **Fixed Assets Productivity is Increased** - Fixed assets of the firm cannot work without proper amount of working capital. Without it fixed assets are like guns which cannot shoot as there are no cartridges. Somebody has aptly commented that the fate of large scale investment in fixed assets is largely determined by the manner in which its current assets are managed.
7. **Research and Innovation Programmes** - No research programme, innovation and technical developments are possible to be undertaken without sufficient amount of working capital.
8. **Expansion Facilitated** - The expansion programme of a firm is highly successful, if it is financed through own working capital.
9. **Profitability Increased** - The profitability of a concern also depends, in no small measure, on the right proportion of fixed assets and current assets. Every activity of the business directly or indirectly affects the current position of the enterprise, hence, its need should be properly estimated and calculated.

Thus, the need for maintaining an adequate working capital can hardly be questioned. Just as circulation of blood is very necessary in the human body to maintain life, smooth flow of funds is very necessary to maintain the health of the enterprise. The importance of working capital can be very well explained in the words of Husband and Dockery, "The prime object of management is to make a profit. Whether or not this is accomplished in most businesses depends largely on the manner in which the working capital is administered".

## **8.5 FACTORS AFFECTING WORKING CAPITAL**

There are numerous factors which affect the working capital requirements of a concern. Their appraisal assists the management in formulating its sound working capital policies and estimating its requirements. The important factors are as follows:

1. **Nature of Business** - The effect of the general nature of the business on working capital requirements cannot be exaggerated. Rail, roads and other public utility services have large

fixed investment so they have the lower requirements for current assets. Industrial and manufacturing enterprises, on the other hand, generally require a large amount of working capital. A rapid turnover of capital (sales divided by total assets) will inevitably mean a larger proportion of current assets. However, the authors differ as regards to its impact on working capital requirements. As Husband and Dockery opine, "The working capital position is affected more by business conditions and trends than by the nature or the size of the company".

2. **Production Policies** - The nature of production policy also exercises its impact on capital needs. Strong seasonal movements have special working capital problems and requirements. A high level production plan also involves higher investment in working capital.
3. **Proportion of the Cost of Raw Materials to total costs** - In those industries where cost of materials is a large proportion of the total cost of the goods produced or where costly raw materials are used, requirements of working capital will be comparatively large. But if the proportion of raw materials is small, the requirements of working capital will naturally be small.
4. **Length of Period of Manufacture** - The time which elapses between the commencement and end of the manufacturing process has an important bearing upon the requirements of working capital. If it takes long to manufacture the finished product, naturally a large sum of money will have to be kept invested in the form of working capital.
5. **Rapidity of Turnover** - Turnover represents the speed with which the working capital is recovered by the sale of goods. In certain businesses, sales are made quickly so that stocks are soon exhausted and new purchases have to be made. In this manner, a small sum of money invested in stocks will result in sales of a much larger amount. It will reduce the requirements of working capital.
6. **Terms of Purchases** - If continuous credit is allowed by suppliers, payment can be postponed for some time and can be made out of the sale proceeds of the goods produced. In such a case, the requirements of working capital will be reduced. The period of credit received and allowed also determines the working capital requirements of the enterprise.
7. **Growth and Expansion of Business** - As a company grows, it is logical to expect that the larger amount of working capital will be required. Growing concerns require more working

capital that those that are static. The requirement of working capital also varies with economic circumstances and corporate practices.

- 8. Business Cycles** - Requirement of working capital also varies with the business cycles. When the price level is up due to boom conditions, the inflationary conditions create demand for more working capital. During depression also a heavy amount of working capital is needed due to the inventories being locked unsold and book debts uncollected.
- 9. Requirement of Cash** - The working capital requirements of a company are also influenced by the amount of cash required by it for various purposes. The greater the requirement of cash, the higher will be working capital needs of the company.
- 10. Dividend Policy of the Concern** - If a conservative dividend policy is followed by the management the needs of working capital can be met with the retained earnings. Often variations in need of working capital bring about an adjustment in dividend policy. The relationship between dividend policy and working capital is well established and mostly companies declare dividend after a careful study of their cash requirements.
- 11. Other Factors** - In addition to the above considerations there are a number of other factors affecting the requirements of working capital, for example, lack of co-ordination in production and distribution policies, the fiscal and tariff policies of the government, etc.

## **8.6 FIXED CAPITAL VS. WORKING CAPITAL**

The proportion of fixed and working capital required for an enterprise varies from industry to industry. There are no hard and fast rules as regards to fixing their respective sizes. If the working capital is high, the fixed capital will be low or vice-versa. The presence of high working capital can be ascertained from the large carry-over of raw materials, ratio of indirect costs to the total costs and lack of control over performance. For efficient conduct of an enterprise a proper balance has to be maintained between the fixed capital and current capital.

The proportion between fixed and working capital depends to a large extent upon the nature of business. In transportation and engineering the proportion of fixed capital is high while in public utilities, advertising agencies and manufacturing industries the proportion of working capital is

high. Initially, a business requires more working capital, but later on as the cycle of production, selling, and collection starts, the requirements of working capital diminish comparatively. As the output goes up the need for investment in current assets enhances. However, the relationship between output, fixed assets and current assets is not linear, current assets increase at a decreasing rate with output.

The relationship between fixed and working capital may differ from country to country, from industry to industry in the same country, even from unit to unit in the same industry. High degree of mechanisation, shortage of man-power and technical advancement these all factors contribute to the high proportion of fixed capital. That is why, in less advanced countries the proportion of fixed capital may not be so high.

With regard to industries, the degree of mechanisation and automation as also the size of unit generally determines the proportion of fixed and working capital. The iron and steel, hydro-electric, mining and heavy engineering industries are usually organised on a large scale, hence they require a greater proportion of fixed capital an account of higher degree of mechanisation and automation. On the other hand, in consumer goods industries like cotton textiles, the value of raw materials and labour is so substantial that the proportion of working capital is much greater than that of the fixed capital. Similarly, in a mail order business concern where the operations consist entirely of simple office accommodation, furniture and fixtures, warehousing and packing facilities, the fixed capital is very small in relation to the working capital. The capital intensive industries like cement, paper and chemicals, etc. have the fixed capital two or three times or even more of the working capital. The main reason of a higher proportion of fixed capital in such cases is the use of costly machine of huge size requiring spacious premises and costly building accommodation.

## **8.7 WORKING CAPITAL FORECASTING**

The forecast of working capital requirements of a concern is not an easy task. As the concept of working capital is closely related to that of current assets, so a number of financial experts suggest that in estimating the working capital requirements, the total current assets requirements should be forecasted. But, however, this contention is not justified on logic as the short-term needs of the funds, are vitally affected by the nature and composition of fixed assets.

Hence, the problem of working capital forecast should be dealt within the overall financial requirements and financing policies of the concern.

### **Forecasting Techniques of Working Capital**

If the working capital is to be estimated for the ensuing year, then the current requirement of the assets and cash flow for that period are to be estimated. The study of cash flows will reveal how much cash is available to meet the current assets requirements. The basic object of forecasting working capital needs is either to measure the cash position of the enterprise or to exercise control over the liquidity position of the concern. But, the circular flow of working capital does not occur automatically and it is the essential responsibility of management to guide it in proper proportions through the production machine.

There are many popular methods available for forecasting the working capital requirements which are as follows:

**(i) Cash Forecasting Method.** In this method the position of cash at the end of the period is shown after considering the receipts and payments to be made during that period. Its form assumes more or less a summary of cash book. This shows the deficiency or surplus of cash at the definite point of time.

**(ii) The Balance Sheet Method.** In the balance sheet method of forecasting, a forecast is made of the various assets and liabilities of the business. Afterwards, the difference between the two is taken which will indicate either cash surplus or cash deficiency.

**(iii) Profit and Loss Adjustment Method.** Under this method the forecasted profits are adjusted on cash basis. That means, cash from operations is taken, as not that profit figure as shown by profit & loss account, but the figure of profit as adjusted in the light of non-cash items such as depreciation, loss on sale of capital assets, preliminary expenses written off from profit & loss account etc. Since these items do not affect cash position, though they have been charged to the profit & loss account, they are added back or deducted from loss, as the case may be. Similarly, increase in current assets and decreased in current liabilities will mean decrease in cash resources and vice-versa.

**(iv) Per Cent-of-Sales Method.** Having determined the sales accurately, steps can be taken to forecast the working capital of concern, It is a traditional and simple method of determining the



volume of working capital and its components, sales being a dominant factor. In this method, working capital is determined as a per cent of forecasted sales. It is decided on the basis of past observations. If over the year, relationship between sales and working capital is found to be stable then this relationship may be taken as a standard for the determination of working capital in future also. This relationship between sales and working capital and its various components may be expressed in three ways: (i) as number of days of sales; (ii) as turnover; and (iii) as percentage of sales.

The per cent of sales method of determining working capital is simple and easy to understand and is useful in forecasting the working capital requirements, particularly, in the short-term. However, the greatest drawback of this method is the assumption of linear relationship between sales and working capital. Therefore, this method cannot be recommended for universal application. It may be found suitable by individual companies in specific situations.

**(v) The Operational Cycle Method.** This method of working capital forecast is based on the operational cycle concept of working capital. The operational cycle refers to the period that a business enterprise takes in converting cash back into cash. As an example, a manufacturing firm uses cash to acquire inventory of materials that is converted into semi-finished goods and then into finished goods. When finished goods are disposed of to customers on credit, accounts receivable is generated. When cash is collected from these customers (trade debtors), we again have cash. At this stage one operating cycle is completed. Thus, a circle from cash back to cash is called the 'Operating Cycle'. Each of the above operating cycle stage is expressed in terms of number of days of relevant activity and requires a level of investment to support it. The sum total of these stage-wise investments will be the total amount of working capital of the firm.

The following formulae may be used to express the framework of the operating cycle.

$$t=(r-c) +w+f+b$$

Where,

t stands for the total period of the operating cycle in number of days;

r stands for the number of days of raw material and stores consumption requirements held in raw materials and stores inventory;

c stands for the number of days of purchases in trade creditors;

w stands for the number of days of cost of production held in work-in- progress.

f stands for the number of days of cost of sales held in finished goods inventory; and

g stands for the number of days of sales in book debts.

The computations may be made as under:

$$r = \frac{\text{Average inventory of raw materials and store}}{\text{Average per day consumption of raw materials and stores}}$$

$$c = \frac{\text{Average trade creditors}}{\text{Average credit purchases per day}}$$

$$w = \frac{\text{Average work-in progress}}{\text{Average cost of production per day}}$$

$$f = \frac{\text{Average inventory of finished goods}}{\text{Average cost of sales per day}}$$

$$b = \frac{\text{Average book debts}}{\text{Average sales per day}}$$

The average inventory, trade creditors, work-in-progress, finished goods and book debts can be computed by adding the opening and closing balances at the end of the year in the respective accounts and dividing the same by two.

The average per day figures can be obtained by dividing the concerned annual figures by 365 or the number of days in the given period.

The operational cycle method of determining working capital requirements gives only an average figure. The fluctuations in the intervening period due to seasonal or other factors and their impact on the working capital requirements cannot be judged in this method. To identify these impacts, continuous short run detailed forecasting and budgeting exercises are necessary.

(vi) **Regression Analysis Method.** The regression technique is a very useful statistical technique of working capital forecasting. In the sphere of working capital management, it helps in making projection after establishing the average relationship in the past years between sales and working capital (current assets) and its various components. The analysis can be carried out through the graphic portrayals (scatter diagrams) or through mathematical formula.

The relationship between sales and working capital of various components may be simple and direct indicating complete linearity between the two or may be complex in differing degrees involving simpler linear regressions; or simple curvilinear regression, and multiple regressions situations.

This method with the range of technique suitable for simple as well as complex situations, is an undisputed refinement on traditional approaches of forecasting and determining working capital requirements. It is particularly suitable for long-term forecasting.

**Illustration 1.** From the following information, prepare a statement showing the average amount of working capital required by Sony Ltd., taking 360 days in a year.

Annual sales are estimated at 5,000,000 units at ₹ 2 per unit. Production quantities coincide with sales and will be carried on evenly throughout the year and the production cost is:

Materials      ₹ 1 per unit.

Labour ₹ 0.40 per unit

Overheads      ₹ 0.35 per unit

Customers are given 45 days credit and 60 days credit is taken from suppliers, 36 days' supply of raw materials and 15 days' supply of finished goods are kept.

Production cycle is 18 days and all material is issued at the commencement of each production cycle.

And cash balance equivalent to one-third of the average of other working capital requirement is kept for contingencies.

### **Solution**

#### **Statement of working capital requirements forecast**

Current Account		₹
1.	Stock of Raw Materials	36 x 5,00,000 <hr/> 50,000.00
		360
2.	Stock of Finished Goods	15 x 8,75,000 <hr/> 36,458.33
		360
3.	Work-in Progress	18x8,75,000 <hr/> 43,750.00
		360
4.	Debtors	45 x 8,75,000 <hr/> 1,09,375.00
		360
Total current Assets excluding cash		2,39,583.33
<b>Less Current Liabilities:</b>		
	Creditors of Raw Materials	60 x 5,00,000 <hr/> 83,333.33
		360
	Other Working capital requirement	1,56,250.00
	Add cash for contingencies (1/3)	52,083.33
	Working Capital Required	<hr/> 2,08,333.33

## 8.9 SUMMARY

Working capital refers to the funds invested in current assets i.e., investment in sundry debtors, cash and other current assets. The total of investments in all current assets is known as gross working capital. Net working capital refers to the excess of total current assets over total current liabilities. The important factors affecting working capital are general nature of business, production policy, credit policy, inventory policy, abnormal factors and market conditions.

## 8.10 KEYWORDS

**Working Capital:** It refers to short-term funds to meet operating expenses.

**Gross Working Capital:** The total current assets are termed as the gross working capital.

**Net Working Capital:** The excess of current assets over current liabilities represents net working capital.

**Permanent Working Capital:** It is the minimum investment kept in the form of inventory of raw materials, work in progress, finished goods, stores and spares, and book debts to facilitate uninterrupted operation in a firm.

**Temporary Working Capital:** Any additional working capital apart from permanent working capital required to support the changing production and sales activities is referred to as temporary working capital.

### 8.10 SELF ASSESSMENT QUESTIONS

1. What are the different techniques of forecasting the working capital of a concern? Explain and illustrate.
2. Differentiate between permanent working capital and temporary working capital.
3. Explain the factors that you would take into consideration for assessing the amount of working capital for different kinds of business enterprises of various sizes.
4. What is meant by working capital? How would you determine the working capital requirements?
5. BPL Ltd. is desirous to purchase a business and has consulted you and one point on which you are asked to advise them is the average amount of working capital which will be required in the first year's working.

You are given the following estimates and are instructed to add 10% to your computed figure to allow for contingencies.

		<b>Figures for the year (₹)</b>
(i)	Average amount locked up for stocks:	
	Stock of finished product	5,000
	Stock of stores, materials etc.	8,000
(ii)	Average credit given:	
	Inland Sales-6 weeks credit	3,12,000
	Export Sales 1½ weeks credit	78,000

(iii) Lag in payment of wages and other outgoings:

Wages 1½ weeks	2,60,000
Stores, materials etc. - 6 months	48,000
Rent, Royalties etc. - 6 months	10,000
Clerical staff - ½ month	62,400
Manager - ½ month	4,800
Miscellaneous expenses - 1½ months	48,000

(iv) Payments in advance:

Sundry expenses (paid quarterly in advanced)	8,000
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(v) Undrawn profits on the average throughout the year 11,000

Set up your calculations for the average amount of working capital required.

## 8.11 SUGGESTED READINGS

34. I M Pandey: Financial Management; Vikas Publication House Ltd., New Delhi.

35. M Y Khan & P K Jain: Basic Financial Management; McGraw Hill Education (India) Pvt Ltd., New Delhi.

36. R. P. Rustagi: Financial Management–Theory, Concepts and Problems; Taxmann Publications (P) Ltd., New Delhi.

37. Prasanna Chandra: Investment Analysis and Portfolio Management; McGraw Hill Education (India) Pvt. Ltd., New Delhi.

38. Eugene F Brigham & Michael C Ehrhardt: Financial Management– Theory and Practice; Cengage Learning (India) Pvt. Ltd., New Delhi.

**LESSON: 9**  
**MANAGEMENT OF CASH**

**STRUCTURE**

- 9.0 Objectives
- 9.1 Introduction
- 9.2 Meaning of Cash and Cash Management
- 9.3 Motives for Holding Cash
- 9.4 Objectives of Cash Management
- 9.5 Strategies to Deal with Various Factors of Cash Management
- 9.6 Summary
- 9.7 Keywords
- 9.8 Self Assessment Questions
- 9.9 Suggested Readings

**9.0 OBJECTIVES**

After reading this lesson, you will be conversant with:

- Motives for holding cash
- Methodology of cash planning
- Various methods of accelerating cash inflows and slowing cash outflows
- Determination of optimum cash flows
- Need for investing surplus cash in marketable securities.

**9.1 INTRODUCTION**

Cash is a vital component of working capital because it is the cash which keeps a business going. It is the hub around which all other financial matters centre. There is no denying the fact that cash is the very life-blood of a business enterprise. The steady and healthy circulation of cash

throughout the entire business operation is the basis of business solvency. Cash is the basic input needed to keep the business running on a continuous basis. At the same time, it is also the ultimate output expected to be realised by selling the services or products manufactured by the firm. Ultimately, every transaction in a business results in either an inflow or outflow of cash. Therefore, effective management of cash is the key determinant of efficient working capital management. There should be sufficient cash with a firm all the time to meet the needs of the business. Both excess and inadequate cash situations are undesirable from the point of view of profitability and liquidity. Inadequate cash may degenerate a firm into a state of technical insolvency and even lead to its liquidation. It will eventually disturb the firm's manufacturing operation. On the other hand, excessive cash remains idle, without contributing anything towards the firm's profitability. Moreover, holding of cash balance has an implicit cost in the form of its opportunity cost. The larger the idle cash, the greater will be its opportunity cost in the form of loss of interest which could have been earned either -by investing it in some interest-bearing securities or by reducing the burden of interest charges by paying off the loans taken previously. If the cash balance with a firm at any time is surplus or deficit, it is obvious that the finances are mismanaged. Today, when cash, like any other asset of the company, is a tool for profits, the emphasis is on right amount of cash at the right time, at the right place and at the right cost.

## **9.2 MEANING OF CASH AND CASH MANAGEMENT**

Cash itself does not produce goods or services. It is used as a medium to acquire other assets. It is the other assets which are used in manufacturing goods or providing services. The idle cash can be deposited in bank to earn interest. The term cash with reference to cash management is used in two senses. In a narrow sense, it includes coins, currency and cheques in hand and balances in bank account. And in a broader sense, it also includes "near-cash assets" such as marketable securities and time deposits with banks which can be immediately sold or converted into cash.

Cash management is concerned with the management of collection and disbursement of cash, determination of optimum amount of cash and investment of surplus cash. Cash management is concerned with optimizing amount of cash available to the company and maximizing interest on



spare funds not required immediately by the company. Various techniques are used for the management of cash which are explained later in the lesson.

### **9.3 MOTIVES FOR HOLDING CASH**

A distinguishing feature of cash as an asset, irrespective of the form in which it is held, is that it does not earn any substantial return for the business, in spite of this fact; cash is held by the enterprises with the following motives.

#### **1. Transactions motive**

One of the important motives for maintaining cash is to facilitate business transactions. Business needs cash for making various payments in ordinary course of its operation. It includes payment for purchase of material, and payment of wages, salary, interest, dividend, taxes and other expenses. Similarly, business gets cash from its selling activities and other investments. Thus, the receipts and payments constitute a continuous two-way flow of cash. Since the inflows and outflows of cash do not perfectly synchronize, an adequate or a minimum cash balance is required to uphold the operations if outflows exceed the inflows. Therefore, in order to meet the day-to-day transactions, the requirement of cash is known as transaction motive. So, it refers to the holding of cash to meet anticipated obligations when timing is not perfectly synchronised with the inflows of cash. Although, a major part of transactions balances is held in cash, a part may also be held in the form of marketable securities whose maturity conforms to the timing of the anticipated payments, such as payment of taxes, dividends, etc.

#### **2. Precautionary Motive**

This motive for holding cash has to do with maintaining a cushion or buffer to meet unexpected contingencies. The unexpected cash needs at short notice may be the result of:

- (i) incontrollable circumstances, such as floods, strikes, droughts, etc.;
- (ii) bills which may be presented for settlement earlier than expected
- (iii) unexpected delay in collection of trade dues;

- (iv) rejection of orders by customers due to their dissatisfaction; and
- (v) increase in the cost of material, labour, etc.

Precautionary balances are the cash balances which are held as reserve for random and unforeseen fluctuations in cash flows, i.e., this motive implies the need to hold cash to meet unpredictable obligations. The more predictable the cash flows, the less precautionary balances that are needed and vice-versa. Moreover, the need for this types of cash balance may be reduced if there is a ready borrowing power in order to meet the emergency cash outflows. Sometimes, a portion of such cash balances may be held in marketable securities.

### **3. Speculative Motive**

The speculative motive refers to the desire of a firm to take advantage of favourable business opportunities which are typically outside the normal course of operations. The speculative motive helps to take advantages of:

- (i) an opportunity to purchase raw materials at a reduced price against immediate payment- i.e. benefit of cash discounts-
- (ii) a change to speculate of interest rate movements by purchasing securities when rates of interest are expected to decline;
- (iii) the purchase at favourable prices.

### **4. Compensating Motive**

An enterprise has to compensate banks and other institutions for providing certain services and loans. Such services include clearance of cheques, supply of credit information, transfer of funds, etc. For some services, the banks charge commission or fee. But for other services they seek indirect compensation. We know that banks require their clients to maintain a minimum balance of cash in their accounts in the bank. While the customers cannot withdraw below this minimum balance. The banks of their own can utilise this balance to earn a return. In this way, the banks are compensated for the services rendered by them to the firms. Such minimum required balances are called compensating balances.

The four motives of holding cash discussed above are not of equal importance. Transaction motive and compensating motive are the most important ones. This is so because the enterprises normally do not speculate and so they need not have speculative balances. As regards the requirements of precautionary balances, the firms can use short term financing pattern for the same.

#### **9.4 OBJECTIVES OF CASH MANAGEMENT**

The main objective of cash management is to bring equilibrium between liquidity and profitability of business to maximise its long term profits. The greater the amount of cash balance more will be the liquidity of the firm and lesser will be its profitability. On the other hand, lesser the amount of cash balance, more will be the profitability and lesser will be the liquidity of business. This is true to a certain limit. After this limit, lesser liquidity will reduce the profitability. The following are two main objectives of cash management:

1. to meet the cash disbursement needs as per the payment schedule.
2. to minimise the amount locked up as cash balances.

As a matter of fact, both the objectives are mutually contradictory and therefore, it is a challenging task for the finance manager to reconcile them and have the best in this process.

##### **1. Meeting cash disbursement needs**

The first basic objective of cash management is to meet the payments schedule. In other words, the firm should have sufficient cash to meet the various requirements of the firm at different periods of time. The business has to make payment for purchase of raw materials, wages, taxes, purchase of plant, etc. The business activity may come to a grinding halt if the payment schedule is not maintained. Cash has, therefore, been aptly described as the “oil to lubricate the ever-turning wheels of the business, without it the process grinds to a stop”.

##### **2. Minimising funds locked up as cash balances**

The second basic objective of cash management is to minimise the amount locked up as cash balances. In the process of minimising the cash balances, the finance manager is confronted with two conflicting aspects. A higher cash balance ensures proper payment with all its advantages. But this will result in a large balance of cash remaining idle. Low level of cash balance may result

in failure of the firm to meet the payment schedule. The finance manager should, therefore, try to have an optimum amount of cash of balance keeping the above facts in view.

## **9.5 STRATEGIES TO DEAL WITH VARIOUS FACETS OF CASH MANAGEMENT**

In order to solve the uncertainty about cash flow prediction and lack of synchronisation between cash receipts and payments, the firm should develop appropriate strategies for cash management. The firm should evolve strategies regarding the following four facets of cash management:

1. Cash planning
2. Managing the cash flows
3. Optimum cash level
4. Investing surplus cash

### **1. Cash Planning**

Cash planning is a technique to plan and control the use of cash. It is a process predicting cash inflows and outflows of the firm over the forthcoming period so as to determine surplus or shortage of cash. In case of excess cash inflows, the firm can invest it most profitably and in case of dearth of cash, the firm can make adequate provision for the same. Thus, with the help of cash planning, the firm can anticipate discrepancies between inflows and outflows of cash and thereby reduce the possibility of idle cash balances (that adversely affect the return) and cash deficits (that can cause illiquidity crisis).

Cash planning is done on the basis of the present operations and the likely changes therein over a stipulated plan period. The basic tool which a finance manager employs to forecast the predictable discrepancies between cash inflows and outflows is the cash budget. The cash budget reveals the timing and magnitude of net cash outflows as well as the periods during which surplus cash may be available for temporary investment.

Cash forecasts are needed to prepare cash budgets. Cash forecasting may be done on short-term and long-term basis. Short-term cash forecasting is made for a period of less than one year to determine operating cash requirements of the firm. This will help the firm to ascertain how much

cash balance will be held in balance, to what extent the firm will have to rely on bank financing and amount of surplus cash that would be available for investment in marketable securities. Thus, short- term cash forecasting enables the firm to adjust discrepancies between cash outflows and inflows favourably. With prior knowledge of timing of cash requirements, the finance manager will experience no problem in negotiating with banks for short- term funds. A carefully and skilfully developed cash forecast helps the finance manager choose such securities for investment of idle cash as may satisfactorily trade-off risks and return. The important uses of carefully developed short term cash forecasts are:

- a) they help to determine operating cash requirements.
- b) they help to anticipate short-term financing.
- c) they help in guiding credit policies.

There are two methods of forecasting short-term cash requirements, viz., the receipt and disbursement method and the adjusted net income method. In receipt and disbursement method forecast for each time of cash receipts and cash payments has to be made. All cash receipts of income and non-income nature are considered. Thus, cash inflows from sales, liquidation of assets, dividend and interest form part of cash receipts Likewise, cash disbursements, such as payment on account of purchase of materials, wages and salaries to employees, payments of taxes to the Government and other payments of revenue and non-revenue nature have to be prognosticated. After anticipating cash receipts and disbursements periodically, the firm can integrate them in tabular form (known as cash budget) to find out net cash inflow or outflow for each month.

**Illustration I:** Rama Industries wishes to arrange overdraft facilities with its Bankers during the period April to June, 1999 when it will manufacturing mostly for stock. Prepare a cash budget for the above period from the following data, indicating the extent of the bank facilities the company will require at the end of each month

(a)

2018	Sales (₹)	Purchases (₹)	Wages (₹)
February	1,80,000	1,24,800	12,000
March	1,92,000	1,44,000	14,000

April	1,08,000	2,43,000	11,000
May	1,74,000	2,46,000	10,000
June	1,26,000	1,26,000	15,000

(b) 50 per cent of credit sales are realised in the month following the sales and remaining 50 per cent in the second month following. Creditors are paid in the month following the month of purchase.

(c) Cash at Bank on 1.4.2018 (estimated) ₹ 25,000

### Solution

Cash Budget for Three Months from April to June, 2018

(a) Receipts	April	May	June
	₹	₹	₹
Opening Balance	25,000	53,000	-51,000
Sales (last to last month)	90,000	96,000	54,000
Sales (last month)	96,000	54,000	87,000
Total Receipts	2,11,000	2,03,000	90,000
<b>(b) Payments:</b>			
Purchases	1,44,000	2,43,000	2,46,000
Wages	14,000	11,000	10,000
Total Payments	1,58,000	2,54,000	2,56,000
Closing Balance (a-b)	53,000	(-) 51,000	(-) 1,66,000

**Note:** Workers are paid on 1<sup>st</sup> of the following month.

In the adjusted net income method only those receipts and payments are predicted which are of revenue in nature. Thus, receipts from sale of shares and debentures and fixed assets would not form part of the forecast under this method. In the same way, disbursements in respect of purchase of fixed assets or dividend distribution would not be considered. Further, adjusted net income method considers all receipts and payments on accrual basis. Finally, all appropriations, such as depreciation and amortization of patents have to be forecast under this method. Forecast

prepared on adjusted net income method helps in anticipating the working capital requirements. The preparation of cash budget, according to this method, can be understood with the help of following illustration

**Illustration 2:** From the following information prepare a cash budget under the adjusted profit and loss method

**Balance Sheet**  
**as on 1<sup>st</sup> January, 2018**

	₹		₹
Share Capital	1,25,000	Land and Building	75,000
Capital Reserve	12,500	Plant and Machinery	50,000
Profit and Loss A/c	22,500	Furniture and Fixtures	12,500
Debentures	25,000	Closing Stock	10,000
Creditors	72,000	Debtors	65,000
Accrued expenses	500	Bank	45,000
	<b>2,57,500</b>		<b>2,57,500</b>

**Projected Trading and Profit and Loss Account**  
**for the year ending 31st December, 2018**

Particulars	₹	Particulars	₹
To Opening stock	10,000	By sales	2,00,000
To Purchases	1,50,000	By Closing Stock	25,000
To Gross Profit c/d	65,000		
	<b>2,25,000</b>		<b>2,25,000</b>
To Salary and wages 6,250		By Gross Profit b/d	65,000
Add outstanding 1250	7,500	By Interest received	250
To Depreciation:			
Plant & Machinery	5,000		
Furniture & Fixture	2,500		
To Administration Expenses	8,750		
To Selling Expenses	6,250		
To Net Profit c/d	35,250		
To Dividend paid	65,250		
To Balance c/d	25,000		
	<b>32,750</b>		<b>65,250</b>

		By Balance B/d	22,500
		By Net Profit b/d	35,250
	<b>57,750</b>		<b>57,750</b>

The following is the additional information for the year 1998 Shares were issued for ₹ 25,000 and debentures were issued for ₹ 5,000. On 31<sup>st</sup> December, 1998, the accrued expenses were ₹1,250, Debtors ₹ 50,000, Creditors ₹ 75,000 and Land & Building ₹ 1,00,000.

### Solution

#### Cash Budget-Adjusted Profit and Loss Method

	₹	₹	₹
Cash balance on 1. 1. 2018		45,000	
Additions to Cash:			
Net profit for the year	35,250		
Depreciation:			
Plant & Machinery	5,000		
Furniture & Fixture	2,500	7,500	
Accrued expenses (Difference)		750	
Decrease in Debtors	15,000		
Increase in Creditors	3,000		
Issue of Share Capital	25,000		
Issue of Debentures	5,000	48,750	91,500
Total Cash Available		<u>1,36,500</u>	
Deductions from Cash			
Dividend paid	25,000		



li-icrease in Stock	15,000		
Purchase of Land & Building	25,000	65,000	_____
Cash Balance as on 31.12.2018		71,500	_____

In addition to short-term cash forecasting, a finance manager has to predict long-term cash requirements for the firm. Long-term cash forecast serves as an objective tool to evaluate the impact of new product market strategy on the firm's financial position in the long run. Besides, it also helps in prognosticating working capital needs for the firm. Long-term cash forecasts are also useful in streamlining corporate planning. Such forecasts force each division to plan for future and to formulate project carefully. Long-term forecasts can be made either by the receipts and disbursements method or by the adjusted net income method.

## 2. Managing the Cash Flows

The cash budget is a forerunner for controlling the cash flows effectively. The crux of effective cash management lies in synchronizing the cash inflows with cash outflows. This is done by preparing periodical cash reports. The cash budget is the planning of forecasting instrument whereas cash report makes a comparison of actual cash flows with estimated cash flows. If variations are found, complete analysis for the deviations is made. On the basis of such analysis, corrective steps are taken and whenever necessary, future cash budgets are revised. If it is found that deviations are due to an ineffective or a wrong policy, action is taken to correct it. A firm having minimum variations in cash flows is considered to have managed its cash more efficiently. For effective control of cash flows, preparation of daily cash reports is advised by financial experts.

Besides, cash management efficiency will have to be improved through a proper control of cash collection and disbursement. The inflow of cash should be accelerated while, as far as possible, the outflow of cash should be deaccelerated.

### Methods of Accelerating cash inflows

Following are the various methods of accelerating cash inflows:

#### (a) Prompt payment by customers

In order to accelerate cash inflows, the collections from customers should be prompt. This will be possible by prompting billing. The customers should be promptly informed about the

amount payable and the time by which it should be paid. It will be better if self-addressed envelope is sent alongwith the bill and quick reply is requested. Another method for prompting customers to pay earlier is to allow them a cash discount. The availability of discount is a good saving for the customer and in an anxiety to earn it then, make quick payments.

**(b) Quick deposit of customer cheques**

One way of shortening the time lag between the date when a customer signs a cheque and the date when the funds are available for use is to make an arrangement for quick deposit of the cheques in the banks the moment they are received. Special attention should be given to large remittances. For example, these may be deposited individually or air mail services should be used for such remittances.

**(c) Concentration Banking**

To speed up collections, collections should be decentralised as far as possible. If, instead of one collection centre, there are a number of collection centres for the purpose, collections would certainly be speeded up. This procedure is named as concentration banking. Through this procedure, the mailing time of the customers is reduced. Customers of a particular region may be directed to deposit/remit the repayments to a collection centre established at the central place of that region. The collection centre will deposit the payments received in the local bank account. Surplus (over the minimum balance to be kept) is transferred to a concentration bank regularly (may be daily), which is generally at the firm's head office. This concentration bank or central bank can get the payments by telegraphic transfer or telex, as per the instructions given by the firm. The collection centres may themselves collect the cheques or the cash payment from the customers, instead of customers remitting the payments to the collection centre. It further accelerates the process of collection because of the reduction in the mailing time. The advantage of decentralised collection is two-fold:

- i. The mailing time is reduced, because the bills are prepared by the local collection centres and sent by them to the customers. Further, if the collection centres collect the payments by themselves, the time requires for mailing is reduced on this account also.

- ii. Collection time is reduced, since the payments collected are deposited in the local bank accounts. The funds become usable by the firm immediately on hearing from the collection centre about the amount being deposited in the local bank account.

**(d) Lock Box System**

Under the concentration banking, the cheques or drafts received by the collection centres are deposited in the local banks. Therefore, sometime is wasted before the cheques or drafts are sent for collection. Under the lock box system, this time gap can be reduced. Under this system, firm takes on rent a lock box from the post office at important collection centres. Customers are instructed to send their cheques/drafts in the lock box. Firm authorises the local banks to withdraw these cheques/drafts from the lock box and credit the same to the firm account. Bank operates this lock box several times a day. Local banks are also instructed to transfer funds exceeding a particular level to the head office. This system is considered better to concentration banking because in this system, time involved in receiving cheques in the collection centres, their accounting in the books and the deposit of these cheques or drafts in the bank is saved. All these clerical tasks are performed by banks at lower costs. The collection of cheques starts immediately after their receipt.

**(e) Collections through messengers**

Certain firms like to send messengers at the places of customers to collect the payments. It certainly reduces the mailing time but increases the costs of collection in terms of the travelling costs of messengers.

To conclude, whatever system of speeding up collections is adopted, the costs are to be compared with the benefits derived therefrom. In case the benefits of a particular system exceed the costs on a comparative basis, the same may be recommended by the finance manager for adoption by the firm.

**Methods of Slowing Cash Outflows**

In order to optimise cash availability in the firm, the finance manager must employ devices that could slow down the speed of payments outward in addition to accelerating collection. The following methods can be used to delay disbursements

**(a) Paying on Last Date**

The disbursements can be delayed on making payments on the last due date only. If the credit is for 10 days then payment should be made on 10th day only. It can help in using the money for short periods and the firm can make use of cash discount also.

**(b) Centralised Disbursements**

The payments should be centralised and made through cheques or drafts. When the cheques are issued from the head office then it will take time for the cheques to be cleared through post. Moreover, firms will have to maintain lesser cash balances as against decentralised disbursement where each branch will have to maintain some cash. In this method, greater time will be involved in the presentation and collection of cheques. Control over payments will also become easier.

**(c) Using Float**

Float is the difference between the company's cheque book balance and the balance shown in the bank's books of account. When a firm writes a cheque, it will reduce the balance in its books of account by the amount of the cheque. But the bank will debit the account of its customers when the cheque is collected usually after a week. Thus, there is no strange if the firm's books show a negative balance while the bank's books show positive balance. The firm can make use of the float if the magnitude of the float can be accurately estimated.

In all these methods of delaying payments, the company's credit reputation is likely to be damaged. The cost that would, thus, result must be taken into account.

**(d) Inter-bank transfer**

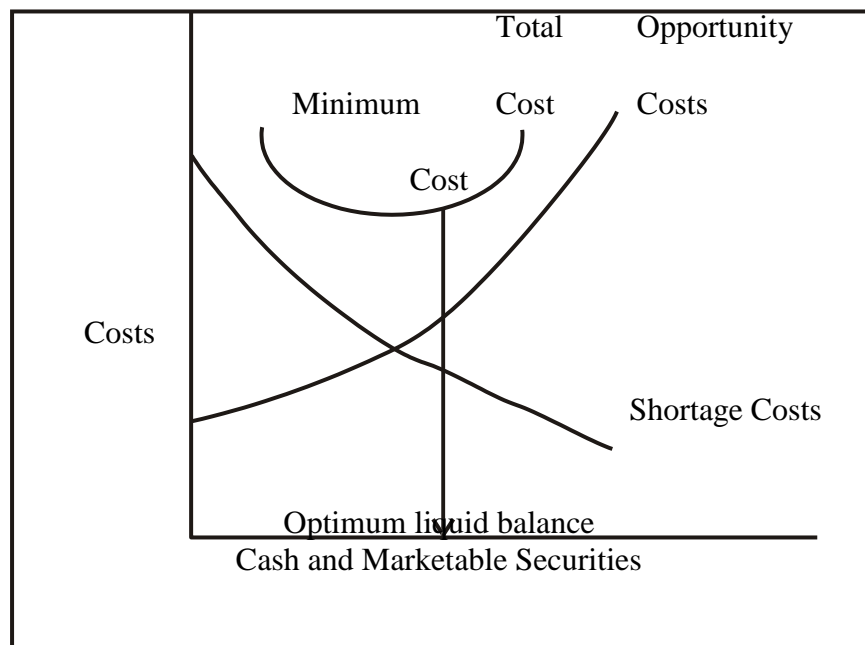
Another method of making efficient use of cash resources is to transfer funds quickly from one bank to another bank where disbursement is to be made. This would prevent building up of excess cash balances in one bank. This procedure could be adopted by a company having accounts with several banks.

**3. Optimum Cash Level**

One of the primary responsibilities of the financial manager is to maintain a sound liquidity position of the firm so that obligations may be settled well in time. The test of liquidity is really

the availability of cash to meet the firm's obligations as and when they become due. For this purpose, liquid balance (balance of cash and marketable securities) must be maintained at the optimum level. It is the level which gives the minimum cost of holding the cash balance. Determination of such a level is very important for an efficient cash management. If the liquid balance exceeds the required balance, it remains idle and, therefore, it involves opportunity cost in the sense that the amount could have been put to more effective use. None-the-less, liquidity position of the enterprise becomes more sound. On the other hand, if liquid balance is short of the requirements, the firm may have to incur shortage costs. The firm may be required to sell its fixed investments or it may have to resort to fresh borrowings. It may have to forego cash discounts and pay higher rates of interest on borrowings. There is a danger of losing goodwill and a risk of insolvency even. Thus with increasing liquid balances, opportunity or holding costs increase, but the 'shortage' costs go down, and vice-versa. The combination of opportunity costs and shortage costs gives the total cost of maintaining liquid balances at various levels. The point which gives the minimum total cost is the point of optimum liquidity balance - representing a trade-off of shortage cost against opportunity cost.

### Optimum Liquid Balance



**Cash Management Model**

A number of cash management models have been developed to decide the optimal level of cash balance. These models are based on such major Considerations as the demand for cash, the interest rate on marketable securities and the cost of transfers between marketable securities and cash. There are two important models which lead to the determination of the optimum balance of cash.

**(a) Inventory Model**

The economic order quantity (EOQ) formula, basically used in inventory decision, has now come to be popularly employed to determine the optimal level of cash holding for the firm. William Baumol was the first man who applied the inventory model to the problem of cash management.

According to the EOQ model, optimum level of cash should be determined by balancing the carrying cost of holding cash (the interest foregone on marketable securities) against the fixed cost of transferring marketable securities to cash or vice-versa so as to minimize total costs. The level of cash at which the sum of carrying costs and the fixed costs associated with transferring marketable securities is minimum, will be the optimum cash balance of the firm. The following formula is used to determine this optimum level.

$$Q = \frac{\sqrt{2CB}}{K}$$

Where,

Q stands for optimum size of cash inventory.

C stands for average fixed cost of securing cash from market.

B stands for- the total amount of transaction demand for cash over the period of time involved.

K stands for the cost of carrying the inventory of cash, i.e., interest rate on marketable securities for the period.

**Illustration 3:** Ramesh Company Limited estimated cash payments of ₹ 4 lakhs for a one month period. The average fixed cost for securing capital from the market is ₹ 1000 and the interest rate

on marketable securities is 12 per cent per annum or 1.0 per cent for the one month period. Calculate EOQ.

**Solution**

Economic order size of cash in this instance will be:

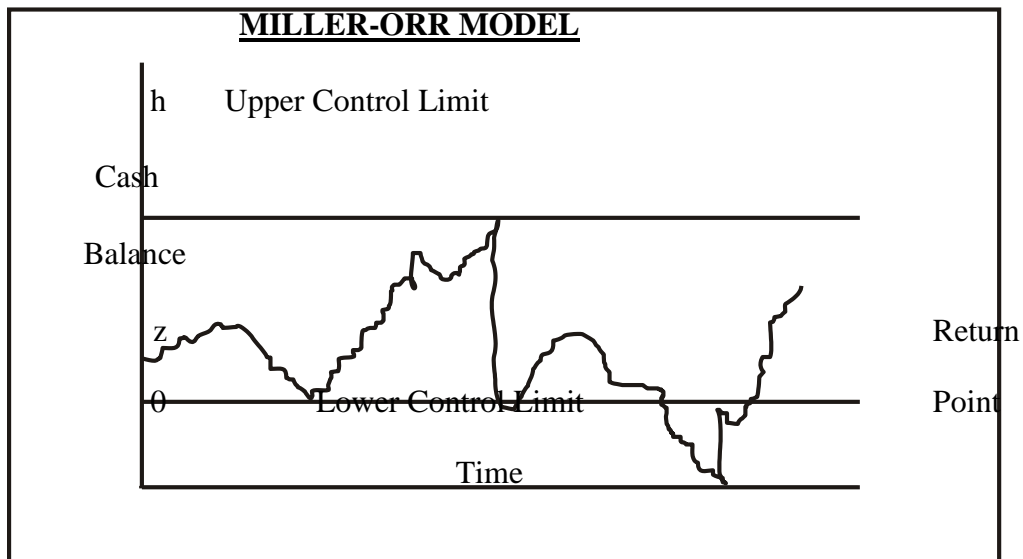
$$\frac{\sqrt{(2 \text{ ₹ } 1,000) (\text{ ₹ } 4,00,000)}}{0.01}$$

$$= \text{ ₹ } 2,82,843$$

The optimal transaction size of the company is ₹ 2,82,843 and the average cash balance is ₹ 1,41,421 (₹ 2,82,843/2).

**b) Stochastic Model**

This model is based on the basic assumption that cash balances change randomly over a period of time both in size and direction and form a normal distribution as the number of periods observed increase. The model prescribes two control limits-upper limit and lower limit. When cash balances reach the upper limit, a transfer of cash to investment account should be made and when cash balances reach the lower point, a portion of securities constituting investment account of the firm should be liquidated to return the cash balances to its return point.



The upper and lower limits of control are set after taking into account fixed cost associated with converting securities into cash and the vice-versa, and the cost of carrying stock of cash.

Miller - Orr model is one of the most important Stochastic Models. It is designed to determine the time and size of transfers between an investment account and cash account. In this model, control limits are set for cash balances. It specifies two control limits - 'h' the upper control limit and 'o' the lower control limit. The limits have been explained through a graph shown below.

When cash balance reaches the upper control limit, 'h-z' rupees of cash are converted into marketable securities so that the new cash balance is at 'z' level. When cash balance is reduced to the level 'zero', 'O-Z', i.e. 'z' rupees of marketable securities are sold, so that the new cash balance is again at 'z' level. If the cash balance remains fluctuating between the two control limits, no transaction takes place (no conversion from cash to marketable securities or vice versa is required). The lower control limit may be set at a level higher than 'zero' point. The optimum value of 'h' is  $-3z$ . Average cash balance is  $(z+h)/3$  approximately. The optimum value of 'z', the return point for security transactions can be calculated by applying the formula:

$$z = \sqrt[3]{3b\sigma^2/4i}$$

Where,

z = Return Point

b = Fixed cost associated with a security transaction

$\sigma^2$  = Variance of daily net cash flows

i = Interest rate per day on marketable securities

The high and low limits of cash balance are set up on the basis of fixed cost associated with the securities transactions, the opportunity cost of holding cash and the degree of likely fluctuations in cash balances. These limits satisfy the demands for cash at the lowest possible total cost. More variability of cash flows and higher fixed costs of a security transaction lead to higher control limits and vice versa.

The total costs of holding cash, i.e., fixed costs and opportunity costs are minimised within these control limits in case of uncertainty.



#### 4. Investing Surplus Cash

Investing surplus cash involves two basic problems

- (a) Determining the amount of surplus cash
- (b) Determining the channels of investment

##### (a) Determining of surplus cash

Surplus cash is the cash in excess of the firm's normal cash requirements. While determining the amount of surplus cash, the finance manager has to take into account the minimum cash balance that the firm must keep to avoid risk or cost of running out of funds. Such minimum level may be termed as 'safety level for cash'.

**Determining safety level for cash:** The finance manager determines the safety level of cash separately both for normal periods and peak periods. In both the cases, he has to decide about the following two basic factors

- (i) Desired days of cash. It means the number of days for which cash balance should be sufficient to cover payments.
- (ii) Average daily cash outflows. This means the average amount of disbursements which will have to be made daily.

The "desired days of cash" and "average daily cash outflows" are separately determined for normal and peak periods. Having determined them, 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

For example, if the finance manager feels that a safety level should provide sufficient cash to cover cash payments for seven days and the firm's average daily cash outflows are ₹ 6,000, the safety level of cash will be ₹ 42,000 (i.e. 7 x 6,000).

### **During peak periods**

Safety level of cash = Desired days of cash at the busiest period x

Average of highest daily cash outflows.

For example, during the three busiest days in the month of December, the firm's cash outflows were ₹ 7,000 ₹ 8,000, and ₹ 9,000. The average cash outflows comes to ₹8,000. If the finance manager desires sufficient cash to cover cash payments for 5 days during the peak periods, the safety level would be ₹ 40,000 (i.e. ₹ 8,000 x 5).

The above ratios are helpful in monitoring level of cash balances. The actual cash balance is compared with the daily cash outflows to determine the number of days for which cash is available. Such number of days is then compared with the desired days of cash to ascertain whether the firm is below or above the safety level.

**Illustration 4:** From the following data ascertain whether the firms has surplus or deficiency of cash.

	<b>Normal periods</b>	<b>Peak periods</b>
Desired days of cash	6	4
Average daily outflows	30,000	50,000
Actual cash balance	1,00,000	1,20,000

### **Solution**

**During normal periods:** The firm has a cash balance ₹1,00,000. The average daily cash outflows are ₹ 30,000. It means the firm has cash available only for 3.3 days as compared to require for 6 days. Hence, the firm has deficiency of cash.

**During peak periods:** The firm has a cash balance of ₹1,20,000. The average daily outflows are estimated at ₹ 50,000. It means the firm cash has available only for 2.4 days as compared to that required for 4 days. Hence, the firm has deficiency of cash.

### **(b) 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 or minimum level of cash, as explained in 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 avail of 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 of judgement, he usually takes into consideration the following factors:

- (i) **Security:** This can be ensured by investing money in securities whose price remain more or less stable.
- (ii) **Liquidity:** This can be ensured by investing money in short-term securities including short-term fixed deposits with bank.
- (iii) **Yield:** Of course 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 maximise the yield on their investments.
- (iv) **Maturity:** Surplus cash is available not 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 maximise 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 payments.
- (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 favourable yields.

### **Types of short-term investment opportunities**

The following short-term investment opportunities are available to companies in India to invest their temporary cash surplus:

#### **1. Treasury bills**

Treasury Bills (TBs) are short-term government securities. The usual practice in India is to sell treasury bills at a discount and redeem them at par on maturity. The difference between the issue price and the redemption price, adjusted for the time value of money, is return on treasury bills. They can be bought and sold any time, thus, they have liquidity. Also, they do not have the default risk.

#### **2. Commercial papers**

Commercial Papers (CPs) are short-term unsecured securities issued by highly credit worthy large companies. They are issued with a maturity of three months to one year. CPs are marketable securities and, therefore, liquidity is not a problem.

#### **3. Certificates of deposits**

Certificates of Deposits (CDs) are papers issued by banks acknowledging fixed deposits for specified period of time. CPs are negotiable instruments that make them marketable securities.

#### **4. Bank deposits**

A firm can deposit its temporary cash in a bank for a fixed period of time. The interest rate depends on the maturity period. For example, the current interest rate for a 16 to 30 days deposit

is about 5 per cent and for 180 days to one year is about 8 per cent. The default risk of the bank deposits is quite low since most banks in India are owned, by the Government.

## **5. Inter-corporate deposits**

Inter-corporate lending/borrowing or deposits (ICD) is a popular short- term investment alternative for companies in India. Generally a cash surplus company will deposit (lend) its funds in a sister or associate companies or with outside companies with high credit standing. In practice, companies can negotiate inter-corporate borrowing or lending for very short periods. The risk of default is high, but returns are quite attractive.

## **6. Money market mutual funds**

Money Market Mutual Funds (MMMF) focus on short-term marketable securities such as TBs, CPs or call money. They have a minimum lock-in period of 30 days, and after this period, an investor can withdraw his or her money any time at a short notice or even across the counter in some cases. They offer attractive yields; yields are usually 2 per cent above than on bank deposits of same maturity. MMMFs are of recent origin in India, and they have become quite popular with institutional investors and some companies. MMMFs have been recently offered by Kothari Pioneer, Unit Trust of India (UTI) and Industrial Development Bank of India (IDBI). UTI's MMMF schemes are most successful so far.

## **7. Badla Financing**

Badla financing is used in stock exchange transactions when a broker wants to carry forward his transactions from one settlement period to another. Badla financing is done through operators in stock exchange. It is the financing of transactions of a broker who wants to carry forward this deal to the other settlement period. The badla rates are decided on the day of settlement. Badla transaction is financed on the security of shares purchased whose settlement is to be carried forward. Sometimes, this financing facility may be extended for a particular share only. For example, a company may provide badla finance to a broker ₹ 10 crore for purchasing ACC shares in forward market. Badla rates vary with demand and supply position of funds.

Badla financing offers attractive interest rates. However, it becomes risky if the broker defaults in his commitment. Even the wide fluctuation in prices of shares may also affect the value of security. An investor in this type of financing should be careful about following things:

- (i) The selection of a broker should be on the basis of reputation.
- (ii) The share with a sound intrinsic value should be selected.
- (iii) The margin should be adequate.
- (iv) The possession of securities should be taken.

## **8. Bill Discounting**

A bill arises out of credit sales. The buyer will accept a bill drawn on him by the seller. In order to raise funds the seller may get the bill discounted with his bank. The bank will charge discount and release the balance amount to the drawer. These bills normally do not exceed 90 days.

A company may also discount the bills as a bank does this, using its surplus funds. The bill discounting is considered superior to intercorporate deposits. The company should ensure that the discounted bills are (a) trade bills (resulting from a trade transaction) and not accommodation bills (helping each other). (b) the bills backed by the letter of credit of a bank will be most secure as these are guaranteed by the drawee's bank.

## **9.6 SUMMARY**

The exact nature of a cash management system would depend upon the organizational structure of an enterprise. The four motives for holding cash are Transaction need, Speculative needs, Precautionary needs and Compensation motive. Cash budget represents cash requirements of business during the budget period. There are various methods to speed up collection process. According to William J Baumol's Economic Order Quantity model, optimum cash level is that level of cash where the carrying costs and transaction costs are the maximum. According to Miller–Orr Cash Management model, the net cash flow is completely stochastic.

## **9.7 KEYWORDS**

**Cash:** It is one of the components of current assets and a medium of exchange for the purpose of transactions.

**Optimal Cash Balance:** It is that cash balance where the firm's opportunity cost equals transactions cost and the total cost is minimum.

**Cash Budget:** It is a statement showing the estimated cash inflows and cash outflows over a planning period.

**Float:** It is the amount of the money tied up in cheques that have been written but not yet collected.

## 9.8 SELF ASSESSMENT QUESTIONS

1. Explain the principal motives for holding cash.
2. Illustrate with example the modus operandi of preparing a cash budget.
3. Discuss the techniques that can be used to accelerate the firm's collections?
4. What are the objectives of a firm in controlling its disbursements? How can the disbursements be slowed down?
5. How can be appropriate level of operating cash balance be determined?
6. Explain the criteria that a firm should use in choosing the short-term investment alternatives in order to invest surplus cash.

## 9.9 SUGGESTED READINGS

39. Eugene F Brigham & Michael C Ehrhardt: Financial Management– Theory and Practice; Cengage Learning (India) Pvt. Ltd., New Delhi.
40. M Y Khan & P K Jain: Basic Financial Management; McGraw Hill Education (India) Pvt Ltd., New Delhi.
41. R. P. Rustagi: Financial Management–Theory, Concepts and Problems; Taxmann Publications (P) Ltd., New Delhi.
42. Prasanna Chandra: Investment Analysis and Portfolio Management; McGraw Hill Education (India) Pvt. Ltd., New Delhi.
43. I M Pandey: Financial Management; Vikas Publication House Ltd., New Delhi.

## **LESSON: 10**

### **MANAGEMENT OF RECEIVABLES**

#### **STRUCTURE**

- 10.0 Objectives
- 10.1 Introduction
- 10.2 Meaning of Receivables
- 10.3 Objective of maintaining Receivables
- 10.4 Cost of maintaining Receivables
- 10.5 Factors determining size of investment in Receivables
- 10.6 Objectives of Receivables Management
- 10.7 Dimensions of Receivables Management
- 10.8 Summary
- 10.9 Keywords
- 10.10 Self Assessment Questions
- 10.11 Suggested Readings

#### **10.0 OBJECTIVES**

This lesson will make you conversant with:

- Meaning and cost of maintaining receivables
- Objectives of receivables management
- Formulation of credit policies
- Execution of credit policies
- Formulation of collection policy and its execution

#### **10.1 INTRODUCTION**



An efficient use of financial resources is necessary to avoid financial distress. Receivables result from credit sales. A concern is required to allow credit sales in order to expand its sales volume. It is not always possible to sell goods on a cash basis only. Thus receivables constitute a significant portion of current assets of a firm. But, for investment in receivables, a firm has to incur certain costs. Further, there is a risk of bad debts also. It is, therefore, very necessary to have a proper control and management of receivables.

## **10.2 MEANING OF RECEIVABLES**

Receivables represent an important component of current assets. They occupy the second important place after inventories and constitute a substantial portion of current assets in manufacturing concerns. Trade credit is considered to be an important marketing tool, acting as a bridge for the movement of goods from production and distribution stages to customers finally. A firm grants trade credit to maintain its sale from the hands of competitors and at the same time, to attract the potential customers to purchase its product at favourable terms. Trade credit arises only when the firm sells its products to the customers but does not receive immediate cash, i.e., at the time of sales. The trade credit, thus, creates receivables, which the firm is expected to collect in the near future. Receivables represent amounts owed to the firm as a result of sale of goods or services in the ordinary course of business. Receivables are also known as accounts receivable, trade receivables, customer receivables, debtors or book debts. The term 'receivables', in the strict accounting sense is defined as debt owed to the firm by customers arising from sale of goods or services in the ordinary course of business and include:

- (a) book debts or accounts,
- (b) notes and bills, and
- (c) accrued receivables.

The receivables arising out of credit have got three basic distinct characteristics:

1. They involve an element of risk which should carefully be studied since cash sales are riskless, whereas at the time of credit sales, cash is yet to be received.
2. They are based on present economic value. At the time of sale, the economic value of goods passes immediately, whereas the seller expects an equivalent benefit at a later date.

3. It implies futurity. The value of goods or services received by the buyer will be payable by him at a future date.

### **10.3 OBJECTIVES OF MAINTAINING RECEIVABLES**

The purpose of granting credit is to facilitate sales. It is valuable to customers as it augments their resources. It is particularly appealing to those customers who cannot borrow from other sources or find it very expensive or cumbersome to do so. In brief, the main objectives of maintaining receivables are:

(a) **Achieving growth in sales:** If a firm sells goods on credit, it will generally be in a position to sell more goods than if it insisted sells on immediate cash payment. This is because many customers are either not prepared or not in position to pay cash when they purchase the goods. They have, therefore, to be encouraged with the offer of credit terms. In the absence of such an offer, a firm may not be able to sell goods at a desired level. Receivables enable it to push its sales effectively in the market.

(b) **Increasing profits:** Increase in sales results in higher profits for the firm not only because of increase in the volume of sales but also because of the firm charging a higher margin of profit on credit sales as compared to cash sales.

(c) **Maintaining liquidity:** The concept of operating cycle explains the fact that receivables are one step ahead of inventories. So, it facilitates the task of maintaining liquidity in business because it can be easily converted into cash.

(d) **Meeting competition:** A firm may have to resort to granting of credit facilities to its customers because of similar facilities being granted by the competing firms to avoid the loss of sales from customers who would buy elsewhere if they did not receive the expected credit.

The overall objective of committing funds to accounts receivable is to generate a large flow of operating revenue and hence profit than what would be achieved in the absence of no such commitment.

### **10.4 COST OF MAINTAINING RECEIVABLES**

The allowing of credit to customers means giving of funds for the customer's use. The concern incurs the following costs of maintaining receivables:

### **1. Additional fund requirement for the company/capital cost**

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 which could have been put to some other use are taken).

### **2. 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 credit worthiness of debtors, etc.

### **3. Collection costs**

These are costs which the firm has to incur for collection of the amounts at the appropriate time from the customers.

### **4. 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.

## **10.5 FACTORS DETERMINING SIZE OF INVESTMENT IN RECEIVABLES**

It has already been pointed out that receivables are the major component of total current assets. Besides sales, a number of other factors also influence the size of investment in receivables. These factors are:

**1. Size of credit sales:** The primary factor in determining the volume of receivables is the volume of credit sales, Needless to mention that increase in credit sales causes a corresponding

increase in receivables and vice-versa. No doubt, the level of sales can be used to forecast changes in receivables, i.e., if a firm predicts an increase of 50% in its credit sales for the next period, it will experience probably also an increase of 50% in receivables.

**2. Credit policies:** The term 'credit policy' refers to those decision variables that influence the amount of trade credit, i.e., the investment in receivables. These variables include the quality of trade accounts to be accepted, the length of the credit period to be extended, the cash discount to be given and any special terms to be offered depending upon particular circumstances of the firm and the customer. A firm's credit policy, as a matter of fact, determines the amount of risk the firm is willing to undertake in its sales activities. If a firm has a lenient or a relatively liberal credit policy, it will experience a higher level of receivable as compared to a firm with a more rigid or stringent credit policy.

**3. Terms of Trade:** The size of receivables also depends upon the terms of trade on which goods are sold on credit to the customers. Under the terms of trade, credit period, period of cash discount and rate of cash discount are determined. Credit period is the period for which the goods are sold on credit to customers. If firm allows greater credit period, it will lead to increase in the amount of receivables. Cash discount is offered to the costumers for encouraging them to pay their dues before the expiry of the credit period.

## **10.6 OBJECTIVES OF RECEIVABLES MANAGEMENT**

Receivables management is the process of making decisions relating to investment in trade debtors. We know that certain investment in receivables is necessary to increase the sales and the profits of a firm. But at the same time investment in this asset involves cost considerations also. Further, there is always a risk of bad debts too. Thus, the main objective of receivables management is to maximise the returns on investment in receivables and to minimise risk of bad debts. To put it otherwise, it may be said that the basic objective of receivables management is to achieve a trade-off between their liquidity and profitability aspects. In fact, the receivables in a firm should be managed in a way that the sales are expanded to an extent where risk remains within the acceptable limits. In brief, the objectives of receivables management are enumerated as follows:

- (a) to maintain an optimum level of investment in receivables,

- (b) to obtain the optimum volume of sales,
- (c) to keep down the average collection period, and
- (d) to control the cost of credit allowed and to keep it at the minimum possible level.

As the above objectives seem to be a little contradictory, only a balanced approach in conflicting aspects can help to achieve the desired results. According to S.E. Bolton, the objective of receivables management is to promote sales and profits until that point is reached (i.e., optimum point) where the return on investments in further funding of receivable is less than the cost of funds raised to finance that additional credit (i.e. cost of capital).

## **10.7 DIMENSIONS OF RECEIVABLES MANAGEMENT**

The following aspects must receive attention of a finance manager desirous of improving efficiency of receivables management:

1. Formulation of credit policies,
2. Execution of credit policies, and
3. Formulation of collection policy and its execution.

### **1. Formulation of Credit Policies**

Credit policy is an important part of the overall strategy of a firm to market its products. Credit policy refers to such factors which affect the amount of investment in receivables and about which management has to take decision. The level of receivables in a firm depends on its credit policies along with other factors. A firm may follow a liberal or stringent credit policy. This aspect of receivables management is concerned with deciding about:

- a) Credit standards or the quality of trade accounts to be accepted.
- b) Length of credit period.
- c) Cash discount.
- d) Discount period.

The above facets of credit policies striving to find ways and means of reducing the volume of receivables without impeding the firm's sales potential are discussed below in the following paragraphs:

**a. Credit standards**

The basic criterion for extension of credit to customers is known as credit standard. On the basis of credit standards, it is determined to whom the goods are to be sold or not to be sold. When the credit standards of an enterprise are loose, the level of sales and receivables are likely to be high. As against this, when credit standards are relatively tight, the sales and receivables are likely to be relatively low. There are five C's of credit that influence the credit standard of an enterprise. These are character, capacity, capital, collateral and condition.

*Character* is the ingredient which is concerned with the probability that a customer will try to honour obligations. *Capacity* evaluation means judgement of the customer's ability to pay, gauged mainly by the customer's past business performance record. *Capital* is measured by the general financial position of the firm, indicated by ratio analysis. *Collateral* is represented by assets the customer is ready to pledge as security for the credit extended. *Condition* means the impact of general economic scene on the firm or the impact of special development in certain areas of the economy on the customer's ability to meet the obligation. Information about these factors is gathered from internal and external sources. The firm's previous experience with the customer is the main guide in this connection. Regarding a new customer, outside agencies such as banks, other dealers with whom the customer has his business terms can provide useful information. The credit manager can send a short questionnaire to the referees seeking the relevant information. Normally, bankers in India refuse to give detailed and unqualified credit reference. In some cases, the associations for specific industries maintain credit bureau which provides useful and authentic credit information for their members. Sometimes, the published financial statements can be examined to see the creditworthiness of a customer. Also many companies evaluate the credit worthiness of their customers by consulting salesmen or sales representatives. For this, salesman should also ascertain the potential sales which the company can make to the ultimate customers.

When an enterprise plans to liberalise its credit standards it should strive to strike a balance between the profits arising due to increased sales and the costs to be incurred on the increased sales caused thereby. The implication of credit standards relaxation can be explained with the help of the following illustration:

**Illustration I:** The current annual credit sales of an enterprise amount to ₹ 9,00,000 and the profit margin to 15% of sales. There is a proposal to lower down the credit standards that is likely to

result in a slowing in the average collection period from 30 days to 60 days. With this relaxation the sales are expected to increase by 15 per cent. At the present level of sales the production and selling costs amount to 80 per cent of sales. The variable production and selling cost of increased volume of sales will be 60 per cent of sales. Advise whether the company should relax its credit standards?

### **Solution**

To enable the company to take a right decision in this case a trade-off is to be found between the added profits and the required return on the additional investment in receivables. The following table gives us the required information:

#### **Relaxation of Credit Standards: Profits vs. Required Returns**

	₹
Profits on additional sales ( $₹1,35,000 \times 15\%$ )	20,250
Current average investment in receivables (cost)	
$(₹9,00,000/12) \times 80\%$	60,000
Average investment in receivables after credit standard relaxation (cost)	
$(₹9,00,000/6) \times 80\% +$	
$(₹1,35,000/6) \times 80\%$	1,38,000
Additional Investment in receivables ( $₹1,38,000 - 60,000$ )	78,000
Required return on additional investment ( $₹78,000 \times 15\%$ )	11,700

The above table reveals that the profits on additional sales amount to ₹ 20,250 and the amount of required return comes to ₹ 11,700. Thus, it will be desirable for the enterprise to resort to the proposed relaxation in its credit standards.

#### **b. Length of credit period**

The credit period refers to the length of the time allowed to customers to pay for their purchases. The decision regarding the length of credit period directly affects the volume of

investment in receivables and indirectly the net worth of the concern. Longer credit period may boost sales but it also increases investment in receivables and lowers the quality of trade credit. The credit period varies from industry to industry and in the same industry different firms, sometimes, offer different credit periods to different customers. While determining the credit period, a firm may take into account various factors, such as buyers' rate of stock turnover, competitors' approach, the nature of the commodity, margin of profit and availability of funds.

A firm in its hope for stimulating sales and so also its profits may offer more liberal credit facilities by lengthening credit period. But lengthening of credit period involves the cost. The cost that usually associated with lengthening credit period is a cost involved in tying up investment in receivables for a longer period of time that would otherwise have been invested elsewhere to earn income. Besides, the firm may experience increase in both its collection costs and bad debt losses. If additional cost associated with lengthening credit period is less than the increased earnings, the finance manager should liberalise credit policy by increasing credit period. There is no prudence in lengthening credit period if this involves more cost than revenue. The finance manager should strive for locating that period where additional earnings equate additional costs. This would be an optimal credit period for the firm. The following illustration will make the point more clear:

**Illustration 2:** Reliance Industries, which currently sells goods on a net 30 days terms, is considering the possibility of lengthening its credit period to 60 days. The current year sale is anticipated to be of the order of 2,00,000 units at a selling price of ₹10 each, with an average total unit cost at this volume of ₹9.50. Lengthening credit period is expected to boost sales by 25 per cent to 2,50,000 units. The company anticipated to produce additional units of sale at ₹9.00 per unit because it is hoped that overhead costs would be spread over higher volume of production resulting in cost reduction by 0.50 paise per unit. Management anticipates that as a result of increase in credit period from one month to two months collections costs would increase from ₹ 6,000 to ₹ 8,000 annually and bad debt losses would increase from 2 per cent to 2.5 per cent of sales. The finance manager of the company feels that any additional investment in receivable should earn to least 14 per cent before selling and administrative costs.

Should be Company lengthen its credit period?

**Solution**



The policy decision regarding lengthening of credit period from 30 days to 60 days calls for, in the first instance, calculation of average investment in receivables.

At the estimated sales of 2,50,000 units total manufacturing cost and average cost are:

$$\begin{aligned} \text{Current sales (units) x average total costs} &= 2,00,000 \times ₹9.50 \\ &= ₹19,00,000 \end{aligned}$$

$$\begin{aligned} \text{Increased sales x variable costs} &= 50,000 \times ₹ 9.00 \text{ (202)} \\ &= ₹4,50,000 \end{aligned}$$

$$\text{Total costs for manufacturing 2,50,000 units} = ₹23,50,000$$

$$\text{Average cost per unit} = ₹9.40$$

The average investment in receivables may be computed with the help of the following equation:

$$\text{Average investment in receivables} = \frac{\text{Annual sales}}{\text{Turnover of receivables}} \times \frac{\text{Average cost}}{\text{Selling price}}$$

When the above equation is substituted by figures given in Reliance Industries, the average investment in receivables is:

$$\begin{array}{cc} ₹ 20,00,000 & ₹ 9.50 \\ 12 & ₹ 10.00 \end{array}$$

The average investment in receivables under the proposed credit policy is =

$$\begin{array}{ccc} ₹ 25,00,000 & \times & ₹ 9.40 \\ 6 & \hline & & ₹ 10.00 \hline & & = ₹3,91,667 \end{array}$$

We are now in a position to compare the expected profits under each credit policy

	Net 30 days	Net 60 days
Sales (units)	2,00,000	2,50,000
Sales (₹)	₹ 20,00,000	₹ 25,00,000
Cost of goods sold ₹	₹ 19,00,000	₹ 23,50,000

Gross profit ₹	₹ 1,00,000	₹ 1,50,000
Less collection costs	6,000	8,000
Less bad debt losses	40,000	62,500
Net profit	₹ 54,000	₹ 89,500

(exclusive of selling and administrative expenses)

Thus, the additional investment necessary to generate ₹35,500 additional profits would be ₹2,33,334. The expected return on this investment is, therefore, 15.2 per cent. Since the rate of return is higher than the minimum expected return of 14 per cent, the company can afford to offer liberal credit terms by lengthening credit period from 30 days to 60 days.

### c. Cash Discount

A creditor grants cash discount to induce a debtor to make payment before the expiry of credit period. In fact, it is a premium on payment of debts before the date, and not a compensation for the so called prompt payment. The cash discount term indicates the rate of discount and the period for which the discount has been offered. Sometimes, a firm allows cash discount instead of extending the period of credit. Cash discount, if availed of, besides being profitable to a debtor, is beneficial to a creditor. It increases the turnover rate of working capital and enables the creditor firm to operate a higher volume of business with less investment in working capital. Cash discount prevents debtors from using trade credit as a source of working capital.

**Illustration 3:** Reliance Industries adopts net 60 days terms and desires to determine whether cash discount @ 2 per cent should be offered on payment within 10 days of the date of invoice. The finance manager hopes that this would result in reduction of collection period from two months to one month, and about 50 per cent of the customers would take advantage of cash discount. Should the Company offer cash discount?

### Solution

At this instance decision to offer cash discount involves matching of expected earnings on investment of funds freed up by speedy collections with cost of discount.

$$\begin{aligned} \text{Cost of discount in this case will be} &= ₹ 25,00,000 \times 0.50 \times 0.02 \\ &= ₹ 25,000 \end{aligned}$$

The average investment in receivables will decrease by

$$= ₹ 1,16,667 (2,33,334/2)$$

If ₹1,16,667 thus freed up by speedy collections is invested to earn desired rate of return of 14 per cent, the additional earnings will be ₹1,16,667 x 0.14 = ₹ 16,333. Since the cost of discount is higher than the additional earnings, it would be desirable to offer cash discount to customers.

#### **d. Discount Period**

Period of discount also influences average collection period of receivables. Thus, by lengthening discount period many customers who were not taking advantage of cash discount may be tempted to avail of this benefit. This would, therefore, shorten the collection period. However, there may be some customers who were availing of discount facility and making payment within discount period, will now postpone the payment until the expiry of lengthened discount period. Consequently, the firm's average collection period would increase. For example, if the firm allowing cash discount for payments within seven days now extends it to payments within fifteen days. There may be more customers availing discount and paying early but there will be those also who were paying earlier within seven days will now pay in fifteen days. It will increase the collection period of the concern. Hence, this decision involves matching of the effect on collection period with the increased cost associated with additional customers availing the discount.

### **2. Execution of Credit Policies**

After formulation of credit policies, the finance manager should execute these policies properly. Execution of credit policies calls for evaluation of credit applicants and financing of investment in receivables.

#### **1. Evaluation of Credit Applicants**

Mere determination of appropriate credit policy will not help to accomplish the overall objective of minimizing investment in receivables and reducing bad debt losses unless credit worthiness of applicants is evaluated to ensure that they conform to the credit standards prescribed by the firm. Credit evaluation process involves three steps, viz., gathering credit information about

the credit applicants, determining the credit worthiness of the applicants on the basis of information so collected and finally, taking decision to grant credit facilities.

**(a) Collecting credit information**

The first step in implementing credit policy will be to gather credit information about the customers. Two important factors that should be kept in mind while searching for credit information are cost and time. A firm cannot afford to spend a lot of money in investigation of some credit applicants particularly smaller ones and in such case the finance manager should take decision on the basis of limited information about the applicant. It is true that with larger expenditure on gathering information, there is greater possibility for the firm to reach better judgement of the credit worthiness of the applicant causing reduction in bad debt losses. But beyond a certain point additional costs in investigation outweigh the expected gains caused by reduction in bad debt losses. This again is a matter of matching incremental costs and revenues.

Further, how much time credit department of the firm will spend on analysis of credit applicant must also be considered by the finance manager. Spending a lot of time in investigation may be justified in case of new credit customers. It must, however, be remembered that the customer may not wait for long pending detailed credit investigation and turnover elsewhere for his requirements.

The sources from which credit information will be available should be ascertained. There are number of sources of credit information that lend insight into credit worthiness of the potential borrowers. It includes:

**(i) Banker's enquiry:** Since the customer maintains account in a bank, necessary information can be taken if, of course, the bank so allows. Normally, banks do not provide information directly to the inquirer. The same task can be done with the help of firm's bank. In India, practically, this source of information is not very useful because of the indifference of banks in providing information, i.e., bankers may be reluctant to disclose its customer's position.

**(ii) Trade Reference:** The firm may insist on the proposed customers to give the names of such firms as he has current dealings for the purpose of getting information about his

creditworthiness. This is, no doubt, a useful source of credit information without cost. The firm should take prompt and proper steps to seek information from the references whenever the trade references have been furnished. It may be contacted personally to obtain all relevant information required by the firm.

**(iii) Credit bureau reports:** In advanced countries, credit bureau organisations are employed in order to get comprehensive and correct information. They are specialised in providing credit information. No doubt, these are valuable sources for assessing the creditworthiness of proposed customers. There is an urgent need for such organisations in our country.

**(iv) Financial Statements:** Scrutinising the published financial statements (viz., Profit and Loss Account and Balance Sheet) of the proposed costumers, the financial condition and the creditworthiness can be assessed. For example, liquidity and solvency position can be judged with the help of accounting ratios, viz., Current Ratio, Liquid Ratio, etc. Creditors turnover ratio may also be tested.

**(v) Bazar Reports:** The information about the customers can also be obtained from the firms or individuals associated with the same type of trade or industry. Sometimes, a few traders may give wrong information's too. Therefore, this source should be used carefully.

**(vi) Other sources:** Other sources of credit information, especially for the large business ones, might be trade journals, periodicals, newspapers, trade directories, public records, such as income tax statements, sales tax returns, reports about auctions and decrees in Government gazette, registration, revenue and municipal records.

## **(b) Credit Investigation**

The credit information collected through above given methods gives an idea about the customer. There are certain things which need further investigation. With the added information the decision can be taken with confidence regarding credit extension to the customer. The further investigation as has been detailed by V.E. Ramamoorthy in the following areas:

- (i) The type of customer to ascertain whether new or existing.
- (ii) Business line of the customer, background and the trade risk related with the business.
- (iii) Kind of product dealing in – whether it is perishable, seasonal, durable, etc.

- (iv) Size of the order given by the customer along with the future volume of business expected to be had with him.
- (v) Credit policies and the practices of the company.

It should be noted that there is a component of cost involved in credit investigation. However, if a decision is taken without such an investigation, it may prove more expensive because of excessive of collection costs and likely losses caused by bad debts. From this it can be convincingly said that such an investigation should be conducted as long as the resultant speedy collections and prevention of bad debt losses are in excess of costs involved in such investigation.

After gathering the required information, the finance manager should analyse it to find out the credit worthiness of potential customers and also to see whether they satisfy the standards of the concern or not. The credit analysis will determine the degree of risk associated with the account, the capacity of the customer to borrow and his ability and willingness to pay. Therefore, proper evaluation of the creditworthiness of a customer is very vital, and in the ultimate analysis, it determines the success or failure of the credit policy. In selecting the credit risk the five C's – character, capacity, collateral, capital and conditions – play a very important role. If customer does not bear the desired credit character, the firm may incur a loss even in the case of a contract to sell on C.O.D. (cash on delivery) term. The selection of credit risk is, thus, a preventive measure and prevention is better than cure as the old adage goes.

**(c) Credit decision**

After determining credit worthiness of the applicant, the finance manager has to decide whether or not credit facilities should be provided to him. He will match the creditworthiness of the customer with the credit standards of the company. If the applicant is above or upto the standards, naturally credit facilities would be provided otherwise not. It is only in the marginal cases that such decisions are difficult to be made. In such cases, the benefit of extending the credit should be compared to the likely bad debt losses and then a decision should be taken. In case the customer's is below the company's credit standards, they should not be out rightly refused. Rather they should be offered some alternative facilities. A customer may be offered to pay on delivery of goods, invoices may be sent through bank and released after collecting dues or some third party

guarantee may be insisted. Such a course may help in retaining the customers at present and their dealings may help in reviewing their requests at a later date.

## **2. Financing Investments in receivables**

Since funds are tied in receivables, attempt should be made by the finance manager to reduce the amount of receivables and the period of its holding. In addition, the finance manager should make efforts to get receivables financed so that working capital needs are met in time. The banks allow raising of loan against security of receivables. While providing loans against accounts receivable the banks lay considerable emphasis on the quality of receivables and their size so as to determine the amount of loan that can be granted to the borrower. The banks usually stipulate which of the accounts are of sufficient quality to serve as collateral for a loan. Depending upon the quality of the receivables accepted and the financial strength of the borrower, a lender decides the percentage advance against the face value of pledged receivable. Generally, banks supply between 60 to 80 per cent of the amount of receivables as loans against their security. Another method of getting funds against receivables is their outright sale to the bank.

The bank will credit the amount to the party after deducting discount and will collect the money from the customers later. Here too, the bank will insist on quality receivables only. Besides banks, there may be other agencies which can buy receivables and pay cash for them. This facility is known as factoring. The factor will purchase only the accounts acceptable to him and may refuse purchase in certain cases. The factoring may be with or without recourse. If it is without recourse then any bad debt loss is taken up by the factor but if it is with recourse then bad debts losses will be recovered from the seller. The factor may suggest the costumers for whom he should extend this facility.

**Illustration 4:** A company wants to adopt strict collection policies. While going through its books the following details are revealed:

The enterprise is at present selling 20,000 units on credit at a price of ₹30 each, the variable cost per unit is ₹23 while the average cost per unit is ₹27. Average collection period is 56 days and the collection expenses amount to ₹ 8,000 and bad debts are 3 per cent.

If the policy of collection is tightened, a sum of ₹15,000 more will be required as collection charges. Bad debts will come down to 1 per cent and collection period will reduce to 40 days. Sales volume is expected to reduce by 400 units.

Advise the company whether it should implement the decision or not. Assume 20 per cent rate of return on investments.

### Solution

The decision on the issue should be given after undertaking cost- benefit analysis of the policy. The benefits in this case are accruing in the shape of reduced bad debts and reduced collection period. But the costs of implementing the suggestion are decrease in sales volume and additional collection charges. Thus, we will first find out the benefits and then costs to enable a comparison between the two:

#### Benefits:

(i) Bad Debts:

Under existing plant: 3% of ₹ 6,00,000	₹ 18,000
Under proposed plan: 1 % of ₹ 5,88,000	₹ 5,880
Benefits by way of reduced bad debts	₹ 12,120

(ii) Average Collection Period/Average Investment in Receivables:

	<u>Cost of Sales</u>	
Average Investment	=	Receivable turnover
		<u>20,000 x ₹ 27</u>
Under Existing Plan	=	$\frac{360}{56}$ ₹ 84,000
Under Proposed Plan	=	$\frac{(20,000 \times 27) - (400 \times 23)}{360/40}$



Benefits in Average Investment

₹ 25,022

With 20% rate of return on investments the company will be able to earn ₹ 5,004 on savings.

### **Costs**

(i) Sales Decline:

There is a decline of 400 units. This will result in a loss of

$$₹ 7 \times 400 = ₹ 2,800$$

(ii) Enhancement of collection charges:

Additional collection charges are likely to be ₹ 15,000

Thus, if the tightening of the collection policy is followed there will be a benefit of ₹ 17,124 i.e. (₹ 12,120 + ₹ 5,004). At the same time the costs will increase to ₹ 17,800 i.e. (₹ 2,800+15,000). Therefore, if the policy is followed it will result in a loss of ₹ 676 i.e. (₹ 17,800 - ₹ 17,124). So the policy should not be adopted as it involves more costs than benefits accruing therefrom.

### **3. Formulation of Collection Policy and Its Execution**

The purpose of every collection policy is to speed up the collection of dues. If collections are unnecessarily delayed, alternative sources of finance for sustaining production and sales are to be made and amount of bad debts will also increase. The collection procedures should always be well-administrated and established in clear-cut terms.

The collection policy should also devise the steps to be followed in collecting overdue amounts. The objective is to collect the dues and not to annoy the customer. The steps should be like (i) sending a reminder for payments, (ii) personal request through telephone, etc., (iii) personal visits to the customers, (iv) taking help of collecting agencies, and lastly (v) taking legal action. The last step should be taken only after exhausting all other means because it will have a bad impact on relations with customers. The genuine problems of customers should never be ignored while making collections. The aim should be to make collections and keep amiable relations with customers.

The collection of book debts can be monitored with the use of average collection period and aging schedule. The actual average collection period may be compared with the stated collection period to evaluate the efficiency of collection so that necessary corrective action can be taken if the need be. The aging schedule further highlights the debtors according to the age or length of time of the outstanding debtors.

**Illustration 5:** Bharat Ltd. decides to liberalise credit to increase its sales. The liberalised credit policy will bring additional sales of ₹3,00,000. The variable costs will be 60% of sales and there will be 10% risk for non-payment and 5% collection costs. Will the company benefit from the new credit policy?

**Solution**

	₹
Additional sales Revenue	3,00,000
Less: Variable Cost (60%)	1,80,000
Incremental Revenue	1,20,000
Less: 10% for non-payment risk	30,000
	90,000
Less: 5% for costs of collection	15,000
Additional Revenue from increased sales due to liberal credit policy	75,000

The company will be benefited from the new credit policy because the increase in revenue is more than the costs of providing additional credit. In fact, the profit of the company will increase by ₹ 75,000.

**10.8 SUMMARY**

Receivables are debt owed to the firm by customers arising sale of goods or services in the ordinary course of business. The important decision areas in receivable management are credit policies, credit terms and collection policies. Credit Policies involves a trade-off between profits

on additional sales that arise due to credit being extended on the one hand and cost of carrying the receivables and bad debt losses on the other. Credit terms have three components which are credit period, cash discount and cash discount period. The collection cost of the firm has to work in a manner that it does not create too much resentment amongst the customer

## 10.9 KEYWORDS

**Receivables:** It is defined as debt owed to the firm by customers arising from sale of goods or services in the ordinary course of business.

**Receivables Management:** It involves decision areas: credit standards, credit period, cash discounts and collection procedures.

**Collection Policy:** It is the procedures passed to collect amount receivables, when they become due.

**Credit Standards:** It refers to the minimum criteria for the extension of credit to a customer.

**Credit Terms:** It means the stipulations under which goods or services are sold on credit.

## 10.10 SELF ASSESSMENT QUESTIONS

1. Discuss the factors that determine the firm's investment in receivables.
2. What is the basic reason for offering cash discount? Discuss the factors which should be taken into account while formulating suitable discount policy for the firm.
3. What are the five 'Cs' of credit analysis? How do they relate to the process of evaluating credit risk?
4. What do you mean by credit evaluation? Discuss the different steps of credit evaluation.
5. What is the principal objective of collection policy? Bring out the factors which should be kept in mind while designing collection policy of firm.
6. Diamond Steel Ltd. has at present credit sales of ₹16 lakh. The sale price per unit is ₹50; the variable cost is ₹40 per unit and the average cost per unit is ₹45. The firm's average age of accounts receivable is 60 days.

The management is planning to tighten credit standards. It will result in drop in sales volume to ₹ 14 lakhs and the average age of accounts receivable to 30 days. Assume a 20% rate of return, should be management adopt the new policy?

7. The Relax Indian Ltd. is thinking to liberalise its credit policy. It sells at present 10,000 units at a price of ₹200 per unit. The variable cost per unit is ₹176 and the average cost per unit is ₹194. The company's entire sale is on credit. The average collection period is 45 days. A liberal credit policy is likely to augment sales by 20% and the average collection period will go up to 60 days. Assuming 20% return, should the firm liberalise its credit standards?

### **10.11 SUGGESTED READINGS**

44. Prasanna Chandra: Investment Analysis and Portfolio Management; McGraw Hill Education (India) Pvt. Ltd., New Delhi.
45. M Y Khan & P K Jain: Basic Financial Management; McGraw Hill Education (India) Pvt Ltd., New Delhi.
46. R. P. Rustagi: Financial Management–Theory, Concepts and Problems; Taxmann Publications (P) Ltd., New Delhi.
47. I M Pandey: Financial Management; Vikas Publication House Ltd., New Delhi.
48. Eugene F Brigham & Michael C Ehrhardt: Financial Management– Theory and Practice; Cengage Learning (India) Pvt. Ltd., New Delhi.

## **LESSON: 11**

### **INVENTORY MANAGEMENT**

#### **STRUCTURE**

- 11.0 Objectives
- 11.1 Introduction
- 11.2 Meaning of Inventory
- 11.3 Benefits of Holding Inventories
- 11.4 Risks and Costs Associated with Inventories
- 11.5 Objectives of Inventory Management
- 11.6 Techniques of Inventory Management
- 11.7 Problems in Inventory Management
- 11.8 Financial Manager and Inventory Management
- 11.9 Summary
- 11.10 Keywords
- 11.11 Self Assessment Question
- 11.12 Suggested Readings

#### **11.0 OBJECTIVES**

After going through this lesson, you will be able to:

- Understand the meaning of inventory.
- Explain the benefits as well as objectives of inventory management.
- Discuss the various techniques of inventory management.

#### **11.1 INTRODUCTION**

Inventories are assets of the firm, and as such they represent an investment. Because such investment requires a commitment of funds, managers must ensure that the firm maintains inventories at the correct level. If they become too large, the firm loses the opportunity to employ

those funds more effectively. Similarly, if they are too small, the firm may lose sales. Thus, there is an optimal level of inventories and there is an economic order quantity model for determining the correct level of inventory.

Inventories, like receivables, are a significant portion of most firms' assets and, accordingly, require substantial investments. To keep these investments from becoming unnecessarily large, inventories must be managed efficiently.

## **11.2 MEANING AND NATURE OF INVENTORY**

The term 'inventory' refers to the stockpile of the product a firm is offering for sale and the components that make up the product. In other words, inventory is composed of assets that will be sold in the future in the normal course of business operations. The assets which firms store as inventory in anticipation of needs are raw materials, work in process (semi-finished goods), consumables, finished goods and spares. The raw material inventories contain items that are purchased by the firm from others and are converted into finished product through manufacturing (production) process. They are an important part of the final product. The work in progress is normally, partially or semi-finished goods, at the various stages of production in a multi-stage production process. Finished goods represent final or completed products, which are available for sale. The inventory of such goods consists of items that have been produced but are yet to be sold. Inventory, as a current asset, differs from other current assets because it is not only finance managers who alone are involved here. Rather, all the functional areas in finance, marketing, production and purchasing are involved.

Inventory includes the following things:

**(a) Raw Material.** Raw materials form a major input into the organization.

They are required to carry out production activities uninterruptedly.

**(b) Work-in-Progress.** The work-in-progress is that stage of stocks which are in between raw materials and finished goods.

**(c) Consumables.** These are the materials which are needed to smoothen the process of production. These materials do not directly enter production but they act as catalysts, etc. Consumables may be classified according to their consumption and criticality. Generally, consumable stores do not create any supply problem and form a small part of production cost.

There can be instances where these materials may account for much value than the raw materials. The fuel oil may form a substantial part of cost.

**(d) Finished goods.** These are the goods which are ready for the consumers.

The stock of finished goods provides a buffer between production and market. The purpose of maintaining inventory is to ensure proper supply of goods to customers.

**(e) Spares.** Spares also form a part of inventory. The Consumption pattern of raw materials, consumables, finished goods are different from that of spares. The stocking policies of spares are different from industry to industry. Some industries like transport will require more spares than the other concerns. The costly spare parts like engines, maintenance spares etc. are not discarded after use, rather they are kept in ready position for further use. All decisions about spares are based on the financial cost of inventory on such spares and the costs that may arise due to their non-availability.

The quantity and value of the above three kinds of inventories differ depending upon the nature of the business. For example, a manufacturer will have levels of all the three kind of inventories. While a retailer or a wholesaler will have a high level of inventories of finished goods but will have no inventories of raw materials or work-in-process. Moreover, depending upon the nature of the business, inventories may be durable or non-durable, valuable or inexpensive, perishable or non-perishable etc.

### **11.3 BENEFITS OF HOLDING INVENTORIES**

Holding of inventories has costs as well as benefits associated with it. While determining the optimal level of inventories, the financial manager must consider the necessity of holding inventory and costs thereof. The following are some of the benefits or reasons for holding inventories.

**1. Quick Service:** Customers desire a prompt fulfilment of orders. A firm will have to make the goods available for sale. In the event of its not being able to offer quick service to customers, the latter are likely to get their orders executed by competitors.

**2. Uninterrupted production schedule:** Every manufacturing firm must have sufficient stock of raw materials in order to have the regular and uninterrupted production schedule. If there is stock out of raw material at any stage of production process, then the whole production process

may come to a halt. This may result in customer dissatisfaction as the goods cannot be delivered in time. Moreover, the fixed costs will continue to be incurred even if there is not production.

**3. Discounts:** A firm is in a position to take advantage of trade discounts by placing bulk orders with suppliers. A proper proportion will have to be maintained between the cost of maintaining inventories and the discount that is likely to be gained.

**4. Reduction in Order Costs:** Each order of supply of goods or materials carries certain costs. If the number of orders is reduced, it is possible to economise on these costs as the procedure involving each order need not be repeated each time.

**5. Protection against shortages:** Adequate inventories protect a firm against the shortages that would result in production stoppages and considerable losses.

#### **11.4 RISKS AND COSTS ASSOCIATED WITH INVENTORIES**

The costs of holding inventories can be put as follows:

**1. Materials Cost:** This includes the cost of purchasing the goods, transportation and handling charges less any discount allowed by the supplier of goods.

**2. Ordering cost:** The costs of ordering include the cost of acquisition of inventories. It is the cost of preparation and execution of an order, including cost of paper work and communicating with the supplier. There is always minimum cost involved whenever an order for replenishment of goods is placed. The total annual cost of ordering is equal to the cost per order multiplied by the number of orders placed in a year. The number of orders determines the average inventory being held by the firm. Therefore, the total order cost is inversely related to the average inventory of the firm.

**3. Carrying Costs:** This includes the expenses for storing the goods. It comprises storage costs, insurance costs, spoilage costs, costs of funds tied up in inventories, etc. The funds used in the purchase/production of inventories have an opportunity cost i.e., the income which could have been earned by investing these funds elsewhere. The ordering cost may be referred as the "cost of acquiring" while the inventory carrying cost as "cost of holding" inventory. The cost of acquiring decreases while the cost of holding increases with very increase in the quantity of purchase lot. A balance is therefore struck between the two opposing factors.



**4. Costs of Stock-outs:** A stock-out is a situation when the firm is not having units of an item in store but there is a demand for that either from the customers or the production department. The stock-out refers to demand for an item whose inventory level has already reduced to zero or insufficient level. It may be noted that the stock out does not appear if the item is not demanded even if the inventory level has fallen to zero. There is always a cost of stock-out in the sense that the firm faces a situation of lost sales or orders not honoured. If the item demanded is not in stock, the customer may buy the item/good someone else. This results in loss of goodwill too.

### **11.5 OBJECTIVES OF INVENTORY MANAGEMENT**

Inventory management covers a large number of issues including fixation of minimum and maximum levels; determining the size of the inventory to be carried; deciding about the issue price policy; setting up receipt and inspection procedure; determining the economic order quantity; and providing proper storage facilities. However, the firm is faced with the problem of meeting two conflicting needs while dealing with these issues.

1. To maintain a large size of inventory for efficient and smooth production and sales operations.
2. To maintain a minimum investment in inventories to maximise profitability. Both 'excessive' and 'inadequate' inventories are not desirable. There are two danger points which the firm should operate. The objective of inventory management should be to determine and maintain optimum level of inventory investment. This level of inventory will lie between two danger points of excessive and inadequate inventories. More specifically, the following are the objectives of inventory management.
  - (i) To have stocks available as and when they are required;
  - (ii) To utilise available store space, but prevent stock levels from exceeding space availability;
  - (iii) To meet a high percentage of demand without creating excess stock levels. In other words, "Neither to over-stock nor to run out" is the best policy;
  - (iv) To provide, on item-by-item basis, for re-order points and order such quantity as would ensure that the aggregate results conform with the constraints and objectives of inventory control;

- (v) To decide which item to stock and which item to procure on demand;
- (vi) To ensure an adequate supply of materials, stores, spares, etc, minimise stockouts and shortages; and avoid costly interruption in operations;
- (vii) To enable the management to make costs and consumption comparisons between operations and periods;
- (viii) Minimising the inventory carrying costs; and
- (ix) To ensure investment in inventories at the optimum level.

## **11.6 TECHNIQUES OF INVENTORY MANAGEMENT**

Effective inventory management requires an effective control over inventories. Inventory control refers to a system which ensures supply of required quantity and quality of inventories at the required time and prevent unnecessary investment in inventories. The techniques of inventory control/inventory management are as follows:

**1. Determination of Economic Order Quantity:** Determination of the quantity for which the order should be placed is one of the important problems concerned with efficient inventory management. If the firm is buying raw materials, it has to decide lots in which it has to be purchased on each replenishment. Determining an optimum inventory level involves two types of costs: (a) ordering costs and (b) carrying costs. The economic order quantity is that inventory level which minimises the total of ordering and carrying costs.

**(a) Ordering costs:** It has been already discussed that the cost of placing an order and securing the supplies is termed as ordering cost. They include costs incurred in the following activities: requisitioning, purchase ordering, transporting, receiving, inspecting and storing. Ordering costs increase in proportion to the number of orders placed. The clerical and staff costs, however, do not have to vary in proportion to the number of orders placed, and one view is that so long as they are committed costs, they need not be reckoned in computing ordering cost.

If the number of orders are drastically reduced, the clerical and staff force released now can be used in other departments. Thus, these costs may be included in the ordering costs.

**(b) Carrying Costs:** They are costs of keeping a given level of inventory in stock. They include storage, insurance, taxes, deterioration and obsolescence. The storage costs comprise cost of storage space (warehousing cost), stores handling costs and clerical and staff service costs incurred in recording and providing special facilities such as fencing, lines, racks, etc. Carrying costs vary with inventory size. The behaviour is contrary to that of ordering costs which decline with increase in inventory size. The economic size of inventory would thus depend on trade-off between carrying costs and ordering costs. Actually, the economic order quantity is determined at a level for which the aggregate of two costs is the minimum.

$$\text{Formula for determining EOQ} = \sqrt{\frac{2U \times p}{S}}$$

Where,

EOQ = Economic ordering quantity

U = Quantity (units) purchased in a year (month)

P = Cost of placing an order

S = Annual (Monthly) cost of storage of one unit.

**Illustration 1:** Sumit, a colour television manufacturer, purchases 1,600 units of a certain component from Amit. His annual usage is 1,600 units. The order placing cost is ₹ 100 and cost of carrying one unit for a year is ₹ 8. Calculate the Economic Ordering Quantity (EOQ) and tabulate your results.

$$\begin{aligned} \text{EOQ} &= \sqrt{\frac{2U \times p}{S}} \\ &= \sqrt{\frac{2 \times 1,600 \times 100}{8}} = \sqrt{40,000} = 200 \text{ units} \end{aligned}$$

**Table 1: Economic Order Quantity**

<b>Annual Requirement</b>	<b>Order Per Year</b>	<b>Units Per Order</b>	<b>Order Placing Costs</b>	<b>Average Inventory</b>	<b>Carrying Costs (₹)</b>	<b>Total Annual Cost</b>
1,600	1	1,600	100	800	6,400	6,500
	2	800	200	400	3,200	3,400
	3	533	300	267	2,136	2,436
	4	400	400	200	1,600	2,000
	5	320	500	160	1,280	1,780
	6	267	600	134	1,075	1,672
	7	229	700	115	920	1,620
	8	200	800	100	800	1,600
	9	178	900	89	762	1,612
	10	160	1000	80	640	1,640

It is obvious from the above table that total cost is the minimum when each order is of 200 units. Therefore, economic ordering quantity is 200 units only.

### **Assumptions**

The EOQ model, as a technique to determine the economic order quantity, is based on three restrictive assumptions, namely:

- (i) The firm knows with certainty the annual usage (consumption) of a particular item of inventory.
- (ii) The rate at which the firm uses inventory is steady over time.
- (iii) The orders placed to replenish inventory stocks are received at exactly that point in time when inventories reach zero. In addition, it may also be assumed that ordering and carrying costs are constant over the range of possible inventory levels being considered.

**2. Determination of Optimum Production Quantity:** The use of the EOQ model can be extended to production runs to determine the optimum size of manufacture. Two costs involved are ordering costs (set-up costs) and carrying costs. Production costs or set-up costs will reduce with bulk production runs, but carrying costs will increase as large stocks of manufactured inventories will be held. The economic production size will be the one where the total of set-up and carrying costs is minimum.

The formula for EOQ can also be used for determining the optimum production quantity as given below:

$$EPQ = \frac{\sqrt{2U \times P}}{S}$$

Where EPQ is economic production quantity, U is Annual (monthly) output, P is set-up cost for each production run and S is the cost of carrying inventory per unit per annum (per month).

**Illustration 2:** Calculate the optimum production quantity per production run from the following information:

Estimated annual production	40,000 units
Set-up cost per production run	₹ 50
Carrying cost per unit per annum	₹ 1

**Solution**

$$\begin{aligned}
 EPQ &= \frac{\sqrt{2U \times P}}{S} \\
 &= \frac{\sqrt{2 \times 40,000 \times 50}}{1} \\
 &= 2000 \text{ units per production run.}
 \end{aligned}$$

**Determination of Re-order Level:** The EOQ provides an answer to the question: how much inventory should be ordered in one lot? Another important question pertaining to efficient inventory management is: when should the order to procure inventory be placed? This aspect of inventory management is covered under the re-order point problem.

The re-order point is stated in terms of the level of inventory at which an order should be placed for replenishing the current stock of inventory. In other words, re-order point may be defined as that level of inventory when fresh order should be placed with the suppliers for procuring additional inventory equal to the economic order quantity.

In order to determine reorder level, information is required about two things namely (i) the lead time and (ii) the usage rate.

The term 'Lead Time' refers to the time normally taken in receiving the delivery of inventory after the order has been placed. In case there is no uncertainty about the usage rate and the lead time, the order level can be determined by simply applying the following formula:

Re-order level = Average usage x Lead Time

For example, if the lead time is 3 weeks and the average usage is 50 units per week, the reorder level can be computed as follows:

Reorder level: Lead time x Average usage

= 3 weeks x 50 units

= 150 units.

One can note that if the economic order quantity in the above case is 500 units and there is no lead time, the economic order quantity would have been sufficient for 10 weeks and the order would have been placed only at the end of the 10th week- the time when the recorded quantity reaches the zero level.

Since in the above problem, the lead time is three weeks and, therefore, the order should be placed at the end of the 7th week when only 150 units are left.

**Safety Stock:** The re-order point is computed under the assumption of certainty. But it is difficult to predict usage and lead time accurately. The demand for material may fluctuate from day to day or from week to week. Similarly, the actual delivery time may be different from the normal lead time. If the actual usage increases or the delivery of inventory is delayed, the firm can face a problem of stock-out. Therefore, in order to guard against the stock-out, the firm may maintain a safety stock-some minimum or buffer inventory as cushion against expected increased usage

and/or delay in delivery time. The level of safety stock can be calculated by applying the following formula:

Safety Stock = Average Usage x Period of Safety Stock.

For example, if the usage rate is 100 units per week, and the firm wants to hold sufficient inventory for at least one week of production the amount of safety stock would be 100 units.

The formula for determining the reorder level when safety stock is maintained will be as follows:

Reorder level = Lead Time x Average usage + safety stock

**Illustration 3:** From the following data determine (a) Safety Stock, (b) Reorder level and (c) Maximum level in respect of material 'M'.

Economic Order Quantity	1000 units
Lead Time	3 weeks
Weekly usages	100 units
Weeks of safety stock desired by the firm	2 weeks

**Solution**

(a) Safety Stock level = Average usage x period of safety stock  
= 100 units x 2 = 200 units

(b) Reorder level = Lead time x Average Usage + Safety stock  
= (3 x 100) + 200 = 500 units

(c) Maximum inventory = EOQ + Safety Stock  
= 1000 units + 200 units = 1200 units.

**3. ABC Classification:** An ABC analysis offers an important solution to the problem of a scientific planning and control of inventories, and is an important technique of inventory

management. It is based upon the value of different items constituting an inventory. It may be concerned with several items - raw materials, purchases and self-fabricated component parts, sub-assemblies, factory supplies, office supplies, tools, machinery and handling equipment items. An inventory may be differentiated on the basis of bulk, size, weight, usage, value, durability, availability, etc., and should be controlled with due weightage to differential characteristics. The idea underlying an ABC analysis is in this recognition of the principle that some items of inventory are more important than others. Thus, items are classified under broad categories -A, B and C. The ABC technique enables an enterprise to keep its investment low and avoid stock- outs of critical items. Its objective is to reduce the minimum stock as well as the working stock.

Items under category A constitute a small percentage of the total volume, but account for a large percentage of the product value of a unit. A large glossary of items entering a bulk of the total volume and accounting for an insignificant product value is placed under class C. Items under class B constitute a moderate class which are neither substantial nor insignificant in relation to the product value of a unit. Thus, B group stands mid-way. It deserves less attention than A but more than C. It can be controlled by employing less sophisticated techniques.

The function of inventory management is to properly classify all the inventory items into one of these three groups. Inventory surveys in general have shown the following trends regarding the components of inventory of manufacturing organisations:

<b>Category</b>	<b>% of total value</b>	<b>No. of items (%)</b>
A	70	10
B	20	35
C	10	55

The advantages of ABC analysis are as follows:

- (i) It ensures closer control on costly items in which a large amount of capital has been invested.
- (ii) It helps in developing a scientific method of controlling inventories, clerical costs are reduced and stock is maintained at optimum level.



- (iii) 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.

However, the ABC system suffers from a serious limitation. Under this system, the items are analysed according to their value and not according to their importance in the production process. It may create sometimes problems. For instance, an item may not be very costly and hence it may have been put in category C. But this item may be very important for production process because of its scarcity. This type of item requires utmost attention of the management though according to ABC system it is not advisable to do so. Therefore, the technique of ABC analysis should be followed cautiously not blindly.

#### **Illustration 4**

From the following information pertaining to inventory items of a firm, draw a plan of ABC classification

<b>Item</b>	<b>Average no. of units in inventory</b>	<b>Average Cost per unit (₹)</b>
1	11,500	7.10
2	24,000	3.00
3	38,000	1.50
4	7,000	5.00
5	4,100	6.20
6	40,000	0.50
7	1,500	10.00
8	600	22.00
9	60,000	0.20
10	29,000	0.40
11	3,000	3.50
12	300	8.00

## Solution

The required plan of ABC selective control is presented in Table 2

**Table 2: ABC Classification**

Item	Units	% of total		Units Cost	Total cost	% of total	Category
1	11,500	5.3		7.10	81,650	23.0	
2	24,000	10.9	33.6	3.00	72,000	20.2	59.2%A
3	38,000	17.4		1.50	57,000	16.0	
4	7,000	3.2		5.00	35,000	9.8	
5	4,100	1.9		6.20	25,420	7.1	
6	40,000	18.3	24.1	0.50	20,000	5.6	26.8%B
7	1,500	0.7		10.00	15,000	4.2	
8	600	0.3		22.00	13,200	3.7	
9	60,000	27.4		0.20	12,000	3.4	
10	29,000	13.2	42.4	0.40	11,600	3.3	14.1%C
11	3,000	1.4		3.50	10,500	3.0	
12	300	0.1		8.00	2,400	0.7	

**4. Ratio Analysis in Inventory Management:** Inventory turnover ratios are also calculated to minimise the investment in inventories. Turnover ratio can be calculated regarding each item of inventory on the basis of the following formula:

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of goods consumed/sold during the period}}{\text{Average inventory held during the period}}$$

For example, if the annual sale is of 208000 units and the average inventory held during the year is 20000 units, the inventory turnover ratio comes to 10.4.

A high turnover ratio is usually indicative of efficient operations, provided that the unprofitable out-of-stock conditions do not result from a fast rate of sales at a dangerously low level of inventory. The turnover ratio affects a number of areas of a business. First, a satisfactory turnover ratio reduces "markdowns" of damaged merchandise which has been "lying around". Secondly, a product which has a good turnover rate is comparatively fresh product for the customer. Thirdly, items which turnover fast cost less in storage. Last but not the least use of

calculating a turnover ratio is in the area of sales. The selling cost per unit on fast turnover items is low. This manifests in a greater contribution to net profit.

**5. Aging Schedule:** Classification of the inventories according to age also helps in identifying inventories which are moving slowly into production of sales. This requires identifying the data of purchase/manufacture of each item of the inventory and classifying them as shown in the table below:

**Table 3: Aging schedule of Inventories as on 31, Dec. 2018**

Age (in days)	Date of purchase/manufacture	Amount (₹)	Percentage to total
0-15	Dec. 18	8,000	20
16-30	Dec. 14	4,000	10
31-45	Nov. 27	2,000	5
46-60	Nov. 10	20,000	50
61 and above	Oct. 26	6,000	15
	Total	40,000	100

The above table shows that 50% of the inventory is of the age group of 46-60 days. In case steps are not taken to clear the inventories, it is possible that more than 50% inventories may suffer deterioration in its value or may even become obsolete.

## 11.7 PROBLEMS IN INVENTORY MANAGEMENT

The techniques of inventory management, discussed above, are very useful in determining the optimum level of inventory and finding answer to the problems of the economic order quantity, the re-order point and the safety stock. These techniques are very essential to economise the use of resources by minimising the total inventory cost. The inventory management involves a number of problems. Some of these are given below:

- (i) Knowledge of demand, certainty, risk and uncertainty;
- (ii) Method of obtaining a commodity;
- (iii) The decision process; and
- (iv) Time lag in receiving on order: Constant time lag or probability distribution.

An analysis of inventory problems is fundamentally based on a very simple, common sense observation - that in any genuine inventory problem whatsoever, there must be 'opposing costs'.

By this we may think simply that there is a cost associated with doing "too large" and there is a cost associated with doing "too little". Sometime there are several such costs, but there must always be at least one in each direction.

## **11.8 FINANCIAL MANAGER AND INVENTORY MANAGEMENT**

Although the financial manager is not directly concerned with inventory policies, yet he cannot ignore them since they directly affect the financial needs of the firm to a significant extent. It is, therefore, necessary for the financial manager to get familiar with ways to control inventories effectively so that there can be efficient allocation of funds. He should make all-out efforts to reduce lead time, regulate usage and minimise the safety stock. In case he does so, he will be in a position to reduce investment in inventories to the optimum level and leave sufficient funds for more profitable channels which will ultimately result in maximisation of the shareholders' wealth.

## **11.9 SUMMARY**

Inventory is composed of assets that will be sold in the future in the normal course of business operations. Inventories provide a 'buffer' between purchasing, producing and marketing goods. Five types of inventories may be identified which are raw material inventory, stores and work-in-process inventory, consumables and finished goods inventory. The main objective of inventory management is to achieve maximum efficiency in production and sales with the minimum investment in inventory. Minimum level indicates the lowest figure of inventory balance which must be maintained in hand at all times, so that there is no stoppage of production. In ABC Analysis, the items are divided into three categories according to their importance, value and frequency of replenishment during a period. Economic Order Quantity (EOQ) is the order size for some particular inventory item that results in lowest total inventory cost for the period.

## **11.10 KEYWORDS**

**Inventory:** The stockpile of the products a firm is offering for sales and the components that make up the product.

**Raw materials:** It is the input that is converted into finished goods through a manufacturing or conversion process.

**Work-in-progress:** It is the stage of stocks between raw materials and finished goods.

**Economic Order Quantity (EOQ):** It refers to that level of inventory at which the total cost of inventory is minimum.

### **11.11 SELF ASSESSMENT QUESTIONS**

1. "There are two dangerous situations that management should usually avoid in controlling inventories". Explain.
2. Why is inventory management important? Explain objectives of inventory management.
3. Define the economic order quantity. How is it computed?
4. What are ordering and carrying costs? What is their role in inventory control?
5. Write notes on the following:  
(a) Safety stock (b) Reorder point (c) Lead time (d) Aging Schedule of inventories.
6. Illustrate with an example and graph the ABC analysis.
7. The finance department of a corporation provides the following information:
  - (i) The carrying costs per unit of inventory are ₹10
  - (ii) The fixed costs per order are ₹ 20
  - (iii) The number of units required is 30,000 per year.Determine the economic order quantity (EOQ), total number of orders in a year and the time gap between two orders.
8. ABC company buys an item costing ₹125 each in lots of 500 boxes which is a 3 months supply and the ordering cost is ₹150. The inventory carrying cost is estimated at 20% of unit value. What is the total annual cost of the existing inventory policy? How much money could be saved by employing the economic order quantity?

### **11.12 SUGGESTED READINGS**

49. M Y Khan & P K Jain: Basic Financial Management; McGraw Hill Education (India) Pvt Ltd., New Delhi.

50. R. P. Rustagi: Financial Management–Theory, Concepts and Problems; Taxmann Publications (P) Ltd., New Delhi.
51. Prasanna Chandra: Investment Analysis and Portfolio Management; McGraw Hill Education (India) Pvt. Ltd., New Delhi.
52. I M Pandey: Financial Management; Vikas Publication House Ltd., New Delhi.
53. Eugene F Brigham & Michael C Ehrhardt: Financial Management– Theory and Practice; Cengage Learning (India) Pvt. Ltd., New Delhi.

## LESSON: 12

### DIVIDEND DECISION AND FACTORS AFFECTING DIVIDEND POLICY

#### STRUCTURE

- 12.0 Objectives
- 12.1 Introduction
- 12.2 Meaning of Dividend
- 12.3 Nature of Dividend Decision
- 12.4 Factors affecting Dividend Policy
- 12.5 Types of Dividend Policy
- 12.6 Forms of Dividends
- 12.7 Dividend Policy in Practice
- 12.8 Summary
- 12.9 Keywords
- 12.10 Self Assessment Practice
- 12.11 Suggested Readings

#### 12.0 OBJECTIVES

After reading this lesson, you will know about:

- Meaning of dividend.
- Nature of dividend decision.
- Determinants of dividend policy.

## **12.1 INTRODUCTION**

Dividends refer to that portion of a firm's net earnings which are paid out to shareholders. We will focus on dividends paid to ordinary shareholders because holders of preference shares are entitled to a stipulated rate of dividend. Since dividends are paid out of profits, the alternative to the payment of dividends is the retention of earnings/profits. The retained earnings constitute to easily accessible important source of financing in investment requirements of the firm. Thus retained earnings and cash dividends have got inverse relationship between them: larger dividends, lesser dividends; smaller retentions, larger dividends. Thus the alternative uses of dividends and retained earnings – are competitive and conflicting.

## **12.2 MEANING OF DIVIDEND**

The term 'dividend' refers to that part of profits of a firm which is distributed by the company among its shareholders. It is the reward offered by the company to its shareholders for the investments made by them in the shares of the company. The investors are interested in earning the maximum return on their investments and to maximise their wealth. A company, on the other hand, needs to provide funds to finance its long-term growth. If a company pays out as dividend, most of what it earns, then for business requirements and further expansion it will have to depend upon outside resources such as issuing of debt or new shares. Since dividend is the right of shareholders of a company to participate in the profits and surplus of the company for their investment in the share capital of the company, the company should therefore distribute a reasonable amount as dividends to its members and retain the rest for its growth and survival.

## **12.3 NATURE OF DIVIDEND DECISION**

When dividend decision is treated as a financing decision, the net earnings of the firm may be considered as a source of long-term funds. With this approach, dividends will be paid only when the firm does not have profitable investment opportunities. The firm grows at a faster rate when it accepts highly profitable investment projects. External equity could be raised to finance investments. But the retained earnings are preferable because, unlike external equity, they do not involve any floatation cost. The distribution of cash dividends causes a reduction in internal funds available to finance profitable investments opportunities, and thus, either constrains growth or requires the firm to look for other costly sources of financing.



One may argue that capital markets are not perfect, Therefore, shareholder are not indifferent between dividends and retained earnings. Because of the market imperfections and uncertainty, shareholders may give a higher value to near dividends than the future dividends and capital gains. Thus the payment of dividends may significantly affect the market price of the shares. Higher dividends increase the value of the shares and low dividends reduce this value. In order to maximise the wealth under uncertainty, the firm must pay enough dividends to satisfy investors.

The management of a firm while evolving a dividend policy must strike a proper balance between the above mentioned two approaches. When the firm increases the retained portion of net earnings. Shareholders' dividends decrease and consequently the market price may be adversely affected. But the use of retained earnings to finance profitable investments will increase the future earnings per share. On the other hand, when dividends are increased, though there may be a favourable reaction in the stock markets, but the firm may have to forego some investment opportunities for want of funds and consequently, the future earnings per share may decrease. Therefore, management should develop such a dividend policy which divides the net earnings into dividends and retained earnings in an optimum way to achieve the objective of maximisation the wealth of the shareholders. The development of such a policy will be greatly influenced by investment opportunities available to the firm and the value of dividends as against capital gains to the shareholders. The other possible aspect of the dividend policy relates to the stability of dividends, the constraints on paying dividends and the forms of dividends.

#### **12.4 FACTORS AFFECTING DIVIDEND POLICY**

The payment of dividend involves some legal as well as financial considerations. It is difficult to determine the general dividend policy which can be followed by different firms at different times because the dividend decision has to be taken considering the special circumstances of an individual case. The following are the important factors which determine the dividend policy of a firm:

**1. Legal Restrictions.** Legal provisions relating to dividends as laid down in the Companies Act, are significant because they lay down a framework within which dividend policy is formulated.

**2. Magnitude and Trend of Earnings.** The amount and trend of earnings is an important aspect of dividend policy. It is rather the starting point of the dividend policy.

**3. Desire and Type of Shareholders.** The directors should give the importance to the desires of shareholders in the declaration of dividends as they are the representatives of shareholders. Desires of shareholders for dividends depend upon their economic status.

**4. Nature of Industry.** Nature of industry to which the company is engaged also considerably affects the dividend policy. Certain industries have a comparatively steady and stable demand irrespective of the prevailing economic conditions.

**5. Age of the Company.** The age of the company also influences the dividend decision of a company. A newly established concern has to limit payment of dividend and retain substantial part of earnings for financing its future growth and development, while older companies which have established sufficient reserves can afford to pay liberal dividends.

**6. Future Financial Requirements.** It is not only the desires of the shareholders but also future financial requirements of the company that have to be taken into consideration while making a dividend decision.

**7. Government's Economic Policy.** The dividend policy of a firm has also to be adjusted to the economic policy of the Government as was the case when the Temporary Restriction of Payment of Dividend Ordinance was in force. In 1974 and 1975, companies were allowed to pay dividends not more than 33 % of their profits or 12 % on the paid-up value of the shares, whichever was lower.

**8. Taxation Policy.** The taxation policy of the Government also affects the dividend decision of a firm. A high or low rate of business taxation affects the net earnings of company (after tax) and thereby its dividend policy.

**9. Inflation.** Inflation acts as a constraint in the payment of dividends. Profits as arrived from the profit and loss account on the basis of historical cost have a tendency to be overstated in times of rise in prices due to over valuation of stock-in-trade and writing off depreciation of fixed assets at lower rates.

**10. Control Objectives.** When a company pays high dividends out of its earnings, it may result in the dilution of both control and earnings for the existing shareholders.

**11. Requirements of Institutional Investors.** Dividend policy of a company can be affected by the requirements of institutional investors such as financial institutions, banks insurance corporations, etc.

**12. Stability of Dividends.** Stability of dividends is another important guiding principle in the formulation of a dividend policy. Stability of dividend simply refers to the payment of dividend regularly and shareholders, generally, prefer payment of such regular dividends.

**13. Requirement of Funds in Future:** The management of a concern has to reconcile the conflicting interests of shareholders and those of the company's financial needs. If a company has highly profitable investment opportunities, it can convince the shareholders of the need for limiting the dividend in order to increase the future earnings and stabilize its financial position. But when profitable investment opportunities do not exist, then the Company may not be justified in retaining a substantial part of its current earnings. Thus, a concern having few internal investment opportunities should follow high pay-out ratio as compared to the one having more profitable investment opportunities.

#### **Constraints on paying dividends from the firm's point of view**

Though most firms recognize the investors demand for dividends, several factors may restrict the firm's ability to declare and pay dividends. These are:

**1. Insufficient cash:** Although a firm may have earned enough income to declare dividends but may not have sufficient cash to pay the dividends. The firm's liquid funds may have been tied up in receivables or inventory or may be short on liquid funds because of commitment to fixed assets.

**2. Contractual restriction:** Like a bond indenture that restricts the dividend pay out to 20% of earnings during the tenure of the bond or the firm, agreeing as a part of a contract with a creditor to restrict dividend payments.

**3. Legal restrictions:** Occasionally, a firm will be legally restricted from declaring and paying dividends unless a certain portion of current profits is ploughed back into business by way of retained earnings. Companies (Declaration of Dividend out of Reserves) Rules 1975 provides for such restrictions. Further dividends can be paid only out of the profits earned during the financial year after providing for depreciation

#### **12.5 TYPES OF DIVIDEND POLICY**

The various types of dividend policies are discussed as follows:

### **1. Regular Dividend Policy**

Payment of dividend at the usual rate is termed as regular dividend policy offers the following advantages:

- (a) It establishes a profitable record of the company.
- (b) It creates confidence among the shareholders.
- (c) It aids in long-term financing and renders financing easier.
- (d) It stabilizes the market value of shares.
- (e) The ordinary shareholders view dividends as a source of funds to meet their day-to-day living expenses.
- (f) If the profits are not distributed regularly and are retained, the shareholders may have to pay a higher rate of tax in the years when accumulated profits are distributed.

### **2 Stable Dividend Policy**

The term stable dividend means consistency or lack of variability in the streams of dividend payments. In more precise terms it means payment of certain minimum amount of dividend regularly. A stable dividend policy may be established in any of the following three forms.

#### **a) Constant Dividend**

Some companies follow a policy of paying fixed dividend per share irrespective of the level of earnings year after year. Such firm usually create a 'Reserve for Dividend Equalization' to enable them to pay the fixed dividend even in the year when the earnings are not sufficient or when there are losses.

A policy of constant dividend per share is most suitable to the concerns whose earnings are not expected to remain stable over a number of years.

#### **b) Constant Pay-out Ratio**

A constant pay-out ratio means payment of a fixed percentage of net earnings as dividends every year. The amount of dividend in such a policy fluctuates in direct proportion to the earnings of the company. The policy of constant pay-out ratio is preferred by the firms because it is related to their ability to pay dividends.

**c) Stable rupee dividend plus extra dividend**

Some companies follow a policy of paying constant low dividend per share plus an extra dividend in the years of high profits. Such a policy is most suitable to the firms having fluctuating earnings from year to year.

What the investors expect is that they should get an assured fixed amount as dividends which should gradually and consistently increase over the years. The most commendable form of stable dividend policy is the constant dividend per share policy. There are several reasons why investors would prefer a stable dividend policy and pay a higher price for a firm's shares which observe stability in dividend payments.

**i) Desire for Current Income:** A factor that favours a stable dividend policy is the desire for current income by some investors. Investors such as retired persons and widows, for example, view dividends as a source of funds to meet their current living expenses. Such expenses are fairly constant from period to period. Therefore, a fall in dividend will necessitate selling shares to obtain funds to meet current expenses and, conversely, reinvestment of some of the dividend income if dividends significantly rise.

Moreover, either of the alternatives involves, inconvenience cost apart, transaction costs in terms of brokerage, and other expenses. These costs are avoided if the dividend stream is stable and predictable.

**ii) Information:** Another reason for pursuing a stable dividend policy is that investors are thought to use dividends and changes in dividends as a source firm will change dividends only if the management foresees permanent earnings change, then the level of dividends informs investors about management's expectations concerning the company's earnings. Accordingly, the market views the changes in dividends of such a company as of a semi-permanent nature. A cut in

dividend implies poor earnings expectation; no change, implies earnings stability; and a dividend increase, signifies management's optimism about earnings. On the other hand, a company that pursues an erratic dividend pay-out policy does not provide any such information, thereby increasing the risk associated with the shares.

**iii) Institutional Investor's Requirements:** A third factor encouraging stable dividends is the requirements of institutional like life insurance companies, general insurance companies, unit trusts and so on, to invest in companies which have a record of continuous and stable dividend. These financial institutions owing to the large size of their investible funds, represent a significant force in the financial markets and their demand for the company's securities can have an enhancing-effect on its price and, thereby on the shareholder's wealth. A stable dividend policy is a pre-requisite to attract the investible funds of these institutions. One consequent impact of the purchase of shares by them is that there may be an increase in the general demand for the company's shares. Decreased marketability risk, coupled with decreased.

### **Importance of Stability of Dividends**

A number of arguments can be given to underline the importance of steady dividend payments including:

- 1. Perception of stability:** When a firm pays regular dividend it is considered as a sign of continued normal operations. On the other hand, a reduction in dividend payment will be treated as a sign of impending trouble for the company. Many investors will sell their shares, without checking further and this set up pressure will result in the loss of sentiment in the market and decline in the market price.
- 2. Preference of investors:** The common shareholders of mature firms generally prefer to receive steady dividends.
- 3. Dividend decisions as a routine:** By establishing a stable dividend policy, the board of directors avoids a lengthy discussion on dividend levels.
- 4. Flexibility of the extra dividend:** With a steady dividend policy, the firm can flexibly handle period temporarily high earnings, by giving a slightly large distribution of earnings without raising the expectation of investors.

**5. Desire for current income by the shareholders:** Desire for current income by some investors, such as, retired persons and widows. Obviously, such group of investors may be willing to pay a higher share price to avoid the inconvenience of erratic dividend payment, which disrupts their budgeting. They would place positive utility on stable dividends.

## **12.6 FORMS OF DIVIDENDS**

In addition to cash dividends, the firm has other options for distributing profits to shareholders.

These options are:

1. Bonus shares (stock dividend)
2. Stock (share) split
3. Stock repurchase

### **1. Bonus Shares (Stock Dividend)**

Bonus shares occur when new shares are issued on a pro rata basis to the current shareholders while the firm's assets, its earnings, the risk being assured and the investor's percentage ownership in the company remain unchanged.

**Example:** If a shareholder owns 100 shares of common stock at a time when the firm distributes bonus shares in the ratio of 1:20 (1 share for every 20 shares held), the shareholder will receive 5 additional shares.

There are several favorable aspects of a bonus issue:

- 1. Conserves cash:** The stock dividend (bonus shares) allows the firms to declare a dividend without using up cash that may be needed for operations or expansion.
- 2. Indicates higher future profits:** Normally a bonus share is an indication of higher future profits.
- 3. Raises future dividends for investors:** If the regular cash dividend is continued after the bonus issue, the individual shareholder will receive higher total dividends.
- 4. Has high psychological value:** Because of the positive aspects of bonus shares, issue of bonus shares receives positive response by the market.

**5. Retains proportional ownership for shareholders:** It helps the majority shareholders in retaining the proportional ownership as compared to rights issue of shares where the shareholders are expected to pay for the shares including the premium as per issue criteria.

## **2. Stock (Share) Split**

A stock split is a change in the number of outstanding shares through a proportional reduction or increase in the par value of the shares. Only the face value (par value) and number of outstanding shares are affected. The market price of the stock will adjust immediately to reflect the stock split. **Example:** A firm may have 20,00,000 outstanding shares selling for 20 per share. The firm declares a 2-for-1 stock split. After the split, the outstanding share will go up to 40,00,000 and will sell for approximately 10 per share. A shareholder with 100 shares worth 2000 before the split will hold 200 shares worth 2000.

## **3. Stock Repurchase**

This occurs when a firm brings back outstanding shares of its own common shares. Firms repurchase stock for three major reasons:

**1. For stock option:** A stock option is the right to purchase a specified number of shares of common shares during a stated time period and a stipulated price. Stock options are frequently given to senior officers of a company as an incentive to work to raise the value of the firm. As for example, a firm's stock is currently selling for 20 per share when the president is given the option to buy 1000 shares for 22 at any time in the next three years. If the stock value rises to 40 the president can exercise the option, purchase the stock for 22,000 (1000 shares @ 22) and sell it for 40,000 immediately. The capital gain arising on the sale will be a profit for the president as a direct result of the success of the firm.

**2. To have shares for acquisition:** When a firm is seeking control of another firm, it may be willing to offer its own common shares for the shares of the other firm. In this exchange of shares, the firm can repurchase stock to make the acquisition. This allows take over without increasing the number of outstanding shares and avoids a dilution of earnings.

**3. To retire the stock, thus increasing earnings per share:** When a firm retires a portion of its shares or buys back its own shares (as per procedure laid down by statute), the repurchase increases the firm's earnings per share.



## **Stock Repurchase Viewed as Cash Dividend**

When common shares are repurchased for cancellation, the motive is to distribute excess cash to the owners. Generally, as long as earnings remain constant, the repurchase reduces the number of outstanding shares raising the earnings per share and therefore the market price per share. Besides, the advantage of an increase in per share earnings, certain tax benefits to owner also result. In case of cash dividend, the owner is required to pay income taxes on it, whereas, the increase in market value of the shares, that resulted from repurchase would not be taxed till the owner sells the shares. Of course, when the stock is sold, the capital gain is taxed at a favorable rate than one applied to ordinary income.

### **12.7 DIVIDEND POLICY IN PRACTICE**

We have observed earlier that the main consideration in determining the dividend policy is the objective of maximization of wealth of shareholders. Thus, a firm should retain the earnings if it has profitable investment opportunities, giving a higher rate of return than the most of retained earnings, otherwise it should pay them as dividends. It implies that a firm should treat retained earnings as the active decision variable, and the dividends as the passive residual.

In actual practice, however, we find that most firms determine the amount of dividends first, as an active decision variable, and the residue constitutes the retained earnings. In fact, there is no choice with the companies between paying dividends and not paying dividends. Most of the companies believe that by following a stable dividend policy with a high pay-out ratio, they can maximize the market value of shares. Moreover, the image of such companies is also improved in the market and the investors also favor such companies. The firms following this policy can, thus, successfully approach the market for raising additional funds for future expansion and growth, as and when required. It has, therefore, been rightly said that theoretically, retained earnings should be treated as the active decision variable, and dividends as passive residual, but the practice does not conform to this in most cases. It has been observed that the managements of Indian firms believe that dividend policy conveys information about the current and future prospects of the firm and thus affects its market value. They do consider the investor's preference for dividends and shareholder profile while designing the dividend policy. They also have a target dividend payout ratio but want to pay stable dividends with growth.

### **12.8 SUMMARY**

The firm's dividend policy is formulated with two basic objectives in mind – providing for sufficient financing and maximizing the wealth of the firm's shareholders. There are various commonly used dividend policies in practice. In addition to cash dividends, the firm has other options for distributing profits to shareholders. These options are Bonus shares (stock dividend), Stock (share) split and Stock repurchase. The amount of dividend that can be legally distributed is governed by the company law, judicial pronouncements in leading cases and contractual restrictions.

## 12.9 KEYWORDS

**Dividends:** It refers to that portion of company's net earnings that is paid out to the equity shareholders.

**Dividend Policy:** It decides the portion of earnings to be paid as dividends to ordinary shareholders and what portion is ploughed back in the firm for investment purpose.

**Payout Ratio:** The ratio of dividend to earnings is known as payout ratio.

## 12.10 SELF ASSESSMENT QUESTIONS

1. What is dividend "Why is it necessary for a company to pay dividends?"
2. Comment on the nature of dividend policy decision.
3. Write a detailed note on the factors influencing dividend policy.
4. As a decision maker, whether you would decide in favour of regular dividend policy or stable dividend policy? Why? Explain.

## 12.11 SUGGESTED READINGS

54. M Y Khan & P K Jain: Basic Financial Management; McGraw Hill Education (India) Pvt Ltd., New Delhi.
55. R. P. Rustagi: Financial Management–Theory, Concepts and Problems; Taxmann Publications (P) Ltd., New Delhi.
56. Prasanna Chandra: Investment Analysis and Portfolio Management; McGraw Hill Education (India) Pvt. Ltd., New Delhi.
57. I M Pandey: Financial Management; Vikas Publication House Ltd., New Delhi.

58. Eugene F Brigham & Michael C Ehrhardt: Financial Management– Theory and Practice;  
Cengage Learning (India) Pvt. Ltd., New Delhi.