M.Com-104

Financial Management

Uttar Pradesh Rajarshi Tandon Open University

RIL-078

Uttar Pradesh Rajarshi Tandon Open University

M.Com-104

Financial Management

BLOCK

1

INTRODUCTION

परिशिष्ट–4
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विशेषज्ञ समिति

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परिमापक

अनुवाद की स्थिति में

मूल लेखक	अनुवाद
मूल सम्पादक	भाषा सम्पादक
मूल परिमापक	परिमापक

सहयोगी टीम

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BLOCK-I INTRODUCTION

In Block-I the learner will know about fundamentals of financial management including the topics like business finance, financial documents, time value of money and break even analysis etc.

Unit-1 discusses about definition of business finance and financial management, functions, importance and limitations of financial management, profit v/s wealth maximization objectives, traditional and modern concepts of finance functions, and scope of finance functions.

Unit-2 explains financial documents, nature and relevant accounting concept of balance sheet and profit & loss account, forms, significance and limitations of balance sheet and profit & loss account, distinctions between balance sheet and trial balance.

Unit-3 deals with concept of time value of money, valuation concept, compound value concept, multiple compounding periods, compounding annuities, present value of discounting concept.

Unit-4 deals with break-even analysis, meaning, assumption and limitations, calculation of BEP, P/V ratio and margin of safety, uses of break-even analysis.

UNIT-1 BUSINESS FINANCE

UNIT FRAMEWORK

1.1 OBJECTIVES

After studying this unit, you should be able:

- To define the term 'Business Finance';
- To explain the nature and scope of financial management;
- To describe the functions and importance of financial management;
- To explain the profit v/s wealth maximization objective;
- To describe the traditional and modern concepts of finance management; and
- To list the limitations of financial management.

1.2 INTRODUCTION : MEANING AND DEFINITION OF FINANCE

Finance is the life blood of business. Before discussing the nature and scope of financial management, the meaning of 'finance' has to be explained. In fact, the term, finance has to be understood clearly as it has different meaning and interpretation in various contexts. The time and extent of the availability of finance in any organization indicates the health of a concern. Every organization, may it be a company, firm, college, school, bank or university requires finance for running day to day affairs. As every organization previews stiff competition, it requires finance not only for survival but also for strengthening themselves. Finance is said to be the circulatory system of the economy body, making possible the required cooperation between the innumerable units of activity.

DEFINITION OF FINANCE

1. In the words of **John J. Hampton**, the term finance can be defined as the management of the flows of money through an organization, whether it will be a corporation, school, bank or government agency.
2. According to **Khan and Jain,** "Finance is the art and science of managing money".
3. According to **Oxford dictionary**, the word 'finance' connotes 'management of money'.

An analysis of the aforesaid definition makes it clear that finance directs the flow of economic activity and facilitates the smooth operation. Finance provides the required stimulus for continued business operations of all categories. Finance is essential for expansion, diversification, modernization and establishment of new projects and so on.

1.3 MEANING AND DEFINITION OF BUSINESS FINANCE OR FINANCIAL MANAGEMENT

Financial management is the application of planning and control to the finance function. It helps in profit planning, measuring costs, and controlling inventories, accounts receivables etc. It also helps in monitoring the effective deployment of funds in fixed assets and in working capital. It aims at ensuring that adequate cash is on hand to meet the required current and capital expenditure. It facilitates ensuring that significant capital is procured at the minimum cost to maintain adequate cash on hand to meet any exigencies that may arise in the course of business.

DEFINITION OF FINANCIAL MANAGEMENT OR BUSINESS FINANCE

Financial management is an integral part of overall management. It is concerned with the duties of the financial managers in the business firm.

1. According to **Weston and Brigham**, "Financial management is an area of financial decision making, harmonizing individual motives and enterprise goals".
2. According to **S. C. Kuchal,** "Financial management deals with procurement of funds and their effective utilization in the business".
3. According to **Howard and Upton, "**Financial management is the application of general managerial principles to the area of financial decision-making".
4. According to the **Wheeler,** "Business finance is that business activity which concerns with the acquisition and conversation of capital funds in meeting financial needs and overall objectives of a business enterprise".
5. According to the **Guthumann and Dougall**, "Business finance can broadly be defined as the activity concerned with planning, raising, controlling, administering of the funds used in the business".

Thus, Financial Management is mainly concerned with the effective funds management in the business. In simple words, Financial Management as practiced by business firms can be called as Corporation Finance or Business Finance. Corporate finance is concerned with budgeting, financial forecasting, cash management, credit administration, investment analysis and fund procurement of the business concern and the business concern needs to adopt modern technology and application suitable to the global environment.

1.4 NATURE OF FINANCIAL MANAGEMENT

With the help of the following points we can understand the nature of financial management:

1. Financial Management is a broader concept. It is not just about accounting of finance. It starts with procurement of funds as per the requirement and their best allocation. Financial planning is required till the business survive. It is an essential part of the business.
2. It is the integral part of management. Financial planning is the part of top level Management. Financial policies are drafted by top level managers and then it is executed by other levels.
3. Effective financial management helps in maximizing profits. Financial management helps in selecting the best alternate

available. Funds are raised in a perfect combination of debt and equity which bears less cost of capital and are invested in best profitable avenues for higher returns.

4. It is scientific and analytical as it starts right from the beginning of business and continues till its survival. Financial management works on certain basic principles. It helps in selecting the best method of financing with less risk and higher returns. It helps in understanding the behavior and pattern of finance.

5. Financial Management is different from accounting. In accounting only collection of financial and related data is done whereas in financial management, analysis and decision making are main functions.

6. Financial Management is useful in every organization whether it is sole proprietorship or corporate, manufacturing or service. It is applicable in non – profit organization also.

7. Financial Management is helpful for top management in decision making.

1.5 SCOPE OF FINANCIAL MANAGEMENT

Financial management is one of the important parts of overall management, which is directly related with various functional departments like personnel, marketing and production. Financial management covers wide area with multidimensional approaches.

1. **Financial Management and Human Resource:** Financial management is also related with human resource department, which provides manpower to all the functional areas of the management. Financial manager should carefully evaluate the requirement of manpower to each department and allocate the finance to the human resource department as wages, salary, remuneration, commission, bonus, pension and other monetary benefits to the human resource department. Hence, financial management is directly related with human resource management.

2. **Financial Management and Accounting:** Accounting records includes the financial information of the business concern. Hence, we can easily understand the relationship between the financial management and accounting.

3. **Financial Management and Marketing:** Produced goods are sold in the market with innovative and modern approaches. For this, the marketing department needs finance to meet their requirements.

4. **Financial Management and Mathematics:** Modern approaches of the financial management applied large number of mathematical and statistical tools and techniques. Economic order quantity, discount factor, time value of money, cost of capital, dividend

theories, ratio analysis and working capital analysis are used as mathematical and statistical tools and techniques in the field of financial management.

5. **Financial Management and Economics:** Economic concepts like micro and macroeconomics are directly applied with the financial management approaches.

6. **Financial Management and Production Management:** Production performance needs finance, because production department requires raw material, machinery, wages, operating expenses etc. The financial manager must be aware of the operational process and finance required for each process of production activities.

1.6 IMPORTANCE OF FINANCIAL MANAGEMENT

Each and every business concern must maintain adequate amount of finance for their smooth running of the business concern and also maintain the business carefully to achieve the goal of the business concern. The business goal can be achieved only with the help of effective management of finance. We can't neglect the importance of finance at any time and at any situation. The importance of financial management is being discussed under the following points:

(i) Increase the Value of the Firm: Financial management is very important in the field of increasing the wealth of the investors and the business concern.

(ii) Promoting Savings: Effective financial management helps to promoting and mobilizing individual and corporate savings.

(iii) Reduces Chances of Failure: Implementation of proper system of financial management brings financial discipline in the organization. Every project is overlooked and carried out by detailed investigation which reduces chances of failure.

(iv) Maximization of Returns: Good financial planning maximizes returns on investment as financial management is of scientific and analytical nature.

(v) Makes Base for Planning and Control: As it is noted that each department depends upon financial department to start their functioning. Various budget plans are drafted on the basis of financial availability.

(vi) Optimum and Effective Utilization of Resources: Financial planning ensures optimum utilization of financial resources. Each

and every stage is carefully planned under this beginning from generating funds to allocation and disposal of profits.

(vii) Useful for Stakeholders: Various stakeholders like business managers, investors, financial institutions, economists, politicians etc. are always interested in knowing financial position of the company as they maintain financial relation with business in some way.

1.7 FUNCTIONS OF FINANCIAL MANAGEMENT

Financial management includes performance of finance function which is divided into three main functions for the sake of convenience of study *(a) Primary functions, (b) Subsidiary functions and (c) Routine functions.* Details of these various functions are as below:

1.7.1 PRIMARY FUNCTIONS

As the name itself speaks, this function is of executive nature and requires lot of skills and expert advice. Let us study each activity performed in detail.

a) Financial Planning: This is the basic function under this. As financial planning is of primary nature and form base for other departments. Finance manager has to draft financial plans for the enterprise. How much should be borrowed from outside financial institutions and how much from internal sources. A perfect combination of debt and equity mix is carried out by financial manager which bears less cost of capital.

b) Acquisition of Funds: This is the crucial stage of financial planning. Funds are acquired from various sources which were decided in the primary function. All the formalities of acquiring funds are shown under this. Every source has its own cost which is to be looked upon.

c) Allocating Funds: After acquiring funds, they are allocated to various assets, activities, projects etc. This is very important function because only after allocating funds project work will get started.

d) Financial Control: Finance manager make records, store information and make reports of various activities. This enables to make comparative statements with past performances and finance manager can take corrective functions if he feels so.

1.7.2 SUBSIDIARY FUNCTIONS

After performing primary functions, come subsidiary functions. Details are as follows:

a) **Maintaining Liquidity:** Liquidity means firms financial position to meet its current liabilities. Business should be strong enough to meet its short term liabilities. Cash inflows and outflows should be balanced properly to maintain liquidity.

b) **Review of Financial Function:** Financial performance should be reviewed and presented in front of the board. Such reports made base for comparison with past performances like inter-firm comparison, trend analysis, ratio analysis, and cost-volume profit analysis.

c) **Co-ordination with Other Departments:** Finance is required in each and every activity. Hence, finance function is related with every other department.

1.7.3 ROUTINE FUNCTIONS

Finance is also required in day to day routine business. Commonly performed incidental functions are:

a) Conducting internal audit;

b) Maintaining accounts and keeping records;

c) Making public relation;

d) Keeping in mind the present governmental regulations; and

e) Maintaining cash receipts, payments and checking cash balances.

1.8 PROFIT V/S WEALTH MAXIMIZATION OBJECTIVE

Effective procurement and efficient use of finance lead to proper utilization of the finance by the business concern. It is the essential part of the financial manager. Hence, the objectives of Financial Management may be broadly divided into two parts such as:

1. **Profit maximization**
2. **Wealth maximization.**

PROFIT MAXIMIZATION : Main aim of any kind of economic activity is earning profit. Efficient and effective utilization of financial funds helps in achieving this goal. This objective was supported under the traditional approach of the financial management. Profit is the measuring techniques to understand the business efficiency of the concern. Profit

maximization as an objective of financial management can be justified on the following grounds:

(i) The objective of profit maximization seems rational because it is a device which stimulates mankind into channels of useful services.

(ii) Profit earning objective provides basis for strategic and tactical decisions. Profit is a premium for staying in business.

(iii) Earning more profit indicates the economic efficiency of a business whereas loss indicates economic inefficiency.

(iv) Maximum social welfare activities like more wages, better quality of products at cheaper rate to customers, timely payment to creditors, more employment to society can be attained through earning more and more profits.

(v) Profits can be said as major source of incentives in a business. If there is no profit incentive in a business, then there will be no competition and thus all the development process will be zero.

Unfavourable Arguments for Profit Maximization: The following important points are against the objective of profit maximization:

(i) Profit maximization leads to exploiting workers and consumers.

(ii) The objective of profit maximization ignores social responsibility of a business.

(iii) Profit maximization creates immoral practices such as corrupt practice, unfair trade practice, etc.

(iv) Profit maximization objective leads to inequalities among the stake holders such as customers, suppliers and public shareholders, etc.

(v) It is vague term as it do not clear that profit increase in short term or long term.

(vi) Earning profits give benefits only to its owners. It does not add much benefit to the society. Social responsibility is not fulfilled under this concept.

WEALTH MAXIMIZATION : Wealth maximization is one of the modern approaches, which involves latest innovations and improvements in the field of the business concern. The term wealth means shareholder wealth or the wealth of the persons those who are involved in the business concern. The profit maximization objective is not only a vague term but it also ignores risk and time value of money. Therefore, the wealth maximization objective is considered as basic objective rather than profit maximization. According to **Ezra Soloman**, "the ultimate objective of financial management should be maximization of wealth."

It is also known as 'Value maximizing' or 'Net worth Maximizing'. Financial Management helps in effective utilization of its assets which is viewed in terms of benefits it can produce. The value of the firm is

affected by many ways i.e. the firm's growth, risk acceptable to the investors, efficiency and effectiveness of the firm, dividend policy etc.

Favourable Arguments for Wealth Maximization

(i) Wealth maximization is superior to the profit maximization because the main aim of the business concern under this concept is to improve the value or wealth of the shareholders.

(ii) It reduces risk as projects having positive net present value are selected after careful and detailed investigation.

(iii) Stakeholders are also satisfied as they feel connected with business.

(iv) It considers both time and risk of the business concern.

(v) It provides efficient allocation of resources and it ensures the economic interest of the society.

(vi) It ensures long run survival and growth of the business.

(vii) A perfect combination of debt and equity mix is carried out.

Unfavourable Arguments for Wealth Maximization

(i) Wealth maximization leads to prescriptive idea of the business concern but it may not be suitable to present day business activities.

(ii) Wealth maximization is nothing, it is also profit maximization, and it is the indirect name of the profit maximization.

(iii) The ultimate aim of the wealth maximization objective is to maximize the profit.

(iv) Wealth maximization can be activated only with the help of the profitable position of the business concern.

1.9 TRADITIONAL AND MODERN CONCEPTS OF FINANCE FUNCTION

TRADITIONAL CONCEPT : Success of any business depends upon profit which is directly related with financial management. Financial Management starts with acquisition, financing and management of business assets. By investing funds in best ventures a firm can maximize its wealth by obtaining higher returns. Traditional concept shows one basic function of financial management i.e. procurement of funds. Traditional concept of financial management is limited and narrow. It limits the role of finance manager to collecting funds. According to ***Hunt, William and Donaldson*** "the finance function was viewed as the task of providing the funds needed by the enterprise on the terms most favorable in the light of the objective of the business." Following are the functions of financial management under traditional concept:

a) Making arrangements of funds keeping in mind the short term and long term requirement of the business. Appropriate financial institutions are selected which suits the capacity of the enterprise to bear the cost.

b) Making perfect combination of debt and equity as a source of internal finance. Funds are mobilized through equity shares, preference shares, debentures and bonds etc. in a perfect combination which bears less cost of capital.

Following are the grounds on which this approach has been criticized

(i) According to this concept financial management does not get involve in day to day business activities. Under this concept, funds are only generated. Proper attention is not given towards their appropriate use. Allocation of funds is not considered here.

(ii) It does not form part of integral management. Once funds are generated finance managers are called up again only when additional funds are required for promotion, expansion, merging and amalgamation etc.

(iii) It makes arrangements of funds only for long term requirement. Short term requirements are ignored. There are many day-to-day problems related with finance which are not covered under this approach.

Keeping in mind, the narrow concept of traditional approach and requirement of modern competitive situation of business new concept was developed.

MODERN CONCEPT: Style of doing business has been changed for keeping pace with the competition. Privatization and globalization made survival and growth tough. Any business can grow only if it manages its funds in the best way possible as it the life of business. Funds are needed for day-to-day requirements to expansion, promotion etc. Traditional concept can generate only funds but modern concept emphasize on its best possible use. Here, role of finance manager is not limited to mere collection of funds but it is his duty to allocate the funds in best possible way to obtain higher returns. It is the duty of finance manager to keep in mind the long term as well as short term requirements of finance in the business. This approach ensures optimum utilization of funds. According to this concept finance function is the part of integral management and forms part of top level financial planning. Functions of financial management are as follows:

- Analyzing the need of finance required by the business.
- Searching the best available alternate of finance which suits the requirement of the business.
- Obtaining funds from best alternate and allocating it towards assets in optimum way.

- To ensure that funds generated and allocated are put to effective use and reporting to top management.

Modern concept has much broader concept than traditional concept. It covers all the financial activities starting from financial planning, generating, procuring and allocating of financial resources by ensuring optimum utilization of financial resources.

1.10 LIMITATIONS OF FINANCIAL MANAGEMENT

Besides its above importance, it has some limitations which are as follows

a) Sometimes it becomes difficult to compute the effect of financial decisions on various other departments. It is very complex procedure which requires careful analysis.

b) It requires deep knowledge of finance to perform various finance functions. No professional can be expert in each and every aspect of finance behavior which limits its skills.

c) In India, financial management is still in its developing stage. We lack in expertise knowledge which limits the full use of the subject.

d) Sometimes financial decisions may get affected by the personal point of view of the finance officer. It is human nature which sometimes gets biased which may sometimes adversely affect the financial decision.

e) Proper implementation of financial management is of expensive nature. It is not possible for the small enterprise to appoint and get services of experts nor do they implement proper system of financial management

1.11 SUMMARY

Financial Management is the branch of study which deals with the effective utilization of financial resources of a firm. Financial Management plays very important role in the financing, operating and investing decision making. It is a tool in the hand of finance manager which helps the manager to achieve the goal of financial management i.e. wealth maximization of the firm. With the help of financial management a financial coordination is developed amongst the functions of the firm.

In the changing business scenario, wealth maximization is considered as the basic objective of financial management, rather than profit maximization. Sound financial management is the index of the success of an enterprise. Financial management includes mainly three types of function viz: primary functions, subsidiary functions and incidental functions. Primary functions include acquisition, allocation of funds and financial planning and controlling. Subsidiary functions are related with

review of financial functions and co-ordination with other department. Supplementary functions include maintaining accounts and keeping records. In the field of business, functions of financial management are becoming very complex because of increasing competition, entry of foreign institutes, globalization of business, corporate governance and corporate scandals etc.

1.12 SELF ASSESSMENT QUESTIONS

1. What is finance? Define business finance.

2. What do you understand by financial management?

3. Discuss the objectives of financial management.

4. Explains the functions of a finance manager.

5. "Financial Management plays very crucial role in present business scenario". Justify the statement.

6. Critically evaluate various concepts to the financial management.

7. Discuss the scope and limitations of financial management.

8. Explain the importance of financial management.

9. What do you understand by financial function? Describe various finance functions.

10. Explain as to how the Wealth Maximization objective is superior to Profit Maximization objective.

11. "The importance of financial management has increased in modern time". Elucidate.

12. What is financial management? How a modern financial management does differ from traditional financial management?

1.13 TEXT AND REFERENCES

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UNIT-2 FINANCIAL DOCUMENTS

UNIT FRAMEWORK

2.1 OBJECTIVES

After studying this unit, you shall be able:

- To explain the meaning of financial documents;
- To explain nature and relevant accounting concept of balance sheet and profit & loss account
- To distinguish between balance sheet and trial balance
- To identify the forms of balance sheet and profit & loss account
- To describe the significance and limitations of balance sheet and profit & loss account

2.2 INTRODUCTION

Financial documents contain summarised information about the firm's financial affairs. Its main purpose is to present the firm's financial situation to the users. The financial documents are the end-product of the financial accounting process. These documents present financial information in concise and capsule form. Financial documents are

prepared by top management and these should be prepared in a very careful manner.

According to **Hampton John J.**, "A financial document is an organised collection of data according to logical and consistent accounting procedures. Its purpose is to convey an understanding of some financial aspects of business firm. It may show a position at a moment of time as in the case of a balance sheet, or may reveal a series of activities over a given period of time, as in the case of a profit and loss account".

Thus, the term 'financial documents' generally refer to basic documents prepared for the purpose of external reporting to owners, investors and creditors. These are the key financial documents which are usually prepared by corporate firms are (i) profit and loss accounts (ii) balance sheet or statement of financial position.

1. **Profit and Loss Accounts:** According to **S.N. Maheshwari,** "The profit and loss account is normally recognized to be the most useful of all financial documents. The profit and loss account gives a report of operations over a specified period of time, summarises the revenues or incomes and the expenses or costs attributed to that period and indicates the net profit or loss for a specified period of time. The profit and loss account explains what has happened to a business as a result of operations between two balance sheet dates. For this purpose it matches the revenue and costs incurred in the process of earning revenues and shows the net profit earned or loss suffered during a particular period.

   The nature of "Income" which is the focus of the profit and loss account can be well understood if a business is taken as an organization that uses 'inputs' to 'produce' output. The outputs are the goods and services that the business provides to its customers. The values of these outputs are the amounts paid by the customers for them. These amounts are called 'revenues' in accounting. The inputs are the economic resources used by the business in providing these goods and services. These are termed as 'expenses' in accounting."

2. **Balance Sheet:** Balance sheet is the most significant and basic financial document of any firm. A firm prepares Balance sheet to present a summary of financial position at a particular moment of time. In the language of accounting, balance sheet communicates information about assets of the firm (i.e. the resources of the firm) and the liabilities (i.e. obligations of the firm towards outsiders) and owner's equity of the firm as on a specific date. It may be noted that it depicts snapshot of the financial position of the firm at the close of the firm's accounting period.

2.3 OBJECTIVES OF FINANCIAL DOCUMENTS

The financial documents are prepared to present an accurate picture of firm's financial position and operating results in a summarized

manner. The financial documents are prepared by the firm to fulfil the following objectives:-

1. To communicate with different parties regarding the financial position of the business (These parties include the shareholders, creditors, investors, management, government, financial institutions, financial analysts and labour etc.)
2. To analyse the operations and performance of the firm for planning.
3. To give necessary information for optimum utilisation of resources of the companies.
4. To provide necessary information for taking actions relating to public and social welfare.

2.4 NATURE OF BALANCE SHEET AND PROFIT & LOSS ACCOUNT

BALANCE SHEET: The balance sheet is prepared by a firm to present financial position at a given point of time. Balance sheet can be titled as statement of financial position, statement of assets and liabilities, position statement etc.

Balance sheet can be defined as:-

- According to **Francis R. Stead**, "Balance sheet is a screen picture of the financial position of a going business at a certain moment".
- According to **John N. Myer**, "The balance sheet is thus a detailed form of the fundamental or structural equation; it sets forth the nature and amount of each of the various assets of each of liabilities, and of the proprietary interest of the owners."

Balance sheet presents the assets and liabilities of a firm at a point of time which may be shown in either of the following order:

(i) Permanency order: In this method, the assets which are more permanent come first and which are less permanent appear later. Similarly permanent liabilities come first and then less permanent liabilities.

(ii) Liquidity order: In this method, the assets which are more liquid appear first, followed by other assets which are less liquid or take long time to convert into cash. Similarly liabilities which are immediately payable come first followed by liabilities which are payable later.

NATURE OF BALANCE SHEET

1. It is a statement not an account hence the words 'To' and 'By' are not used here.

2. The balance sheet is prepared on a particular point of time so, it presents the value of assets and liabilities of a firm on that point of time.

3. Balance sheet presents the financial value of the business on going concern value.

4. Both sides of balance sheet must be same i.e. Assets = Liabilities

5. Balance sheet is prepared by using accounting concepts, conventions, postulates and personal judgements etc.

The balance sheet can be grouped into two parts: - Assets side and liabilities side.

Horizontal Format of Balance Sheet

Liabilties	Amount (Rs)	Assets	Amount (Rs)
Share capital		Fixed assets	
Add: net profit/less: net loss		Land & building	.....
Less: drawings	.....	Plant & machinery	.....
		Furniture & fixtures	.....
Long-term liabilities		Vehicles	.....
Debentures	.....	Goodwill	.....
Loans & advances from banks	.....	Investments	.....
Other loans & advances	.....	Current assets, loans & advances	
Current liabilities		Sundry debtors	.....
Sundry creditors	.....	Cash in hand	.....
Bills payable	.....	Cash at bank	.....
Bank overdraft	.....	Bills receivable	.....
Outstanding expenses	.....	Prepaid expenses	.....
Income received in advance	.....	Closing stock	.....
Provisions			
For taxation	.....		
For dividend	.....		
	.....		.....

Above terms are being explained here under:

Fixed Assets: Fixed assets include those assets which are purchased for long term. These assets are generally purchased not for resale purpose. These assets are of permanent nature and are not usually converted into cash in short period. Fixed assets are shown at historical cost less depreciation till date. Thus these assets not present their market value or replacement cost.

Fixed assets should be presented in balance sheet in the following (permanence) order:-

1. Goodwill
2. Land

3. Buildings
4. Lease hold property
5. Plant and Machinery
6. Furniture and fittings
7. Development Property
8. Patents and Trademarks
9. Live Stock
10. Vehicle

Investments: In balance sheet, investment means Government securities, shares, debentures, bonds etc. investments are shown at cost price in balance sheet. In words of Kohler, 'Investment is an expenditure to acquire property real or personal, tangible or intangible which yields income or services.'

Current assets, Loans and Advances: Current assets are those liquid assets which are convertible into cash within a period of one year. Current assets include cash and bank balance, sundry debtors, receivables (debtors and bills), stock (raw material, work-in progress and finished goods), marketable securities, and prepaid expenses. Loans and advances include bill of exchange, advances recoverable in cash or kind or value to be received.

Miscellaneous Expenditure: Expenses which are not included in manufacturing, administrative and selling expenses are knows as miscellaneous expenditure. Preliminary expenses, discount allowed on issue of shares and debentures, development expenses, commission or brokerage paid on undertaking or subscription of shares and debentures etc. are included in miscellaneous expenditure.

Share Capital: In liabilities side of balance sheet, share capital is shown as first item. Under the head of share capital-authorised capital, issued capital, subscribed capital, paid up-capital are shown. Both type of shares preference and equity are also given under this head.

Reserves and Surplus: Under the head of reserves and surplus, various reserves are shown e.g. capital reserves, capital redemption reserves, proposed addition to reserves, share premium account, sinking fund, surplus etc.

Secured Loan: Secured Loans are such type of loan against which collateral or other security is held. Debentures, loans and advances from bank etc. are included in this head.

Unsecured Loan: According to **Kohler**, "Unsecured liability is a liability for which the creditor holds no security."

Short term loans, advances from banks, public loans etc. are included in this head.

Current Liabilities and Provisions: Current liabilities are such liabilities which the firm expects to pay within a period of one year. Sundry creditors, bank overdraft, advance payments, unclaimed dividend, bills payable, outstanding expenses etc. are current liabilities. Current liabilities are paid out of the realisations of current assets. These liabilities are expected to be discharged within an operating cycle of the firm. Provisions include provision for taxation, dividend etc. Provisions for contingencies are shown as foot note in the balance sheet.

The latest format of **Balance Sheet** as per **schedule IIIrd companies act 2013**.

M/S ABC PRIVATE LIMITED **Balance Sheet As On 31st March, 2015**				
	Particulars	**Note No.**	**As at 31st March, 2015**	**As at 31st March, 2014**
			Rs.	**Rs.**
A	**EQUITY AND LIABILITIES**			
1	**Shareholders' funds**			
	(a) Share capital	1		
	(b) Reserves and surplus	2		
2	**Non-current liabilities**			
	(a) Long-term borrowings	3		
	(b) Deferred tax liabilities (net)			
3	**Current liabilities**			
	(a) Short Term Borrowings	4		
	(b) Trade payables	5		
	(c) Other current liabilities	6		
	(d) Short-term provisions	7		
	TOTAL			
B	**ASSETS**			
1	**Non-current assets**			
	(a) Fixed assets			
	(i) Tangible assets	8		
	(b) Non-current investments	9		
2	**Current assets**			
	(a) Inventories	10		
	(b) Trade receivables	11		
	(c) Cash and cash equivalents	12		
	(d) Short-term loans and advances	13		
	TOTAL			

PROFIT AND LOSS ACCOUNT: The profit and loss account is also known as profit and loss account, statement of earnings, statement of income and expenditure, statement of profit and loss etc. Profit and loss account provides the summary of the operating results of the firm of an accounting period. In this statement revenues are matched with the costs and it shows the difference between the two as the net profit & loss for a specific period. In America, the profit or loss is calculated in a statement form, so it is known as income statement. While in India, the profit or loss calculated in account form, so, it is known here as profit and loss account. With the help of profit and loss account we can understand the performance of the firm for a specific period. Profit and loss account is prepared for a particular period, no standard format for profit and loss account is provided by Companies Act, 2013. Some definitions of profit and loss account are given below;

- Accounting to **Howard and Upton**, "The summary of changes in owners' claim or equity resulting from operations of period of time, properly arranged, is called the profit and loss statement."

- According to **Robert N. Anthony**, "The accounting report which summarises the revenue items, the expense items and the difference between them (net income) for an accounting period is called the profit and loss account."

The debit side of profit and loss account includes all business expenses and losses whereas credit side includes all incomes and gains. Difference of both sides is called profit or loss as the case may be. As the companies Act, 2013, does not state any standard format of profit and loss account. Different business firms prepare this account according to the nature and requirement of the business. The profit and loss account is divided into these four parts:

1. Manufacturing account
2. Trading account
3. Profit and loss account
4. Profit and loss appropriation account

Horizontal Format of Trading and Profit / Loss Account

Particulars	Amount (Rs)	Particulars	Amount (Rs)
To opening stock	.....	By sales	
To purchases		less: returns	.....
less: returns	.....	By closing stock	.....
To carriage inward	.....		
To wages	.....		
To gross profit c/d (in case of gross profit)	.....	By gross loss c/d (in case of gross loss)	.....
	.....		.....
To gross profit b/d (in case of gross loss)	.....	By gross profit b/d (in case of gross profit)	.....
To salaries	.....	By interest earned	.....
To carriage outward	.....	By dividend earned	.....
To rates and taxes	.....	By rent earned	.....
To insurance	.....	By discount received	.....
To depreciation	.....	By profit on sale of fixed assets	.....
To bad debts	.....	By profit on sale of investments	.....
To advertising	.....		
To interest paid	.....		
To travelling expenses	.....		
To discount allowed	.....		
To loss on sale of fixed assets	.....		
To loss on sale of investments	.....		
To loss by fire	.....		
To net profit transferred to B/S (in case of net profit)	.....	By net loss transferred to B/S (in case of net loss)	.....
	.....		.....

2.5 RELEVANT ACCOUNTING CONCEPT OF BALANCE SHEET AND PROFIT & LOSS ACCOUNT

Accounting is a language that is used to store and communicate economic information about organisations. It has a set of rules. It is particularly important that anyone trying to read accounting statements

and draw conclusions from them is clear on the rules of accounting. Severe misunderstandings could arise for someone not familiar with the rules.

1. **Money measurement convention:** Accounting defines things in terms of money, and can do nothing else. Thus, information that cannot be expressed in monetary terms cannot be included in accounting statements. This can also be seen as a deficiency of accounting.

2. **Realisation convention:** The realisation convention says that the revenue should be recognised at the point where:

   a. The amount (value) of the revenue is capable of being measured with substantial accuracy;

   b. The necessary work to earn the revenue has substantially been completed; and

   c. It is reasonably certain that the cash will be received.

   d. This is usually taken to be the point in time at which the customer takes delivery of and accepts the goods or service. Thus, recognition of the revenue and receipt of the cash do not occur at the same point, except in the case of cash sales. Outside the retail trade, cash sales are rare. Thus, for most businesses, cash receipts from sales revenues tend to lag behind recognition of sales revenues.

3. **Matching convention:** Expenses (trading events leading to reductions in wealth) are matched to the particular revenues that they helped to generate in the same accounting period.

4. **Historic cost convention:** Assets are shown in the balance sheet at a value that is based on their cost to the business when they were first acquired, not their current market value or any other value.

5. **Accounting definition of an asset:** An asset has a particular meaning in accounting, which is rather more restrictive than the general one that we use in everyday speech. To be included in a balance sheet as an asset of a particular business, the item would need to have the following attributes:

   a. It is likely to produce future economic benefits to that business.

   b. It has arisen from some past transaction or event involving that business.

   c. The right of access to it by others can be restricted by that business.

   d. It must be capable of measurement in monetary terms.

6. **Stable monetary unit convention:** Accounting tends to assume that the value of the currency remains constant in terms of its ability to buy goods and services. In other words, financial statements are prepared as if there were no price inflation or deflation, either generally or in relation to particular goods and services.

7. **Going concern convention:** In the absence of evidence to the contrary, it is assumed that the business will continue indefinitely. This means, for example, that it will be assumed that a non-current asset will be capable of being used by the business for the whole of its useful life, rather than it being assumed that the business will be forced to dispose of the asset as a result of the business suffering financial collapse.

8. **Accruals convention:** Profit or loss is concerned with net increases or decreases in wealth, not with increases or decreases in cash. Thus when deriving the amount of the expenses that are to be matched to particular revenues, the fact that cash may not yet have been paid is not relevant. For example, the cost of inventories sold, for inclusion in the income statement, will be the same, irrespective of whether or not payment for the inventories concerned has yet been made.

9. **Prudence convention:** Accounting should err on the side of caution. For example, if an item of inventories has a sales value that is below cost, this should be reflected by reducing its value in the balance sheet to the lower figure, with the same reflection of the loss of wealth being shown in the income statement. Following the same philosophy, a gain in the value of an asset is not taken into account until it is realised as a result of a disposal of the asset concerned to some person or organization outside the business.

2.6 SIGNIFICANCE OF FINANCIAL DOCUMENTS

Financial documents are useful for different related parties as given below:

1. **Importance to Management:** In the words of **Gerstenberg Charles W.,** "Management can measure the effectiveness of its own policies and decisions determine the advisability of adopting new policies and procedures and document to owners the result of their managerial efforts". For effective and controlling the company's activities, management can get necessary data from financial documents.

2. **Importance to Investors:** Investors are mainly interested with the safety of their investments and to earn profit from these investments with the help of financial documents. Investors create their opinion about the company before investing. For example,

some factors they considered are price earnings ratio, earning per share, future earning potential, trend of sales of past years and financial strength of the company etc.

3. **Importance to Creditors:** Creditors lent their money for short period and they are keen interested in the company's ability to repay the loan amount on time. A creditor can compute various ratios like current ratio, quick ratio etc. to know the company's ability to repay. If a company earns less than paid amount of interest, it is not safe to lend money to this company.

4. **Importance to Government:** Various ratios like turnover ratios, earning ratios indicate the health of the company. To regulate various economic activities, government analyse the various ratios of companies in one industry.

5. **Importance to Others:** Other related parties like labour, stock exchanges, economists, news agencies, trade unions etc. are interested in analysis of financial documents to know the detail position about the company and industry.

2.7 DISTINCTIONS BETWEEN TRIAL BALANCE AND BALANCE SHEET

Trial Balance is a part of the accounting process, which is a schedule of debit and credit balances taken from all the ledger accounts. As every transaction affect two sides, i.e. every debit has a corresponding credit and the reverse is also true. The totals of debit and credit balances are equal in the trial balance. In contrast, the **Balance Sheet** is the statement that exhibits the company's financial position, by summarizing the assets, liabilities, and capital on a particular date.

COMPARISON TABLE OF TRIAL BALANCE AND BALANCE SHEET:

BASIS FOR COMPARISON	TRIAL BALANCE	BALANCE SHEET
1. Meaning	Trial Balance is the list of all balances of General Ledger Account.	The Balance sheet is the statement which shows the assets, equity and liabilities of the company.
2. Division	Statement of debit and credit balances were taken from general	Statement of assets and equity & liabilities is known as Balance Sheet.

BASIS FOR COMPARISON	TRIAL BALANCE	BALANCE SHEET
	ledger is known as Trial Balance.	
3. Stock	Opening stock is considered.	Closing stock is considered.
4. Part of Financial Statement	Trial Balance is not a part of the financial statement.	The Balance Sheet is the part of the financial statement.
5. Objective	To check the arithmetical accuracy in recording and posting.	To ascertain the financial position of the company on a particular date.
6. Balances	Balances of all personal, real and nominal account are shown in the trial balance.	Balance sheet shows the balances of personal and real account only.
7. Preparation	Trial Balance is prepared after posting into ledger at the end of each month, quarter, half year or financial year.	Balance Sheet is prepared after the preparation of Trading and Profit & Loss Account at the end of the financial year.
8. Use	The trial balance is prepared for internal use only.	The balance sheet is prepared for both internal and external use, i.e. to inform outside parties about the financial condition of the entity.

2.8 FORMS OF FINANCIAL DOCUMENT ANALYSIS

Analysis of Financial Document is also necessary to understand the financial positions during a particular period. According to **Myres,**

"Financial document analysis is largely a study of the relationship among the various financial factors in a business as disclosed by a single set of documents and a study of the trend of these factors as shown in a series of documents".

Analysis of financial document may be broadly classified into two important types on the basis of material used and methods of operations.

Types of Financial Analysis

1. On the basis of Materials Used

- **a.** External Analysis
- **b.** Internal Analysis

2. On the basis of Methods of Operations

- **a.** Horizontal Analysis
- **b.** Vertical Analysis

1. Based on Material Used: Based on the material used, financial document analysis may be classified into two major types such as External analysis and internal analysis.

A. External Analysis : Outsiders of the business concern do normally external analysis but they are indirectly involved in the business concern such as investors, creditors, government organizations and other credit agencies. External analysis is very much useful to understand the financial and operational position of the business concern. External analysis mainly depends on the published financial document of the concern. This analysis provides only limited information about the business concern.

B. Internal Analysis : The Company itself does disclose some of the valuable information's to the business concern in this type of analysis. This analysis is used to understand the operational performances of each and every department and unit of the business concern. Internal analysis helps to take decisions regarding achieving the goals of the business concern.

2. Based on Method of Operation : Based on the methods of operation, financial document analysis may be classified into two major types such as horizontal analysis and vertical analysis.

A. Horizontal Analysis : Under the horizontal analysis, financial documents are compared with several years and based on that, a firm may take decisions. Normally, the current year's figures are compared with the base year (base year is consider as 100) and how the financial information are changed from one year to another. This analysis is also called as dynamic analysis.

B. Vertical Analysis : Under the vertical analysis, financial documents measure the quantities relationship of the various

items in the financial document on a particular period. It is also called as static analysis, because, this analysis helps to determine the relationship with various items appeared in the financial document. For example, a sale is assumed as 100 and other items are converted into sales figures.

2.9 LIMITATIONS OF FINANCIAL DOCUMENTS

1. **Financial Documents are Only Interim Reports:** According to this, it can be said that financial documents cannot be final because exact amount of profit or loss of a business can be determined after closing down the business. So profit depicted by Profit and Loss account and financial position shown by Balance Sheet is not exact. So, it is necessary to prepare financial document at relatively short accounting period.

   But this cutting off the balance sheet dates gives the problem of allocation of cost and income. Financial document data cannot afford to remain exact under such conditions.

2. **Depend upon Accounting Concepts and Conventions:** Financial documents are prepared on the basis of certain accounting concepts and conventions. Financial position presented by these documents may not be real. For example, the value of an asset represents the amount of asset which is valued on the basis on "going concern concept". This means value of fixed assets may not be same which can be realise after the sale of asset.

3. **Based on Historical Cost:** The financial documents are based upon historical cost. They do not give present value of business and any information regarding the future.

4. **Disclose Only Monetary Items:** Financial documents do not give true picture of the business because they do not show those items which cannot be expressed in monetary terms. For example, health of workers and efficiency of management etc.

5. **Affected by Personal Judgement and Knowledge:** Many items of financial documents are affected by personal judgement and knowledge of accountant. Some of items e.g. stock valuation methods, method of depreciation, capital and revenue expenditure are decided by personal decision.

2.10 SUMMARY

A manager obtains financial information from financial documents to take right decision at right time. Financial documents are prepared by the top management and present financial information in concise and capsule form. The term financial documents refer to Profit and Loss

Account, Balance sheet, and sometimes document of Retained Earning and document of changes in financial position. The Profit and loss account gives a report of operations over a specified period of time, summarises the revenue or income and the expenses or cost attributed to that period and indicates the net profit or loss for a specified period of time. The Balance sheet presents a summary of financial position at a particular moment of time. The net profit depicted by Profit and Loss account is transferred to Profit and Loss Appropriation account wherein it will be divided in two parts i.e. dividends to shareholders and profit retained in the firm.

The financial documents are prepared to communicate with different parties regarding the financial position of the business and to analyse the operations and performance of the firm for planning. Financial Documents reflect a combination of recorded facts, accounting conventions, postulates and personal judgements. Financial documents are important to management, investors, creditors, government and other stakeholders. Financial documents are only interim reports; depend upon accounting concepts and conventions based on historical cost. Financial documents disclose only monetary items and may be affected by personal judgement and knowledge. Financial documents must be in simple and attractive manner. Irrelevant informations should be ignored. Various required tables, footnotes; appendices must be given in financial document.

2.11 SELF-ASSESSMENT QUESTIONS

1. What is financial document?

2. What is financial document analysis?

3. Discuss various types of financial document analysis.

4. Explain the meaning of the term “Financial Documents”. State its nature and limitations.

5. What are financial documents? Why are these prepared?

6. Discuss the utility and importance of financial documents for the various parties interested in a business concern.

7. Explain the statement “Financial Documents reflect a combination of recorded facts, accounting conventions and personal judgement.”

2.12 TEXT AND REFERENCES

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UNIT-3 TIME VALUE OF MONEY

UNIT FRAMEWORK

3.1 OBJECTIVES

After studying this unit, you should be able:

- To interpret the time value of money;
- To explain the reasons for time value of money;
- To identify the components of time value of money;
- To explain the valuation concept of time value of money;
- To describe the compound value concept and multiple compounding periods; and
- To describe compounding annuities and present value of discounting concept.

3.2 INTRODUCTION

The value of money changes with the change in time. Due to various factors generally, the value of money decreases with the passing of time. The value of a rupee was more as compared to its current value. The value of a rupee is decreasing as the time is changing due to inflation,

increase in population, expansion in demand, foreign exchange etc. The value of money is very closely related to the time and it also varies with the change in time.

Everyone tries to earn more money in future to meet out their requirements. The time value of money is its rate of return which the firm can earn by reinvesting its present money. In simple terms, the value of a certain amount of money today is more valuable than its value tomorrow. The difference in value of money at present and future is referred as time value of money.

3.3 VALUATION CONCEPT OF TIME VALUE OF MONEY

One of the most important principles in all of finance is the relationship between value of a rupee today and value of rupee in future. This relationship is known as the 'time value of money'. A rupee today is more valuable than a rupee tomorrow. Most individuals value the opportunity to receive money now higher than waiting for one or more years to receive the same amount. This phenomenon is referred to as an individual's time preference for money. Thus, an individual's preference for possession of a given amount of cash now, rather than the same amount at some future time is called time value of money.

A rupee today is more valuable than a rupee after a year due to several reasons.

- **Inflation :** Under inflationary conditions the value of money, expressed in terms of its purchasing power over goods and services, declines.
- **Risk** : Re. 1 now is certain, whereas Re.1 receivable tomorrow is less certain. This 'bird-in-the-hand' principle is extremely important in investment appraisal.
- **Personal consumption preference** : Many individuals have a strong preference for immediate rather than delayed consumption. The promise of a bowl of rice next week counts for little to the hungry man
- **Investment opportunities** : Many like any other desirable commodity have a price, given the choice of Rs. 100 now or the same amount in one year's time' it is always preferable to take the Rs. 100 now because it could be invested over the next year at say 16 percent interest rate to produce Rs. 116 at the end of one year. If 16 percent is the best return available then you would be indifferent to receiving Rs. 100 now or Rs. 116 in one year's time. Expressed another way, the present value of Rs. 116 receivable one year hence is Rs. 100.

3.4 REASONS FOR TIME VALUE OF MONEY

a) Risk of future

b) Uncertainty of cash flows

c) Subjective preference for consumption, and

d) Availability of investment opportunities.

Time Preference Rate and Required Rate of Return: The time value for money is generally expressed by an interest rate. This rate will be positive even in the absence of any risk. It may be therefore called the risk-free rate. For instance, if time preference rate is 4 per cent, it implies that an investor can forgo the opportunities of receiving Rs. 100 if he offered Rs. 104 after one year (i.e. Rs. 100 which he would receive now plus the interest which he could earn in a year by investing Rs. 100) and Rs. 104 a year from now as he considers these two amounts equivalent in value. In reality, an investor will be exposed to some degree of risk. Therefore, he would require a rate of return for the investment, which compensates him for both time and risk. His required rate of return will be.

Required rate of return = Risk-Free Rate + Risk Premium

The risk-free rate compensates for time while risk premium compensates for risk. The required rate of return may also be called the opportunity cost of capital of comparable risk. It is called so because the investor could invest his money in assets or securities of equivalent risk. Like individuals, firms also have required rate of return and use them in evaluating the desirability of alternative financial decisions. The interest rates account for the time value of money, irrespective of an individual's preference and attitudes.

3.5 COMPONENTS OF TIME VALUE OF MONEY

(a) **Risk Premium:** *Interest rate* demanded, over and above the *risk-free rate* as compensation for time, to account for the uncertainty of cash flows.

(b) **Interest Rate or Time Preference Rate:** Rate which gives money its value, and facilitates the comparison of cash flows occurring at different time periods.

(c) **Required Interest Rate** A risk-premium rate is added to the risk-free time preference rate to derive *required interest rate* from risky investments.

(d) **Compounding:** Compounding means calculating future values of cash flows at a given interest rate at the end of a given period of time.

(e) Discounting: Discounting means calculating the present value of cash flows at a given interest rate at the beginning of a given period of time.

3.6 MULTIPLE COMPOUNDING PERIODS

Interest is compounded when the amount earned in an initial deposit (the initial principal) becomes part of the principal at the end of the first compounding period. The term principal refers to the amount of money on which interest is received.

Illustration 1: Suppose you invest Rs. 1,000 for three years in a savings account that pays 10 per cent interest per year. If you let your interest income be reinvested, your investment will grow as follows:

First year :	Principal at the beginning	1,000
	Interest for the year	100
	(Rs. 1,000 x 0.10)	
	Principal at the end	1,100
Second year	Principal at the beginning	1,100
	Interest for the year	110
	(Rs. 1,100 x 0.10)	
	Principal at the end	1,210
Third year :	Principal at the beginning	1,210
	Interest for the year	121
	(Rs. 1,210 x 0.10)	
	Principal at the end	1,331

FORMULA

The process of investing money as well as reinvesting the interest earned thereon is called compounding. The future value or compounded value of an investment after n years when the interest rate is r percent is:

$$FV^n = PV (1+r)^n \text{.....} \textbf{(1)}$$

In which FV^n = the future or compound value

PV = Present value

r = rate of interest

n = number of years

$(1+r)^n$ = the further value interest factors

To solve future value problems you have to find value factors. You can do it in different ways. In the example given above, you can multiply 1.10 by itself three times or more generally (1 + r) by itself n times. This becomes tedious when the period of investment is long.

Alternatively, you can consult a future value interest factor (FVIF) table. One such table showing the future value factor for certain combinations of periods and interest rates is given in Appendix A at the end of majority of the books.

Illustration 2 : Suppose Mr. Ram deposits Rs. 1,000 today in a bank, which pays 10 per cent interest, compounded annually, how much will the deposit grow to after 8 years and 12 years?

The future value, 8 years hence, will be:

$$\text{Rs. } 1{,}000\ (1.10)^8 = \text{Rs. } 1{,}000\ (2.144) = \text{Rs. } 2{,}144$$

The future value, 12 years hence, will be:

$$\text{Rs. } 1{,}000\ (1.10)^{12} = \text{Rs. } 1{,}000\ (3.138) = \text{Rs. } 3{,}138$$

3.7 COMPOUNDING ANNUITIES

An annuity is a fixed payment (or receipts) each year for a specified number of years. If you rent a flat and promise to make a series of payments over an agreed period, you have created an annuity. The equal installment loans from the house financing companies or employers are common example of annuities. The compound value of an annuity cannot be computed directly from Equation. Let us illustrate the computation of the compound value of an annuity.

Illustration 3 : Assume a constant sum of Rs. 1 is deposited in a savings account at the end of each year for four years at 6 per cent interest. This implies that Rs. 1 deposited at the end of the first year will grow for 3 years, Rs. 1 at the end of second year for 2 years, Rs. 1 at the end of the third year for 1 year and Rs. 1 at the end of fourth year will not yield any interest. Using the concept of the compound value of a lump sum, we can compute the value of annuity. The compound value of Rs. 1 deposited in the first year will be: Rs. 1 $(1+0.06)^3$= Rs. 1.191, that of Rs. 1 deposited in the second year will be: Rs. 1 $(1+0.06)^2$ = Rs. 1.124 and Rs. 1 deposited at the end of third year will grow to: Rs. 1 $(1+0.06)^1$ = Rs. 1.06 and Rs. 1 deposited at the end of fourth year will remain Rs 1. The aggregate compound value of Rs.1 at the end of each year for four years is: Rs. 1.191 + Rs. 1.124 + Rs. 1.060 + Rs 1.00 = Rs. 4.375. This is the compound value of an annuity of Rs. 1 for four years at 6 per cent rate of interest.

The above computations can be expressed as follows:

$$FV_4 = A(1+r)^3 + A(1+r)^2 + A(1+r) + A$$

$$FV_4 = A[(1+r)^3 + (1+r)^2 + (1+r) + 1] \qquad \textbf{(2)}$$

Where A is the annuity. We can extend the Equation (2) for n periods and rewrite it as follows:

$$FV_n = \mathbf{A}\left[\frac{(1+r)^n - 1}{r}\right] \qquad \textbf{(3)}$$

The term within brackets is the compound value factor for an annuity of Re. 1. Which we shall refer as CAVF.

Suppose Rs. 1,000 is deposited at the end of each of the next three years at 10 per cent interest rate. The compound value employing Equation (3) is:

$$FV = RS.1000\left[\frac{(1.10)^3 - 1}{0.10}\right]$$

$$= Rs.1000 \times 3.31 = Rs.3310$$

The compound value factor of an annuity (CVAF) should be ascertained from the table to find out the future value of the annuity. We can also write Equation (3) as follows:

$$FV = A\ (CVAF\text{-}_{n\,i}) \qquad \textbf{(4)}$$

Where $CVAF\text{-}_{n\,i}$ is the compound value factor of an annuity for n period at I rate of interest.

Applications of the compound value of annuity : The future value annuity can be applied in a variety of context. Its important applications are illustrated below.

Illustration 4 : Suppose you have decided to deposit Rs. 30, 000 per year in your public provident fund account for 30 years. What will be the accumulated amount in your public provident fund at the end of 30 years if the interest rate is 11 per cent?

The accumulated will be:

$$Rs.30{,}000\ (FVIFA_{11\%,30yrs})$$

$$= Rs.30{,}000\left[\frac{(1.11)^{30-1}}{0.11}\right]$$

$$= Rs.30{,}000\ [199.02]$$

$$= Rs.59{,}70{,}600$$

3.8 PRESENT VALUE OF DISCOUNTING CONCEPT

The concept of the present value is the exact opposite of that of compound value. While in the latter approach money invested now appreciates in value because compound interest is added, in the former approach (present value approach) money is received at some future date and will be worth less because the corresponding interest is lost during the

period. In other words, the present value of a rupee that will be received in the future will be less than the value of a rupee in hand today. Thus, in contrast to the compounding approach where we convert present sums into future sums, in present value approach future sums are converted into present sums. Given a positive rate of interest, the present value of future rupees will always be lower. It is for this reason, therefore, that the procedure of finding present values is commonly called discounting. It is concerned with determining the present value of a future amount, assuming that the decision maker has an opportunity to earn a certain return on his money. This return is designated in financial literature as the *discount* rate, the *cost of capital* or an *opportunity cost.*

Mathematical formula: The process of discounting, used for calculating the present value, is simply the inverse of compounding. The present value formula can be readily obtained by manipulating the compounding formula :

$$FV_n = PV(1+r)^n \qquad \textbf{(5)}$$

Dividing both the sides of Eq. (5) by $(1+r)^n$, we get:

$$\frac{1000}{100} FV_n \, [1/(1+r)^n] \qquad \textbf{(6)}$$

The factor $1/(1+r)^n$ in Eq. (6) is called the discounting factor or the present value interest factor, ($PVIF_{r,n}$**).** In the present value table we find the value of $PVIF_{r,n}$ for several combinations of r and n.

Illustration 5 : What is the value of Rs. 2, 000 receivable 6 years hence if the discount is 10 per cent?

The present value is:

Rs. 2, 000 × $PVIF_{10\%,6}$

= Rs. 2, 000 (0.5645)

= Rs. 1129.0

Present value of an uneven series

$$\text{PV}_n = \frac{A_1}{(1+r)^1} + \frac{A_2}{(1+r)^2} + \cdots \ldots \ldots + \frac{A_n}{(1+r)^n} + \sum_{t=1}^{n} \frac{A_t}{(1+r)^t} \qquad \textbf{(7)}$$

Where PV_n = present value of a cash flow stream

A_t = cash flow occurring at the end of year n

r = discount rate

n = duration of the cash flow stream

Present value of an Annuity

$$PV_n = \frac{A}{(1+r)} + \frac{A_2}{(1+r)^2} + \cdots \ldots \ldots . . + \frac{A_n}{(1+r)^n}$$

$$= \left[\frac{1}{(1+r)} + \frac{1}{(1+r)^2} + \cdots \ldots \ldots . . + \frac{1}{(1+r)^n}\right] \quad \textbf{(8)}$$

According to the table of present value of an annuity is as follows:

$$PV = A\ (PVAF_{n,r})$$

Where $PVAF_{n,r}$ is the present value of an annuity of Re. 1 for n periods at r rate of interest.

Illustration 6: Let us suppose that a person receives an annuity of Rs. 5, 000 for four years. If the rate interest is 10 per cent, the present value of Rs. 5, 000 annuity is:

$$PV = Rs.5{,}000\ (PVAF_{4,\ 0.10})$$

$$= Rs.5{,}000 \times 3.170$$

$$= Rs.\ 15{,}850.$$

3.9 APPLICATION OF TIME VALUE OF MONEY

The concept of time value of money is very significant in various managerial decisions making. Many investment and financing decisions can be taken very easily and logically with the help of time value of money technique. The technique of time value of money is very effective and important tool in the hands of finance manager. Some major applications of time value of money are the following -

1. To find out the present value of a cash flow
2. To find out the future value of a cash flow
3. To create a sinking fund
4. To calculate the time period required to get a specific amount at a given interest rate
5. To find out the rate of interest of an investment
6. To find out the capital recovery period etc.

3.10 SUMMARY

Time value of money is very important tool of financial management. It is a tool in the hands of finance manager of a firm which is used in several decisions making of the firm e.g. calculation of sinking fund, assessment of capital recovery time period, capital budgeting etc. Money has time value. A rupee today is more valuable than a rupee a year hence. The time values of money are future value and present value.

Future value depends on compounding of interest to measure the value of future amounts. When interest is compounded the initial principal of the following period and so on. Interest can be compounded annually, six monthly, quarterly, monthly, weekly, daily or even continuously. The more frequently interest is compounded; the larger is the future amount that will be accumulated.

The main cause behind the time value of money is future risk and uncertainty of future because future is uncertain and it involves many risks. So, in order to meet future risk and uncertainty, money should be managed in a systematic and significant manner to overcome the future risk and uncertainty. With the help of concept of time value of money we can analyze and assess the present and future value of a cash flow. Many investment and money related decisions can be taken very easily with the help of application of time value of money.

Present value represents the opposite (inverse) of compound value. In finding the present value of a future sum, we determine what amount of money today would be equivalent to the given future amount, considering the fact that we can earn certain return on this money. The sum is discounted using a discount rate the future values and present values can be used to determine (i) the deposit needed to accumulate a future sum, (ii) loan amortization payments (iii) Interest and growth rates and so on. The present value of perpetuity can also be calculated.

3.11 SELF-ASSESSMENT QUESTIONS

1. What do you mean by time value of money?

2. What are the reasons for time value of money?

3. 'Generally individuals show a time preference for money'. Give reason for such a preference.

4. What is Compounding?

5. Explain the concept of discounting.

6. What is Present Value? How it is calculated?

7. Explain present value annuity method.

8. Describe the meaning of future value and process of finding future value.

9. What are the applications of time value of money?

10. Explain the compounding annuities.

11. Discuss multiple compounding periods.

12. What are the components of time value of money?

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UNIT-4 BREAK EVEN ANALYSIS

STRUCTURE

4.1 OBJECTIVES

After studying this unit, you should be able to explain:

- Meaning and definition of break-even analysis;
- Assumption and limitations of BEP;
- Calculation of BEP, P/V ratio and margin of safety; and
- Uses of break-even analysis.

4.2 INTRODUCTION

Profit maximization is the main objective of every organization. Maximization of profit is not an easy task. It requires great planning and execution of effective strategies for the same. In order to evaluate the earning capacity of a business and formulation of strategies, various tools are used by the financial managers. Amongst the various tools used by the managers to earn and maximize the profit, Break Even Analysis is also an important tool of profit management. Under this analysis, revenue and cost

of a firm in relation to sales are studied. Hence, Break Even Analysis is a costing technique that helps managers of a firm in profit management.

Break Even Analysis is the study of revenue and cost in relation to sales volume of a business unit and to determine the level of sale where sales revenue just equals to total cost. Break Even Point is a point where sales revenue and total cost are equal. Thus, it refers to a system of determination of that level of activity where total sales are equal to total cost. This level of activity is generally termed as Break Even Point. At this point of activity, a firm neither earns profit nor incurs any loss. Break Even Point is also called as "Zero Profit and Zero Loss" or "No Profit no Loss" Point.

4.3 MEANING AND DEFINITION OF BREAK-EVEN ANALYSIS

(a) According to **Charles T. Horngren, "**The Break Even Point is that point at which sales volume total revenues and total expenses are equal, it is also said as the point of zero profit or zero loss."

(b) According to **Keller and Ferrara, "**The Break Even Point of a company or a unit of a company is that level of sales income which will equal the sum of its fixed costs and its variable costs."

(c) According to **G.R. Growningshield**, "Break Even Point is the point at which sales revenue equals the cost to make and sell the product and neither profit nor loss is reported."

A break-even analysis indicates the relationship between the costs and profits with sales volume. The sales volume which equals total revenue with related costs and results in neither profit nor loss is called break-even volume or point (BEP). If all costs are assumed to be variable with sales volume, the BEP would be at zero sales. If all costs were fixed, profits would vary disproportionately with sales and the BEP would be at a point where total sales revenue equaled fixed costs. However, both are purely hypothetical situations. In real, costs consist of both fixed and variable elements.

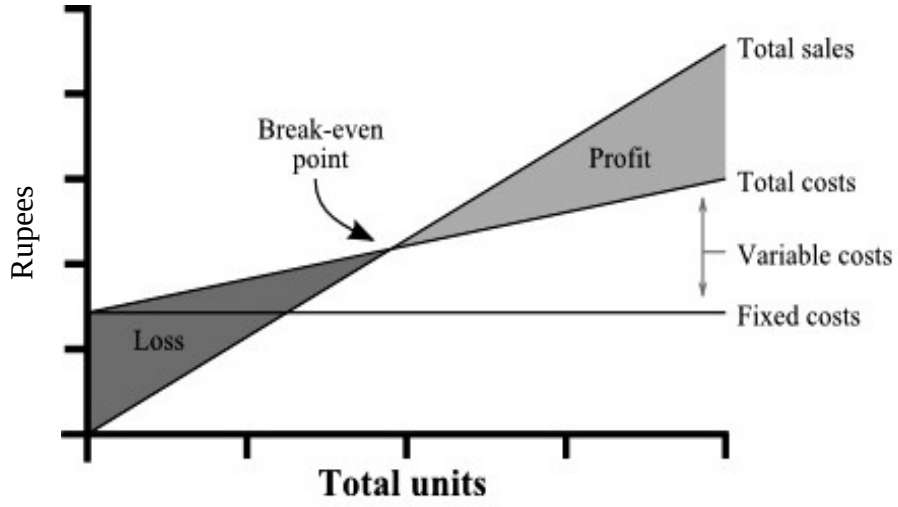
The break-even point is that point of sales volume at which total revenue is equal to total cost. It is a point of no profit, no loss. A business is said to break-even when its total sales are equal to its total costs. The break-even point refers to that level of output which evenly breaks the costs and revenues. At this point, contribution i.e. sales minus marginal cost, equals the fixed cost and hence this point is often called as "Critical Point" or "Equilibrium Point" or "Balancing Point". If production/sales is increased beyond this level, there shall be profit to the organisation and if it is decrease from this level, there shall be loss to the organisation.

Break-even point can be stated in the form of an equation:

Sales revenue at break-even point = Fixed Costs + Variable Costs.

If sales exceed Break Even Point, profit arises and if sales fall below Break Even point, loss emerges. At Break Even Point, total sales and total costs are equal resulting into no profit no loss. Hence it can be shown as –

Sales = Variable Cost + Fixed cost Or S= VC + FC



Fixed Cost : Fixed Costs are those expense items that generally do not change in the short-run regardless of how much you sell. Fixed costs are typically the expenses that you pay out regularly that do not go up or down with sales level. Examples of fixed costs include general office expenses, rent, depreciation, utilities, telephone, property tax, and the like. Obviously all expenses vary over the long run.

Variable Cost: Variable Costs are those expenses that change with the level of sales. These costs vary with sales because they are directly involved in making the sale.

4.4 ASSUMPTIONS OF BREAK EVEN ANALYSIS

The Break Even Analysis is based on the following assumptions:

1. Fixed cost remains constant at all volume of output.
2. There is harmonization between production and sales.
3. Generally productivity per worker remains constant.
4. Price level generally remains constant.
5. Variable cost remains constant per unit of output irrespective of the level of output and thus fluctuates directly in proportion to change in the volume of output.
6. Selling price per unit remains constant at all levels of output.
7. All elements of cost (i.e. production, administration and selling & distribution) can be classified into fixed and variable components.

4.5 CALCULATION OF BEP ANALYSIS

There are two methods for the computation of B.E.P.:

1. Equation method
2. Contribution method

EQUATION METHOD : This method uses the following which also expresses the relationship of the items of income statement.

Sales = Variable Expenses + Fixed Expenses + Profit

This simple equation may be used to any break-even or profit estimate situation. For example, selling price is Rs. 10 per unit; variable cost is Rs. 6 per unit and fixed cost Rs. 5000. Assuming that X is the number of units to be sold to break-even, the values in the above formula can be substituted as:

10 X = 6 X + 5000

Or 10 X - 6 X = 5000

Or 4X = 5000

Or X = 5000/4 = 1250 units.

CONTRIBUTION METHOD : This method is very important and useful method for the calculation of B.E.P. and its applications. This method involves two basic tools, i.e. "Contribution" and "Profit-Volume Ratio".

Contribution : It means difference between sales and the variables/marginal cost of sales. In other words, the excess of sales over its variable cost is called contribution. It is also known as "Contribution Margin" and "Gross Margin". It can also be explained that contribution refers to that excess of sales over its variable costs which are available to cover fixed cost and to earn profit. If the amount of contribution is less than fixed cost, it will be a position of loss to the firm and if it is equal to fixed cost, it will be a situation of no profit and no loss.

Suppose, selling price is Rs. 20 per unit and variable cost is Rs. 16 per unit, then contribution will be (20 - 16) Rs. 4 per unit. Similarly, if total sales of a firm is Rs. 50000 and total variable cost is Rs. 30000, then contribution will be (50000 - 30000) Rs. 20000.

The concept of contribution is very useful from the point of view of managerial decisions and it can help the management in the following calculations:

(i) Determination of Break-even- point.

(ii) Determination of selling price.

(iii) Make or buy decisions.

(iv) Selection of best option among various alternative products.

(v) Optimum product-mix for maximizing profit.

The amount of contribution can be computed as follows:

(i) Contribution = Sales - Variable Cost
(ii) Contribution = Fixed Cost + Profit / (- Loss)
(iii) Contribution = Sales x P/V Ratio

(iv) Contribution per unit = Sales per unit - Variable Cost per unit

4.6 P/V RATIO AND MARGIN OF SAFETY

(A) PROFIT-VOLUME RATIO : It is ratio of contribution to sales and is expressed generally in terms of percentage. It is one of the most important ratios for studying the profitability of operations of a business. The concept of P/V ratio is also useful to calculate the break-even point, the profit at a given volume of sales, the sales volume required to earn a desired profit and volume of sales required to maintain the existing profits if selling price is reduced by a specified percentage. The following formula can be used for the calculation of P/V Ratio:

P/V Ratio = [Contribution X 100]/ Sales or

P/V Ratio = [Sales- variable cost]/Sales X 100

Example 1: If the Sales are Rs. 1000000 and Variable Cost Rs. 400000 than Calculate P/V Ratio.

Solution:		
	Sales	1000000
	Less : Variable Cost	400000
	Contribution	600000

P/V Ratio = [Contribution X 100]/ Sales

or (600000 x 100) / 100000

or 60%.

or P/V Ratio = [Sales- variable cost]/Sales X 100

or (1000000 -- 400000) / 1000000 x 100

P/V Ratio = 60%.

The ratio of the contribution to sales is known as P/V ratio (profit-volume ratio). This ratio is significant for management accountant for decisions making. The ratio has certain special features:

(i) It enables management to ascertain total contribution in terms of rupees for a given level of sales.

(ii) It remains constant so long as the selling price and variable cost per unit remain constant or vary proportionately.

(iii) It is unaffected by any change in the level of activity. Hence, the ratio would be constant whether studied on 10,000 units' basis, 100 units basis or a single unit basis.

(iv) The ratio is unaffected by any change in the fixed cost because the latter does not enter into the computation of contribution at all.

A substitute of P/V ratio is "contribution per unit". This is also an equally effective tool for the management accountant in analyzing data. The significance of P/V ratio or contribution per unit is varied and far-reaching.

(B) MARGIN OF SAFETY : Margin of safety (safety margin) is the difference between the intrinsic value of a stock and its market price. Another definition: In Break-even analysis (accounting), margin of safety is how much output or sales level can fall before a business reaches its breakeven point.

MOS IN INVESTING : Margin of safety is a principle of investing in which an investor only purchases securities when the market price is significantly below its intrinsic value. In other words, when market price is significantly below your estimation of the intrinsic value, the difference is the margin of safety.

Calculation of MOS : The margin of safety formula is calculated by subtracting the break-even sales from the budgeted or projected sales. This formula shows the total number of sales above the breakeven point. In other words, the total number of sales rupees that can be lost before the company loses money.

$$\text{MOS} = \text{Actual Sales} - \text{BEP Sales}$$

$$\text{MOS percentage} = \frac{(\text{Actual Sales} - \text{BEP Sales})}{\text{Actual sales}} 100$$

For example, if the price is Rs.10 and the unit variable cost is Rs. 2, then the unit contribution margin is Rs. 8, and the contribution margin ratio is Rs. 8/ Rs. 10 = 80%. Profit and Loss as Contribution minus Fixed Costs. Contribution margin can be thought of as the fraction of sales that contributes to the offset of fixed costs.

4.7 APPLICATIONS OF BREAK-EVEN ANALYSIS

Break-even analysis is a very useful and important technique of profit planning and decision-making. It can be applied for selecting the best proposal, for testing the profitability of proposed actions and for

various other decisions. Some important areas of its uses or application are as follows:

1. Determination of sales to earn desired profit.
2. Fixation of new selling price at a particular break-even point.
3. Estimation of margin of safety.
4. Estimation of effects of change in fixed and variable costs on B.E.P. and sales.
5. Calculation of necessary sales to cover proposed expenses.
6. Determination of Break-even point.
7. Calculation of profit at different levels of sales.
8. Make or buy decision.
9. Determination of optimum sales-mix.
10. Decision of change of capacity.

4.8 UTILITY OF BREAK-EVEN ANALYSIS

Break Even Analysis is very vital technique of profit management. It is a tool that explains relationship between cost, volume and profits. The utility of Break Even Analysis are the following –

1. **Profit Management**: The Break Even Analysis is very important tool in the hand of manager's to manage the profit of an organization. With the help of break-even analysis sales volume of required profit may be ascertained very easily.
2. **Cost Control:** Break Even Analysis is very useful in cost controlling also. It provides detailed information and composition about fixed cost and variable cost. Hence it is very helpful in cost control.
3. **Risk Assessment**: Break Even Analysis provides a base for the assessment of risk of loss due to low sale volume. With the help of Break Even Analysis we can find out the amount of minimum sales volume below which the firm will incur loss.
4. **Pricing:** Break Even Analysis plays very important role in pricing also. An effective pricing strategy may be formulated by exercising break even analysis.
5. **Production Management**: Break Even Analysis may be applied in production management for determining output level. It is very important to produce optimum level of goods for improving the profitability. Break Even Analysis helps in determining an optimum output level.

4.9 ADVANTAGES OF BREAK EVEN ANALYSIS

Advantages of Break Even Analysis

1. It is simple to conduct and understand.
2. It shows profit and loss at different levels of output.
3. It can cope with changing circumstances.
4. It provides useful guidelines to management on break-even points, safety margins and profit/loss levels at different rates of output.
5. Comparisons can be made between different options by constructing new charts to show changed circumstances.

4.10 LIMITATIONS OF BREAK EVEN ANALYSIS

1. It assumes that all output is sold at the given price which is unrealistic
2. Although it can cope with changes in circumstances, these factors change regularly reducing its usefulness as a forecasting tool.
3. The model assumes that costs increase constantly and do not benefit from economies of scale. If the firm obtains purchasing economies of scale then its total cost line will no longer be straight.
4. Break-even analysis is only as good as the data upon which it is based. Poor quality data will lead to inaccurate conclusions being drawn.
5. Not all costs can be conveniently classified into fixed and variable costs. The introduction of semi-variable costs will make the technique more complicated.
6. It is also unrealistic sometimes that fixed costs will remain unchanged at different output levels up to a maximum capacity.

4.11 SUMMARY

Break Even Analysis is very important toll of profit management. With the help of break-even analysis a firm can decide its volume of production for desired amount of profit. Break Even Analysis helps a firm to find out its Break Even point or the point of sales at which no profit and no loss. It plays vital role in the pricing strategies also. Though it is very useful tool but it should be applied very carefully. During its application various factors of production & economy should be considered for best result.

Break-even analysis is the most used financial analysis technique for financial planning and control in relatively simple situations. On the basis of the degree of responsiveness of the cost at various activity levels it can be classified into three types: fixed costs, variable costs and semi-variable costs. Semi-variable cost falls somewhere between fixed and variable cost elements. The P/V ratio is an important tool for measuring the contribution in present and to estimate for future.

4.12 SELF-ASSESSMENT QUESTIONS

1. What do you mean by Break Even Analysis?

2. Discuss the various assumptions of Break Even Analysis.

3. Describe the advantages of Break Even Analysis.

4. What are the limitations of Break Even Analysis?

5. Discuss the importance of Break Even Analysis in managerial decision making.

6. What kind of questions may be answered with the help of BEP analysis?

7. How would you calculate the overall break-even volume of a multi-product firm?

8. Explain the methods of Break-Even Point.

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Uttar Pradesh Rajarshi Tandon
Open University

M.Com-104
Financial Management

BLOCK

2

FINANCIAL ANALYSIS

परिशिष्ट–4
आन्तरिक कवर–दो का प्ररूप
Format of the II Inner Covers

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परिमापक

अनुवाद की स्थिति में

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मूल सम्पादक	भाषा सम्पादक
मूल परिमापक	परिमापक

सहयोगी टीम

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प्रुफ रीडर

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BLOCK-II FINANCIAL ANALYSIS

In Block-II the learner will know aboutdifferent methods and techniques of financial analysis including the topics like ratio analysis, fund flow statement, cash flow statement and dividend policy, etc.

Unit-5 discusses about meaning of ratio and ratio analysis; importance and limitations of ratio analysis; precautions in using ratios, liquidity, profitability, and capital structure, and turn over ratios.

Unit-6 explains conceptof funds flow statement, characteristicsof funds flow statement, preparation, importance and limitations of funds flow statement; distinction between funds flow statement and other financial statements.

Unit-7 deals with introduction and format as per as-3 of cash flow statement; significance and limitations of cash flow statement; distinctions between cash flow statement and funds flow statement.

Unit-8 explainsmeaning and kinds of dividend; factors affecting dividend policy; characteristics of suitable dividend policy; walter's model and gordon's model, millarand modigliani model.

UNIT-5 RATIO ANALYSIS

UNIT FRAMEWORK

5.1 OBJECTIVES

After studying this unit, you should be able to:

- To define the term‘Ratio Analysis’;
- To explain the different approaches of ratio analysis;
- To describe the importance and limitationsof ratio analysis;
- To explain the precautions in using ratios;
- To describe the classification of ratios; such as liquidity, profitability, capital structure and turn over ratios.

Ratios are calculated from the financial statementsto arrive at meaningful conclusions pertaining to liquidity, profitability, and capital structure. Ratio analysis can be of different types. In this unit, we willlearn about different types of ratio analysis and their method ofcalculation.

It is concerned with the calculation of relationships, which after proper identification & interpretation may provide information about the

operations and state of affairs of a business enterprise. The analysis is used to provide indicators of past performance in terms of critical success factors of a business. This assistance in decision-making reduces reliance on guesswork and intuition and establishes a basis for sound judgments.

5.2 INTRODUCTION OF RATIO ANALYSIS

A basic limitation of the traditional financial statement comprising the balance sheet and the profit and lossaccount provides a summarised view of the financial position and operations of a firm. Different parties areinterested in the financial statement for different purposes and look at them from different angles. For example the debenture holders analyse the statements in order to ascertain the ability to payinterest and maturity amount. The prospective shareholders would like to know whether the business isprofitable and is progressing on sound lines. The management is interested in the operational efficiency as well-as financial position of the business. Hence, the main objective of financial analysis is to make detailstudy about the cause and effect of the profitability and financial condition of the firm. Hence, ratio analysisis a tool to predict operational as-well-as financial efficiency of business through analysis & interpretation offinancial data.

So analysis of financial statement is a process of selection, relation and evaluation. The first task of thefinancial analyst is to select the information relevant to the decision under consideration. The second step isto arrange the information in a way to highlight significant relationships. The final step is interpretation anddrawing of inferences and conclusions.The present chapter involves an in-depth analysis of financial statements and its use for decision making byvarious parties interested in them.

5.3 MEANING OF RATIO AND RATIO ANALYSIS

The term “Ratio” simply means one number expressed in terms of another. It describes in mathematicalterms the quantitative relationship that exists between two numbers. The term “Accounting Ratio” is used todescribe significant relationship between figures shown on a Balance Sheet, in a Profit and Loss Account.

Ratio analysis refers to the analysis and interpretation of financial statements through ratios.Ratios are customarily presented either in the form of a coefficient or a percentage or as a proportion.Absolute figures may be misleading unless compared, one with another. Ratios provide the means of showingthe relationship that exists between figures. However, the numerical relationships of the kind expressed byratio analysis are not an end in them but are a means for understanding the financial position of abusiness. Ratios, by themselves, are meaningless, simple ratios compiled from a single year’ financialstatements of an enterprise may not serve the real purpose. Besides, in order to reach valid conclusions,ratios are to be

worked out from the financial statement of a number of years and have to be compared withsome standards that are established after a systematic review of past experiences. A single ideal standardcannot be applied for all types of business. Each business has its own limitations; hence ideal ratio willdiffer between industries and also differ with size, capital and other factors.

5.4 DIFFERENT APPROACHES OF RATIO ANALYSIS

Generally, there are four different approaches are available for interpreting ratios.

(A). Interpretation of Individual Ratios: A single ratio fails to reveal the true position. If it relates to preceding years or compared with same type of other business or studied with reference to somestandards, may be useful. Hence this approach is to be combined with others.

(B). Interpretation by Referring to a Group of Ratios: The analysis could be made more meaningfulby computing some of the additional related ratios. A Change in one ratio may have significanceonly when viewed in relation to other ratios.

(C). Interpretation of Ratios by Trend: It involves a comparison of ratios of a firm overtime. Thetrend ratios indicate the direction of change over the years.

(D). Interpretation by Inter-firm Comparisons: It involves comparison of the ratios of a firm withthose of others in the same line of business or for the industry as a whole reflects its performance inrelation to its competitors.

5.5 IMPORTANCE OF RATIO ANALYSIS

1. It is an invaluable aid to management for planning, forecasting, control and decision making.

2. Ratios enable the mass of accounting data to be summarized and simplified.

3. It facilitates better co-ordination and control of performance as-well-as control of costs.

4. It is a tool to assess important characteristics of business like liquidity, solvency, profitability etc.

5. It is an effective tool of analysis for intra-firm and inter-firm comparisons.

6. It enables a firm to take time dimension into account by using trend analysis of ratios.

7. It enables the easy understand ability for accounting figures, for those who do not know the language of accounting.

8. It is an effective means of communication to the owners and other parties interested therein.

5.6 CLASSIFICATION OF RATIOS

Ratios may be classified in a number of ways to suit any particular purpose. Different kinds of ratios areselected for different types of situation. In general, the following bases of classification are in vogue.

(A). Classification According to Accounting Statement: This classification is based on the nature of accounting statement such as Balance sheet ratios. Profit and loss Account Ratios, combined ratios etc.

(B). Classification According to Importance: It's like primary ratios and secondary ratios. Some of the ratios are termed as primary and others are termed as subsidiary or supporting ratios.

(C). Classification According to Functions: ratios are grouped as liquidity, Activity, Profitability, long-term solvency and Market analysis ratios.

From the above discussion, it may be observed that one basis of classification blends to another. We aretaking classification according to functions for description.

5.6.1 ANALYSIS OF LIQUIDITY

Liquidity refers to the ability of a firm to meet its short-term financial obligations when and as they fall due. The main concern of liquidity ratio is to measure the ability of the firms to meet their short-term maturing obligations. The greater the coverage of liquid assets to short-term liabilities the better as it is a clear signal that a company can pay its debts that are coming due in the near future and still fund its ongoing operations. On the other hand, a company with a low coverage rate should raise a red flag for investors as it may be a sign that the company will have difficulty meeting running its operations, as well as meeting its obligations.The following areliquidity ratios:

(i) Current Ratio : The number of times that the short term assets can cover the short term debts. In other words, it indicates an ability to meet the short term obligations as & when they fall due.It may be defined as the ratio of current assets to current liabilities. It is expressed as:

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

Current assets normally includes cash in hand and at bank, marketable securities, bills receivable, Book debts excluding provision, inventories, prepaid expenses, current liabilities include items such as outstanding expenses, sundry creditors, bills payable, bank overdraft, provision for taxation, proposed dividend, income tax payable, unclaimed dividend etc. Current asset means cash or those assets convertible or expected to be converted into cash within the accounting year and current liabilities are those liabilities to be paid within same time.

Interpretation: It specifies that how much current assets are available to meet current liabilities. Hence these ratios depict the payment capacity of the concern. Thus, it is a measure of margin of safety for creditors. Higher the ratio, the better it is, however but too high ratio reflects an in-efficient use of resources & too low ratio leads to insolvency. The ideal ratio is considered to be 2:1.

(ii) Liquidity Ratio, Quick Ratio or Acid-Test Ratio: It indicates the ability to meet short term payments using the most liquid assets. This ratio is more conservative than the current ratio because it excludes inventory and other current assets, which are more difficult to turn into cash. It is a measure of liquidity of firm, how speedy it is able to repay its current liabilities.

$$\text{Current Ratio or Liquidity Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Quick assets includes all current assets excluding inventories, prepaid expenses, advance tax and advance payments, current liabilities means as it defined in current ratio. It is a more rigorous test of liquidity than the current ratio and, used together with current ratio, it gives a better picture of the short term financial position of the firm.

Interpretation: The ideal ratio is 1:1. Another beneficial use is to compare the quick ratio with the current ratio. If the current ratio is significantly higher, it is a clear indication that the company's current assets are dependent on inventory.

(iii) Super Quick Ratio or Absolute Liquidity Ratio: This ratio is calculated to assess the quick ability to pay liquid liabilities. It is the ratio between absolute liquid assets and liquid liabilities.

$$\text{Super Quick Ratio} = \frac{\text{Cash in hand,Cash at Bank and Marketable Securities}}{\text{Current Liabilities}-\text{Bank Overdraft}}$$

This ratio is the most rigorous and conservative test of a firms liquidity position.

EXAMPLE-1 : Calculate liquid ratio, current ratio and super quick ratio from the following data:

Current Assets	Rs. 50000
Stock	Rs. 10000
Prepaid Expenses	Rs. 5000
Working Capital	Rs. 30000
Bank overdraft	Rs. 5000
Cash balance	Rs. 10000
Marketable securities	Rs. 5000

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{50{,}000}{20{,}000} = 2.5{:}1$$

$$\text{Liquidity Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{35{,}000}{20{,}000} = 1.75{:}1$$

$$\text{SuperQuick Ratio} = \frac{\text{Cash in hand,Cash at Bank and Marketable Securities}}{\text{Current Liabilities} - \text{Bank Overdraft}} =$$

$$\frac{15{,}000}{15{,}000} = 1{:}1$$

5.6.2 ANALYSIS OF TURNOVER RATIO

Firms invest its fund into various assets if utilizations of assets are effective it reflect the sales. Hence, whetherthe funds are effectively utilized, it can be determined by calculating turnover ratio. Activity of utilisation of funds or efficiency can be calculated by following ratios:

(i) Stock Turnover Ratio: It measures the stock in relation to turnover in order to determine how often the stock turns over in the business.It indicates the efficiency of the firm in selling its product.It is computed dividing cost of goods sold by average inventory.Thus:

$$\text{StockTurnover Ratio} = \frac{\text{Cost of goods sold}}{\text{Average Stock}}$$

Cost of goods sold: opening stock + purchases + direct expenses - closing stock(or) Cost of production + opening stock of finished goods - closing stock of finished goods(or) Sales - gross profit

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

Interpretation : The ratio indicates how fast inventory is sold. A high ratio is good from the view point of liquidity and vice versa.Low stock turnover ratio signify that excessive investment in stock, slow moving stock is higher andmarket is in slack position. Whereas, higher turnover ratio specify that firm is able to earn higher profit atlower profit margin.

$$\text{Stock Velocity} = \frac{\text{No.of days or month in a year}}{\text{Stock Turnover Ratio}}$$

(ii) Debtors Turnover Ratio: It is determined dividing the net credit sales by average debtors, thus:

$$\text{DebtorsTurnover Ratio} = \frac{\text{Net credit sales}}{\text{Debtors} + \text{Bills receieable}}$$

Net credit sales = Credit Sales - Sales Return

Average Stock=

$$\frac{\text{Opening Debtors \& } \textit{Bills Receivables} + \textit{Closing Debtors \& Bills Receivables}}{2}$$

The ratio measures how rapidly receivables are collected. A high ratio is indicative of shorter time lagbetween credit sales and cash collection. A low ratio shows that debts are not being collected rapidly.

(iii) Average Collection Period: The average collection period measures the quality of debtors since it indicates the speed of their collection. This ratio specify that in how much days collection is made fromdebtors. Thus:

$$\text{Average collection period} = \frac{\text{Debtors} + \text{Bills receieable}}{\text{Net credit sales}} \text{X No of months}$$

or days in a yearor

$$\frac{\text{Month or days in a year}}{\text{Debtors Turnover}}$$

Interpretation : The shorter the average collection period, the better the quality of debtors, as a short collection period implies the prompt payment by debtors. An excessively long collection period implies a very liberal and inefficient credit and collection performance. The delay in collection of cash impairs the firm's liquidity. On the other hand, too low a collection period is not necessarily favorable, rather it may indicate a very restrictive credit and collection policy which may curtail sales and hence adversely affect profit.

(iii) Creditors Turnover Ratio:

$$\text{CreditorsTurnover} = \frac{\text{Net credit purchases}}{\text{Average payables}}$$

$$\text{Average Payables} = \frac{\text{Opening Bills Payables+Closing Bills Payables}}{2}$$

Net credit Purchases = Total credit purchases - Purchases Return

A low ratio reflects liberal credit terms granted by suppliers, while a high ratio shows that accounts are tobe settled rapidly. A firm can reduce its requirement of current assets by relying on suppliers' credit.

(iv) Creditors Payment Period:

$$\text{Creditors Payment period} = \frac{\text{Average payables}}{\text{Net credit purchases}} \text{X No of months}$$

/Days in a year

This ratio shows that in how much day's amount is paid to suppliers.

(v) Total Assets Turnover Ratio: This ratio indicates the efficiency with which the firm uses all its assets to generate sales.

$$\text{Total Assets Turnover Ratio} = \frac{\text{Cost of goods sold}}{\text{Total Assets}}$$

Total Assets = Net fixed Assets + Current Assets + Intangible Assets (if there is any realizable value) butexcluding fictitious assets.

Interpretation: Higher the firm's total asset turnover, the more efficiently its assets have been utilised.

(vii) Fixed Assets Turnover Ratio: This ratio is a rough measure of the productivity of a company's fixed assets with respect to generating sales.

$$\text{Fixed Assets Turnover Ratio} = \frac{\text{Cost of goods sold}}{\text{Net Fixed Assets}}$$

Interpretation : This ratio specifies the efficiency and profit earning capacity of the firm.High fixed assets turnovers are preferred since they indicate a better efficiency in fixed assets utilization.

(viii) Current Assets Turnover Ratio:

$$\text{Current Assets Turnover Ratio} = \frac{\text{Cost of goods sold}}{\text{Current Assets}}$$

It reflects the efficiency & capacity of working capital.

(ix) Capital Turnover Ratio:

$$\text{Capital Turnover Ratio} = \frac{\text{Cost of goods sold}}{\text{Capital Employed}}$$

Capital employed = Fixed Assets + Current Assets - Current Liabilities (excluding fictitious assets andnon-trading assets)

Efficiency and effectiveness of business operations are judged by this ratio. It is a better measurement ofuse of capital employed.

(x) Working Capital Turnover Ratio:

$$\text{Working Capital Turnover Ratio} = \frac{\text{Cost of goods sold}}{\text{Net Working Capital}}$$

It is used to assess the efficient use of working capital in making sales. A high ratio indicates over tradingand a low ratio indicates under trading.

Note: In above ratios always cost of goods sold is taken but if it is not available then "sales" may beused. If opening balance is not given then only closing balance will be taken for calculation. In theabsence of specific information all sales/purchases are treated as credit, purchase return and sales returnsare also treated as return from credit.)

EXAMPLE-2: From the following balance sheet, calculate turnover ratios:

Liabilities	**Rs.**	**Assets**	**Rs.**

Share Capital	80000	Fixed Assets	150000
Profit and Loss Account	80000	Debtors	60000
15% Mortgage loan	70000	Bills receivables	20000
Creditors	50000	Stock	40000
Bills Payable	20000	Cash at Bank	20000
		Preliminary expenses	10000
	300000		**300000**

Sales during the year amounted to Rs. 60000 which yielded a gross profit of 20%. Receivables at thebeginning Rs. 70000 and payables at the end Rs. 60000, Opening stock Rs. 30000.

Solution:

Cost of goods sold = Rs. 160000 - 32000 = 128000

Capital employed = Rs. 150000 + 60000 + 20000 + 40000 + 20000 - (50000 + 20000) = 220000

Average stock = (30000 + 40000) / 2 = Rs. 35000

Stock Turnover Ratio = $\frac{\text{Cost of goods sold}}{\text{Average Stock}} = \frac{128000}{35000}$ = 3.66 times

DebtorsTurnover Ratio= $\frac{\text{Net credit sales}}{\text{Average receieable}} = \frac{160000}{75000}$ = 2.133 times

Average Stock=

$$\frac{\text{Opening Debtors \& } \textit{Bills Receivables} + \textit{Closing Debtors \& Bills Receivables}}{2}$$

Average Stock= $\frac{(60000+20000)+70000}{2}$ = Rs. 75000

CreditorsTurnover = $\frac{\text{Net credit purchases}}{\text{Average payables}} = \frac{138000}{65000}$ = 2.12 times

Average Payables = $\frac{\text{Opening Bills Payables} + \text{Closing Bills Payables}}{2}$

Average Payables = $\frac{(50000+20000)+60000}{2}$ = Rs. 65000

Cost of goods sold =Opening stock + Purchases – Closing stock

128000 = 30000+Purchases-40000

Purchases =Rs. 138000

Total Assets Turnover Ratio $= \frac{\text{Cost of goods sold}}{\text{Total Assets}} = \frac{128000}{290000} = 0.4413: 1$

Fixed Assets Turnover Ratio $= \frac{\text{Cost of goods sold}}{\text{Net Fixed Assets}} = \frac{128000}{150000} = 0.853 : 1$

Capital Turnover Ratio $= \frac{\text{Cost of goods sold}}{\text{Capital Employed}} = \frac{128000}{220000} = 0.58: 1$

Working Capital Turnover Ratio $= \frac{\text{Cost of goods sold}}{\text{Net Working Capital}} = \frac{128000}{70000} =$

1.82 : 1

5.6.3 ANALYSIS OF PROFITABILITY

Profitability is the ability of a business to earn profit over a period of time. The profitability ratios show the combined effects of liquidity, asset management (activity) and debt management (gearing) on operating results. The overall measure of success of a business is the profitability which results from the effective use of its resources.Profitability depends on quantum of sales and use offinancial resources. It can be calculated on these two bases:

(a) Profitability Ratios Based on Sales :

(i) Gross Profit Ratio:A company's cost of goods sold represents the expense related to labor, raw materials and manufacturing overhead involved in its production process. This expense is deducted from the company's net sales/revenue, which results in a company's gross profit. The gross profit margin is used to analyze how efficiently a company is using its raw materials, labor and manufacturing-related fixed assets to generate profits.

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

Interpretation : The higher the ratio, the greater will be the margin and lower the ratio the profit is declining in comparison tosales. It means higher the ratio, the higher is the profit earned on sales.

(ii) Operating Ratio: By subtracting selling, general and administrative expenses from a company's gross profit number, we get operating income. Management has much more control over operating expenses than its cost of sales outlays. It Measures the relative impact of operating expenses.

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

Interpretation: Lower the ratio, lower the expense related to the sales.

(iii) Operating costs = Cost of goods sold + operating expenses

It indicates the operational efficiency and profit earning capacity of the firm.

(iv) Expenses Ratios :

(a) Material consumed Ratio $= \frac{\text{Material consumed}}{\text{Net Sales}} \times 100$

(b) Finance expenses Ratio $= \frac{\text{Finance expenses}}{\text{Net Sales}} \text{ x } 100$

(c) Manufacturing /Administration /Selling expenses Ratio $= \frac{\text{Manufacturing /Administration /Selling expenses}}{\text{Net Sales}} \text{x} 100$

It reveals the managerial efficiency by comparing these ratios over a period of time.

(v) Net Profit Ratio $= \frac{\text{Net Profit (After Tax or Before Tax)}}{\text{Net Sales}} \text{x} 100$

It reveals overall profitability and efficiency of the business. A high ratio means adequate return to theowners and firms capacity to stand in a competitive market. If the ratio is calculated on before tax profitit measure the managerial efficiency and if it is calculated by taking after tax then it is used for comparingtwo firms or for the owner's purpose.

Interpretation: Higher the ratio, the more profitable are the sales.

(B) Profitability Ratio Based on Capital: Efficiency of enterprises can be judged by capitalemployed also because sometimes conclusions drawn on the basis of net profit to sales may bemisleading. Such important ratios are:

(a) Return on capital Employed (ROCE) (Return on Investment): This ratio complements the return on equity ratio by adding a company's debt liabilities, or funded debt, to equity to reflect a company's total "capital employed". This measure narrows the focus to gain a better understanding of a company's ability to generate returns from its available capital base.

$$\text{ROCE} = \frac{\text{Net Profit Before Tax}}{\text{Capital Employed}} \text{x}100$$

(or)Assets Turnover x Profit Margin

$$\text{(or)} \frac{\text{Sales}}{\text{Total Assets}} \text{X} \frac{\text{Net Profit}}{\text{Sales}} \text{x}100$$

Capital Employed means : Gross Capital Employed = Fixed and current Assets (excluding fictitious Assets and intangible assets if ithas no realizable value)

Net Capital Employed = Total Assets (excluding fictitious assets and intangible assets which has no value)- current liabilities.

Average Capital Employed = Opening and Closing Capital employed/2

(or) Capital Employedat the end - 1/2 of Current year's profit

It is barometer of the overall performance of the enterprise. It is a measure of the earning power of thenet assets of the business. It is beneficial for inter firm and intra-firm comparison.

Interpretation: It is a more comprehensive profitability indicator because it gauges management's ability to generate earnings from a company's total pool of capital.

(b) Return on Net Worth:

$$\text{ReturnonNetWorth} = \frac{\text{Net Profit After Tax \& } \textit{Interest}}{\text{Net Worth}} \text{x}100$$

Net worth or shareholders fund or owners' equity or Proprietors funds =E. S Capital + P.S. Capital + Securities Premium + reserves and surplus (after adjusting fictitious assetsand losses)

This ratio reveals that amount of earnings for each rupee that the shareholders have invested in thecompany. It is useful for inter-firm and intra-firm comparison.

(c) Return on Equity Shareholders Funds:

$$\text{Return on Equity Shareholders Funds} = \frac{\text{Net Profit After Tax} - \text{Preference Dividend}}{\text{Equity Shareholders Funds}} \times 100$$

The ratio provides adequate test to evaluate whether a company has earned satisfactory return for itsequity holders or not. Investor can compare the normal rate of return in market with this rate to reach oninvestment decision.

(d) Return on Total Assets :

$$\text{Return on Total Assets} = \frac{\text{Net Profit After Tax}}{\text{Total Assets Excluding Fictitious Assets}} \times 100$$

EXAMPLE-3 : From the following balance sheet calculate N.P. Ratio, ROCE, Return on equity shareholders fund.

Liabilities	**Rs.**	**Assets**	**Rs.**
4000 Equity share Capital of Rs. 100 each	400000	Net Fixed Assets	700000
10% P.S. Capital	100000	Current Assets	230000
Reserves	50000	Preliminary Expenses	20000
Current year's profit (tax rate 50%)	150000		
12% Debentures	100000		
Current Liabilities	150000		
	950000		**950000**

Sales 15,00,000

Solution:

$$\text{Net Profit Ratio} = \frac{\text{Net Profit After Tax}}{\text{Net Sales}} \text{x}100$$

$$= \frac{150000}{1500000} \text{x}100 = 10\%$$

$$\text{ROCE} = \frac{\text{Net Profit Before Tax}}{\text{Capital Employed}} \text{x}100$$

$$= \frac{300000}{9300000} \text{x}100 = 32.26\%$$

Net Profit before Tax =Net Profit after Tax+Tax = 150000+150000 = Rs. 30000

Capital Employed (Total) = Fixed Assets + Current Assets = 700000+230000 = Rs. 930000

Return on Equity Shareholders Funds=

$$\frac{\text{Net Profit After Tax} - \text{Preference Dividend}}{\text{Equity Shareholders Funds}} \text{x}100$$

$$= \frac{150000 - 10000}{600000} \text{x}100 = 23.33\%$$

5.6.4 ANALYSIS OF CAPITAL STRUCTURE RATIOS

These ratios are called as leverage or capital structure or debt management ratios. All these are expressedas follows:

(1) Debt Equity Ratio: This ratio measures how much suppliers, lenders, creditors and obligators have committed to the company versus what the shareholders have committed. This ratio indicates the extent to which debt is covered by shareholders' funds.

$$\text{Debt Equity Ratio} = \frac{\text{External Equities or Total Debts}}{\text{Internal equities or Net worth of Total Equity}}$$

External Equities = Short Terms and Long-Term Loans

Internal Equities = Shareholders Funds

Interpretation : A lower ratio is always safer, however too low ratio reflects an in-efficient use of equity. Too high ratio reflects either there is a debt to a great extent or the equity base is too small. This ratio should be balanced.

(2) Proprietary Ratio: The proprietary ratio (also known as the **equity ratio**) is the proportion of shareholders' equity to total assets, and as such provides a rough estimate of the amount of capitalization currently used to support a business. It reveals the general financial strength of the business.

$$\text{Proprietary Ratio} = \frac{\text{Proprietary Funds}}{\text{Total Assets}}$$

$$= \frac{\text{Ordinary Shareholder's Interest}}{\text{Total Assets}}$$

Interpretation : A high equity ratio reflects a strong financial structure of the company. A relatively low equity ratio reflects a more speculative situation because of the effect of high leverage and the greater possibility of financial difficulty arising from excessive debt burden.

(3) Solvency Ratio: Solvency ratio is one of the various ratios used to measure the ability of a company to meet its long term debts. Moreover, the solvency ratio quantifies the size of a company's after tax income, not counting non-cash depreciation expenses, as contrasted to the total debt obligations of the firm.

$$\text{Solvency Ratio} = \frac{\text{Total Debt}}{\text{Total Assets excluding Fictitious Assets}}$$

Interpretation : If total assets are more than external liabilities, the firm is treated as solvent.

(4) Fixed Assets Ratio: Fixed-asset turnover is the ratio of sales (on the profit and loss account) to the value of fixed assets (on the balance sheet). It indicates how well the business is using its fixed assets to generate sales.

$$\text{Fixed Assets Ratio} = \frac{\text{Net Fixed Assets}}{\text{Capital Employed}}$$

Interpretation : It indicates whether there is proper adjustment between long-term funds and fixed use of capital.A declining ratio may indicate that the business is over-invested in plant, equipment, or other fixed assets.

(5) Capital Gearing Ratio: Capital gearing ratio is a useful tool to analyze the capital structure of a company and is computed by dividing the common stockholders' equity by fixed interest or dividend bearing funds.

$$\text{CapitalGearing Ratio} = \frac{\text{Variable cost bearing capital}}{\text{Fixed cost bearing capital}}$$

Variable cost bearing capital = Equity holders funds

Fixed cost bearing capital = Debentures + long term loans+Preference Shares

Interpretation: A higher ratio reveals that lesser fixed financial charges thus more surpluses available to shareholders.Whereas, lower ratio indicate over burden of financial charges and it is the situation of high gearing.

(6) Interest Coverage Ratio or Service Ratio: The interest coverage ratio is used to determine how easily a company can pay their interest expenses on outstanding debt. The ratio is calculated by dividing a company's earnings before interest and taxes (EBIT) by the company's interest expenses for the same period.

$$\text{InterestCoverageRatio orService Ratio} = \frac{\text{Net Profit before interest and tax}}{\text{Fixed Interest charge}}$$

Interpretation : It is very significant for loan providers. A high ratio indicates sufficient interest paying capacity of the firm to the long term loan providers. Low ratio indicates that the firm is using excessive debt. By this ratio investor can forecast the financial risk through comparing this ratio from standard ratio of the same business.

EXAMPLE-4 : From the following balance sheet calculate:

Debt-Equity Ratio, Proprietory Ratio, Solvency Ratio, Capital Gearing Ratio and Interest Coverage Ratio.

Liabilities	**Rs.**	**Assets**	**Rs.**
7000 Equity Shares of Rs. 10 each	70000	Net Fixed Assets	200000
2000 Preference Shares of Rs. 10 each	20000	Stock	30000
Reserves and surplus	80000	Debtors	30000
8% Debentures	100000	Cash at Bank	30000
Current Liabilities	20000		
	290000		290000

Reserves and surplus includes current year net profit after tax (50%) and interest Rs. 40000.

Solution:

(1)Debt EquityRatio = $\frac{\text{External Equities or Total Debts}}{\text{Internal equities or Net worth of Total Equity}} = \frac{100000+20000}{170000}$ = 0.706: 1

(2) ProprietoryRatio = $\frac{\text{Proprietory Funds}}{\text{Total Assets}} = \frac{170000}{290000}$ = 0.586: 1

(3)Solvency Ratio = $\frac{\text{Total Debt}}{\text{Total Assets excluding Fictitious Assets}}$ =

$\frac{120000}{290000}$ = 0.414: 1

(5)CapitalGearing Ratio = $\frac{\text{Variable cost bearing capital}}{\text{Fixed cost bearing capital}}$ =

$\frac{70000+80000}{200000+100000}$ = 1.25: 1

(6) InterestCoverageRatio orService Ratio =

$\frac{\text{Net Profit before interest and tax}}{\text{Fixed Interest charge}} = \frac{40000+40000+8000}{8000}$ = 11 times

5.7 LIMITATIONS OF RATIO ANALYSIS

Ratio analysis is a widely used tool of financial analysis yet it suffers from various limitations such as:

1. There are no ideal standards for comparison.
2. Ratios are calculated on the basis of financial statements, but financial statements himself suffer from a number of limitations. Hence ratio analysis may fail to serve its purpose.
3. Impact of inflation reflects misleading results, because ratios are calculated on the basis of historical data. Hence inflationary conditions are ignored.
4. Ratios are based on historical data and it is used for future prediction. Hence, forecast for future may be wrong.
5. Ratio is just an aid and cannot replace thinking and personal judgement employed in the decision making process.
6. There are no standard formulae for working out ratios and it makes comparison very difficult.
7. Ratios are tools of quantitative analysis only and normal qualitative factors that may generally influence conclusions derived are ignored while computing ratios.
8. Ratio alone is not adequate. It will be useful when it is used in a group of ratios or compare with over a period of time.

The reliability and significance attached to ratios will largely depend upon the quality of data on which theyare based. They are as good as data itself.

5.8 PRECAUTIONS IN USING RATIOS

A ratio analysis compares a company's financial data for the purpose of identifying a current profit trend or providing context to make a business decision. An accountant or financial analyst preparing this type of document takes several precautions, including ensuring financial data accuracy, before attempting to create a ratio analysis. Failing to take proper precautions can result in inaccurate data and a useless analysis.

1. **Accuracy of Financial Statements:** The reliability of ratios is linked to the accuracy of information in these statements. Before calculating ratios one should see whether proper concepts and conventions have been used for preparing financial statements or not. The precautions will establish the reliability of data given in financial statements.
2. **Objective or Purpose of Analysis:** A creditor, a banker, an investor, a shareholder, all has different objects for studying ratios.

The purpose or object for which ratios are required to be studied should always be kept in mind for studying various ratios.

3. **Selection of Ratios:** Another precaution in ratio analysis is the proper selection of appropriate ratios. The ratios should match the purpose for which these are required.

4. **Use of Standards:** These standards may be rule of thumb as in case of current ratio (2:1) and acid-test ratio (1: 1), may be industry standards, may be budgeted or projected ratios, etc. The comparison of calculated ratios with the standards will help the analyst in forming his opinion about financial situation of the concern.

5. **Caliber of the Analyst:** A wrong interpretation may create havoc for the concern since wrong conclusions may lead to wrong decisions. The utility of ratios is linked to the expertise of the analyst.

6. **Ratios Provide Only a Base:** A businessman will not afford a single wrong decision because it may have far-reaching consequences. The interpreter should use the ratios as guide and may try to solicit any other relevant information which helps in reaching a correct decision.

5.9 SUMMARY

With help of ratio analysis conclusions can be drawn regarding the Liquidity position of a firm. The liquidity positon of a firm would be satisfactory if it is able to meet its current obligation when they become due. Ratio analysis is equally for assessing the long term financial ability of the Firm. Ratio analysis is a systematic use of ratio to interpret the financial statement so that the strengths and weaknesses of a firm can judge.Ratio makes the related information comparable. A single figure itself has no meaning.

Liquidity ratios measure the ability of a firm to meet its short terms obligations and reflects its short term financial strength. Long-term solvency is reflected in its ability to assure the long term creditors with regard to periodic payment of interest and the repayment of loan on maturity. Such ratios reflect the safety margin to the long term creditors.Activity ratios enable the firm to know how efficiently these assets are employed by it. These ratios indicate the speed with which assets are being converted or turned over into sales.Profitability ratios enable the firm to know overall managerial efficiency of the firm. It is calculated on the basis of sales and on the basis of capital.

Ratio analysis in view of its several limitations should be considered only as a tool for analysis rather than as an end in itself. The reliability is based on quality of data used. We have shown liquidity, solvency, and profitability ratios in separate sections in this Primer. However, it is

important to recognize that analysis should not focus on one section in isolation of the others. Liquidity, solvency, and profitability are closely interrelated in most companies.

5.10 SELF-ASSESSMENT QUESTIONS

1. What are the advantages of ratio analysis?

2. Explain the significance of debtor's turnover ratio and liquid ratio.

3. Explain the meaning and significance of the following ratios.

(a). Current ratio

(b). Creditors turnover ratio

(c). Stock turnover ratio

4. What procedure would you adopt to study the liquidity of a business firm?

5. As an investor how would you analysis the financial position of a company.

6. Explain the limitations of financial ratios.

7. "A single ratio has no meaning but group of ratios or comparison over a period or comparison or between similar firms has a utility." Explain this statement.

8. Calculate inventory turnover ratio, receivables collection period and average payment period from the following:

Particulars	**Rs.**	**Particulars**	**Rs.**
Sales	60000	Bills Payable	4000
Net Debtors	12000	Creditors	12000
Purchases	30000	No. of days in a year	360
Inventory	8000	G.P. on Sales	20%

9. A Ltd. has a current ratio 4.5:1 and liquid ratio 3:1 If its stock is Rs. 72000. Calculate its total current assets and current liabilities.

(Ans. Current Assets Rs. 216000, Current Liabilities Rs. 48000)

10. Rs. 200000 is net sales of a firm. If stock turnover ratio is 4 times. Calculate the stock at the end of the year. If stock at the end is 1.5 times of that in the beginning. (Ans : Stock at the end Rs. 60000)

5.11 TEXT AND REFERENCES

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UNIT-6 FUND FLOW STATEMENT

UNIT FRAMEWORK

6.1 OBJECTIVES

After completing this unit, you will be able to:

- Understand the meaning of Fund Flow Statement
- Know the difference between fund flow statement and other financial statement
- Know the purpose of preparing fund flow statement
- Prepare fund flow statement
- Identify the sources and uses of fund
- Describe the importance and limitation of fund flow statement

6.2 INTRODUCTION

The purpose of measuring trading performance, operational efficiency, profitability and financial position of a concern revealed by

Trading, Profit and Loss Account and Balance Sheet. These financial statements are prepared to find out the Gross Profit or Gross Loss, Net Profit or Net Loss and financial soundness of a firm a whole for a particular period of time. But these statements do not provide the information about the availability of fund, the sources of fund and where the funds were utilized during the particular period. It is necessary to management to know about the availability of fund, sources of fund and uses of fund for the future planning and decision making. Therefore, a fund flow statement is prepared. Fund flow statement provides the information about availability, sources and uses of fund.

In India, the institute of Charted Accounts has issued Accounting Standard-3 for preparing the statement onthe basis of working capital called 'Statement of Change in Financial Position'. But in March, 1997, theinstitute of Charted Accounts has issued Accounting Standard-3 (Revised), which is on cash basis anddiscard the working capital definition of fund. Now, in India it is not compulsory to prepare fund flowstatement by Indian companies.

6.3 MEANING OF FUND FLOW STATEMENT

The fund flow statement reveals the information about the sources and uses of fund during the particularfinancial period. But here the question arises, what is the meaning of fund and flow of fund?

6.3.1 MEANING OF FUND

The term "Fund" refers to Cash, to Cash Equivalents or to Working Capital and all financial resources which are used in business. These total resources of a concern are in the form of men, materials, money, plant and equipment's and others.

In a **narrow sense** the word "Fund" denotes cash or cash equivalents. In a **broader** meaning the word "Fund" refers to Working Capital. The Working Capital indicates the difference between current assets and current liabilities. The term working capital may be:

(a) **Gross Working Capital**: "Gross Working Capital" represents total of all Current Assets.

(b) **Net Working Capital**: "Net Working Capital" refers to excess of Current Assets over Current Liabilities.

6.3.2 MEANING OF FUND FLOW

Fund flow means movement of fund. I take the example of air; we can feel its movement or flow of air. Same thing is happen with fund, due to the activity of business fund is transfer from one asset to another assets. If fixed assets are converted into current asset or fixed liability is converted into current liabilities, these are the flow of fund. But if current

assets are changed with current assets and current liabilities are changed into current liabilities, then, there is no flow of fund because there is no change working capital. Suppose, we get the money from debtor, this is not flow of fund because, working capital is not changed. Both items of current assets and when current assets change into current assets, there will not be change in working capital.

The list of current and non-current items is as follows:

Non-Current Liabilities	**Non-Current Assets**
Share Capital Reserve and surplus Debentures Long term loans Provisions for depreciation *Provision for Taxation *Proposed Dividend	Fixed Assets Intangible Assets Investments Fictitious Assets Profit & Loss Account
Current Liabilities	**Current Assets**
Creditors Bills Payables Bank Overdraft Outstanding Expenses Unearned Income	Stock Debtors Bills Receivables Cash & Bank Prepaid Expenses Accrued Income

- Provision for Taxation and Proposed Dividend are also treated as current liabilities.

Flow of Fund

1. Fixed asset changes into current asset or current asset changes into fixed assets; or

2. Fixed liability changes into current liability or current liability changes into fixed liability.

6.3.3 DEFINITION / MEANING OF FUND FLOW STATEMENT

Fund flow statement is a statement which shows the inflow and out flow of funds between two dates of balance sheet. So, it is known as the statement of changes in financial position. We all know that balance sheet shows our financial position and inflow and outflow of fund affects it. So, in company level business, it is very necessary to prepare fund flow statement to know what the sources are and what are applications of fund between two dates of balance sheet? Generally, it is prepared after getting two year balance sheet.

According to Accounting Standard Board of ICAI, "A statement which summaries for the period covered by it, the changes in financial position including the sources from which the funds were obtained by the enterprises and the specific use to which the fund were applied."

According to Robert N. Anthony, "The fund flow statement describes the sources from which additional funds were derived and the uses to which these funds were put."

According to Foulke R. A., "A statement of sources and application of funds is a technical device designedto analyse the changes in the financial conditions of business enterprise between two dates."

Thus fund flow statement is a statement which shows where funds come from and in what way they were used and the causes of changes in working capital. In other words it is a statement which shows the changes, inflow or outflow or the movement of fund.

Fund flow statements are known with different names

- Statement of source and uses of funds
- Summary of financial operations
- Movement of working capital statement
- Fund received and distributed statement
- Fund generated and expended statement.

6.4 CHARACTERISTICS OF FUNDS FLOW STATEMENT

There are some characteristics or features of Funds Flow Statement, which are as follows:

1. The first and foremost feature of funds flow statement is that it does not reveal the asset and liability position of the company rather it reveals the sources and uses of funds done by the company during a financial year. Hence looking at funds flow statement one cannot know the financial position of the company but he or she can know the working capital position of the company.
2. There are many instances where the company is in profit still it is not able to pay dividends to shareholders and meet day to day operational expenses and that is where the funds flow come into play as it shows the reasons due to which liquidity position of the company is poor despite good profits.
3. In the case of a company as far as short term financing and working capital are concerned it is the fund flow statement which is of more relevance in comparison to other financial statements like balance sheet or profit and loss account.

4. It helps the management in understanding about the financial position of the company in more comprehensive way so if there is increase in cash in the balance sheet of the company then it is fund flow statement which will reveal whether that cash increase was due to non-business activity like sale of old asset or due to business activity like improvement in the sales of the company or reduction in operational expenses.

5. It is not compulsory to prepare funds flow statement which is the case with other financial statements like balance sheet and profit and loss statement and furthermore it gathers most of the data from these statements only and not from any new source so in that sense it lacks originality.

6. Since funds flow statement shows changes in financial position over a period of time it is more dynamic in nature in comparison to balance sheet which is static in nature as it shows the financial position of the company on a particular date.

7. Another feature of fund flow statement is that is not used alone and is of no use to the management rather it is used together with other financial statements like balance sheet, profit and loss statement and cash flow statement in order to get the best possible analysis about the company.

As one can see from the above that fund flow statement has many unique characteristics and even though it is not compulsory to prepare it, however the companies all over the world prepare fund flow statement due to its usefulness and application.

6.5 OBJECTIVES OF FUND FLOW STATEMENT

Generally the fund flow statement provides the information about the different sources and application offund during the particular period. The main objectives of fund flow statement are:

(i) The basic object of preparing the statement is to have a rich into the financial operations of the concern. It analyses how the funds were obtained and used in the past.

(ii) One important object of the statement is that it evaluates the firm' financing capacity. The analysis ofsources of funds reveals how the firm's financed its development projects in the past i.e., frominternal sources or from external sources. It also reveals the rate of growth of the firm.

(iii) To provide the information about the important items like fixed assets, long term loans, capital etc., relating to sources and applications of fund.

(iv) To provide the information about the difference sources of fund, i.e., how much fund is being collected from the issuing shares or debenture, how much from long term or short term loans, how much from disposal of fixed assets and how much from operational activities?

(v) To help to understand the changes in assets and asset sources which are not readily evident in theincome statement or financial statement.

(vi) To inform as to how the loans to the business have been used.

(vii) To point out the financial strengths and weaknesses of the business.

6.6 SOURCES AND USES OF FUND

6.6.1 SOURCES OF FUND

Sources of fund are indicated by increase in liability and decrease in assets. The main sources of funds are:

1. Fund from operation activities

2. Issue of shares capital

3. Issue of debentures

4. Raising of long term loans

5. Receipts from partly paid shares , called up

6. Amount received from sales of non-current or fixed assets

7. Non trading receipts such as dividend received.

8. Sale of investments (Long term).

9. Decrease in working capital (as per schedule of changes in working capital)

6.6.2 APPLICATIONS OR USES OF FUNDS

Applications of fund are indicated by decrease in liability and increase in assets. The main uses of funds are:

1. Funds lost in operations (Balance negative in second step)

2. Redemption of preference share capital

3. Redemption of debentures

4. Repayment of long term loans

5. Purchase of long term assets

6. Purchase of long term investments

7. Non trading payments

8. Payment of tax

9. Payment of dividends

10. Increase in working capital (as per schedule of changes in working capital)

6.7 DIFFERENCE BETWEEN FUND FLOW STATEMENT AND OTHER FINANCIAL STATEMENTS

6.7.1 DIFFERENCE BETWEEN FUND FLOW STATEMENT AND PROFIT& LOSS ACCOUNT

Sr. No.	FUND FLOW STATEMENT	PROFIT & LOSS ACCOUNT
1.	Fund Flow Statement shows the change in sources and applications of fund between two dates.	While Profit & loss account shows the results of operations of one organization during the related period.
2.	In Fund Flow Statement funds raised are matched with funds applied disregarding the distinction of capital and revenue concept.	In Profit & Loss Account expenses are matched against incomeand capital & revenue concept are predominant.
3.	Fund flow statementdoes not help in preparation of the Profit & Loss Account.	Profit & Loss Account facilitates preparation of the fund flow statement.

6.7.2 DIFFERENCE BETWEEN FUND FLOW STATEMENT AND BALANCE SHEET

Sr. No.	FUND FLOW STATEMENT	BALANCE SHEET
1.	Fund Flow Statement shows the changes in working capital between two dates.	BalanceSheet shows the financial position of a business on a particular date.
2.	Fund Flow Statement incorporates items casing change in working capital.	Balance Sheetincorporates the balance of real and personal accounts.
3.	Fund Flow Statement is basically an analytical tool and therefore, it is very good for decisionmaking.	Balance Sheet is not an analytical tool and it is simply a summary of assets andliabilities on a particular date.
4.	Fund Flow Statement is prepared for the use of internal management; hence its publication isobligatory.	Balance Sheet is prepared for the use of external parties of the business hence itspublication is mandatory.

6.8 TECHNIQUES OF PREPARING FUND FLOW STATEMENT

The fund flow statement is prepared on the basis of treating net working capital as fund. Such statement shows the causes of changes in working capital during two accounting periods. For preparing fund flow statement on the basis of working capital mainly following two statements are prepared:

6.8.1 STATEMENT OR SCHEDULE OF CHANGES IN WORKING CAPITAL

It is also termed as Statement of Changes in Working Capital. Before preparation of fund flow statement, it is essential to prepare first the schedule of changes in working capital and fund from operations. Statement of changes in working capital is prepared on the basis of items in current assets and current liabilities of between two balance sheets. This statement helps to measure the movement or changes of working capital during a particular period. The term working capital refers to excess of current assets overcurrent liabilities. The working capital may be "Increase in working capital" or "Decrease in working capital. "While ascertaining the increasing or decreasing in individual item of current assets and current liabilities and its effect on working capital, the following rules should be taken into account:

1. If current year current assets are more than previous year current assets, it means increase in working capital.

2. If current year current assets are less than previous year current assets, it means decrease in working capital.

3. If current year current liabilities are more than previous year current liabilities, it means decrease in working capital.

4. If current year current liabilities are less than previous year current liabilities, it means increase in working capital.

Statement or schedule of changes in working capital is prepared as follows:

STATEMENT OR SCHEDULE OF CHANGES IN WORKING CAPITAL

Particular	**Previous Year**	**Current Year**	**Working Capital**	
			Increase	**Decrease**
A. CURRENT ASSETS:	- - -	- - -		
Stock	- - -	- - -		
Debtors	- - -	- - -		
Bills Receivables	- - -	- - -		
Cash & Bank	- - -	- - -		
Prepaid Expenses	- - -	- - -		
Accrued Income				
Other Current Assets				
TOTAL (A)	= = =	= = =		
B. CURRENT LIABILITIES:	- - -	- - -		
Creditors	- - -	- - -		
Bills Payables	- - -	- - -		
Bank Overdraft	- - -	- - -		
Outstanding Expenses	- - -	- - -		
Unearned	- - -	- - -		

Income Provision for Tax* Proposed Dividend* Other Current Liabilities	- - -	- - -		
TOTAL (B)	= = =	= = =		
Working Capital (A-B)				
Increase / Decrease in Working Capital				

Explanation:

(i) Any addition information given about current assets of current account will not be considered, while preparing such statement.

(ii) *If provision for taxation or proposed divided are treated as current assets than they should beincluded in this statement.

EXAMPLE-1: Following are summarized Balance Sheets of A Ltd. as on 31st December, 2016 and 2017.You are required to prepare a statement showing changes in working capital for the year ended 31st December, 2017:

Liabilities	**2016**	**2017**	**Assets**	**2016**	**2017**
Share Capital	4,00,000	5,00,000	Cash	60,000	94,000
Creditors	1,40,000	90,000	Debtors	2,40,000	2,30,000
Retained earnings	20,000	46,000	Stock	1,60,000	1,80,000
			Land	1,00,000	1,32,000
	5,60,000	**6,36,000**		**5,60,000**	**6,36,000**

SOLUTION:

STATEMENT OF CHANGES IN WORKING CAPITAL
for the year ended 31st December, 2017

PARTICULARS	2016	2017	INCREASE IN W.C.	DECREASE IN W.C.
A. Current Assets				
Cash	60,000	94,000	34,000	---------
Debtors	2,40,000	2,30,000	---------	10,000
Stock	1,60,000	1,80,000	20,000	---------
Total A	**4,60,000**	**5,04,000**		
B. Current Liabilities				
Creditors	1,40,000	90,000	50,000	---------
Total B	**1,40,000**	**90,000**		
Working Capital (A-B)	**3,20,000**	**4,14,000**		
Net increase in Working Capital	94,000	---------	---------	94,000
	4,14,000	**4,14,000**	**1,04,000**	**1,04,000**

6.8.2 FUND FLOW STATEMENT

After preparing schedule of changes in workingcapital and fund from operations, at the last stage a comprehensive fund flow statement can be prepared onthe basis of component of non-current assets, non-current liabilities of balance sheet and relevantinformation. In other words, this statement is prepared with the help of the changes in non-current assetsand non-current liabilities of balance sheet. Such statement is prepared in the following two formats:

(i) Statement form

(ii) Accounting form

(i) Statement form: Under this statement application of funds are deducted from the sources offunds. Difference between sources of

fund and uses of fund shows increase or decrease in workingcapital. This statement is prepared as follows:

Fund Flow Statement

For the year ending 31st March, ….

Particular	**Amount**
A. Sources of Fund: Fund from operation (if any) Issue of Shares Issue of Debenture Rising of long term loans Sale of fixed assets Sale of investment Non-trading receipts (divided or interest on investment etc.)	
Total (A)	
B. Application / Uses of Fund: Loss from operation (if any) Redemption of Preference Shares Redemption of Debenture Repayment of long term loans Purchase of fixed assets Purchase of investment Tax Paid Dividend Paid Non-trading payment (If any)	
Total (B)	
Increase / (Decrease) of Working Capital	

(ii) Accounting form:

Fund Flow Statement

For the year ending 31st March, …..

Sources of Fund	**Amount**	**Application / Uses of Fund**	**Amount**
Fund from operation (if any)		Loss from operation (if any)	
Issue of Shares		Redemption of Preference Shares	
Issue of Debenture		Redemption of Debenture	
Rising of long term loans		Repayment of long term loans	
Sale of fixed assets		Purchase of fixed assets	
Sale of investment		Purchase of investment	
Non-trading receipts (divided		Tax Paid	
		Dividend Paid	
or interest on investment etc.)		Non-trading payment (If any)	
Increase of Working Capital *(Bal. figure if any)*		**Decrease of Working Capital** *(Bal. figure if any)*	

6.8.3 CALCULATION OF FUND / LOSS FROM OPERATION

The main source of fund is profitable operation. Fund from operation is not necessarily equal to net profit.Hence, the items of income statement which do not involve working capital should be adjusted to the netprofit. The fund from operation is calculated as follows:

Net income (Loss) of the year	X XXX
Add: Non-fund and Non-operating Expenses/Losses:	
Depreciation on fixed assets	+ + + +
Goodwill (or patents) written off	+ + + +
Preliminary expenses written off	+ + + +
Discount on issue of shares/debentures written off	+ + + +
Loss on sale of fixed assets or long term investments	+ + + +
	+ + + +
Transfer to reserves	+ + + +
Provision for taxation	+ + + +
Proposed dividend	
Less: Non-fund and Non-operating Incomes/Gains:	- - - -
Profit on sale of fixed assets/long-term investments	- - - -
Interest or dividend received	- - - -
Retransfer of excess provision	
Fund (Loss) from operation	= = =

Fund (Loss) from operation can also be calculated by preparing adjusted Profit & LossAccount:

ADJUSTED PROFIT & LOSS A/C

Particulars	**Rs.**	**Particulars**	**Rs.**
To ***Non-fund and Non-operating itemsalready debited to P&L a/c:***		By Balance b/d (Opening Balance)	
-Depreciation on fixed assets		By ***Non-fund and Non-operatingIncomes/Gains:***	
-Goodwill (or patents) written off		-Profit on sale of fixed assets / longterminvestments	
-Preliminary expenses written off		-Interest or dividend received	
-Discount on issue of shares/debentureswritten off		-Retransfer of excess provision	
-Loss on sale of fixed assets or longterm investments		By Funds from operations (BalancingFigure if any)	
-Transfer to reserves			
-Provision for taxation			
-Proposed dividend			
To Balance c/d (Closing Balance)			
To Loss from operations (BalancingFigure if any)			

EXAMPLE-2: Following are the Balance Sheets of X Ltd. as on 31st March, 2017 and 2018. You are required toprepare a Funds Statement for the year ended 31st March, 2018.

Liabilities	2017	2018	Assets	2017	2018
Share Capital	1,00,000	1,25,000	Goodwill		2500
General Reserve	25,000	30,000	Buildings	1,00,000	95,000
P&L A/c	15,250	15,300	Plant	75,000	84,500
Bank Loan(Long-term)	35,000	67,600	Stock	50,000	37,000
Creditors	75,000		Debtors	40,000	32,100
Provision for Tax	15,000	17,500	Bank		4,000
			Cash	250	300
	2,65,250	**2,55,400**		**2,65,250**	**2,55,400**

Additional Information

(i) Dividend of Rs. 11,500 was paid.

(ii) Depreciation written off on plant Rs.7,000 and on buildings Rs.5,000.

(iii) Provision for tax was made during the year Rs. 16,500.

SOLUTION :

FUNDS FLOW STATEMENT

For the year ending 31st March, 2018

Sources	Rs.	Application	Rs.
Funds from operations	45,050	Purchase of Plant	16,500
Issue of Shares	25,000	Income tax paid	14,000
Bank Loan	32,600	Dividend paid	11,500
		Goodwill paid	2,500
		Net increase in Working Capital(Bal. figure)	58,150
	1,02,650		**1,02,650**

Working Notes:

CALCULATION OF FUNDS FROM OPERATIONS:

Particular	Detail	Amount
Balance of P & L a/c (2010)		15,300
Add: Non-fund and non-operating items which have already debited to P&L a/c:	5,000	
-General reserve	16,500	
-Provision for tax	11,500	
-Dividends paid		
-Depreciation:	5,000	
On Buildings	7,000	
On Plant		45,000
		60300
		15,250
Less: Balance of P&L a/c (2011)		
Funds from Operations		**45,050**

Share Capital A/c

Particulars	Rs.	Particulars	Rs.
To Balance c/d	1,25,000	By Balance b/d	1,00,000
		By Bank a/c	25,000
	1,25,000		**1,25,000**

General Reserve A/c

Particulars	Rs.	Particulars	Rs.
To Balance c/d	30,000	By Balance b/d	25,000
		By P&L a/c	5,000
	30,000		**30,000**

Provision for Taxation A/c

Particulars	Rs.	Particulars	Rs.
To Bank a/c	14,000	By Balance b/d	15,000
To Balance c/d	17,500	By P&L a/c	16,500
	31,500		**31,500**

Bank Loan A/c

Particulars	Rs.	Particulars	Rs.
To Balance c/d	67,600	By Balance b/d	35,000
		By Bank a/c	2,600
	67,600		**67,600**

Land and Building A/c

Particulars	Rs.	Particulars	Rs.
To Balance c/d	1,00,000	By Depreciation a/c	5,000
		By Balance c/d	95,000
	1,00,000		**1,00,000**

Plant A/c

Particulars	Rs.	Particulars	Rs.
To Balance c/d	75,000	By Depreciation a/c	7,000
To Bank	16,500	By Balance c/d	84,500
	91,500		**91,500**

Goodwill A/c

Particulars	Rs.	Particulars	Rs.
To Bank	2,500	By Balance c/d	2,500
	2,500		**2,500**

EXAMPLE-3: From the following Balance Sheets of ABC Ltd. on 31st Dec. 2016 and 2017, you arerequired to prepare:

(i) A Schedule of changes in working capital,
(ii) A Funds Flow Statement.

Liabilities	2016	2017	Assets	2016	2017
Share Capital	2,00,000	2,00,000	Goodwill	24,000	24,000
General Reserve	28,000	36,000	Buildings	80,000	72,000
P&L A/c	32,000	26,000	Plant	74,000	72,000
Creditors	16,000	10,800	Investments	20,000	22,000
Bills payable	2,400	1,600	Stock	60,000	46,800
Provision for Tax	32,000	36,000	Bills Receivable	4,000	6,400
Prov. for doubt. debts	800	1,200	Cash & Bank	13,200	30,400
			Debtors	36,000	38,000
	3,11,200	**3,11,600**		**3,11,200**	**3,11,600**

Additional Information:

(i) Depreciation provided on plant was Rs.8,000 and on Buildings Rs.8,000

(ii) Provision for taxation made during the year Rs.38,000

(iii) Interim dividend paid during the year Rs. 16,000.

SOLUTION :

STATEMENT OF CHANGES IN WORKING CAPITAL

Particulars	2016	2017	Increase in W.C.	Decrease in W.C.
A. Current Assets				
Cash & Bank Balances	13,200	30,400	17,200	
Debtors	36,000	38,000	2,000	
Bills Receivable	4,000	6,400	2,400	
Stock	60,000	46,800		13,200
Total A	**1,13,200**	**1,21,600**		
B. Current Liabilities				
Provision for doubtful debts	800	1,200		400
Bills Payable	2,400	1,600	800	
Creditors	16,000	10,800	5,200	
Total B	**19,200**	**13,600**		
Working Capital (A-B)	94,000	1,08,000		
Increase in Working Capital	14,000			14,000
	1,08,000	**1,08,000**	**27,600**	**27,600**

FUNDS FLOW STATEMENT

Sources	Rs.	Application	Rs.
Funds from operations	72,000	Purchase of Plant	6,000
		Tax paid	34,000
		Purchase of investments	2,000
		Interim dividend paid	16,000
		Increase in Working Capital	14,000
	72,000		**72,000**

WORKING NOTES :

Provision for Taxation A/c

Particulars	Rs.	Particulars	Rs.
To Bank a/c (Bal. Fig.)	34,000	By Balance b/d	32,000
To Balance c/d	36,000	By P&L a/c	38,000
	70,000		**70,000**

Plant A/c

Particulars	Rs.	Particulars	Rs.
To Balance b/d	74,000	By Depreciation	8,000
To Bank a/c (Purchase)(Bal. Fig.)	6,000	By Balance c/d	72,000
	80,000		**80,000**

Buildings A/c

Particulars	Rs.	Particulars	Rs.
To Balance b/d	80,000	By Depreciation	8,000
		By Balance c/d	72,000
	80,000		**80,000**

Investments A/c

Particulars	Rs.	Particulars	Rs.
To Balance b/d	20,000	By Balance c/d	22,000
To Bank a/c (Purchase)(Bal. Fig.)	2,000		
	22,000		**22,000**

Adjusted Profit & Loss A/c

Particulars	Rs.	Particulars	Rs.
To Non-fund and Non-operating items already debited to P&L a/c:		By Balance b/d	32,000
Transfer to General Reserve	8,000	By Funds from operations (Balancing Figure)	72,000
Provision for Tax	38,000		
Depreciation on Plant	8,000		
Depreciation on Buildings	8,000		
Interim dividend	16,000		
To Balance c/d	26,000		
	1,04,000		**1,04,000**

General Reserve A/c

Particulars	Rs.	Particulars	Rs.
To Balance c/d	36,000	By Balance b/d	28,000
		By P&L a/c (Bal. Fig.)	8,000
	36,000		**36,000**

6.9 IMPORTANCE OF FUND FLOW STATEMENT

The fund flow statement provides the information regarding changes in working capital of an organization for a particular period. Therefore, we say that the importances of fund flow are as follows:

1. Funds flow statement reveals the net result of operations done by the company during the year.
2. In addition to the balance sheet, it serves as an additional reference for many interested parties like creditors, suppliers, government etc. to look into financial position of the company.

3. It shows how the funds were raised from various sources and also how those funds were put to use in the business, therefore it is a great tool for management when it wants to know about where and from funds were raised and also how those funds got utilized into the business.

4. It reveals the causes for the changes in liabilities and assets between the two balance sheet dates therefore providing a detailed analysis of the balance sheet of the company.

5. Funds flow statement helps the management in deciding its future course of plans and also it acts as a control tool for the management.

6. Helps in the evaluation of alternative finance and investments plan;

7. Investors are able to measure as to how the company has utilized the funds supplied by them and its financial strengths with the aid of funds statements.

8. Helps the management of companies to forecast in advance the requirements of additional capital and plan its capital issue accordingly.

9. Help in the planning process of a company

10. Helps in analysis of financial operations.

11. Helps in formulation of realistic dividend policy.

12. Helps in proper allocation of resources.

13. Helps in appraising the use of working capital.

14. It helps knowing the overall creditworthiness of a firm.

6.10 LIMITATION OF FUND FLOW STATEMENT

The funds flow statement has a number of uses; however it has certain limitations also which are as follows:

1. It is prepared on the basis of information related to historical in nature. It ignores to project future operations.

2. This statement does not focus on transactions involved in non-fund items.

3. It also ignores when transactions involved between current accounts or non-current accounts.

4. 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 regards changes in working capital.

5. It is not an original statement but simply, arrangement of data given in the financial statements.

6. Changes in cash are more important and relevant for financial management than the working capital.

7. It does not disclose changes in management policy regarding investment in current assets and shorter financing.

6.11 SUMMARY

It is necessary to management to know about the availability of fund, sources of fund and uses of fund for the future planning and decision making. Therefore, a fund flow statement is prepared. Fund flow statement provides the information about availability, sources and uses of fund. Funds flow statement has prepared on the basis of information related to historical in nature. It ignores to project future operations. This statement does not focus on transactions involved in non-fund items. It also ignores when transactions involved between current accounts or non-current accounts. It should be remembered that a funds flow statement is not a substitute of an income statement ora balance sheet. It provides only some additional information as regards changes in working capital.

With the all constraints some advantages of fund flow are also most important. It shows how the funds were raised from various sources and also how those funds were put to use in the business, therefore it is a great tool for management when it wants to know about where and from funds were raised and also how those funds got utilized into the business. It reveals the causes for the changes in liabilities and assets between the two balance sheet dates therefore providing a detailed analysis of the balance sheet of the company. Funds flow statement helps the management in deciding its future course of plans and also it acts as a control tool for the management.

The whole exercise reveals the areas in which funds are deployed and the sources from which they are obtained. Finally, we have learned how to go about doing the funds flow analysis with the help of published accounting information.

6.12 SELF-ASSESSMENT QUESTIONS

1. What is mean by Fund Flow Statement?

2. Explain the Changes of Financial Position.

3. What do you understand by Fund Flow Statement? How is it prepared?

4. What is a Fund Flow Statement? Explain the importance and limitations of fund flow statement.

5. Explain the term 'Fund' and 'Flow' in respect of fund flow statement. Describe the various sources and uses of funds.

6. What is meant by schedule of changes in working capital? How is it prepared?

7. Explain the difference between:

(a). Fund flow statement and Profit & Loss Account

(b). Fund flow statement and Balance Sheet

(c). Fund flow statement and Schedule change in working capital

8. From the following Balance Sheets of ABC Ltd. as on 31st March, 2017 and 2018. You are required to prepare a statement showing changes in working capital:

Liabilities	**2017**	**2018**	**Assets**	**2017**	**2018**
Share Capital	5,00,000	6,00,000	Fixed Assets	7,50,000	10,00,000
Reserve & Surplus	2,00,000	4,00,000	Investment	1,00,000	3,00,000
Loans	3,00,000	5,00,000	Stock	2,00,000	2,20,000
Creditors	1,50,000	2,00,000	Debtors	1,00,000	80,000
Bills Payable	1,00,000	70,000	Cash	30,000	70,000
			Bills Receivable	70,000	1,00,000
	12,50,000	**17,70,000**		**12,50,000**	**17,70,000**

9. From the following Balance Sheet and additional information, prepare fund flow statement:

Liabilities	2016	2017	Assets	2016	2017
Share capital	60,000	67,500	Fixed assets	30,000	42,000
Creditors	15,000	22,500	Stock	15,000	10,500
P & L a/c	22,500	34,500	Debtors	45,000	67,500
Outstanding exp.	4,500	7,500	Cash	7,500	9,000
Bills Payable	3,000	1,500	Prepaid expenses	4,500	3,000
			Deferred expenses	3,000	1,500
	1,05,000	**1,33,500**		**1,05,000**	**1,33,500**

An old machine has been sold for Rs. 6,000. The written down value of the machine was Rs.4,500. Dividend Rs. 6,000 has been paid during the year and Rs. 3,000 depreciation has been charged.

6.13 TEXT AND REFERENCES

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UNIT-7 CASH FLOW STATEMENT

UNIT FRAMEWORK

7.1 OBJECTIVES

After completing this unit, you will be able to:

- Recall the meaning of Cash Flow Statement
- Know the purpose of preparing Cash flow statement
- Prepare Cash flow statement
- Identify the various activities which generate cash
- Describe the importance and limitations of Cash flow statement

- Know the difference between fund flow statement and other financial statements

7.2 INTRODUCTION

Company final accounts include Profit and loss account and balance sheet. Profit and loss account present net profit or loss of specified period and Balance sheet shows financial possession of a company on a particular date. But they do not present cash inflow or outflow, which effect by the decision based on final account. Cash flow statement provides information about the cash receipts and payments of the company for specified period.

Cash flow statement is required by Accounting Standard 3 (revised) issued by the Institute of Chartered Accounts of India in March 1997. Accounting Standard 3 is mandatory in nature in respect of accounting periods commencing on or after 1.04.2001 for an enterprises whose equity or debt securities are listed on a recognised stock exchange in India and enterprises that are in the process of issuing equity or debt securities that will be listed on a recognised stock exchange in India as evidence by the board of director's resolution in this regard. And all other commercial, industrial and business reporting enterprises, whose turnover for the accounting period exceed Rs. 50 crore.

7.3 MEANING OF CASH FLOW STATEMENT

Cash flow statement is a statement of inflow or outflow of cash or cash equivalent of the company in the specified period. In other words, cash flow statement present the reason of changes in cash passion in two Balance Sheet date.

Cash flow includes inflow or outflow of cash or cash equivalent. 'Cash Flows' implies movement of cash in and out due to some non-cash items. Receipt of cash from a non-cash item is termed as cash inflow while cash payment in respect of such items as cash outflow. For example, purchase of machinery by paying cash is cash outflow while sale proceeds received from sale of machinery is cash inflow. Other examples of cash flows include collection of cash from trade receivables, payment to trade payables, payment to employees, receipt of dividend, interest payments, etc.

As per AS-3, these activities are to be classified into three categories:(1) operating, (2) investing, and (3) financing activities so as to show separately the cash flows generated (or used) by (in) these activities. This helps the users of cash flow statement to assess the impact of these activities on the financial position of an enterprise and also on its cash and cash equivalents.

7.4 OBJECTIVES OF CASH FLOW STATEMENT

A Cash flow statement shows inflow and outflow of cash and cash equivalents from various activities of a company during a specific period. The primary objective of cash flow statement is to provide useful information about cash flows (inflows andoutflows) of an enterprise during a particular period under various heads, i.e., operating activities, investing activities and financing activities. This information is useful in providing users of financial statements with abasis to assess the ability of the enterprise to generate cash and cash equivalent sand the needs of the enterprise to utilize those cash flows. The economic decisions that are taken by users require an evaluation of the ability of an enterprise to generate cash and cash equivalents and the timing and certainty of their generation. The main objects of cash flow statement are:

(a). To provide information on a firm's liquidity and solvency to change cash flow in future circumstances

(b). To provide additional information for evaluating changes in assets, liabilities and equity

(c). To improve the comparability of different firms' operating performance by eliminating the effects of different accounting methods

(d). To indicate the amount, timing and probability of future cash flows

7.5 FORMAT OF CASH FLOW STATEMENT AS PER AS-3

Cash Flow Statement (AS-3 Revised)

Cash Flow Statement of .....Co. Ltd. for the year ended….

Particulars	Rs.	Rs.
(A) Cash Flows from Operating Activities:		
Net Profit of the current year [Closing P&L less Opening P&L]	XXX	
Add: Transfer to Reserves	XXX	
: Proposed dividend for Current Year	XXX	
: Interim dividend paid during the year	XXX	
: Provision for tax made during the current year	XXX	
Less: Refund of tax	(XXX)	
Net Profit before Tax and Extraordinary Item	XXX	

Adjustments for non - cash and non - operating items:		
Add: Depreciation on Fixed Assets	XXX	
: Amortisation of Intangible Assets	XXX	
: Other Non- Current assets written off	XXX	
: Interest on long-term borrowings	XXX	
: Loss on Sale of Land & Building	XXX	
Less: Interest / Dividend/ Rental Income	(XXX)	
: Profit on sale of Fixed Assets	(XXX)	
Operating Profit Before Working Capital Changes	XXX	
Add: Decrease in Current Assets:	XXX	
: Increase in Current Liabilities:	XXX	
Less: Increase in Current Assets:	(XXX)	
: Decrease in Current Liabilities:	(XXX)	
Cash Generated from Operations	XXX	
Less: Income Tax Paid	(XXX)	
Net Cash from (or used in) Operating Activities		**XXX**
(B) Cash Flows from Investing Activities:		
Add: Proceeds from Sale of Tangible Fixed Assets	XXX	
: Proceeds from Sale of Intangible Fixed Assets	XXX	
: Proceeds from Sale of Non-Current Investments	XXX	
: Interest / Dividend/ Rental Income Received	XXX	
Less: Purchase of Tangible Fixed Assets	(XXX)	
: Purchase of Intangible Fixed Assets	(XXX)	
: Purchase of Non-Current Investments	(XXX)	
Net Cash from (or used in) Investing Activities		**XXX**
(C) Cash Flow from Financing Activities:		
Add: Proceeds from issue of Equity and Preference Shares	XXX	
: Proceeds from Debentures / Long-term Borrowings	XXX	
Less: Final Dividend Paid	(XXX)	
: Interim Dividend Paid	(XXX)	

: Interest on Long-term borrowings paid	(XXX)	
: Repayment of Loan	(XXX)	
: Redemption of Debentures and Preference Shares	(XXX)	
Net Cash from (or used in) Financing Activities		**XXX**
Net Increase (or Decrease) in Cash & Cash Equivalents (A+B+C)		**XXX**
(D) Add: Cash and Cash Equivalents in the beginning		**XXX**
(E) Cash and cash Equivalents at the end of the year		**XXX**

7.6 SIGNIFICANCE OF CASH FLOW STATEMENT

The cash flow statement provides information regarding inflows and outflows of cash of an organization for a particular period. Therefore, we say that the following are the importance of cash flow statement:

1. Cash flow statement helps to identify the sources from where cash inflows have arisen and where in the cash was utilized within a particular period.
2. Cash flow statement is significant to management for proper cash planning and maintaining a proper matching between cash inflows and outflows
3. Cash flow statement shows efficiency of a firm in generating cash inflows from its regular operations
4. Cash flow statement reports the amount of cash used during the period in various long-term investing activities, such as purchase of fixed assets
5. Cash flow statement reports the amount of cash received during the period through various financing activities, such as issue of shares, debentures and raising long-term loan
6. Cash flow statement helps for appraisal of various capital investment programmes to determine their profitability and viability
7. Cash flow statement helps the investors to judge whether the company is financially sound or not.

7.7 LIMITATION OF CASH FLOW STATEMENT

Despite a number of uses, Cash Flow Statement suffers from the following limitations:

1. Ignore Accounting Concept of Accrual Basis: As CFS is based on cash basis of accounting; it ignores the basic accounting concept of accrual basis
2. Ignores Non-cash Transactions: CFS ignores the non-cash transactions. In other words, it does not consider those transactions which do not affect the cash e.g., issue of shares against the purchase of fixed assets, conversion of debentures into equity shares, etc.
3. Not Suitable for judging the profitability: CFS is not suitable for judging the profitability of a firm as non-cash charges are ignored while calculating cash flows from operating activities.
4. Based on Secondary Data: CFS is based on secondary data. It merely rearranges the primary data already appearing in other statements i.e., Balance Sheet and Income Statement
5. Short-term analysis: CFS is a technique of short-term financial analysis. It does not help much in knowing the long-term financial position
6. Not based on full information: CFS does not present true picture of the liquidity of a firm. Liquidity does not depend upon 'cash' alone. Liquidity also affected by the assets which can be easily converted into cash. Exclusion of these assets obstruct the true reporting of the ability of the firm to meet its liabilities
7. By itself, it cannot provide a complete analysis of the financial position of the firm.
8. It can be interpreted only when it is in confirmation with other financial statements and other analytical tools like ratio analysis.

7.8 DIFFERENCE BETWEEN FUNDS FLOW STATEMENT VS. CASH FLOW STATEMENT

Funds flow and cash flow statements both are used in analysis of business transactions particular period.

But there are some differences between these two statements which are given below:

1. Funds flow statements is based on the accrual accounting system but in case of cash flow statements only those transactions are

taken into consideration which affecting the cash or cash equivalents only.

2. Funds flow statement analysis the sources and application of funds of long-term nature and the net increase or decrease in long-term funds will be reflected on the working capital of the firm. The cash flow statement will only consider the increase or decrease in current assets and current' liabilities in calculating the cash flow of funds from operations.

3. Funds Flow analysis is more useful for long range financial planning while cash flow analysis is more useful for identifying and correcting die current liquidity problems of the firm.

4. Funds flow statement analysis is a broader concept, it takes into account both long-term and short-term funds into account in analysis. But cash flow statement deals with the one of the current assets on balance sheet assets side only.

5. Funds flow statement tallies the funds generated from various sources with various uses to which they are put. Cash flow statements start with the opening balance of cash and reach to the closing balance of cash by proceeding through sources and uses.

7.9 CLASSIFICATION OF CASH FLOW

This helps the users of cash flow statement to assess the impact of these activities on the financial position of an enterprise and also on its cash and cash equivalents. Cash flow includes inflow or outflow of cash or cash equivalent. It means the movement of cash into the company and out of the company. Cash flows can be classified into the following three categories:

(A) Cash Flow from Operating Activities :

Operating activities are the activities that constitute the primary or main activities of an enterprise. For example, for a company manufacturing garments, operating activities are procurement of raw material, incurrence of manufacturing expenses, sale of garments, etc. These are the principal revenue generating activities (or the main activities) of the enterprise and these activities are not investing or financing activities. The amount of cash from operations' indicates the internal solvency level of the company, and is regarded as the key indicator of the extent to which the operations of the enterprise have generated sufficient cash flows to maintain the operating capability of the enterprise, paying dividends, making of new investments and repaying of loans without recourse to external source of financing.

Cash flows from operating activities are primarily derived from the main activities of the enterprise. They generally result from the transactions and other events that enter into the determination of

net profit or loss. Examples of cash flows from operating activities are:

Cash Inflows from operating activities

1. Cash receipts from sale of goods and the rendering of services.
2. Cash receipts from royalties, fees, commissions and other revenues.

Cash Outflows from operating activities

1. Cash payments to suppliers for goods and services.
2. Cash payments to and on behalf of the employees.
3. Cash payments to an insurance enterprise for premiums and claims, annuities, and other policy benefits.
4. Cash payments of income taxes unless they can be specifically identified with financing and investing activities.

The net position is shown in case of operating cash flows. An enterprise may hold securities and loans for dealing or for trading purposes. In either case they represent Inventory specifically held for resale. Therefore, cash flows arising from the purchase and sale of dealing or trading securities are classified as operating activities. Similarly, cash advances and loans made by financial enterprises are usually classified as operating activities since they relate to main activity of that enterprise.

(B) Cash Flow from Investing Activities: The separate disclosure of cash flows arising from investing activities is important because the cash flows represent the extent to which expenditures have been made for resources intended to generate future income and cash flows. Examples of cash flows arising from investing activities are:

Cash Outflows from investing activities

1. Cash payments to acquire fixed assets including intangibles and capitalised research and development.
2. Cash payments to acquire shares, warrants or debt instruments of other enterprises other than the instruments those held for trading purposes.
3. Cash advances and loans made to third party (other than advances and loans made by a financial enterprise wherein it is operating activities).

Cash Inflows from Investing Activities

1. Cash receipt from disposal of fixed assets including intangibles.
2. Cash receipt from the repayment of advances or loans made to third parties (except in case of financial enterprise).

3. Cash receipt from disposal of shares, warrants or debt instruments of other enterprises except those held for trading purposes.

4. Interest received in cash from loans and advances.

5. Dividend received from investments in other enterprises.

(C) Cash Flow from Financial Activities: The separate disclosure of cash flows arising from financing activities is important because it is useful in predicting claims on future cash flows by providers of funds(both capital and borrowings) to the enterprise. Examples of cash flows arising from financing activities are:

Cash Inflows from financing activities

1. Cash proceeds from issuing shares (equity or/and preference).

2. Cash proceeds from issuing debentures, loans, bonds and other short/long-term borrowings.

Cash Outflows from financing activities

1. Cash repayments of amounts borrowed.

2. Interest paid on debentures and long-term loans and advances.

3. Dividends paid on equity and preference capital.

7.10 TECHNIQUES OF PREPARING CASH FLOW STATEMENT

The financial statements of the business are prepared on accrual basis of accounting, therefore in order to calculate the cash flow, some adjustment are made for non-cash expenses and incomes. There are two methods for determine the cash flow: (i) direct method and (ii) indirect method.

The direct method of preparing a cash flow statement results in a more easily understood report. The indirect method is almost universally used, because AS requires a supplementary report similar to the indirect method if a company chooses to use the direct method.

7.10.1 DIRECT METHOD

The direct method for creating a cash flow statement reports major classes of gross cash receipts and payments. Under Accounting Standard dividends received may be reported under operating activities or under investing activities. If taxes paid are directly linked to operating activities, they are reported under operating activities; if the taxes are directly linked to investing activities or financing activities, they are reported under investing or financing activities.

CASH FLOW STATEMENT (DIRECT METHOD)

Particular	Detail (Rs.)	Amount (Rs.)
Cash flows from operating activities		
Cash receipts from customers	+ + + +	
Other operating receipts	+ + + +	
Cash paid to suppliers	- - - -	
Cash paid for operating expenses	- - - -	
Income taxes paid	- - - -	
Net cash flows from operating activities		= = = =
Cash flows from investing activities		
Purchases of fixed assets	- - - -	
Purchases of Investments	- - - -	
Proceeds from the sale of Fixed Assets	+ + + +	
Proceeds from the sale of Investments	+ + + +	
Cash receipts as Dividends / Interest on investments	+ + + +	
Net cash flows from investing activities		= = = =
Cash flows from financing activities		
Receipts from issue of shares	+ + + +	
Receipts from issue of Debenture	+ + + +	
Payment on redemption of preference shares	- - - -	
Payment on redemption of debenture	- - - -	
Payment of dividend or interest	- - - -	
Net cash flows used in financing activities		= = = =
Net increase in cash and cash equivalents		= = = =
Cash and cash equivalents, beginning of year		+ + + +
Cash and cash equivalents, end of year		= = = =

EXAMPLE-1 : From the following Balance Sheet and income statement of ABC Ltd. as at March 2017 and 2018, you are required to prepare cash flow statement using direct method:

BALANCE SHEET

Liabilities	2017	2018	Assets	2017	2018
Share Capital	5,76,000	7,10,400	Land & Building	76,800	1,53,600
Profit & Loss a/c	2,42,880	2,62,000	Machinery	5,76,000	9,21,600
Creditors	3,84,000	3,74,400	Cash	96,000	1,15,200
Outstanding Expenses	38,400	76,800	Debtors	2,68,800	2,97,600
Provision for Tax	19,200	21,200	Stocks	4,22,400	1,53,600
Acc. Dep. On Building & Machinery	1,92,000	2,11,200	Advance	12,480	14,400
	14,52,480	**16,56,000**		**14,52,480**	**16,56,000**

INCOME STATEMENT

For the year ended 31st March, 2018

Particular	Detail (Rs.)	Amount (Rs.)
Net Sales		40,32,000
Less: Cost of goods sold	31,68,000	
Depreciation	96,000	
Salaries and wages	3,84,000	
Operating expenses	1,28,000	
Provision for tax	1,40,800	39,16,800
Net operating profit		1,15,200
Add: Non-operating incomes:		
Profit on sale of machinery		19,200
Profit for the year		1,34,400
Add: Profit & Loss a/c as on 31st March, 2017		2,42,880
Total Profit & Loss for the year		3,77,280
Less: Dividend declared and paid		1,15,280
Profit & Loss a/c as on 31st March, 2018		2,62,000

Additional Information: Cost of machinery sold Rs. 1,15,200

SOLUTION:

CASH FLOW STATEMENT

For the year ended 31st March, 2018

Particular	Detail (Rs.)	Amount (Rs.)
A. Cash Flow from Operation Activities:		
Cash receipt from customers	40,03,200	
Cash paid to suppliers	(29,08,800)	
Cash paid for operating expenses	(4,75,520)	
Less: Tax Paid	(1,38,800)	4,80,080
B. Cash Flow from Investment Activities:		
Purchase of Land	(76,800)	
Purchase of Machinery	(4,60,800)	
Sale of Machinery	57,600	(4,80,000)
C. Cash Flow from Financial Activities:		
Issue of share capital	1,34,400	
Dividend paid	(1,15,280)	19,120
Net increase in cash		19,200
Add: Cash balance at the beginning		96,000
Cash balance at the beginning		1,15,200

WORKING NOTE:

CASH RECEIPT FROM CUSTOMERS

Particular	Amount
Sales	40,32,000
Add: Debtors at the beginning	2,68,800
Less: Debtors at the end	(2,97,600)
Cash receipt from customers	**40,03,200**

CASH PAID TO SUPPLIERS

Particular	Amount
Cost of goods sold	31,68,000
Add: Creditors at the beginning	3,84,000
Stocks at the end	1,53,600
Less: Creditors at the end	(3,74,400)
Stocks at the beginning	(4,22,400)
Cash paid to suppliers	**29,08,800**

CASH PAID FOR OPERATING EXPENSES

Particular	Amount
Salaries and wages	3,84,000
Operating expenses	1,28,000
Add: Outstanding Expenses at the beginning	38,400
Advance at the end	14,400
Less: Outstanding Expenses at the end	(76,800)
Advance at the beginning	(12,480)
Cash paid for operating expenses	**4,75,520**

PROVISION FOR TAX A/C

Particular	Rs.	Particular	Rs.
To Bank a/c (bal. figure)	1,38,800	By Balance b/d	19,200
To Balance c/d	21,200	By Profit & Loss a/c	1,40,800
	1,60,000		**1,60,000**

LAND & BUILDING A/C

Particular	Rs.	Particular	Rs.
To Balance b/d	76,800	By Balance c/d	1,53,600
To Bank a/c (bal. figure)	76,800		
	1,53,600		**1,53,600**

MACHINERY A/C

Particular	Rs.	Particular	Rs.
To Balance b/d	5,76,000	By Acc. Depreciation	76,800
To Profit & Loss a/c	19,200	a/c	57,600
(Profit onsale of machinery)		By Bank a/c	9,21,600
To Bank a/c (bal. figure)	4,60,800	By Balance c/d	
	10,56,000		**10,56,000**

ACCUMULATED DEPRECIATION A/C

Particular	Rs.	Particular	Rs.
To Machinery a/c	76,800	By Balance b/d	1,92,000
To Balance c/d	2,11,200	By Profit & Loss a/c	96,000
	2,88,000		**2,88,000**

7.10.2 INDIRECT METHOD

The indirect method uses net-income as a starting point, makes adjustments for all transactions for non-cashitems, then adjusts for all cash-based transactions. An increase in an asset account is subtracted from netincome, and an increase in a liability account is added back to net income. This method converts accrual basisnet income (loss) into cash flow by using a series of additions and deductions.

The following rules are used to make adjustments for changes in current assets and liabilities, operatingitems not providing or using cash and non-operating items:

1. Decrease in non-cash current assets are added to net income
2. Increase in non-cash current asset are subtracted from net income
3. Increase in current liabilities are added to net income
4. Decrease in current liabilities are subtracted from net income
5. Expenses with no cash outflows are added back to net income
6. Revenues with no cash inflows are subtracted from net income (depreciation expense is the onlyoperating item that has no effect on cash flows in the period)
7. Non-operating losses are added back to net income
8. Non-operating gains are subtracted from net income

CASH FLOW STATEMENT (INDIRECT METHOD)

Particular	Detail (Rs.)	Amount (Rs.)
Cash flows from operating activities		
Net income of the year	X XXX	
Add: Non-fund and non-operating Expenses/Losses:		
Depreciation on fixed assets	+ + + +	
Goodwill (or patents) written off	+ + + +	
Preliminary expenses written off	+ + + +	
Discount on issue of shares/debentures written off	+ + + +	
Loss on sale of fixed assets or long term investments	+ + + +	
Transfer to reserves	+ + + +	
Provision for taxation	+ + + +	
Proposed dividend	+ + + +	
Less: Non Fund and Non-operating Incomes/Gains:		
Profit on sale of fixed assets/lo ng-term investments	- - - -	
Interest or dividend received	- - - -	
Fund/Loss from operation	= = = =	
Add: Decrease in Current Assets	+ + + +	
Add: Increase in Current Liabilities	+ + + +	
Less: Increase in Current Assets	- - - -	
Less: Decrease in Current Liabilities	- - - -	
	= = = =	
Less: Tax Paid	- - - -	
(A) Net cash flow from operating activities		= = = =
Cash flows from investing activities		
Purchases of fixed assets	- - - -	
Purchases of Investments	- - - -	
Proceeds from the sale of Fixed Assets	+ + + +	
Proceeds from the sale of Investments	+ + + +	
Cash receipts as Dividends / Interest on investments	+ + + +	
(B) Net cash flows from investing activities		= = = =
Cash flows from financing activities		
Receipts from issue of shares	+ + + +	
(C) Net cash flows from financing activities		= = = =
Net Cash Flow (A+B+C)		+ + + +
Beginning Cash Balance		+ + + +
Ending Cash Balance		= = = =

EXAMPLE-2: From the following Balance Sheet and other information of M/s. Radhey&Shyam Limited as at March 2017 and 2018, you are required to prepare cash flow statement following the indirect method:

Balance Sheet of M/s. Radhey&Shyam Limited

As on 31st March

Liabilities	2017	2018	Assets	2017	2018
Share Capital	2,00,000	2,40,000	Plant and Machineries	2,00,000	2,50,000
Retained Earnings	1,25,000	1,60,000	Less: Accumulated Depreciation	-60,000	-80,000
Debenture	1,50,000	90,000	Net Plant and Machineries	1,40,000	1,70,000
Trade Creditors	30,000	40,000	Land	1,00,000	80,000
			Trade Debtors	75,000	1,00,000
			Inventory	1,40,000	1,20,000
			Cash Balances	50,000	60,000
	5,05,000	**5,30,000**		**5,05,000**	**5,30,000**

Additional Information:

(a). Cash dividends of Rs.25,000 has been paid during the year.

(b). An old machine costing Rs. 10,000 has been sold for Rs. 7,000. The written down value of themachine was Rs. 5,500

SOLUTION:

CASH FLOW STATEMENT

Particular	Detail (Rs.)	Amount (Rs.)
A. Cash Flow From Operating Activities:		
Net Profit (Increase in retained earnings)	35,000	
Add: Depreciation	24,500	
Proposed Dividend	25,000	

Less: Profit on sale of Plant and Machinery	-1,500	
Fund from operation	84,500	
Add: Net Decrease in Inventory	20,000	
Net Increase in Creditors	10,000	
Less: Net Increase in Debtors	-25,000	88,000
B. Cash Flow From Investing Activities:		
Sales of Plant and Machinery	7,000	
Sales of Land	20,000	
Purchase of Plant and Machinery	-60,000	-33,000
C. Cash Flow From Financing Activities:		
Issue of Share Capital	40,000	
Redemption of Debentures	-60,000	
Dividends Paid	-25,000	-45,000
Net increase in cash (A+B+C)		10,000
Cash Balance at the Beginning of the Period		50,000
Cash Balance at the End of the Period		60,000

Working Note :

Plant and Machinery A/c

Particular	Rs.	Particular	Rs.
To Balance b/d	2,00,000	By Bank a/c	7,000
To Profit & Loss a/c (Profit onsale)	1,500	By Acc. Depreciation a/c	4,500
To Bank a/c (bal. figure)	60,000	By Balance c/d	2,50,000
	2,61,500		**2,61,500**

Accumulated Depreciation A/c

Particular	Rs.	Particular	Rs.
To Plant and Machinery a/c	4,500	By Balance b/d	60,000
To Balance c/d	80,000	ByP&L a/c (Balancingfigure)	24,500
	84,500		**84,500**

7.11 SUMMARY

In this unit we have tried to develop the idea of flow of cash within the organization. The Cash Flow Statement helps in ascertaining the liquidityof an enterprise. Cash Flow Statement is to be prepared and reported by Indiancompanies according to AS-3 issued by The Institute of Chartered Accountants ofIndia. The cash flows are categorized into flows from operating, investing andfinancing activities. This statement helps the users to ascertain the amount andcertainty of cash flows to be generated by company.We have tried to find outthe cash generate form operation activities or cash generate form investment activities or cash generate formfinancial activities. We tried to study the importance of cash and cash flow statement. We learnt how to goabout doing the cash flow analysis with the help of accounting information and finally presenting cash flowsin the form of a "cash flow statement". We also learnt, distinguishing between cash and fund as also cashflow statement and funds flow statement.

7.12 SELF-ASSESSMENT QUESTIONS

1. What is a Cash flow statement?

2. How are the various activities classified (as per AS-3 revised) while preparing cash flow statement?

3. State the uses of cash flow statement.

4. What are the objectives of preparing cash flow statement?

5. State the meaning of the terms: (i) Cash Equivalents, (ii) Cash flows.

6. Prepare a format of cash flow from operating activities under indirect method.

7. What is Cash Flow Statement? How it is prepared? Explain the classification of cash flows.

8. What is Cash Flow Statement? Differentiate between cash flow statement and fund flow statement.

9. From the following information you are required to prepare a Cash Flow Statement of RaginiStores Ltd for the year ended 31st March, 2017 and 2018 using the direct method:

Liabilities	2016	2017	Assets	2016	2017
Share Capital	2,00,000	3,00,000	Fixed Assets	1,60,000	2,00,000
Profit and Loss A/c	1,20,000	1,60,000	Add: Additions	40,000	60,000
Sundry creditors	60,000	50,000	Less: Depreciation	18,000	24,000
Provision for taxation	40,000	50,000	Net Fixed Assets	1,82,000	2,36,000
Proposed Dividend	20,000	30,000	Investments	8,000	16,000
			Stock	1,60,000	2,18,000
			Debtors	60,000	80,000
			Cash	30,000	40,000
	4,40,000	**5,90,000**		**4,40,000**	**5,90,000**

An old machine has been sold for Rs. 6,000. The written down value of the machine was Rs.4,500. Dividend Rs. 6,000 has been paid during the year and Rs. 3,000 depreciation has been charged.

10. The following are the balance Sheets of Dev Ltd. For the year ending 31st December 2016 and 2017

Additional information:

a) Taxes Rs. 44,000 and dividend Rs. 24,000 were paid during the year 2017

b) The net profit for the year 2016 before depreciation Rs. 1,34,000

You are required to prepare cash flow statement.

11. From the following Balance Sheets of Anvesha Private Ltd. on 31st March 2017 and 2018, you are required toprepare cash flow statement using the indirect method:

Liabilities	2017	2018	Assets	2017	2018
Share Capital	2,00,000	2,00,000	Goodwill	24,000	24,000
General Reserve	28,000	36,000	Buildings	80,000	72,000
P&L A/c	32,000	26,000	Plant	74,000	72,000
Creditors	16,000	10,800	Investments	20,000	22,000
Bills payable	2,400	1,600	Stock	60,000	46,800
Provision for Tax	32,000	36,000	Bills Receivable	4,000	6,400
Prov. for doubt. debts	800	1,200	Cash & Bank	13,200	30,400
			Debtors	36,000	38,000
	3,11,200	**3,11,600**		**3,11,200**	**3,11,600**

Additional Information :

(i) Depreciation provided on plant was Rs.8,000 and on Buildings Rs.8,000

(ii) Provision for taxation made during the year Rs.38,000

(i) Interim dividend paid during the year Rs. 16,000.

12. From the following Balance Sheet and additional information, prepare cash flow statement usingthe indirect method:

Liabilities	2016	2017	Assets	2016	2017
Share capital	60,000	67,500	Fixed assets	30,000	42,000
Creditors	15,000	22,500	Stock	15,000	10,500
P & L a/c	22,500	34,500	Debtors	45,000	67,500
Outstanding exp.	4,500	7,500	Cash	7,500	9,000
Income received in advance	3,000	1,500	Prepaid expenses	3,000	1,500
			Bank	4,500	3,000
	1,05,000	**1,33,500**		**1,05,000**	**1,33,500**

Additional information:

(a). Depreciation of Rs. 5,000 and Rs. 10,000 have been charged on fixed assets respectively in 2017.

(b). An interim dividend of Rs. 10,000 has been paid in 2017.

(c). Rs. 15,000 Income-tax was paid during the year 2017.

7.13 TEXT AND REFERENCES

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UNIT-8 DIVIDEND POLICY

UNIT FRAMEWORK

8.1 OBJECTIVES

After completing this unit, you will be able to know about:

- Meaning of Dividend
- Meaning of Dividend Policy
- Different types of dividends
- Determinants of dividend policy
- Different dividend models
- The value of firm
- Computation of value of firm
- Characteristics and utility of leverages

8.2 INTRODUCTION

When a company makes profit at the end of the year from its operating activities, the management of company must decide that what to do with those profits. They can decide to retain the profits within the company or may be decide to partly remain in company and remaining profits distribute to the shareholders of the company. If they decide to pay profits to the shareholders, then they have to determine appropriate ratio of distribution and amount retain in the business. The part of profits which have to be distributed among the owners of the company i.e. shareholders, is called as dividend. For distribution of dividend, company frame a dividend policy according which company takes decision in respect of payment of dividend in present and in future. On the basis of dividend policy a company determines that in what proportion profit should be distributed to the shareholders and to be retained in the business. The retained portion of the profits in business is used in long term finance.

In simple terms, a company runs its business during any previous year and at the end of the previous year company's net result of operating activities is profit. The shareholders are owner of a company so they have right on such profits. Company may be distributing such profits among the shareholders or may be retained in the business. If company decides to distribute whole or a part of this profit among the shareholders, such distributable profit is Dividend. The board of directors declares the dividend. In other words, we can say that the dividend may be defined as divisible profits which are distributed amongst the members of company in proportion of their shareholding in the company. According to ICAI, New Delhi, **"a dividend is a distribution to shareholders out of profits or reserves available for this purpose**."(Source: Guidance notes on 'Terms used in Financial Statements', ICAI) The dividend declared by the board in annual general meeting (AGM). Quantum of the dividend depends on the company's financial requirements and also depends on the availability of the divisible profits.

8.3 CONCEPT AND MEANING OF DIVIDEND POLICY

For the financial manager of a company, it is crucial to take decision regarding to dividend because she has to determine about the amount of profit to be distributed among the shareholders and the amount of retained earnings. Amount of dividend and retained earnings have a reciprocal relationship. Market value of shares depends on the payout ratio. While taking the dividend decision the management takes into account the effect of the decision on the shareholders' wealth.

A dividend policy is a company's approach to distributing profits back to its owners or stockholders. If a company is in a growth mode, it may decide that it will not pay dividends, but rather re-invest its profits (retained earnings) in the business. If a company does decide to pay

dividends, it must then decide how often to do so, and at what rate. Large, well-established companies often pay dividends on a fixed schedule, but sometimes they also declare "special dividends." The payment of dividends impacts the perception of a company in financial markets, and it may also have a direct impact on its stock price. A company takes three major decisions i.e. Investments, financing and dividend. Dividend decision is most significant decision in all of these.

8.4 DETERMINANTS OF DIVIDEND POLICY OR FACTORS AFFECTING DIVIDEND POLICY

The main determinants of dividend policy of a firm can be classified into:

1. **Capital Market Considerations:** Capital market consideration is also a determinant of dividend policy. If the company has easy access to the capital market in such case company should follow a liberal dividend policy and if company has limited access to capital market, it can opt a low dividend payout ratio. Such companies rely on retained earnings as a major source of financing for future growth.
2. **Dividend Payout Ratio:** Dividend payout ratio refers to the percentage of the net earnings distributed to the shareholders as dividends. On the basis of dividend policy owners of the company takes the decision to pay out earnings or to retain them for reinvestment in the firm. A sufficient amount of dividend creates satisfaction among the shareholders and the retained earnings constitute a source of finance. So, it is necessary that a) dividend policy should maintain a balance between current dividends and future growth which maximizes the price of the firm's shares and b) The dividend payout ratio of a firm should be optimum so that firm can able to maximize the wealth of the firm's owners and providing sufficient funds to finance growth.
3. **Legal, Contractual and Internal Constraints and Restrictions:** A company is not legally bounded for declaration of dividend but, they have to specify the conditions under which dividends must be paid. Such conditions pertain to capital impairment, net profits and insolvency. It may be that a company accepts important contractual restrictions (when the company obtains external funds) in respect of payment of dividends. These restrictions may cause the firm to restrict the payment of cash dividends until a certain level of earnings has been achieved or limit the amount of dividends paid to a certain amount or percentage of earnings. Internal constraints are unique to a firm and include liquid assets, growth prospects, and financial requirements, availability of funds, earnings stability and control.

4. **Inflation:** In case of situation of inflation, the funds generated from depreciation may not be sufficient to replace obsolete equipment's and machinery. In such situation, a company should rely upon retained earnings as a source of fund to replace those assets. Thus, dividend payout ratio negatively affected due to inflation.

5. **Age of Corporation:** A newly establishes company will invest their earning for expansion and plant improvement and may adopt a rigid dividend policy. But if company is well established, it can frame a more consistent policy in respect of dividend. So, we can say that dividend policy is also affected by the age of the corporation.

6. **Stability of Earnings:** If a company having stability of earnings, such company can maintain consistency in its dividend policy. Stability of earnings depends on nature of business e.g. firms dealing in luxurious or fancy goods can earn more profits. So, we can say that the nature of business has an important bearing on the dividend policy.

7. **Requirement of Additional Capital:** In case of small companies, they face the difficulties of additional finance for expansion programs. Every company retains a part of their profits for strengthening their financial position. Thus, such Companies distribute dividend at low rates and retain a big part of profits

8. **Liquidity of Funds:** If a company decides to pay dividend in cash then it may be only if company has sufficient funds. So, availability of cash and sound financial position is equally affected to dividend policy. Payment of dividend represents a cash outflow. More availability of funds and good liquidity position of company show the better ability to pay dividend. If cash position is weak, stock dividend will be distributed and if cash position is good, company can distribute the cash dividend.

9. **Trade Cycles:** Business cycles also exercise influence upon dividend Policy. Dividend policy is adjusted according to the business oscillations. During the boom, prudent management creates food reserves for contingencies which follow the inflationary period. Higher rates of dividend can be used as a tool for marketing the securities in an otherwise depressed market. The financial solvency can be proved and maintained by the companies in dull years if the adequate reserves have been built up.

10. **Government Policies. Various Government Policies:** Fiscal, industrial, taxation etc. affect to the earnings capacity of the enterprise. The dividend policy has to be modified according to the changes in government policies.

11. **Taxation Policy:** Taxation policy of government also affects the decision of distribution of dividend. In case of high taxation rate a major part of earnings will be paid to government by way of tax,

hence rate of dividend will be lowered down. In case of low taxation, the company will be able to pay dividend at higher rate.

12. **Policy of Control:** Policy of control is another determining factor is so far as dividends are concerned. If the directors want to have control on company, they would not like to add new shareholders and therefore, declare a dividend at low rate. Because by adding new shareholders they fear dilution of control and diversion of policies and programs of the existing management. So they prefer to meet the needs through retained earnings. If the directors do not bother about the control of affairs they will follow a liberal dividend policy. Thus control is an influencing factor in framing the dividend policy.

13. **Legal Requirements:** The companies' act 1956 prescribes guidelines in respect of declaration and payment of dividend. These guidelines issued in order to protect the interest of creditors e.g. a company is required to provide for depreciation on its fixed and tangible assets before declaring dividend on shares. It proposes that Dividend should not be distributed out of capita, in any case.

8.5 CHARACTERISTICS OF SUITABLE DIVIDEND POLICY

Dividend policy of a company sets the guidelines to be followed while deciding the amount of dividend to be paid out to the shareholders. The company needs to adhere to the dividend policy while deciding the proportion of earnings to be distributed and the frequency of the distribution. The following are the various features of suitable dividend policy of a company:

1. **Type of Industry:** The nature of the industry to which the company belongs has an important effect on the dividend policy. Industries, where earnings are stable, may adopt a consistent dividend policy as opposed to the industries where earnings are uncertain and uneven. They are better off in having a conservative approach to dividend payout.

2. **Ownership Structure:** The ownership structure of a company also impacts the policy. A company with a higher promoter' holdings will prefer a low dividend payout as paying out dividends may cause a decline in the value of the stock. Whereas, a high institutional ownership will favor a high dividend payout as it helps them to increase the control over the management.

3. **Age of Corporation:** Newly formed companies will have to retain major part of their earnings for further growth and expansion. Thus, they have to follow a conservative policy unlike established companies, which can pay higher dividends from their reserves.

4. **The Extent of Share Distribution:** A company with a large number of shareholders will have a difficult time in getting them to agree to a conservative policy. On the other hand, a closely held company has more chances of succeeding to finalize conservative dividend payouts.

5. **Different Shareholders' Expectations:** Another factor that impacts the policy is the diversity in the type of shareholders a company has. A different group of shareholders will have different expectations. A retired shareholder will have a different requirement vis-a-vis a wealthy investor. The company needs to clearly understand the different expectations and formulate a successful dividend policy.

6. **Leverage:** A company having more leverage in their financial structure and consequently, frequent interest payments will have to decide for a low dividend payout. Whereas a company utilizing their retained earnings will prefer high dividends.

7. **Future Financial Requirements:** Dividend payout will also depend on the future requirements for the additional capital. A company having profitable investment opportunities is justified in retaining the earnings. However, a company with no internal or external capital requirements should opt for a higher dividend.

8. **Business Cycles:** When the company experiences a boom, it is prudent to save up and make reserves for dips. Such reserves will help a company declare high dividends even in depressing markets to retain and attract more shareholders.

9. **Growth:** Companies with a higher rate of growths, as reflected in their annual sales growth, a ratio of retained earnings to equity and return on net worth, prefer high dividend payouts to keep their investors happy.

10. **Changes in Government Policies:** There could be the change in the dividend policy of a company due to the imposed changes by the government. The Indian government had put temporary restrictions on companies to pay dividends during 1974-75.

11. **Profitability:** The profitability of a firm is reflected in net profit ratio, current ratio, and ratio of profit to total assets. A highly profitable company generally pays higher dividends and a company with less or no profits will adopt a conservative dividend policy.

12. **Taxation Policy:** The corporate taxes will affect dividend policy, either directly or indirectly. The taxes directly reduce the residual earnings after tax available for the shareholders. Indirectly, the dividend distribution is taxable after a certain limit.

13. **Trends of Profits:** Even if the company has been profitable over the years, the trend should be properly analyzed to find the average

earnings of the company. This average number should be then studied in relation to the general economic conditions. This will help in opting for a conservative policy if a depression is approaching.

14. **Legal Rules:** There are certain legal restrictions on the companies for dividend payments. It is legal to pay a dividend only if the capital is not reduced post payment. These rules are in place to protect creditors' interest.

15. **Control Objectives:** The firms aiming for more control in the hands of current shareholders prefer a conservative dividend payout policy. It is imperative to pay fewer dividends to retain more control and the earnings in the company.

8.6 TYPES OF DIVIDEND

I. **Dividend on the Basis of Security:** There are two types of securities on which company pays dividend i.e. 1) Preference shares 2) Equity shares. Company pays following two types dividend on these securities:

   (a). Preference Dividend- On preference Share Company pays dividend at fix rate. At the time of issue of preference shares, company declares the rate of dividend on these shares. Since dividend on these shares is fixed, so, mostly discussion on dividend policy is relates to the equity dividend.

   (b). Equity Dividend- In case of equity shares the rate of dividend cannot be pre-determined. Dividend on equity shares is paid at the rate recommended by the board of directors and approved by the shareholders in Annual General Meeting (AGM). The board of directors has the right in respect of payment of dividend, the rate of dividend and the medium of dividend.

II. **Dividend on the Basis of Time:** On the basis of time, there are two types of dividend:

   (a). Interim Dividend- When a company earns huge profits or we can say that abnormal profits during any particular year and directors wish to distribute these profits among the shareholders, then company declares dividend at any time between two AGM. It is called interim dividend. In other words, we can say that interim dividend is the dividend which can be declare and distribute at any time within the financial year. Interim dividend may be declare if, Article of association permits for it. Interim dividend is an extra dividend paid in cash within the year without requirement of approval in AGM.

   (b). Regular Dividend- It is annual dividend declares after approval in AGM. This dividend pays by the company after

completion of financial year. The rate of dividend depends on the financial performance of the company in particular year.

III. **Dividend on the Basis of Mode of Payment:** On the basis of mode of payment, dividend may be classified in following three categories.

(a). Cash Dividend- Mostly, shareholders are interested in cash dividend. When company pays dividend in cash, it indicates outflows of cash from company to its shareholders. Company pays cash dividend out of current sources available in the company or by taking short term loans from banks and other financial institutions. A company may take decision of cash payment of dividend, when sufficient funds are available and liquidity position of company is sound. Cash dividend is most desirable mode of payment of dividend. It built confidence and faith in investor's mind about company.

(b). Stock Dividend- If any company has a huge amount of reserves & surplus but suffering from problem of shortage of liquidity of funds. In such case, if company wants to distribute reserves & surplus among the shareholders, then the company issue new shares to existing shareholders at free of cost. Shareholders receive shares In place of cash dividend. Such shares are known as "Bonus shares" or "Stock dividend". In this process whole or a part of profits converts into share capital, so, it also called as "Capitalization of profits".

(c). Scrip or Bond Dividend: If any company is facing a financial crisis, in such circumstances company pays dividend in the form of shares and debentures of other companies. This form of dividend is called as scrip or bond dividend. The main difference of scrip dividend and bond dividend is of time period. In case of scrip dividend, securities belong to short term securities and in case of bond dividend it is long term securities.

8.7 DIVIDEND MODELS AND VALUE OF FIRM

8.7.1 WALTER'S DIVIDEND MODEL :

Walter's model supports the principle that dividends are relevant. The investment policy of a firm cannot be separated from its dividend policy and both are inter-related. The choice of an appropriate dividend policy affects the value of an enterprise.

Assumptions of This Model: The Company does not rely upon external funds. It means that retained earnings are the only source of finance.

1. Internal rate of return (r) and cost of capital (k) are constant.

2. There is no change in the key variables, namely, beginning earnings per share (E), and dividends per share (D). The values of D and E may be changed in the model to determine results, but any given value of E and D are assumed to remain constant in determining a given value.

3. The firm has an infinite life.

Formula: Walter's model $$P= \frac{D}{Ke-g}$$

Where: P =Price of Equity share

D = Dividend Per share

Ke = Cost of equity shares

g = Growth rate in dividend

After accounting for retained earnings, the model would be:

$$P= \frac{D}{Ke-rb}$$

Where:

r = Expected rate of return on firm's investments

b = Retention rate (E - D)/E

Equation showing the value of a share (as present value of all dividends plus the present value of all capital gains) – Walter's model:

$$P= \frac{D}{Ke}+ \frac{r(E-D)Ke}{Ke}$$

Where:

D = Dividend per share and

E = Earnings per share

EXAMPLE-1: Dev Ltd. has the following facts:

Cost of capital (ke) = 0.10

Earnings per share (E) = Rs. 10

Rate of return on investments (r) = 8%

Dividend payout ratio: Case A: 50% Case B: 25%

Show the effect of the dividend policy on the market price of the shares.

SOLUTION:

Case A:

D/P ratio = 50%

When EPS = Rs. 10 and D/P ratio is 50%, D = 10 x 50% = Rs. 5

$$P= \frac{5}{0.10}+ \frac{0.08(10-5)/0.10}{0.10} \geq \text{Rs. } 90$$

Case B:

D/P ratio = 25%

When EPS = Rs. 10 and D/P ratio is 25%, D = 10 x 25% = Rs. 2.5

$$P=\frac{2.5}{0.10}+\frac{0.08(10-2.5)/0.10}{0.10}\geq \text{Rs. } 85$$

EXAMPLE-2 : The details regarding to three companies are below:

A Ltd.	**B Ltd.**	**C Ltd.**
r =15%	r = 10%	r = 12%
Ke = 10%	Ke = 10%	Ke = 10%
E = Rs. 50	E = Rs. 50	E = Rs. 50

Compute the value of an equity share of each company applying Walter's formula when dividend payout ratio is (a) 0% (b) 10% (c) 20% (d) 40%.

A Ltd.	**B Ltd.**	**C Ltd.**
(a) When dividend payout ratio is 0% $P=\frac{0}{0.10}+\frac{0.15(50-0)/0.10}{0.10}$ = Rs. 750	$P=\frac{0}{0.10}+\frac{0.10(50-0)/0.10}{0.10}$ = Rs. 500	$P=\frac{0}{0.10}+\frac{0.12(50-0)/0.10}{0.10}$ = Rs. 600
(b) When dividend payout ratio is 10% $P=\frac{10}{0.10}+\frac{0.15(50-10)/0.10}{0.10}$ = Rs. 700	$P=\frac{10}{0.10}+\frac{0.10(50-10)/0.10}{0.10}$ = Rs. 500	$P=\frac{10}{0.10}+\frac{0.12(50-10)/0.10}{0.10}$ = Rs. 580
(c) When dividend payout ratio is 20% $P=\frac{20}{0.10}+\frac{0.15(50-20)/0.10}{0.10}$ = Rs. 650	$P=\frac{20}{0.10}+\frac{0.10(50-20)/0.10}{0.10}$ = Rs. 500	$P=\frac{20}{0.10}+\frac{0.12(50-20)/0.10}{0.10}$ = Rs. 560
(d) When dividend payout ratio is 40% $P=\frac{40}{0.10}+\frac{0.15(50-40)/0.10}{0.10}$ = Rs. 550	$P=\frac{40}{0.10}+\frac{0.10(50-40)/0.10}{0.10}$ = Rs. 500	$P=\frac{40}{0.10}+\frac{0.12(50-40)/0.10}{0.10}$ = Rs. 520

Conclusions of Walter's Model: Prof. Walter's concept may be summarized as under:

1. **Growth Firms (When r >ke):** The value of shares is inversely related to the Dividend Payout ratio. As the Dividend Payout ratio increases, the market value of shares decline. Its value is the highest when Dividend Payout ratio is 0 and should re-invest their entire earnings. So, if the firm retains its earnings entirely, it will maximize the market value of the shares. The optimum payout ratio is zero.
2. **Declining Firms (When r <ke):** The Dividend Payout ratio and the value of shares are positively correlated. In such case the firms are called declining firms. As the Dividend Payout ratio increases, the market price of the shares also increases. The optimum payout ratio is 100%. Such firms should distribute their entire earnings.
3. **Normal Firms (When r = ke):** The market value of shares is constant irrespective of the Dividend Payout ratio. In this case, there is no optimum D/P ratio.

Limitations of this model:

1. This model can be applicable only to all equity owned firms because Walter's model assumes that the firm's investments are purely financed by retained earnings.
2. The assumption of r as constant is not realistic because the risk factor of a firm is not always uniform.
3. The assumption of a constant Ke ignores the effect of risk on the value of the firm.

8.7.2 GORDON'S DIVIDEND CAPITALIZATION MODEL

Gordon's dividend model contends that dividends are relevant. This model is of the view that dividend policy of a firm affects its market value of shares.

Assumptions of This Model: The firm is an all equity firm. No external financing is used and investment programmes are financed exclusively by retained earnings.

1. Return on investment (r) and Cost of equity (Ke) are constant.
2. The firm has perpetual life.
3. The retention ratio, once decided upon, is constant. Thus, the growth rate, (g = br) is also constant.
4. Ke > br
5. Corporate taxes do not exist.

Arguments of This Model:

1. Dividend policy of the firm is relevant and that investors put a positive premium on current incomes/ dividends.
2. Market value of shares is equal to the present value of its expected future dividends.
3. This model assumes that investors are risk averse and they put a premium on a certain return and discount uncertain returns.
4. Investors are rational and want to avoid risk.
5. The rational investors can reasonably be expected to prefer current dividend. They would discount future dividends. The retained earnings are evaluated by the investors as a risky promise. In case the earnings are retained, the market price of the shares would be adversely affected. In case the earnings are retained, the market price of the shares would be adversely affected.
6. Investors would be inclined to pay a higher price for shares on which current dividends are paid.

Dividend Capitalization Model: According to Gordon, the market value of a share is equal to the present value of the future streams of dividends.

$$P=\frac{E(1-b)}{Ke-br}$$

Where:

P = Price per share

E = Earnings per share

B = Retention ratio

1-b = Dividend payout ratio

Ke = Cost of Equity

br = g = Growth rate

EXAMPLE-3: Determination of value of shares, given the following data:

	Case A	**Case B**
D/P Ratio	40	30
Retention Ratio	60	70
Cost of Capital	17%	18%
Return on investments	12%	12%
EPS	Rs. 20	Rs. 20

SOLUTION :

Case A

$$P=\frac{Rs.20(1-0.60)}{0.17-(0.60x0.12)}= \text{Rs. } 81.63$$

Case B

$$P = \frac{Rs.20(1-0.70)}{0.18-(0.70x0.12)} = Rs.\ 62.50$$

Gordon's model thus asserts that the dividend decision has a bearing on the market price of the shares and that the market price of the share is favorably affected with more dividends.

EXAMPLE-4: The details regarding to three companies are below:

Palki Ltd.	**Shivang Ltd**	**Rrudraksh Ltd.**
R >Ke	R = Ke	R <Ke
r =15%	r = 10%	r = 8%
Ke = 13%	Ke = 10%	Ke = 10%
E = Rs. 20	E = Rs. 20	E = Rs. 20

Compute the market value of an equity share of each company applying Gordon's formula when dividend payout ratio is (a) 30% (b) 20% (c) 50%.

Palki Ltd.	**Shivang Ltd.**	**Rrudraksh Ltd.**
(a)When dividend payout ratio is 30% and b=70% G=br= 0.7x 0.15 = 0.105 $P = \frac{Rs.20(1-0.70)}{0.13-0.105}$ = Rs. 240	G=br= 0.7x 0.10 = 0.07 $P = \frac{Rs.20(1-0.70)}{0.10-0.07}$ = Rs. 200	G=br= 0.7x 0.08 = 0.056 $P = \frac{Rs.20(1-0.70)}{0.10-0.056}$ = Rs. 136.36
(b)When dividend payout ratio is 20% and b=80% G=br= 0.8x 0.15 = 0.12 $P = \frac{Rs.20(1-0.80)}{0.13-0.12}$ = Rs. 400	G=br= 0.8x 0.10 = 0.08 $P = \frac{Rs.20(1-0.80)}{0.10-0.08}$ = Rs. 200	G=br= 0.8x 0.08 = 0.064 $P = \frac{Rs.20(1-0.80)}{0.10-0.064}$ = Rs. 111.11
(c)When dividend payout ratio is 50% and b=50% G=br= 0.5x 0.15 = 0.075 $P = \frac{Rs.20(1-0.50)}{0.13-0.075}$ = Rs. 181.82	G=br= 0.5x 0.10 = 0.05 $P = \frac{Rs.20(1-0.50)}{0.10-0.05}$ = Rs. 200	G=br= 0.5x 0.08 = 0.04 $P = \frac{Rs.20(1-0.50)}{0.10-0.04}$ = Rs. 166.67

Conclusions of Gordon's Model: Gorden's concept may be summarized as under-

1. **Growth Firms (When r >ke):** In this case dividend payout ratio decreases so price per share also decrease. A growth firm should distribute les dividend and should retain maximum earnings.

2. **Normal Firms (When r = ke):** In this case there are no any effects of dividend policy on price of shares. The price of shares remains unchanged. In this case, there is no optimum D/P ratio.

3. **Declining Firms (When r <Ke):** As the Dividend Payout ratio increases, the market price of the shares also increases. The optimum payout ratio is 100%. Such firms should distribute their entire earnings.

8.7.3 MILLER AND MODIGLIANI MODEL (MM MODEL)

Miller and Modigliani Model assume that the dividends are irrelevant. Dividend irrelevance implies that the value of a firm is unaffected by the distribution of dividends and is determined solely by the earning power and risk of its assets. Under conditions of perfect capital markets, rational investors, absence of tax discrimination between dividend income and capital appreciation, given the firm's investment policy, its dividend policy may have no influence on the market price of the shares, according to this model.

Assumptions of MM Model :

1. Existence of perfect capital markets and all investors in it are rational.

2. Information is available to all free of cost, there are no transactions costs, securities are infinitely divisible, no investor is large enough to influence the market price of securities and there are no floatation costs.

3. There are no taxes. Alternatively, there are no differences in tax rates applicable to capital gains and dividends.

4. A firm has a given investment policy which does not change. It implies that the financing of new investments out of retained earnings will not change the business risk complexion of the firm and thus there would be no change in the required rate of return.

5. Investors know for certain the future investments and profits of the firm (but this assumption has been dropped by MM later).

Argument of This Model: By the argument of arbitrage, MM Model asserts the irrelevance of dividends.

Arbitrage implies the distribution of earnings to shareholders and raising an equal amount externally. The effect of dividend payment would be offset by the effect of raising additional funds. MM model argues that when dividends are paid to the shareholders, the market price of the shares will decrease and thus whatever is gained by the investors as a result of increased dividends will be neutralized completely by the reduction in the market value of the shares. The cost of capital is independent of leverage and the real cost of debt is the same as the real cost of equity, according to this model. Those investors are indifferent between dividend and retained earnings imply that the dividend decision is irrelevant. With dividends being irrelevant, a firm's cost of capital would be independent of its dividend-payout ratio. Arbitrage process will ensure that under conditions of uncertainty also the dividend policy would be irrelevant.

MM Model : Market price of the share in the beginning of the period = Present value of dividends paid at the end of the period + Market price of share at the end of the period.

$$P_0 = \frac{D1 - P1}{1 + Ke}$$

Where:

P_0 = Prevailing market price of a share

Ke = Cost of Equity

D_1 = Dividend to be received at the end of period 1 and

P_1 = Market price of a share at the end of period 1.

The Market price of shares at the end of the period can be calculated by using the following formula:

$$P_1 = P_0 (1 + Ke) - D_1$$

Value of the firm can also be calculated by applying the following formula:

$$nP_0 = \frac{(n+m)P1 - (1 - X)}{(1 + Ke)}$$

Where:

n = number of shares outstanding at the beginning of the period

m = number of shares to be issued at the ending of the period

P1 = Market price of the share at the end of the period

Ke = Cost of equity

I = Total amount required for investment

X = Total net profit of the firm during the period

EXAMPLE-5: Aditi Ltd. whose capitalization rate is 10% has outstanding shares of 25,000 selling at Rs. 100 each. The firm is expecting to pay a dividend of Rs. 5 per share at the end of the current financial year. The company's expected net earnings are Rs. 250,000 and the new proposed investment requires Rs. 500,000. Prove that using MM model, the payment of dividend does not affect the value of the firm.

SOLUTION:

1. **Value of the firm when dividends are paid:**

   i. Price per share at the end of year 1:

   $P_0 = 1/(1 + ke) \times (D_1 + P_1)$

   Rs. 100 = 1/(1 + 0.10) x (Rs. 5 + P1)

   P_1 = Rs. 105

   ii. Amount required to be raised from the issue of new shares:

   $n P_1 = I – (E – nD_1)$

   ≥ Rs. 5,00,000 – (Rs. 2,50,000 - Rs. 1,25,000)

   ≥ Rs. 3,75,000

   iii. Number of additional shares to be issued:

   n = Rs. 375,000 / 105

   ≥ 3571.42857 shares or 3572 shares

   iv. Value of the firm:

$$nP_0 = \frac{(n+m)P1-(1-X)}{(1+Ke)}$$

$$= \frac{(25{,}000 + 3572) \times 105 - (Rs.5{,}00{,}000 – Rs.2{,}50{,}000)}{(1+0.10)}$$

   = Rs. 25,00,000

2. **Value of the firm when dividends are not paid:**

   i. Price per share at the end of year 1:

   $P_0 = 1/(1 + ke) \times (D_1 + P_1)$

   Rs. 100 = 1/(1 + 0.10) x (Rs. 0 + P_1)

   P^1 = Rs. 110

   ii. Amount required to be raised from the issue of new shares:

≥ Rs. 5,00,000 – (Rs. 2,50,000 -0) = Rs. 2,50,000

iii. Number of additional shares to be issued:

≥ Rs. 2,50,000/Rs. 110 = 2273

iv. Value of the firm:

$$nP_0 = \frac{(n+m)P1-(1-X)}{(1+Ke)}$$

$$= \frac{(25{,}000 + 2273)\ x\ 110 - (Rs.5{,}00{,}000 - Rs.2{,}50{,}000)}{(1+0.10)}$$

= Rs. 25,00,000

Thus, according to MM model, the value of the firm remains the same whether dividends are paid or not. This example proves that the shareholders are indifferent between the retention of profits and the payment of dividend.

Limitations of MM Model :

1. The assumption of perfect capital market is unrealistic. Practically, there are taxes, floatation costs and transaction costs.
2. Investors cannot be indifferent between dividend and retained earnings under conditions of uncertainty. This can be proved at least with the aspects of
   - **i)** Near Vs distant dividends,
   - **ii)** Informational content of dividends,
   - **iii)** Preference for current income and
   - **iv)** Sale of stock at uncertain price.

8.8 SUMMARY

Dividend policy is one of the modern firms' major financial decisions. The dividend policy of acompany is one of the most prominent decisions that the board of directors of a company makes. Itaffects the form and the amount of dividends that the existing shareholders of the company receive.Appropriate dividend policy can not only result in a good corporate image, but also augment the confidenceof investors in the company's future prospects which in turn creates a good corporate financingenvironment and ensures the company's long-term growth and expansion. Dividend policy has threemain aspects:

1. How much dividend to pay i.e. the dividend payout ratio which determines the actual distribution of earnings per share

2. The pattern of payment i.e. the dividend policy which could be a stable or residual or fixed dividend policy

3. The form of dividend payment i.e. whether the common dividend is to be paid in the form of cash stock or any mode permissible by the law.

The part of profits which have to be distribute among the owners of the company i.e. shareholders, is called as dividend.A dividend policy is a company's approach to distributing profits back to its owners or stockholders.In case of inflation a company should rely upon retained earnings as a source of fund to replace those assets.

Agency theory claims that the dividends provide an incentive for the managers to reduce the costsrelated to the principal/agent relationship. A liberal dividend policy may lead to enhancement of theshareholder value by reducing the agency costs. The main model supporting view of irrelevance of dividendsis the ***Miller and Modigliani Model (MM Hypothesis)*** whereas traditionalists such as ***MyronGordon*** have put forth models arguing that dividends arerelevant. Modigliani Miller Model argues that the declaration of dividend does not affect the market priceof a share. The optimal payout ratio for a declining firm is 100%. MyronGordon has also developed a model on the lines of ***Prof. Walter*** suggesting that dividends are relevantand the dividend decision of the firm affects its value. ***Gordon's theory*** contends that dividends arerelevant. This model is of the view that dividend policy of a firm affects its value.

8.9 SELF-ASSESSMENT QUESTIONS

1. What do you understand by Dividend?

2. What do you understand by Retained earnings?

3. Define dividend policy.

4. Describe how shareholders' desire for income influence a firm's dividenddecision.

5. State any four determinants of dividend policy.

6. Explain assumptions of Walter's model.

7. Explain various types of dividend.

8. State assumptions of M-M Model.

9. A company has a capitalization rate of 10%. It currently has outstanding shares worth 25000 shares selling currently at Rs. 100 each. The firm expects to have a net income of Rs. 400000 for the current financial year and it are contemplating to pay a dividend of Rs. 4 per share. The company also requires Rs. 600000 to fund its investment requirement. Show that under MM model, the dividend payment does not affect the value of the firm.

10. A company has the following figures:

Cost of capital (k) = 0.10

Earnings per share (E) = Rs. 10

Rate of return on investments (r) = 8%

Dividend payout ratio:

Case A: 50%

Case B: 25%

Show the effect of the dividend policy on the market price of the shares.

11. XYZ Ltd. paid a dividend of Rs.5 per share for 2017-18. The company follows a fixed dividend payout ratio of 30% and earns a return of 18% on its investments. Cost of capital is 12%. Calculate the expected price of the shares of XYZ Ltd. using Walter Model.

12. The earning per share of a company is Rs.10 and the rate of capitalization applicable to it is 10%. The company has before it the option of adopting a payout of 20% or 40% or 80%. Using Walter's formula, compute the market value of the company's share if the productivity of retained earnings is (a) 20% (b) 10% and (c) 8%. What inference can be drawn from the above exercise?

13. Following are the details regarding three companies. The details regarding to three companies are below:

A Ltd.	B Ltd.	C Ltd.
R >Ke	R = Ke	R <Ke
r =15%	r = 10%	r = 8%
Ke = 12%	Ke = 10%	Ke = 10%
E = Rs. 15	E = Rs. 15	E = Rs. 15

You are required to calculate the effect of dividend payment on the value of shares of each of the above companies under the following situations by using Walter's formula.

(a) When no dividend is paid.

(b) When dividend is paid at Rs. 8 per share.

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Financial Management

BLOCK

3

CAPITAL BUDGETING

परिशिष्ट–4
आन्तरिक कवर–दो का प्ररूप
Format of the II Inner Covers

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BLOCK-III CAPITAL BUDGETING

In **Block-III** the learner will know about the Capital Budgeting including the topics like Cost of Capital, Share, Debenture, Bonds and Cash Management etc.

Unit-9 discusses about definition of Cost of Capital, Meaning, Importance, Classification and Measurement of Cost of Capital, Average Cost of Capital.

Unit-10 explains Share, Debenture and Bonds, Meaning, Characteristics and Types, Difference between Share and Stock, Advantages and Disadvantages of Equity and Preference Shares, Distinctions between Equity and Preference Shares, Debenture- Concept, Types, Advantages and Limitations, Differences between Share and Debenture, Causes of Low Popularity of Debentures in India, Concepts and Types of Bonds.

Unit-11 deals with concept of Capital Budgeting, Importance, Scope, Process and Methods of Capital Budgeting.

Unit-12 deals with Cash Management, Nature of Cash, and Motives for Holding Cash, Factors Determining Cash Balances, Managing Cash Flows, Methods of Cash Management, and Cash Budget.

UNIT-9 COST OF CAPITAL

UNIT FRAMEWORK

9.1 OBJECTIVES

After studying this unit, you should be able to describe:

- The meaning and definition of Cost of Capital;
- Importance and Classification of Cost of Capital;
- Measurement of Cost of Capital;

- Cost of Equity, Cost of Preference Share and Cost of Debt; and
- Average Cost of Capital etc.

9.2 INTRODUCTION

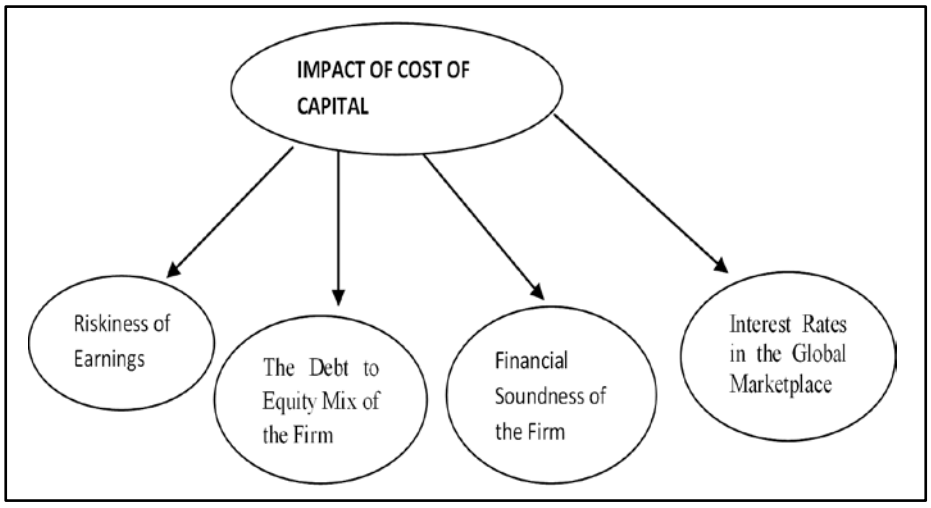
The firm must earn a minimum of rate of return to cover the cost of generating funds to finance investments; otherwise, the objective of the firm i.e. maximization of wealth cannot be achieved. The capital may be in the form of debt, retained earnings, preference shares and equity shares. Every firm, for its survival and growth, has to earn a sufficient return to cover its costs of capital and also to have surplus for its growth. If a firm's rate of return on its investment exceeds its cost of capital, the wealth of equity stockholders is enhanced.

The **cost of capital** is the required rate of return that a firm must achieve in order to cover the cost of generating funds in the marketplace. Based on their evaluations of the riskiness of each firm, investors will supply new funds to a firm only if it pays them the required rate of return to compensate them for taking the risk of investing in the firm's bonds and stocks. If, indeed, the cost of capital is the required rate of return that the firm must pay to generate funds, it becomes a guideline for measuring the profitability of different investments. When there are differences in the degree of risk between the firm and its divisions, a risk-adjusted discount-rate approach should be used to determine their profitability.

9.3 MEANING AND DEFINITIONS OF COST OF CAPITAL

Cost of capital, for an investor is the measurement of disutility of funds in the present as compared to the return expected in the future. From the firm's point of view, its meaning is somewhat different. From its point of view, cost of capital is the required rate of return needed to justify the use of capital.

On the other hand, Cost of capital is the rate of return that a firm must earn on its project investments to maintain its market value and attract funds. Cost of capital is the required rate of return on its investments which belongs to equity, debt and retained earnings. If a firm fails to earn return at the expected rate, the market value of the shares will fall and it will result in the reduction of overall wealth of the shareholders.



The following important definitions are commonly used to understand the meaning and concept of the cost of capital:

According to the definition of **John J. Hampton** "Cost of capital is the rate of return the firm required from investment in order to increase the value of the firm in the market place".

According to the definition of **Solomon Ezra,** "Cost of capital is the minimum required rate of earnings or the cut-off rate of capital expenditure".

According to the definition of James **C. Van Horne**, Cost of capital is "A cut-off rate for the allocation of capital to investment of projects. It is the rate of return on a project that will leave unchanged the market price of the stock".

According to the definition of **William and Donaldson**, "Cost of capital may be defined as the rate that must be earned on the net proceeds to provide the cost elements of the burden at the time they are due".

Thus, it is clear from the above that the cost of capital is the minimum rate of return which a company is expected to earn from a proposed project so as to make no reduction in the earning per share to equity shareholders and its market price. It is the combined coal of each type of source by which a firm raises the funds.

ASSUMPTIONS OF COST OF CAPITAL: While computing the cost of capital, the following assumptions are made:

- The cost can be either explicit or implicit.
- The financial and business risks are not affected by investing in new investment proposals.
- The firm's capital structure remains unchanged.
- Cost of each source of capital is determined on an after tax basis.

- Costs of previously obtained capital are not relevant for computing the cost of capital to be raised from a specific source.
- It consists of three important risks such as zero risk level, business risk and financial risk. Cost of capital can be measured with the help of the following equation.

$$K = r_j + b + f.$$

Where,

K = Cost of capital.

r_j = The risk less cost of the particular type of finance.

b = The business risk premium.

f = The financial risk premium.

9.4 IMPORTANCE OF COST OF CAPITAL

The primary functions of every finance manager are to arrange adequate capital for the firm from various sources of funds at the lowest possible cost and maintaining the market value as well. The cost of capital is very important concept in financial management. Prior to the development of the concept of cost of capital the problem was ignored or bypassed. The progressive management always takes notice of the cost of capital while taking a financial decision. The concept is quite relevant in the following managerial decisions:

1. **Reallocation of Capital:** This concept is very useful in allocation of capital to various investment proposals. It is the corner stone of the investment decisions. The main goal of financial management is the wealth maximization of its shareholders. So the company must choose only those investment opportunities that are financially beneficial to the shareholders.
2. **Capital Budgeting Decisions:** It measures the financial performance and determines the acceptability of all investment opportunities by discounting cash flows under present value method. The cost of capital being the minimum rate of return desired, is used to compare with the actual rate of return (internal rate of return). Thus, the cost of capital provides the criterion of accepting or rejecting the proposals in capital expenditure decisions.
3. **Useful in Dividend Policy and Working Capital Management:** The measurement of the cost of capital helps the management in taking decisions relating to dividend policy and working capital requirements.
4. **Capital Structure Decisions:** While designing an optimal capital structure, the management should raise capital from different sources in such a way that it optimizes the risk and cost factors.

5. **Measurement of Financial Performance:** The cost of capital framework can be used to evaluate the financial performance of top management. If the actual profitability of the project is more than the projected and the actual cost of capital, the performance may be said to be satisfactory.
6. **Financing and Dividend decisions**: Other important financial decisions can also be taken with the help of cost of capital such as regarding dividend policy, capitalization of profits and selecting different sources of capital.

9.5 CLASSIFICATION OF COST OF CAPITAL

9.5.1 HISTORICAL COST AND FUTURE COST

Historical costs are those which are calculated on the basis of existing capital structure. Future cost relates to the cost of funds intended to finance the expected project, historical costs are useful for analyzing the existing capital structures. Future costs are widely used in capital budgeting and capital structure designing decisions.

9.5.2 SPECIFIC COST AND COMPOSITE COST

The cost of individual source of capital is referred to as the specific cost and the cost of capital of all the sources combined is termed as composite cost. It is, thus the weighted cost of capital.

9.5.3 AVERAGE COST AND MARGINAL COST

The average cost is the average of the various specific costs of the different components of capital structure at a given time. The marginal cost of capital is that average cost which is concerned with the additional funds raised by the firm. It is very important in capital budgeting decisions.

9.5.4 EXPLICIT COST AND IMPLICIT COST

An explicit cost is the discount rate which equates the present value of cash inflows with the present value of cash outflows. In other words, it is the internal rate of return of cash flows. Implicit cost is also known as opportunity cost. It may be defined as the rate of return associated with the best investment opportunity for the firm.

9.6 MEASUREMENT OR CALCULATION OF COST CAPITAL

The major sources of finance are debt, preference shares, equity shares and retained earnings. Hence, the cost of specific sources would be

the cost of debt, cost of preferred stock, cost of equity and cost of retained earnings.

In making investment decisions, cost of different types of capital is measured and compared. The source, which is the cheapest, is chosen and then capital is raised. It is necessary to determine the specific cost of each source in order to determine the minimum obligation on a company. There exist some approximate methods to calculate the various sources of finance.

9.6.1 COST OF EQUITY

Cost of equity capital is the rate at which investors discount the expected dividends of the firm to determine its share value.

Conceptually the cost of equity capital (K_e) defined as the "Minimum rate of return that a firm must earn on the equity financed portion of an investment project in order to leave unchanged the market price of the shares".

Cost of equity can be calculated from the following approach:

A. Dividend price (D/P) approach

B. Dividend price plus growth (D/P + g) approach

C. Earning price (E/P) approach

D. Realized yield approach.

(A) DIVIDEND PRICE APPROACH: The cost of equity capital will be that rate of expected dividend which will maintain the present market price of equity shares. Dividend price approach can be measured with the help of the following formula:

$$K_e = \frac{D}{N_P}$$

Where,

K_e = Cost of equity capital

D = Dividend per equity share

N_P = Net proceeds of an equity share

Example 1: A company issues 10,000 equity shares of Rs. 100 each at a premium of 10%. The company has been paying 25% 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 Rs. 175?

$$K_e = \frac{D}{N_P}$$

$$= \frac{25}{100} x100$$

$$= 22.72\%$$

If the market price of an equity share is Rs. 175.

$$K_e = \frac{D}{N_P}$$

$$= \frac{25}{175} \times 100$$

$$= 14.28\%$$

(B) DIVIDEND PRICE PLUS GROWTH APPROACH: The cost of equity is calculated on the basis of the expected dividend rate per share plus growth in dividend. It can be measured with the help of the following formula:

$$K_e = \frac{D}{N_P} + g$$

Where,

K_e = Cost of equity capital

D = Dividend per equity share

g = Growth in expected dividend

N_P = Net proceeds of an equity share

Example 2:

(a) A company plans to issue 10000 new shares of Rs. 100 each at a par. The floatation costs are expected to be 4% of the share price. The company pays a dividend of Rs. 12 per share initially and growth in dividends is expected to be 5%. Compute the cost of new issue of equity shares.

(b) If the current market price of an equity share is Rs. 120. Calculate the cost of existing equity share capital.

Solution

(a) $$K_e = \frac{D}{N_P} + g$$

$$K_e = \frac{12}{100-4} + 5 = 17.5\%$$

(b) $$K_e = \frac{D}{N_P} + g$$

$$= \frac{12}{120} + 5 = 15\%$$

(C) EARNING PRICE APPROACH: Cost of equity determines the market price of the shares. It is based on the future earnings prospects of the equity. The formula for calculating the cost of equity according to this approach is as follows:

$$K_e = \frac{E}{N_P}$$

Where,

K_e = Cost of equity capital

E = Earnings per share

N_P = Net proceeds of an equity share

Example 3 : A firm is considering an expenditure of Rs. 75 lakhs for expanding its operations. The relevant information are as follows:

Number of existing equity shares	= 10 lakhs
Market value of existing share	= Rs.100
Net earnings	= Rs.100 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 Rs. 92 per share and the costs of new issue will be Rs. 2 per share.

Solution: Cost of existing equity share capital: $K_e = \frac{E}{N_P}$

Earnings per Share (EPS) = $\frac{100 \text{ lakhs}}{10 \text{ lakhs}} = \text{Rs. } 10$

$$K_e = \frac{10}{100} x10$$

$$= 10\%$$

Cost of Equity Capital: $K_e = \frac{E}{N_P}$

$= \frac{10}{92-2} x100$

$= 11.11\%$

(D) REALIZED YIELD APPROACH: It is the easy method for calculating cost of equity capital. Under this method, cost of equity is calculated on the basis of return actually realized by the investor in a company on their equity capital.

$$K_e = PVf \times D$$

Where,

Ke = Cost of equity capital.

PVf = Present value of discount factor.

D = Dividend per share.

9.6.2 COST OF PREFERENCE SHARE

Cost of preference share capital is the annual preference share dividend by the net proceeds from the sale of preference share. There are two types of preference shares irredeemable and redeemable. Cost of redeemable preference share capital is calculated with the help of the following formula:

$$K_p = \frac{D_P}{N_P}$$

Where,

K_p = Cost of preference share

D_p = Fixed preference dividend

N_p = Net proceeds of an equity share

Cost of irredeemable preference share is calculated with the help of the following formula:

$$K_p = \frac{D_P + (P - N_P)/n}{(P - N_P)/2}$$

Where,

K_p = Cost of preference share

D_p= Fixed preference dividend

P = Par value of preference share

N_p = Net proceeds of the preference share

n = Number of years of maturity period.

Example 4: XYZ Ltd. issues 20,000, 8% preference shares of Rs. 100 each. Cost of issue is Rs. 2 per share. Calculate cost of preference share capital if these shares are issued (a) at par, (b) at a premium of 10% and (c) of a discount of 6%.

Solution: Cost of preference share capital $K_p = \frac{D_P}{N_P}$

(a) $K_p = \frac{1,60,000}{20,00,000-40,000} x100$

$= 8.16\%$

(b) $K_p = \frac{1,60,000}{20,00,000+2,00,000-40,000} x100$

$= 7.40\%$

(c) $K_p = \frac{1,60,000}{20,00,000-1,20,000-40,000} x100$

$= \frac{1,60,000}{18,40,000} x100$

$= 8.69\%$

Example 5: ABC Ltd. issues 20,000, 8% preference shares of Rs. 100 each at a premium of 5% redeemable after 8 years at par. The cost of issue is Rs. 2 per share. Calculate the cost of preference share capital.

$$K_p = \frac{D_P+(P-N_P)/n}{(P-N_P)/2}$$

Solution:

$$K_p = \frac{1,60,000+1/8\ (20,00,000-20,60,000)}{1/2\ (20,00,000+20,60,000)}$$

$= \frac{1,60,000-7,500}{20,30,000} x100$

$= 7.51\%$

Where,

D_p= 20,000×100×8%=1,60,000

P = 20,00,000

N_p = 20,00,000 + 10,00,000 – 40,000 =20,60,000

n = 8 years

9.6.3 COST OF DEBT

Cost of debt is the after tax cost of long-term funds through borrowing. Debt may be issued at par, at premium or at discount and also it may be perpetual or redeemable.

Debt Issued at Par

Debt issued at par means, debt is issued at the face value of the debt. It may be calculated with the help of the following formula.

$$K_d = (1 – t) R$$

Where,

K_d = Cost of debt capital

t = Tax rate

R = Debenture interest rate

Debt Issued at Premium or Discount

If the debt is issued at premium or discount, the cost of debt is calculated with the help of the following formula.

$$K_d = \frac{I}{N_P}(1 - t)$$

Where,

K_d = Cost of debt capital

I = Annual interest payable

N_p = Net proceeds of debenture

t = Tax rate

Example 6: (a) A Ltd. issues Rs. 10,00,000, 8% debentures at par. The tax rate applicable to the company is 50%. Compute the cost of debt capital.

(b) B Ltd. issues Rs. 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) A Ltd. issues Rs. 1,00,000, 8% debentures at a discount of 5%. The tax rate is 60%; compute the cost of debt capital.

In all cases, we have computed the after-tax cost of debt as the firm saves on account of tax by using debt as a source of finance.

Solution: (a) $K_d = \frac{I}{N_P}(1-t)$

$= \frac{8,000}{1,00,000} x\ (1-0.5)$

$= \frac{8,000}{1,00,000} x\ 0.5x100$

$= 4\%$

(b) N_p = Face Value + Premium = 1,00,000+10,000=1,10,000

$K_d = \frac{I}{N_P}(1-t)$

$= \frac{8000}{1,00,000} x\ (1-0.6)$

$= \frac{8,000}{1,00,000} x\ 0.4x100$

$= 2.91\%$

(d) $K_d = \frac{I}{N_P}(1-t)$

$= \frac{8,000}{95,000} x\ (1-0.6)$

$= \frac{8,000}{95,000} x\ 0.4x100$

$= 3.37\%$

9.6.4 COST OF RETAINED EARNING

Retained earnings are one of the sources of finance for investment proposal; it is different from other sources like debt, equity and preference shares. Cost of retained earnings is the same as the cost of an equivalent

fully subscripted issue of additional shares, which is measured by the cost of equity capital. Cost of retained earnings can be calculated with the help of the following formula:

$$K_r = K_e (1 - t) (1 - b)$$

Where,

K_r = Cost of retained earnings

K_e = Cost of equity

t = Tax rate

b = Brokerage cost

Example 7: A firm's Ke (return available to shareholders) is 10%, the average tax rate of shareholders is 30% 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: Cost of Retained Earnings, $K_r = K_e (1 - t) (1 - b)$

Where,

t = tax rate

b = brokerage cost

K_e = rate of return available to shareholders

So, $K_r = 10\% (1–0.5) (1–0.02)$

$= 10\% \times 0.5 \times 0.98$

$= 4.9\%$

9.7 WEIGHTED AVERAGE COST OF CAPITAL

A company has to employ owner's fund as well as creditors' funds to finance its projects so as to make the capital structure of the company balanced and to increase the return to the shareholders. Weighted average cost of capital is the average cost of various sources of financing. According to CIMA the weighted average cost of capital is "the average cost of the company's finance (equity, debentures, bank loans) weighted according to the proportion each element bears to the total pool of the capital, weighting is usually based on market valuations current yields and costs after tax."

Weighted average cost of capital is also known as composite cost of capital, overall cost of capital or average cost of capital. The composite cost of capital is the weighted average of the cost of various sources of funds, weights being the proportion of each source of funds in the capital structure.

The following steps are used to calculate the weighted average cost of capital:

(i) Calculate the cost of the specific sources of funds (i.e., cost of debt, cost of equity share capital, cost of preference share capital, cost of retained earnings etc.). These should be calculated after tax.

(ii) Multiply the cost of each source by its proportion in the capital structure.

The overall cost of capital can be calculated with the help of the following formula;

$$K_o = K_d W_d + K_p W_p + K_e W_e + K_r W_r$$

Where,

K_o = Overall cost of capital

K_d = Cost of debt

K_p = Cost of preference share

K_e = Cost of equity

K_r = Cost of retained earnings

W_d= Percentage of debt of total capital

W_p = Percentage of preference share to total capital

W_e = Percentage of equity to total capital

W_r = Percentage of retained earnings

Weighted average cost of capital is calculated in the following formula also:

$$K_w = \frac{\sum XW}{\sum W}$$

Where,

K_w = Weighted average cost of capital

X = Cost of different sources of capital

W = Weights given to different sources of capital

$\sum XW$ = Summation of the product of the specific cost of capital with the relative proportions.

$\sum W$ = Summation of weights.

Example 8: A company has on its books the following amounts and specific costs of each type of capital.

Type of Capital	**Book Value Rs.**	**Market Value Rs.**	**Specific Costs (%)**
Debt	4,00,000	3,80,000	5
Preference Share Capital	1,00,000	1,10,000	8
Equity	6,00,000	9,00,000	15
Retained Earnings	2,00,000	3,00,000	13
Total	13,00,000	16,90,000	

Determine the weighted average cost of capital using:

(a) Book value weights, and

(b) Market value weights.

How are they different? Can you think of a situation where the weighted average cost of capital would be the same using either of the weights?

Computation of Weighted Average Cost of Capital

A. Book Value

Source of Funds	**Amount**	**Cost % (X)**	**Weighted Cost Proportion X Cost (XW)**
Debt	4,00,000	5	20,000
Preference Shares	1,00,000	8	8,000
Equity Shares	6,00,000	15	90,000
Retained Earnings	2,00,000	13	26,000
Total	ΣW = 13,00,000		ΣXW = 1,44,000

$$K_w = \frac{\Sigma XW}{\Sigma W}$$

$$K_w = \frac{1,44,000}{13,00,000} x\ 100 = 11.1\%$$

Computation Weighted Average Cost of Capital

B. Market Value

Source of Funds	**Amount**	**Cost % (X)**	**Weighted Cost Proportion X Cost (XW)**
Debt	3,80,000	5	19,000
Preference Shares	1,10,000	8	8,800
Equity Shares	9,00,000	15	13,500
Retained Earnings	3,00,000	13	39,000
Total	ΣW = 16,90,000		ΣXW = 2,01,800

$$K_w = \frac{\Sigma XW}{\Sigma W}$$

$$K_w = \frac{2,01,800}{16,90,000} x\ 100 = 11.9\%$$

9.8 PROBLEMS IN DETERMINING COST OF CAPITAL

The determination of cost of capital is not an easy task. The financial manager is confronted with a large number of problems. These problems can briefly be summarized as follows:

1. **Computation of Cost of Equity:** Determination of cost of equity is a difficult task because the equity shareholders value the equity shares of company on the basis of a large number of factors, financial as well as psychological.

2. **Problems of Weight:** The assignment of weights to each type of funds is a complex task. The finance manager has to make a choice between the book value to each source of funds and the market value of each source of funds. The result would be different in each case.

3. **Determination of Cost of Retained Earnings:** The cost of retained earnings is determined according to the approach adopted for computing the cost of equity shares which is itself a controversial problem.

4. **Conceptual Controversy:** There is major controversy whether or not the cost of capital is dependent upon the method and level of financing by the company. According to traditional theorists, a firm can change its overall cost of capital by changing debt-equity mix. On the other hand, the modern theorists reject the traditional view and holds that cost of capital is independent of the method and level of financing.

5. **Future Cost Versus Historical Cost:** It is argued that for decision making purposes, the historical cost is not relevant. The future cost should be considered. It, therefore, creates another problem whether to consider marginal cost of capital or average cost of capital.

9.9 SUMMARY

The cost of capital is the minimum return on capital, which is required for operating and smooth functioning of a firm. It is the price which is paid to the suppliers of capital. The cost of capital plays very vital role in the financial decision making of a firm. The capital structure of a firm is very much dependent on the cost of capital. The firm can achieve its objective of shareholder's wealth maximization only if it is able to manage and control its capital cost.

Firms may raise equity capital internally by retaining earnings. Alternatively, they could distribute the entire earnings to equity shareholders and raise equity capital externally by issuing new shares. The expected rate of return on equity or the cost of equity can be measured as the risk-free rate plus risk premium. This approach is based on the Capital Asset Pricing Model (CAPM). Once the component costs have been calculated, they are multiplied by the proportions of the respective sources of capital to obtain the Weighted Average Cost of Capital (WACC).

9.10 SELF-ASSESSMENT QUESTIONS

1. Explain the concept of cost of capital.
2. Describe the significance of cost of capital in financial decision-making.
3. How cost of equity is calculated?
4. "Debt is the cheapest source of funds", Elucidate.
5. Explain the significance of cost of capital in capital expenditure decisions.
6. Write a short note on cost of retained earnings.
7. Cost of capital computation based on certain assumptions. Discuss.
8. Explain the classification of cost.

9. Mention the importance of cost of capital.

10. Explain the computation of specific sources of cost of capital.

11. How overall cost of capital is calculated?

12. Explain various approaches for calculation of cost of equity.

13. Explain the problems faced in determining the 'cost of capital'. How is it relevant in capital expenditure decisions?

14. X Ltd. is considering to issue 8,000; 10% debentures of Rs. 500 each. These debentures are repayable after 10 years. The company has to incur Rs. 22 per debenture as issue expenses. Assume 60% corporate tax rate. Calculate the cost before tax and after tax if the debentures are issued at par.

15. Compute the after tax cost of 14% debentures from the following data, which are redeemable after 10 years.

No. of debentures issued	1,000
Face value	Rs. 100
Issue price	Rs. 90
Redeemable price	Rs. 105
Floatation cost	Rs. 2,000
Tax rate	40%

16. The average rate of dividend paid by Anima Ltd. for the last five years is 21%. The earnings of the company have recorded a growth rate of 3% per annum. The market value of the equity shares is estimated to be Rs. 105. Find out the cost of equity share capital.

17. Bharathi Ltd., issues 4000 12% preference shares of Rs. 100 each at a discount of 5%. Costs of raising capital are Rs. 8000. Compute the cost of preference capital.

18. A firm pays tax at 60%. Compute the after tax cost of capital of a preferred share sold at Rs. 100 with a 8%. Dividend and a redemption price of Rs.110, if the company redeems in five years.

9.11 TEXT AND REFERENCES

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UNIT-10 SHARE, DEBENTURE AND BONDS

UNIT FRAMEWORK

10.1 OBJECTIVES

After studying this unit, you will be able to:

- Know the meaning and definition of shares, characteristics and types of shares;
- To make a difference between share and stock, advantages and disadvantages of equity and preference shares;
- To make distinctions between equity and preference shares;
- To describe the concept of debenture; types of debenture; advantages and limitations of debenture;
- To make differences between share and debenture; causes of low popularity of debentures in India; and
- To describe the concepts and types of bonds.

10.2 INTRODUCTION

Finance is the lifeblood of business concern, because it is interlinked with all activities performed by the business concern. In a human body, if blood circulation is not proper, body function will stop. Similarly, if the finance not being properly arranged, the business system will stop. Arrangement of the required finance to each department of business concern is highly a complex one and it needs careful decision. Quantum of finance may be depending upon the nature and situation of the business concern.

To support its long-term investments, a firm must find the means to finance them. Equity and debt represent the two broad sources of long-term finance for a business firm. Equity consists of equity capital, retained earnings, and preference capital. Debt consists of term loan, debentures, and short-term borrowings.

10.3 MEANING AND DEFINITION OF SHARES

Share is a part or portion of a larger amount which is divided among a number of people, or to which a number of people contribute.

Shares are units of ownership interest in a corporation or financial asset that provide for an equal distribution in any profits, if any are declared, in the form of dividends. In other words, share is a unit of ownership that represents an equal proportion of a company's capital. It entitles its holder (the shareholder) to an equal claim on the company's profits and an equal obligation for the company's debts and losses.

10.4 TYPES OF SHARES

There are two major types of shares (1) Ordinary shares (Equity Shares), which entitle the shareholder to share in the earnings of the company as and when they occur, and to vote at the company's annual general meetings and other official meetings, and (2) Preference shares (preferred stock) which entitle the shareholder to a fixed periodic income (interest) but generally do not give him or her voting rights.

10.5 EQUITY SHARE : CHARECTERISTICS, ADVANTAGES AND DISADVANTAGES

EQUITY SHARES: Equity Shares also known as ordinary shares, which means, other than preference shares. Equity shareholders are the real owners of the company. They have a control over the management of the company. Equity shareholders are eligible to get dividend if the company earns profit. Equity share capital cannot be redeemed during the lifetime of the company. The liability of the equity shareholders is the value of unpaid value of shares.

Equity shares have typically a par/face value in terms of the price for each share, the most popular denomination being Rs. 10. The price at which the equity shares are issued is the issue price. The issue price for new companies is generally equal to the face value. It may be higher for existing companies, the excess being share premium. The book value of ordinary shares refers to the paid-up capital plus reserves and surplus (net worth) divided by the number of outstanding shares. The price at which equity shares are traded in the stock market is their market value. However, the market value of un-listed shares is not available.

CHARECTERISTICS OF EQUITY SHARES: The ordinary shares have some special features which are as follows:

1. **Maturity of the shares:** Equity shares have permanent nature of capital, which has no maturity period. It cannot be redeemed during the lifetime of the company.

2. **Residual claim on income:** Equity shareholders have the right to get income left after paying fixed rate of dividend to preference shareholder. The earnings or the income available to the shareholders is equal to the profit after tax minus preference dividend.

3. **Residual claims on assets:** If the company wound up, the ordinary or equity shareholders have the right to get the claims on assets. These rights are only available to the equity shareholders.

4. **Right to control:** Equity shareholders are the real owners of the company. Hence, they have power to control the management of the company and they have power to take any decision regarding the business operation.

5. **Voting rights:** Equity shareholders have voting rights in the meeting of the company with the help of voting right power; they can change or remove any decision of the business concern. Equity shareholders only have voting rights in the company meeting and also they can nominate proxy to participate and vote in the meeting instead of the shareholder.

6. **Pre-emptive right:** Equity shareholders have the pre-emptive rights. The pre-emptive right is the legal right of the existing shareholders. It is attested by the company in the first opportunity to purchase additional equity shares in proportion to their current holding capacity.

7. **Limited liability:** Equity shareholders are having only limited liability to the value of shares they have purchased. If the shareholders are having fully paid up shares, they have no liability. For example: If the shareholder purchased 100 shares with the face value of Rs. 10 each. If he has paid only Rs. 900. His liability is only Rs. 100.

Face value of shares Rs. 10

Total value of shares 100×10 = Rs. 1,000

Paid up value of shares	Rs. 900
Unpaid value/liability	Rs. 100

Liability of the shareholders is only unpaid value of the share (that is Rs. 100).

ADVANTAGES OF EQUITY SHARES: Equity shares are the most common and universally used shares to mobilize finance for the company. It consists of the following advantages.

1. **Permanent sources of finance:** Equity share capital is belonging to long-term permanent nature of sources of finance; hence, it can be used for long-term or fixed capital requirement of the business concern.
2. **Voting rights:** Equity shareholders are the real owners of the company who have voting rights. This type of advantage is available only to the equity shareholders.
3. **No fixed dividend:** Equity shares do not create any obligation to pay a fixed rate of dividend. If the company earns profit, equity shareholders are eligible for profit, they are eligible to get dividend otherwise, and they cannot claim any dividend from the company.
4. **Less cost of capital:** Cost of capital is the major factor, which affects the value of the company. If the company wants to increase the value of the company, they have to use more share capital because, it consists of less cost of capital (K_e) while compared to other sources of finance.
5. **Retained earnings:** When the company have more share capital, it will be suitable for retained earnings which are the less cost sources of finance while compared to other sources of finance.

DISADVANTAGES OF EQUITY SHARES:

1. **Irredeemable:** Equity shares cannot be redeemed during the lifetime of the business concern. It is the most dangerous thing of over capitalization.
2. **Obstacles in management:** Equity shareholder can put obstacles in management by manipulation and organizing themselves. Because, they have power to contrast any decision which are against the wealth of the shareholders.
3. **Leads to speculation:** Equity shares dealings in share market lead to speculation during prosperous periods.

4. **Limited income to investor:** The Investors who desire to invest in safe securities with a fixed income have no attraction for equity shares.

5. **No trading on equity:** When the company raises capital only with the help of equity, the company cannot take the advantage of trading on equity.

10.6 PREFERENCE SHARE CAPITAL : FEATURES, TYPES, ADVANTAGES AND DISADVANTAGES

PREFERENCE SHARE CAPITAL: Preference share capital represents a hybrid form of financing. It has some characteristics of equity and some attributes of debentures. It resembles equity in the following ways: (i) preference dividend is payable only out of distributable profits; (ii) preference dividend is not an obligatory payment (the payment of preference dividend is entirely within the discretion of directors); and (.iii) preference dividend is not a tax-deductible payment.

Preference capital is similar to debentures in several ways: (i) the dividend rate of preference capital is usually fixed; (ii) the claim of preference shareholders is prior to the claim of equity shareholders; and (iii) preference shareholders do not normally enjoy the right to vote.

FEATURES OF PREFERENCE SHARES: The following are the important features of the preference shares:

1. **Maturity period:** Normally preference shares have no fixed maturity period except in the case of redeemable preference shares. Preference shares can be redeemable only at the time of the company liquidation.

2. **Residual claims on income:** Preferential shareholders have a residual claim on income. Fixed rate of dividend is payable to the preference shareholders.

3. **Residual claims on assets:** The first preference is given to the preference shareholders at the time of liquidation. If any extra assets are available that should be distributed to equity shareholder.

4. **Control of Management:** Preference shareholder does not have any voting rights. Hence, they cannot have control over the management of the company.

TYPES OF PREFERENCE SHARES The parts of corporate securities are called as preference shares. It is the shares, which have preferential right to get dividend and get back the initial investment at the time of winding up of the company. Preference shareholders are eligible to get fixed rate of dividend and they do not have voting rights. Preference shares may be classified into the following major **types**:

1. **Cumulative preference shares:** Cumulative preference shares have right to claim dividends for those years which have no profits. If the company is unable to earn profit in any one or more years, Cumulative preference shareholders are unable to get any dividend but they have right to get the comparative dividend for the previous years if the company earned profit.

2. **Non-cumulative preference shares:** Non-cumulative preference shares have no right to enjoy the above benefits. They are eligible to get only dividend if the company earns profit during the years. Otherwise, they cannot claim any dividend.

3. **Redeemable preference shares:** When, the preference shares have a fixed maturity period it becomes redeemable preference shares. It can be redeemable during the lifetime of the company. The Company Act has provided certain restrictions on the return of the redeemable preference shares.

4. **Irredeemable Preference Shares:** Irredeemable preference shares can be redeemed only when the company goes for liquidation. There is no fixed maturity period for such kind of preference shares.

5. **Participating Preference Shares:** Participating preference shareholders have right to participate extra profits after distributing the equity shareholders.

6. **Non-Participating Preference Shares:** Non-participating preference shareholders are not having any right to participate extra profits after distributing to the equity shareholders. Fixed rate of dividend is payable to this type of shareholders.

7. **Convertible Preference Shares:** Convertible preference shareholders have right to convert their holding into equity shares after a specific period. The articles of association must authorize the right of conversion.

8. **Non-convertible Preference Shares:** These shares, cannot be converted into equity shares from preference shares.

ADVANTAGES OF PREFERENCE SHARES: Preference shares have the following important advantages:

1. **Fixed dividend:** The dividend rate is fixed in the case of preference shares. It is called as fixed income security because it provides a constant rate of income to the investors.

2. **Cumulative dividends:** Preference shares have another advantage which is called cumulative dividends. If the company does not earn any profit in any previous years, it can be cumulative with future period dividend.

3. **Redemption:** Preference Shares can be redeemable after a specific period except in the case of irredeemable preference shares. There is a fixed maturity period for repayment of the initial investment.

4. **Participation:** Participative preference shareholders can participate in the surplus profit after distribution to the equity shareholders.

5. **Convertibility:** Convertible preference shares can be converted into equity shares when the articles of association provide such conversion.

DISADVANTAGES OF PREFERENCE SHARES:

1. **Expensive sources of finance:** Preference shares have high expensive source of finance while compared to equity shares.

2. **No voting right:** Generally preference shareholders do not have any voting rights. Hence, they cannot have the control over the management of the company.

3. **Fixed dividend only:** Preference shares can get only fixed rate of dividend. They may not enjoy more profits of the company.

4. **Permanent burden:** Cumulative preference shares become a permanent burden so far as the payment of dividend is concerned. Because the company must pay the dividend for the unprofitable periods also.

5. **Taxation:** In the taxation point of view, preference shares dividend is not a deductible expense while calculating tax. But, interest is a deductible expense. Hence, it has disadvantage on the tax deduction point of view.

10.7 RETAINED EARNINGS : CONCEPT, ADVANTAGES AND DISADVANTAGES

RETAINED EARNINGS: Retained earnings are another method of internal sources of finance. Actually it is not a method of raising finance, but it is called as accumulation of profits by a company for its expansion and diversification activities. Retained earnings are called under different names such as; self-finance, inter finance, and plugging back of profits. According to the Companies Act 1956 certain percentage, as prescribed by the central government (not exceeding 10%) of the net profits after tax of a financial year have to be compulsorily transferred to reserve by a company before declaring dividends for the year. Under the retained earnings sources of finance, a part of the total profits is transferred to various reserves such as general reserve, replacement fund, reserve for repairs and renewals, reserve funds and secrete reserves etc.

ADVANTAGES OF RETAINED EARNINGS: Retained earnings consist of the following important advantages:

1. **Useful for expansion and diversification**: Retained earnings are most useful to expansion and diversification of the business activities.

2. **Economical sources of finance:** Retained earnings are one of the least costly sources of finance since it does not involve any floatation cost as in the case of raising of funds by issuing different types of securities.

3. **No fixed obligation:** If the companies use equity finance they have to pay dividend and if the companies use debt finance, they have to pay interest. But if the company uses retained earnings as sources of finance, they need not pay any fixed obligation regarding the payment of dividend or interest.

4. **Flexible sources:** Retained earnings allow the financial structure to remain completely flexible. The company need not raise loans for further requirements, if it has retained earnings.

5. **Increase the share value:** When the company uses the retained earnings as the sources of finance for their financial requirements, the cost of capital is very cheaper than the other sources of finance; Hence the value of the share will increase.

6. **Avoid excessive tax:** Retained earnings provide opportunities for evasion of excessive tax in a company when it has small number of shareholders.

7. **Increase earning capacity:** Retained earnings consist of least cost of capital and also it is most suitable to those companies which go for diversification and expansion.

DISADVANTAGES OF RETAINED EARNINGS: Retained earnings also have certain disadvantages:

1. **Misuses:** The management can misuse the retained earnings by manipulating the value of the shares in the stock market.

2. **Leads to monopolies:** Excessive use of retained earnings leads to monopolistic attitude of the company.

3. **Over capitalization:** Retained earnings lead to over capitalization, because if the company uses more and more retained earnings, it lead to insufficient source of finance.

4. **Tax evasion:** Retained earnings lead to tax evasion. Since, the company reduces tax burden through the retained earnings.

5. **Dissatisfaction:** If the company uses retained earnings as sources of finance, the shareholder can't get more dividends. So, the shareholder does not like to use the retained earnings as the source of finance in all situations.

10.8 DIFFERENCE BETWEEN SHARE AND STOCK

A '**Share**' is the smallest unit, into which the company's capital is divided, representing the ownership of the shareholders in the company. A '**Stock**' on the other hand is a collection of shares of a member that are fully paid up. When shares are transformed into stock, the shareholder becomes a stockholder, who possesses same right with respect to the dividend, as a shareholder possesses.

All the shares are of equal denomination, whereas the denomination of stock differs. When one wants to invest in shares, he/she must be aware of the difference between shares and stock, along with the conditions, when shares are converted into stock. The principal points of difference between share and stock are as follows:

BASIS FOR COMPARISON	**SHARE**	**STOCK**
Meaning	The capital of a company is divided into small units, which are commonly known as shares.	The conversion of the fully paid up shares of a member into a single fund is known as stock.
Is it possible for a company to make original issue?	Yes	No
Paid up value	Shares can be partly or fully paid up.	Stock can only be fully paid up.
Definite number	A share has a definite number known as distinctive number.	A stock does not have such number.
Fractional transfer	Not possible.	Possible
Nominal value	Yes	No
Denomination	Equal amounts	Unequal amounts

10.9 DISTINCTIONS BETWEEN EQUITY AND PREFERENCE SHARES

Equity Shares are the shares that carry voting rights and the rate of dividend also fluctuate every year as it depends on the amount of profit available to the company. On the other hand, Preference Shares are the shares that do not carry voting rights in the company as well as the amount of dividend are also fixed.

One of the major differences between equity shares and preference shares is that the dividend on preference shares is cumulative in nature, whereas the equity share dividend does not cumulates, even if not paid for several years. The following table further documents the difference between equity and preference shares:

BASIS FOR COMPARISON	**EQUITY SHARES**	**PREFERENCE SHARES**
Meaning	Equity shares are the ordinary shares of the company representing the part ownership of the shareholder in the company.	Preference shares are the shares that carry preferential rights on the matters of payment of dividend and repayment of capital.
Payment of dividend	The dividend is paid after the payment of all liabilities.	Priority in payment of dividend over equity shareholders.
Repayment of capital	In the event of winding up of the company, equity shares are repaid at the end.	In the event of winding up of the company, preference shares are repaid before equity shares.
Rate of dividend	Fluctuating	Fixed
Redemption	No	Yes
Voting rights	Equity shares carry voting rights.	Normally, preference shares do not carry voting rights. However, in special circumstances, they may get voting rights.

Convertibility	Equity shares can never be converted.	Preference shares can be converted into equity shares.
Arrears of Dividend	Equity shareholders have no rights to get arrears of the dividend for the previous years.	Preference shareholders generally get the arrears of dividend along with the present year's dividend, if not paid in the last previous year, except in the case of non-cumulative preference shares.

10.10 DEBENTURE: CONCEPT, FEATURES, TYPES, ADVANTAGES AND DISADVANTAGES

CONCEPT OF DEBENTURES: Akin to a promissory note, debentures/bonds represent creditors' security and debenture holders are long-term creditors of the company. As a secured instrument, it is a promise to pay interest and repay principal at stipulated times. In contrast to equity capital, which is a variable income security, the debentures are fixed income (interest) security.

A Debenture is a document issued by the company. It is a certificate issued by the company under its seal acknowledging a debt. According to the Companies Act 1956, "debenture includes debenture stock, bonds and any other securities of a company whether constituting a charge of the assets of the company or not."

FEATURES OF DEBENTURES: As a long-term source of borrowing, debentures have some contracting features as compared to equities which are as follows:

1. **Trust Indenture**: When a debenture is sold to investing public, a trustee is appointed through an indenture trust deed. It is legal agreement between the issuing company and the trustee who is usually a financial institution/ bank/insurance company/firm of attorneys. The trust deed provides the specific terms of agreement such as description of debentures, rights of debenture holders, rights of the issuing company and responsibilities of the trustee etc. The trustee is responsible to ensure that the borrower/company fulfills all its contractual obligations.

2. **No voting rights:** Debenture holders are considered as creditors of the company. Hence they have no voting rights. Therefore,

debenture holders cannot have the control over the performance of the business concern.

3. **Fixed rate of interest:** Debentures yield fixed rate of interest till the maturity period. Hence the business will not affect the yield of the debenture.

4. **Maturity**: It indicates the length of time for redemption of par value. A company can choose the maturity period, though the redemption period for non-convertible debenture is typically **7-10** years. The redemption of debentures can be accompanied in either of two ways: (i) debentures redemption reserve (sinking fund) and (ii) call and put (buy-back) provision.

5. **Debenture Redemption Reserve (DRR):** A DRR has to be created for the redemption of all debentures with a maturity period exceeding 18 months equivalent to at the least 50 per cent of the amount of issue/redemption before commencement of redemption.

6. **Call and Put Provision:** The call/buy back provision provides an option to the issuing company to redeem the debentures at a specified price before maturity. The call price may be more than the part/face value by usually 5 per cent, the difference being call premium. The put option is a right to the debenture holder to seek redemption at specified time at predetermined prices.

7. **Security:** Debentures are generally secured by a charge on the present and future immovable assets of the company by way of an equitable mortgage.

8. **Convertibility:** Apart from pure non-convertible debentures, debentures can also be converted into equity shares at the option of the debenture holders. The conversion ratio and the period during which conversion can be affected are specified at the time of the issue of the debenture itself. The convertible debentures may be fully convertible or partly convertible. The FCDs carry interest rates lower than the normal rate on NCDs; they may even have a zero rate of interest. The PCDs have two parts: (a) convertible part, (b) non-convertible part. Typically, the convertible portion is converted into equity share at a specified premium after a specified date from the date of allotment, while the non-convertible portion is payable/ redeemable in specified equal installments on the expiry of specified years from the date of allotment.

9. **Credit Rating:** To ensure timely payment of interest and redemption of principal by a borrower, all debentures must be compulsorily rated by one or more of the credit rating agencies.

10. **Claim on Income and Assets:** The payment of interest and repayment of principal is a contractual obligation enforceable by law. Default would lead to bankruptcy of the company. The claim of debenture holders on income and assets ranks *paris passu* with

other secured debt and higher than that of shareholders-preference as well as equity.

TYPES OF DEBENTURE: Debentures may be straight debentures or convertible debentures. A convertible debenture is one which can be converted, fully or partly, into shares after a specified period of time. Thus on the basis of convertibility, debentures may be classified into three categories:

1. **Unsecured debentures:** Unsecured debentures are not given any security on assets of the company. It is also called simple or naked debentures. These types of debentures are treaded as unsecured creditors at the time of winding up of the company.

2. **Secured debentures:** Secured debentures are given security on assets of the company. It is also called as mortgaged debentures because these debentures are given against any mortgage of the assets of the company.

3. **Redeemable debentures:** These debentures are to be redeemed on the expiry of a certain period. The interest is paid periodically and the initial investment is returned after the fixed maturity period.

4. **Irredeemable debentures:** These kinds of debentures cannot be redeemable during the life time of the business concern.

5. **Non-convertible debentures**: Non-convertible debentures are pure debentures without a feature of conversion. They are repayable on maturity. The investor is entitled for interest and repayment of principal.

6. **Fully-convertible debentures**: Fully-convertible debentures are converted into shares as per the terms of the issue with regard to price and time of conversion. The pure Fully-convertible debentures interest rates are generally less than the interest rates on Non-convertible debentures since they have the attraction feature of being converted into equity shares. Recently, companies in India are issuing Fully-convertible debentures with zero rate of interest.

7. **Partly-convertible Debentures**: A number of debentures issued by companies in India have two parts: a convertible part and a non-convertible part. Such debentures are known as partly-convertible debentures. The investor has the advantages of both convertible and non-convertible debentures blended into one debenture.

ADVANTAGES OF DEBENTURE: Debenture is one of the major parts of the long-term sources of finance which of consist the following important advantages:

1. **Long-term sources:** Debenture is one of the long-term sources of finance to the company. Normally the maturity period is longer than the other sources of finance.

2. **Fixed rate of interest:** Fixed rate of interest is payable to debenture holders, hence it is most suitable of the companies earn higher profit. Generally, the rate of interest is lower than the other sources of long-term finance.

3. **Trade on equity:** A company can trade on equity by mixing debentures in its capital structure and thereby increase its earning per share. When the companies apply the trade on equity concept, cost of capital will reduce and value of the company will increase.

4. **Income tax deduction:** Interest payable to debentures can be deducted from the total profit of the company. So it helps to reduce the tax burden of the company.

5. **Protection:** Various provisions of the debenture trust deed and the guidelines issued by the SEBI protect the interest of debenture holders.

DISADVANTAGES OF DEBENTURE: Debenture finance consists of the following major disadvantages:

1. **Fixed rate of interest:** Debenture consists of fixed rate of interest payable to securities. Even though the company is unable to earn profit, they have to pay the fixed rate of interest to debenture holders; hence, it is not suitable to those company earnings which fluctuate considerably.

2. **No voting rights:** Debenture holders do not have any voting rights. Hence, they cannot have the control over the management of the company.

3. **Creditors of the company:** Debenture holders are merely creditors and not the owners of the company. They do not have any claim in the surplus profits of the company.

4. **High risk:** Every additional issue of debentures becomes more risky and costly on account of higher expectation of debenture holders. This enhanced financial risk increases the cost of equity capital and the cost of raising finance through debentures which is also high because of high stamp duty.

5. **Restrictions of further issues:** The Company cannot raise further finance through debentures as the debentures are under the part of security of the assets already mortgaged to debenture holders.

10.11 DIFFERENCES BETWEEN SHARE AND DEBENTURE

The key difference between a share and a debenture is that while share represents part of ownership of a company, debenture acknowledges loan or debt to the company. Thus, a shareholder is a participant in the profits as well as losses of the company but a debenture holder is paid

interest over the life time of the debenture and principal amount at the end of life. The following table further documents the difference between shares and debentures.

BASIS FOR COMPARISON	SHARES	DEBENTURES
Meaning	The shares are the owned funds of the company.	The debentures are the borrowed funds of the company.
What is it?	Shares represent the capital of the company.	Debentures represent the debt of the company.
Trust Deed	No trust deed is executed in case of shares.	When the debentures are issued to the public, trust deed must be executed.
Status of Holders	Owners	Creditors
Form of Return	Shareholders get the dividend.	Debenture holders get the interest.
Repayment in the event of winding up	Shares are repaid after the payment of all the liabilities.	Debentures get priority over shares, and so they are repaid before shares.
Voting Rights	The holders of shares have voting rights.	The holders of debentures do not have any voting rights.
Security for payment	No	Yes
Holder	The holder of shares is known as shareholder.	The holder of debentures is known as debenture holder.
Conversion	Shares can never be converted into debentures.	Debentures can be converted into shares.
Allowable deduction	Dividend is an appropriation of profit and so it is not allowed as deduction.	Interest is a business expense and so it is allowed as deduction from profit.
Quantum	Dividend on shares is an appropriation of profit.	Interest on debentures is a charge against profit.
Payment of return	Dividend can be paid to shareholders only out of profits.	Interest can be paid to debenture holders even if there is no profit.

10.12 CAUSES OF LOW POPULARITY OF DEBENTURES IN INDIA

Some of the reasons for the unpopularity of debentures finance and recent developments in company are:

(A). Attitude of the Issuing Company

(B). Psychology of the Investing Public and

(C). General Causes.

(A). ATTITUDE OF THE ISSUING COMPANIES: The Indian Companies are also considered as very reluctant to depend on debentures finance, though it is an attractive source. The following are the main reasons for their hesitation.

1. **High Stamp Duty:** The cost of raising capital through debentures has become very high due to the high stamp duty.
2. **Attitude of the Bankers:** The Indian bankers are very reluctant to provide financial assistance to companies which have debentures in their capital structure. Such companies are not looked favourably by the banks in the matter of accommodation.
3. **Managing Agency System:** The managing agents met the medium term requirement through inter-corporate investments so as to maintain their financial dominance. However, this reason now has no validity because the system of managing agent had been abolished in 1968 itself.
4. **Absence of Issue Houses:** The capital market in our country is not developed sufficiently. The number of issue houses and underwriting agencies is also very much limited. Hence, companies cannot depend on debenture finance because marketing of debentures is also very uncertain.

(B). PSYCHOLOGY OF THE INVESTORS: The attitude of the investors is not also in favour of debentures. There are a number of reasons for the growing reluctance on the part of the investors to invest their funds in debentures. Some of the main causes are given below:

1. **Financial Institutions:** Institutional investors generally prefer only debentures because of the reduced risk and increased certainty and stability of return. But in our country most of the institutional investors are public sector institutions. They have to invest a major portion of their funds in Government securities because of the statutory requirements.
2. **Face Value of the Debentures:** The face value of the debentures is generally high like Rs. 1000 each or Rs. 500

etc. Therefore, moderate investors are not in a position to purchase such debentures.

3. **Terms of Issue:** Debentures are not generally issued with attractive terms, the services of debenture trustees are not available and the debentures cannot be converted into cash quickly. In contrast to our conditions, in U.S.A., the corporations are issuing bonds with highly attractive terms.
   The bond holders also have a number of rights and powers. Such powers are not conferred on them in our country. Sometimes, they are also given an option to convert their debentures into shares.

(C). GENERAL CAUSES: Besides the reasons cited above, there are also certain other general reasons which make debenture finance unpopular. Some of them are given below:

1. **Absence of the Services of Debenture Trustees:** The importance of the trustees cannot be over stressed in making the debentures more popular. Their services are inevitable to safeguard the interest of the debenture holders. Such services are not available to the debenture holders in India.
2. **Nature of the Capital Market:** The Indian capital market is also highly un-organised and less developed. There is no ready market for debentures. The industrial and fiscal policies of the Government are not also stable.
3. **Presence of Rival Securities:** Due to the presence of rival securities like gilt- edged securities of the Government and preference shares in the capital market, the demand for debentures is also affected very seriously.

RECENT DEVELOPMENT: Debentures are now becoming a more popular form of security due to the concrete measures taken by the Government. The Public Companies, Commercial Banks etc., are partially responsible for this development.

The reasons for the recent development are the following:

1. The attitude of the commercial banks has been revised.
2. Debentures are now issued with increasingly attractive terms.
3. Due to relaxation in the statutory restrictions, institutional investors feel encouraged to invest more in company debentures.
4. Companies under the same management now make joint issue by offering more securities. Hence, debentures are now more secured then before.
5. Trustee services are now made available. According to the norms for debenture issue announced on 14th January 1987, the appointment of debenture trustees is made compulsory in case of certain companies.
6. The development of issue houses and underwriting firms also enhanced the liquidity and marketability of the debentures.

7. Payment of interest on debentures is now an admissible deduction under Income Tax Act. This allowance made many companies to opt for debenture finance at least to avoid tax.
8. Thus, the debentures, no longer carries the stigma attached to them earlier. This in fact, is a welcome development in the Indian Capital Market.

10.13 BONDS : CONCEPTS, TYPES, ADVANTAGES AND DISADVANTAGES

BOND: Fixed income securities denote debt of the issuer, i.e., they are an acknowledgment or promissory note of money received by the issuer from the investor. Simply it is an investment that provides a return in the form of fixed periodic payments and the eventual return of principal at maturity. Unlike a variable-income security, where payments change based on some underlying measure such as short-term interest rates, the payments of a fixed-income security are known in advance. An example of a fixed-income security would be a 5% fixed-rate government bond where a RS.1,000 investment would result in an annual RS.50 payment until maturity when the investor would receive the RS.1,000 back. Generally, these types of assets offer a lower return on investment because they guarantee income. Fixed-income securities can be contrasted with equity securities, often referred to as stocks and shares that create no obligation to pay dividends or any other form of income. In order for a company to grow its business, it often must raise money: to finance an acquisition, buy equipment or land or invest in new product development. The terms on which investors will finance the company will depend on the risk profile of the company. The company can give up equity by issuing stock, or can promise to pay regular interest and repay the principal on the loan.

CHARACTERISTICS :

- ❖ Fixed maturity period ranging from as low as 91 days to 30 years.
- ❖ Specified “coupon” or interest rate.
- ❖ Generally issued at a discount to face value and the investor profits from the difference in the issue and redeemed price

TYPES OF BONDS

BASED ON ISSUER

On this basis bonds can be broadly classified in following classes:

1. Bonds issued by Local Bodies
2. Bonds issued by Public Sector Units
3. Bonds issued by Financial Institutions
4. Bonds issued by Banks
5. Bonds issued by Corporate

BASED ON MATURITY PERIOD

1. Short Term Maturity: - Security with maturity period less than one year.
2. Medium Term: - Security with maturity period between 1year and 5 year.
3. Long Term Maturity: -Such securities have maturity period more than 5 years
4. Perpetual: - Security with no maturity. Currently, in India Banks issue perpetual bond.

BASED ON COUPON

1. Fixed Rate Bonds:-have a coupon that remains constant throughout the life of the bond.
2. Floating Rate Bonds: - Coupon rates are reset periodically based on benchmark rate.
3. Zero-coupon Bonds:- No coupons are paid. The bond is issued at a discount to its face value, at which it will be redeemed. There are no intermittent payments of interest.

BASED ON OPTION

1. Bond with call option: - This feature gives a bond issuer the right, but not the obligation, to redeem his issue of bonds before the bond's maturity at predetermined price and date.
2. Bond with put option: - This feature gives bondholders the right but not the obligation to sell their bonds back to the issuer at a predetermined price and date. These bonds generally protect investors from interest rate risk.

BASED ON REDEMPTION

1. Bonds with single redemption: - In this case principal amount of bond is paid at the time of maturity only.
2. Amortizing Bonds: - A bond, in which payment made by the borrower over the life of the bond, includes both interest and principal, and is called an amortizing bond.

ZERO INTEREST BONDS/DEBENTURES (ZIB)

Also known as zero coupon bonds, ZIBs do not carry any explicit rate of interest. They are sold at a discount from their maturity; value. The difference between the face value of the bond and the acquisition cost is the return to the investors. The implicit rate of return/interest on such bonds can be computed as follows:

Acquisition price = Maturity (face) value/$(l\text{-}i)^n$

Where i = rate of interest

n = maturity period (years)

DEEP DISCOUNT BOND (DDB)

A deep discount bond is a form of ZIB. It is issued at a deep/steep discount over its face value. It implies that the interest (coupon) rate is far less than the yield to maturity. The DDB appreciates to its face value over the maturity period. The DDBs are being issued by the public financial institutions in India, namely, IDBI, SIDBI etc. For instance, IBDI sold in 1992 a DDB of face value of Rs. 1 1akh at a deep discount price of Rs. 2,700 with a maturity period of 25 years. If the investor could hold the DDB for 25 years, the annualized rate of return would work out to 15.54 per cent. The investor had the option to withdraw (put option) at the end of every five years with a specified maturity/deemed face value ranging between Rs. 5,700 (after 5 years) and Rs. 50000 (after 20 years), the implicit annual rate of interest being 16.12 and 15.71 per cent respectively. The investors could also sell the DDBs in the market. The IDBI had also the option to redeem them (call option) at the end of every 5 years presumably to take advantage of prevailing interest rates. A second series of DDBs was issued by the IDBI in 1996 with a face value of Rs. 2 lakh and a maturity period of 25 years, the deep discount issue price being Rs. 5,300.

The merit of DDBs/ZIDs is that they enable the issuing companies to conserve cash during their maturity. They protect the investors against the reinvestment risk to the extent the implicit interest on such bonds is automatically reinvested at a rate equal to its yield to maturity. However, they are exposed to high repayment risk as they entail a balloon payment on maturity.

ADVANTAGES OF BOND

1. Lower volatility than other asset classes providing stable returns.

2. Higher returns than traditional bank fixed deposits.

3. Predictable and stable returns offer hedge against the volatility and risk of equity investments, and thus allow an investor to create a diversified portfolio.

DISADVANTAGES OF BOND

1. Low liquidity: investors' money is locked for full maturity period unless the security is traded in the secondary market.

2. Not actively traded: this lack of competition prevents their prices rising very high.

3. Sensitivity to market interest rate: change in market interest rate changes the yield on held securities.

Terms associated with Fixed Income Securities

- The issuer: It is the entity (company or government) that borrows the money by issuing the bond, and is due to pay interest and repay capital in due course.

- ❖ The principal of a bond: It is also known as maturity value, face value, par value – is the amount that the issuer borrows which must be repaid to the lender.
- ❖ The coupon: It is the annual interest that the issuer must pay, expressed as a percentage of the principal.
- ❖ The maturity: It is the end of the bond, the date that the issuer must return the principal.

10.14 SUMMARY

Equity and debt represent the two broad sources of finance for a business firm. Ordinary shares provide ownership rights to ordinary shareholders. They are the legal owners of the company. As a result, they have residual claims on income and assets of the company. They have the right to elect the board of directors and maintain their proportionate ownership in the company, called the pre-emptive right. The pre-emptive right of the ordinary shareholders is maintained by raising new equity funds through rights offerings. Rights issue does not affect the wealth of a shareholder. Debenture or bond is a long-term promissory note. Debenture holders have a prior claim on the company's income and assets. They will be paid before shareholders are paid anything. Debentures could be secured and unsecured and convertible and non-convertible. Debentures are issued with a maturity date. In India, they are generally retired after 7 to 10 years by installments.

Preference share is a hybrid security as it includes some features of both an ordinary share and a debenture. In regard to claims on income and assets, it stands before an ordinary share but after a debenture. Term loans are loans for more than a year maturity. Generally, in India, they are available for a period of 6 to 10 years. In some cases, the maturity could be as long as 25 years. Interest on term loans is tax deductible. Mostly, term loans are secured through an equitable mortgage on immovable assets. To protect their interest, lending institutions impose a number of restrictions on the borrowing firm. A company may also issue zero-interest or deep-discount bonds or debentures. Such debentures are issued at a price much lower than their face value. Thus, there is an implicit rate of interest. A company may also issue debentures redeemable at premium and/or with warrants attached. These features are added to make the issue of debentures attractive to the investors.

10.15 SELF-ASSESSMENT QUESTIONS

1. What is an equity share?
2. How does an equity share differ from a preference share and a debenture? Explain its most important features.
3. What are the advantages and disadvantages of equity shares to the company?
4. What are the merits and demerits of the shareholders' residual claim on income from the investors' point of view?

5. What is a preference share? What are its advantages and disadvantages from the company's and shareholders' points of view?
6. What is a debenture? Explain the features of a debenture.
7. What are the pros and cons of debentures from the company's and investors' point of views?
8. Why a preference share is called a hybrid security? Do you agree that it combines the features of ordinary shares and bonds?
9. What are bonds? What are their advantages and disadvantages?

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UNIT-11 CAPITAL BUDGETING

UNIT FRAMEWORK

11.1 PURPOSE

After studying this unit, you should be able to:

- To know the meaning and definition of capital budgeting; nature of capital budgeting;
- To explain the need and importance of capital budgeting;
- To list the components of capital budgeting; scope of capital budgeting;
- To describe the capital budgeting process; methods of capital budgeting; and
- To describe the problems and difficulties in capital budgeting.

11.2 INTRODUCTION

The word Capital refers to be the total investment of a company in money, tangible and intangible assets. Whereas budgeting defined by the "**Rowland** and **William**" it may be said to be the art of building budgets. Budgets are a blue print of a plan and action expressed in quantities and manners.

The examples of capital expenditure:

1. Purchase of fixed assets which are purchased for the purpose not for the purpose of resale such as land and building, plant and machinery etc.
2. The expenditure relating to addition, expansion, improvement and alteration to the fixed assets.
3. The replacement of fixed assets.
4. Research and development project.

11.3 MEANING AND DEFINITION OF CAPITAL BUDGETING

Capital budgeting comprises of two words. The word capital is the total investment of a company in money, and intangible assets or the fund or resource available for investing. Whereas **budgeting** could be defined as the art of allocation of resources. Budgets are a blue print of a plan and action expressed in quantities for a definite period of time.

Capital budgeting means planning for capital asset. Investment decision related to long-term asset are called capital budgeting. It involves the planning and control of capital expenditure. The term capital expenditure means the expenditure which is intended to benefit future period, i.e., in more than one accounting year as opposed to revenue expenditure, the benefit of which is supposed to be exhausted within the year concerned. In other words, capital budgeting or capital expenditure budget is a process of making decision regarding investments in fixed assets which are not meant for sale such as land, building, machinery or furniture etc.

DEFINITION :

- **According to Carles T. Horngern, "**Capital budgeting is long-term planning for making and financing proposed capital outlays".
- **According to Milton H. Spencer,** "Capital budgeting involves the planning of expenditures for assets, the returns from which will be realized in future time period".
- **According to Keller and Ferrara,** "The capital expenditure budget represents the plans for the appropriation of expenditures for fixed assets during the budget period".
- **According to R.M. Lynch,** "Capital budgeting consists in planning, the development of available capital for the purpose of maximizing the long term profitability (return on investment) of the firm".
- **According to Robert N. Anthony,** "The capital budget is essential a list of what management believes to be worthwhile

projects for the acquisition of new capital assets together with the estimated cost of each product".

On the basis of above definitions we can say that capital budgeting is the process of logical allocation of firm's resources to reap best out of it. It is clearly explained in the above definitions that a firm's scarce financial resources are utilizing the available opportunities. The overall objectives of the company are to maximize the profits and minimize the expenditure of cost.

11.4 NATURE OF CAPITAL BUDGETING

The nature of capital budgeting includes:

1- Capital budgeting decisions involve the exchange of current funds for the benefits to be achieved in future.

2- The future benefits are expected to be realized over a series of years.

3- The funds are invested in non-flexible and long term activities.

4- They have a long term and significant effect on the profitability of the concern.

5- They involve, generally, huge funds.

6- They are irreversible decisions.

7- They are "strategic" investment decisions, involving large sums of money, major departure from the past practices of the firm, significant change of the firm's is expected earnings associated with high degree of risk, as compared to "tactical" investment decisions which involve a relatively small amount of funds that do not result in a major departure from the past practices of the firm.

11.5 NEED AND IMPORTANCE OF CAPITAL BUDGETING

1. **Huge investments:** Capital budgeting requires huge investments of funds, but the available funds are limited, therefore, the firms before investing projects, plan to control its capital expenditure.

2. **Long-term:** Capital expenditure is long-term in nature or permanent in nature. Therefore financial risks involved in the investment decision are more. If higher risks are involved, it needs careful planning of capital budgeting.

3. **Irreversible:** The capital investment decisions are irreversible, are not changed back. Once the decision is taken for purchasing a permanent asset, it is very difficult to dispose of those assets without involving huge losses.

4. **Long-term effect:** Capital budgeting not only reduces the cost but also increases the revenue in long-term and will bring significant changes in the profit of the company by avoiding over or more investment or under investment. Over investments leads to be unable to utilize assets or over utilization of fixed assets. Therefore, before making the investment, it is required carefully planning and analysis of the project thoroughly.

11.6 COMPONENTS OF CAPITAL BUDGETING

The following are the basic components of capital budgeting analysis:

1- **Cash Outflows :** The amount to be invested in the project initially or during the lifetime of the project at a later stage is to be estimated carefully at the outset. Not only the cost of the asset is important, but other expenditures like transportation costs, installation costs, and working capital requirements are also relevant.

2- **Cash Inflows :** The expected benefits from the investment translated in monetary terms are to be estimated next. The exercise is to be done with utmost care as to quantum and timing. The benefits will be the difference of estimated revenues to be earned and estimated costs to be incurred during a future period for the duration of the project.

3- **Cut-Off Rate :** The minimum rate of return which the firm would expect to have for accepting a particular proposal should be pre-determined. Generally, it is the firm's marginal cost of capital.

4- **Ranking the proposals :** A number of investment opportunities may be available and may be attractive also. In such a case more than one opportunity may also be availed of. Ranking of different investment proposals in order of priority will help management in taking appropriate decisions, particularly when there is a finance constraint.

5- **Risk and Uncertainty :-** Future is always uncertain, Risk is embedded in its veins. The corporate life, therefore, can be healthy only when the elements of risk and uncertainty are properly assessed and suitable steps are taken to evaluate the profitability on the basis of the assessment of inherent risk and uncertainty. For the purpose, probabilities may be assigned to the varying expected net revenues. The probabilities are hard to determine since a wide range of factors like economy in general, economic factors peculiar to the investment, competition, technological development, consumer preferences, labor conditions, etc. Make it impossible to foretell the future. Still efforts should be made to examine the effects of the factors and proper adjustments be done in evaluating investment proposals.

6- **Non-Monetary Aspects:** The monetary evaluation of investment proposals may lead to wrong conclusions at times. Non-monetary considerations should also be weighed. For example, image of the company is very important to be considerations should also be weighed. For example, image of the company is very important to be considered.

11.7 SCOPE OF CAPITAL BUDGETING

The various scopes of capital budgeting are as follows-

1- **Long-Term Effects:** Capital budgeting decisions cannot be changed so easily. Wrong decision, once taken, will lead to heavy losses to the firm. To take a simple example, suppose construction of a premise has been started and the management has gone half the way. Now, the construction can't be left hanging in-between, since the amount spent cannot be recovered.

2- **Risk and Uncertainty:** A great deal of certainty surrounds a capital budgeting decision. Investment is present and return is future. The future is uncertain and full of risk. Longer the period of the project, greater is the risk and uncertainty. The estimates about costs, revenues and profits may not come true.

3- **Large Funds :** Any capital expenditure will naturally involve huge amount the fixed commitment as regards large sums of money makes capital budgeting is an important exercise.

4- **Corporate Image:** The profits are vitally affected by capital budgeting decisions. These influence the market value of the shares. All projects which are accepted should yield profits leading to maximization of shareholder's wealth. The shareholders and other investors should be convinced about the success and future prospects of the project. If they don't invest, the objectives of the business would fail. The image of the company will also fall down. The capital budgeting decisions should improve the image of the company.

11.8 CAPITAL BUDGETING PROCESS

Capital budgeting is a difficult process to the investment of available funds. The benefit will attain only in the near future but, the future is uncertain. However, the following steps followed for capital budgeting, then the process may be easier are.

1. **Identification of various investments proposals:** The capital budgeting may have various investment proposals. The proposal for the investment opportunities may be defined from the top management or may be even from the lower rank. The heads of various departments analyse the various investment decisions, and

will select proposals submitted to the planning committee of competent authority.

2. **Screening or matching the proposals:** The planning committee will analyse the various proposals and screenings. The selected proposals are considered with the available resources of the concern. Here resources referred as the financial part of the proposal. This reduces the gap between the resources and the investment cost.

3. **Evaluation:** After screening, the proposals are evaluated with the help of various methods, such as payback period proposal, net discovered present value method, accounting rate of return and risk analysis. Each method of evaluation used in detail in the later part of this chapter. The proposals are evaluated by.

   (a) Independent proposals

   (b) Contingent of dependent proposals

   (c) Partially exclusive proposals.

   Independent proposals are not compared with another proposal and the same may be accepted or rejected. Whereas higher proposals acceptance depends upon the other one or more proposals. For example, the expansion of plant machinery leads to constructing of new building, additional manpower etc. Mutually exclusive projects are those which competed with other proposals and to implement the proposals after considering the risk and return, market demand etc.

4. **Fixing property:** After the evolution, the planning committee will predict which proposals will give more profit or economic consideration. If the projects or proposals are not suitable for the concern's financial condition, the projects are rejected without considering other nature of the proposals.

5. **Final approval:** The planning committee approves the final proposals, with the help of the following:

   (a) Profitability

   (b) Economic constituents

   (c) Financial violability

   (d) Market conditions.

   The planning committee prepares the cost estimation and submits to the management.

6. **Implementing:** The competent authority spends the money and implements the proposals. While implementing the proposals, assign responsibilities to the proposals, assign responsibilities for completing it, within the time allotted and reduce the cost for this purpose. The network techniques used such as PERT and CPM. It

helps the management for monitoring and containing the implementation of the proposals.

7. **Performance review of feedback:** The final stage of capital budgeting is actual results compared with the standard results. The adverse or Unfavourable results identified and removing the various difficulties of the project. This is helpful for the future of the proposals.

11.9 METHODS OF CAPITAL BUDGETING

By matching the available resources and projects it can be invested. The funds available are always living funds. There are many considerations taken for investment decision process such as environment and economic conditions.

The methods of evaluations are classified as follows:

(A) Traditional methods (or Non-discount methods)

(i) Pay-back Period Methods

(ii) Post Pay-back Methods

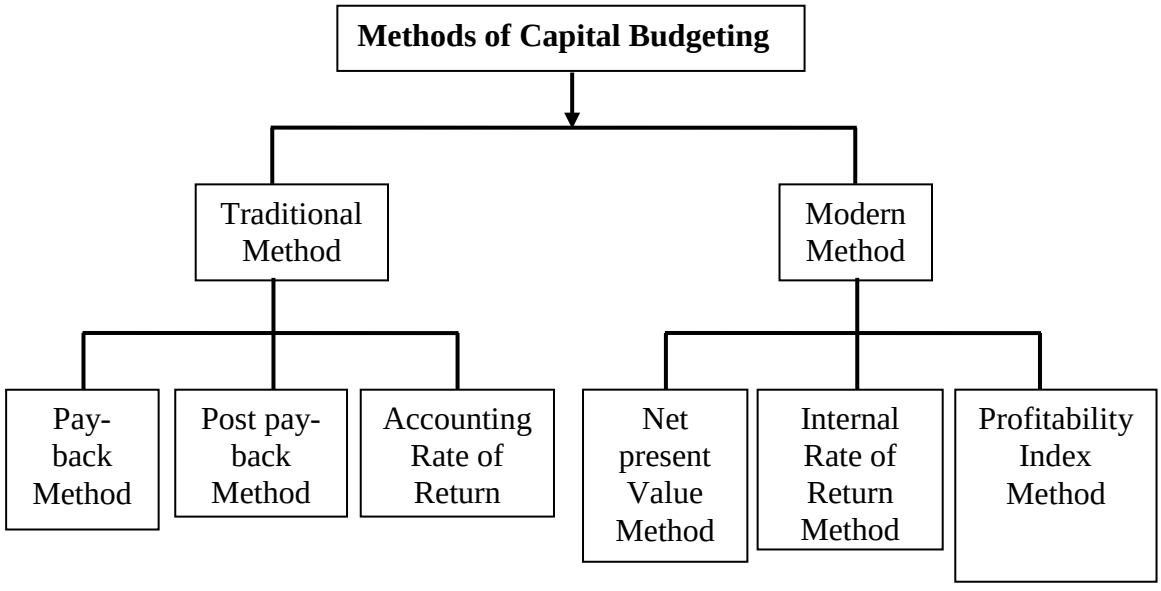
(iii) Accounts Rate of Return

(B) Modern methods (or Discount methods)

(i) Net Present Value Method

(ii) Internal Rate of Return Method

(iii) Profitability Index Method



PAY-BACK PERIOD : Pay-back period is the time required to recover the initial investment in a project. It is one of the non-discounted cash flow methods of capital budgeting.

$$\text{Pay} - \text{back period} = \frac{\text{Initial investment}}{\text{Annual cash inflows}}$$

Merits of Pay-back method

The following are the important merits of the pay-back method:

1. It is easy to calculate and simple to understand.
2. Pay-back method provides further improvement over the accounting rate return.
3. Pay-back method reduces the possibility of loss on account of obsolescence.

Demerits

1. It ignores the time value of money.
2. It ignores all cash inflows after the pay-back period.
3. It is one of the misleading evaluations of capital budgeting.

Accept /Reject criteria

If the actual pay-back period is less than the predetermined pay-back period, the project would be accepted. If not, it would be rejected.

Example 1: Project cost is Rs. 30,000 and the cash inflows are Rs. 10,000, the life of the project is 5 years. Calculate the pay-back period.

Solution

$$\frac{Rs.\ 30{,}000}{Rs.\ 10{,}000} = 3\ Year$$

The annual cash inflow is calculated by considering the amount of net income on the amount of depreciation project (Asset) before taxation but after taxation. The income precision earned is expressed as a percentage of initial investment, is called unadjusted rate of return. The above problem will be calculated as below:

$$Unadjusted\ rate\ of\ return = \frac{Annual\ Return}{Investment} \times 100$$

$$= \frac{Rs.\ 10{,}000}{Rs.\ 30{,}000} \times 100$$

$$= 33.33\%$$

Example 2: A project costs Rs. 20,00,000 and yields annually a profit of Rs. 3,00,000 after depreciation @ 12½% but before tax at 50%. Calculate the pay-back period.

Profit after depreciation	3,00,000
Tax 50%	1,50,000
	1,50,000
Add depreciation	
20,00,000 12½%	2,50,000
Cash inflow	4,00,000

Solution

$$Pay - back\ period = \frac{Investment}{Cash\ flow}$$

$$= \frac{20,00,000}{4,00,000} = 5\ years$$

Uneven Cash Inflows

Normally the projects are not having uniform cash inflows. In those cases the pay-back period is calculated, cumulative cash inflows will be calculated and then interpreted.

Example 3: Certain projects require an initial cash outflow of Rs. 25,000. The cash inflows for 6 years are Rs. 5,000, Rs. 8,000, Rs. 10,000, Rs. 12,000, Rs. 7,000 and Rs. 3,000.

Solution

Year	Cash Inflows (Rs.)	Cumulative Cash Inflows (Rs.)
1	5,000	5,000
2	8,000	13,000
3	10,000	23,000
4	12,000	35,000
5	7,000	42,000
6	3,000	45,000

The above calculation shows that in 3 years Rs. 23,000 has been recovered Rs. 2,000, is balance out of cash outflow. In the 4th year the cash inflow is Rs. 12,000. It means the pay-back period is three to four years, calculated as follows

Pay-back period = 3 years + 2000/12000 × 12 months

= 3 years 2 months.

POST PAY-BACK PROFITABILITY METHOD: One of the major limitations of pay-back period method is that it does not consider the cash inflows earned after pay-back period and if the real profitability of the project cannot be assessed. To improve over this method, it can be made by considering the receivable after the pay-back period. These returns are called post pay-back profits.

Example 4: From the following particulars, compute:

1. Payback period.
2. Post pay-back profitability and post pay-back profitability index.

(a)	Cash outflow	Rs. 1,00,000
	Annual cash inflow	Rs. 25,000
	(After tax before depreciation)	
	Estimated Life	6 years
(b)	Cash outflow	Rs. 1,00,000
	Annual cash inflow	
	(After tax depreciation)	
	First five years	Rs. 20,000
	Next five years	Rs. 8,000
	Estimated life	10 Years
	Salvage value	Rs. 16,000

Solution

(a) **(i)** Pay-back period

$$= \frac{Initial\ Investment}{Anual\ Cash\ Inflow}$$

$$= \frac{1{,}00{,}00}{25{,}000} = 4\ Years$$

(ii) Post pay-back profitability

= Cash inflow (Estimated life – Pay-back period)

= 25,000 (6 – 4)

= Rs. 50,000

(iii) Post pay-back profitability index

$$= \frac{50{,}000}{1{,}00{,}000} \times 100 = 50\%$$

(b) Cash inflows are equal; therefore payback period is calculated as follows:

(i)

Year	Cash Inflows (Rs.)	Cumulative Cash Inflows (Rs.)
1	20,000	20,000
2	20,000	40,000
3	20,000	60,000
4	20,000	80,000
5	20,000	1,00,000
6	8,000	1,08,000
7	8,000	1,16,000
8	8,000	1,24,000
9	8,000	1,32,000
10	8,000	1,40,000

(ii) Post pay-back profitability.

= Cash inflow (estimated life – pay-back period)

= 8,000 (10–5)

= 8000×5 = 40,000

(iii) Post pay-back profitability index

$$= \frac{40,000}{1,00,000} \times 100 = 40\%$$

ACCOUNTING RATE OF RETURN OR AVERAGE RATE OF RETURN: Average rate of return means the average rate of return or profit taken for considering the project evaluation. This method is one of the traditional methods for evaluating the project proposals:

Merits

1. It is easy to calculate and simple to understand.
2. It is based on the accounting information rather than cash inflow.
3. It is not based on the time value of money.
4. It considers the total benefits associated with the project.

Demerits

1. It ignores the time value of money.

2. It ignores the reinvestment potential of a project.
3. Different methods are used for accounting profit. So, it leads to some difficulties in the calculation of the project.

Accept/Reject criteria

If the actual accounting rate of return is more than the predetermined required rate of return, the project would be accepted. If not it would be rejected.

Example 5: A company has two alternative proposals. The details are as follows:

	Proposal I	**Proposal II**
	Automatic Machine	**Ordinary Machine**
Cost of the machine	Rs. 2,20,000	Rs. 60,000
Estimated life	5½ years	8 years
Estimated sales p.a.	Rs. 1,50,000	Rs. 1,50,000
Costs : Material	50,000	50,000
Labour	12,000	60,000
Variable Overheads	24,000	20,000

Compute the profitability of the proposals under the return on investment method.

Solution: **Profitability Statement**

	Automatic Machine	**Ordinary Machine**
Cost of the machine	Rs. 2,20,	Rs. 60,000
Life of the machine	5½ years	8 years
	Rs.	**Rs.**
Estimated Sales	(A) 1,50,	1,50,000
Less: Cost: Material	50,000	50,000
Labour	12,000	60,000
Variable overheads	24,000	20,000
Depreciation (1)	40,000	7,000
Total Cost	(B) 1,26,000	1,37,000
Profit (A) – (B)	24,000	12,500

Working:

(1) Depreciation = Cost ÷ Life

Automatic machine = 2,20,000 ÷ 5½ = 40,000

Ordinary machine = 60,000 ÷ 8 = 7,500

$$Return\ on\ investment = \frac{Average\ profit}{Original\ investment} \times 100$$

$$= \frac{24{,}000}{2{,}20{,}000} \times 100 \qquad \frac{12{,}500}{60{,}000} \times 100$$

10.9% 20.8%

Automatic machine is more profitable than the ordinary machine.

NET PRESENT VALUE: Net present value method is one of the modern methods for evaluating the project proposals. In this method cash inflows are considered with the time value of the money. Net present value describes as the summation of the present value of cash inflow and present value of cash outflow. Net present value is the difference between the total present value of future cash inflows and the total present value of future cash outflows.

Merits

1. It recognizes the time value of money.
2. It considers the total benefits arising out of the proposal.
3. It is the best method for the selection of mutually exclusive projects.
4. It helps to achieve the maximization of shareholders' wealth.

Demerits

1. It is difficult to understand and calculate.
2. It needs the discount factors for calculation of present values.
3. It is not suitable for the projects having different effective lives.

Accept/Reject criteria

If the present value of cash inflows is more than the present value of cash outflows, it would be accepted. If not, it would be rejected.

Example 6: From the following information, calculate the net present value of the two project and suggest which of the two projects should be accepted a discount rate of the two.

	Project X	Project Y
Initial Investment	Rs. 20,000	Rs. 30,000
Estimated Life	5 years	5 years
Scrap Value	Rs. 1,000	Rs. 2,000

The profits before depreciation and after taxation (cash flows) are as follows:

	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**
	Rs.	Rs.	Rs.	Rs.	Rs.
Project x	5,000	10,000	10,000	3,000	2,000
Project y	20,000	10,000	5,000	3,000	2,000

Note: The following are the present value factors @ 10% p.a.

Year	1	2	3	4	5	6
Factor	0.909	0.826	0.751	0.683	0.621	0.564

Solution

Year	**Cash Inflows**		**Present Value of**	**Present Value of Net Cash Inflow**	
	Project X Rs.	**Project Y Rs.**	**Rs. 1 @ 10%**	**Project X Rs.**	**Project Y Rs.**
1	5,000	20,000	0.909	4,545	18,180
2	10,000	10,000	0.826	8,260	8,260
3	10,000	5,000	0.751	7,510	3,755
4	3,000	3,000	0.683	2,049	2,049
5	2,000	2,000	0.621	1,242	1, 242
Scrap Value	1,000	2,000	0.621	621	1,245
Total present value Initial investments				24,227 20,000	34,728 30,000
Net present value				4,227	4,728

Project Y should be selected as net present value of project Y is higher.

Example 7: The following are the cash inflows and outflows of a certain project.

Year	Outflows	Inflows
0	1,75,000	-
1	5,50,000	35,000
2	-	45,000
3	-	65,000
4	-	85,000
5	-	50,000

The salvage value at the end of 5 years is Rs. 50,000. Taking the cutoff rate as 10%, calculate net present value.

Year	1	2	3	4	5
P.V.	0.909	0.826	0.751	0.683	0.621

Solution

Year	Cash Inflows Rs.	Present Value Factor @ 10%	Present Value of Cash Inflows
1	35,000	0.909	31,815
2	45,000	0.826	37,170
3	65000	0.751	48815
4	85000	0.683	58055
5	50000	0.621	31050
5(Salvage)	50000	0.621	31050
		Total present value of cash inflows	237955

Less :	Total present value of outflows	
	Cash outflow at the beginning	1,75,000
	Cash outflow at the end of first Year 50000 × 0.909	45,450
	Total value of outflows	2,20,450
	Net Present Value	17,505

If the cash inflows are not given in that cases the calculation of cash inflows are Net profit after tax + Depreciation. In this type of situation first find out the Net profit after depreciation and deducting the tax and then add the deprecation. It gives the cash inflow.

INTERNAL RATE OF RETURN (IRR): Internal rate of return is time adjusted technique and covers the disadvantages of the traditional techniques. In other words it is a rate at which discount cash flows to zero. It is expected by the following ratio:

$$\frac{Cash\ inflow}{Investment\ initial}$$

Steps to be followed:

Step1. Find out factor

Factor is calculated as follows:

$$F = \frac{Cash\ outlay\ (or)\ initial\ investment}{Cash\ inflow}$$

Step 2. Find out positive net present value

Step 3. Find out negative net present value

Step 4. Find out formula net present value

Formula

$$IRR = Base\ factor + \frac{Positive\ net\ present\ value}{Difference\ in\ (+)\ and\ (-)\ net\ present\ value} \times DP$$

Base factor = Positive discount rate

DP = Difference in percentage

Merits

1. It considers the time value of money.

2. It takes into account the total cash inflow and outflow.
3. It does not use the concept of the required rate of return.
4. It gives the approximate/nearest rate of return.

Demerits

1. It involves complicated computational method.
2. It produces multiple rates which may be confusing for taking decisions.
3. It is assumes that all intermediate cash flows are reinvested at the internal rate of return.

Accept/Reject criteria

If the present value of the sum total of the compounded reinvested cash flows is greater than the present value of the outflows, the proposed project is accepted. If not it would be rejected.

Example 8 : A project costs Rs. 16,000 and is expected to generate cash inflows of Rs. 4,000 each 5 years. Calculate the Interest Rate of Return.

Solution

$$F = \frac{16{,}000}{4{,}000} = 4$$

Facts may lays between 6% to 8%

4.221 for 6%

3.993 for 8%

4000 × 4.21	=	16,840
4000 × 3.99	=	15,960
6% present value		16,840
Less: Investment		16,000
Net present value		840
8% present value		15,960
Less: Investment		16,000
		– 40

$$IRR = 6\% + \frac{840}{840 - (-40)} \times 2\%$$

= 6% +1.91%

= 7.91%.

EXCESS PRESENT VALUE INDEX: Excess present value is calculated on basis of net present value. It gives the results in percentage.

Example 9: The initial of an equipment is Rs. 10,000. Cash inflows for 5 years are estimated to be Rs. 3,500 per year. The management is desired minimum rate of excess present value index.

Solution

Present value of Rs. 1 received annually for 5 years can be had from the annuity table. Present value of 3,500 received annually for 5 years.

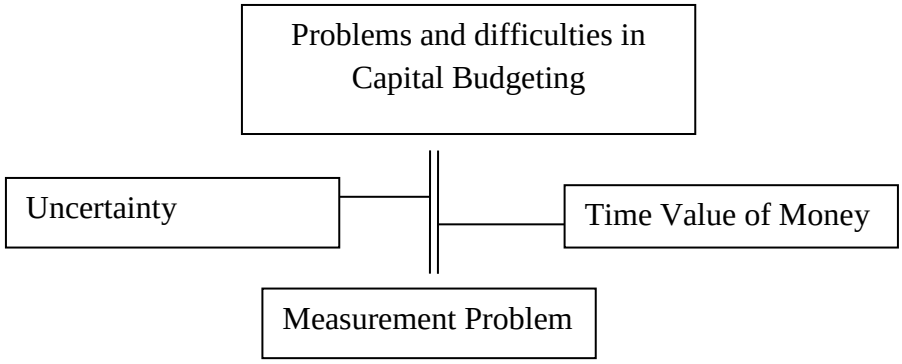
$$Excess\ present\ value\ index = \frac{Total\ present\ value\ of\ cash\ inflows}{Total\ present\ value\ of\ cash\ outflows}$$

$$= \frac{11{,}732}{10{,}000} \times 100$$

= 117.32%

11.10 PROBLEMS AND DIFFICULTIES IN CAPITAL BUDGETING

The problems and difficulties in capital budgeting decisions are as follows:



1. **Uncertainty:** All capital budgeting decisions involve long-term which is uncertain. Even if every care is taken and the project is evaluated to every minute detail, dealing with the capital budgeting decisions, therefore, should try to be as analytical as possible. The uncertainty of the capital budgeting decisions may be with reference to cost of the project; future expected returns from the project, etc.

2. **Time Value of Money:** The implications of a capital budgeting decision are scattered over a long period. The cost and benefit of a decision may occur at different point of time. As a result, the cost

of a project is incurred immediately; it is recovered in number of years. Moreover, the longer the time period involved, the greater would be the uncertainty.

3. **Measurement Problem:** A finance manager may also face difficulties in measuring the cost and benefits of a project in quantitative terms. For example, the new product proposed to be launched by a firm may result in increase or decrease in sales of other products already being sold by the same firm but by how much, this is very difficult to ascertain because the sales of other products may increase or decrease due to other factors also.

11.11 SUMMARY

Capital Budgeting is the process of allocation of financial resources of a firm in such a manner that it results in higher rate of return. An efficient capital budgeting is very helpful to attain the objective of firm i.e. wealth maximization of shareholders. Capital budgeting of a firm is very crucial decision and it requires excellent knowledge of finance and accounting. With an appropriate allocation of capital a firm gets best financial output. Due to risk and uncertainty it is a difficult task for a manager to take decisions regarding capital budgeting.

Capital budgeting (or investment appraisal) is the planning process used to determine whether a firm's long term investments such as new machinery, replacement machinery, new plants, new products, and research development projects are worth pursuing. It is budget for major capital, or investment, expenditures.

Many formal methods are used in capital budgeting, including the techniques such as

- Accounting rate of return
- Net present value
- Profitability index
- Internal rate of return
- Modified internal rate of return
- Pay Back Period

These methods use the incremental cash flows from each potential investment, or project Techniques based on accounting earnings and accounting rules are sometimes used - though economists consider this to be improper - such as the accounting rate of return, and "return on investment." Simplified and hybrid methods are used as well, such as payback period and discounted payback period.

The IRR method will result in the same decision as the NPV method for (non-mutually exclusive) projects in an unconstrained environment, in the usual cases where a negative cash flow occurs at the start of the project, followed by all positive cash flows. The internal rate of return (IRR) is defined as the discount rate that gives a net present value (NPV) of zero. It is a commonly used measure of investment efficiency.

11.12 SELF-ASSESSMENT QUESTIONS

1. Define Capital Budgeting.

2. "Capital Budgeting is a tool of optimum utilization of financial resources of a firm". Justify the statement.

3. Discuss the various difficulties and problems associated with capital budgeting decisions.

4. Explain the importance of capital budgeting.

5. Give the name of techniques used in capital budgeting decisions.

6. What is capital budgeting? Explain its needs and importance.

7. What are the stages of capital budgeting process?

8. Explain the various methods of capital budgeting techniques.

9. What is risk and uncertainty?

10. Calculate the payback period from the following information:

Cash outlay Rs. 50,000 and cash inflow Rs. 12,500. (**Ans.** 4 years)

11. The machine cost Rs. 1,00,000 and has scrap value of Rs. 10,000 after 5 years. The net profits before depreciation and taxes for the five years period are to be projected that Rs. 20,000, Rs. 24,000, Rs. 30,000, Rs. 26,000 and Rs. 22,000. Taxes are 50%. Calculate pay-back period and accounting rate of return.

(**Ans.** 4 years 3 months and 11.2%)

12. A machine cost Rs. 1,25,000. The cost of capital is 15%. The net cash inflows are as under:

Year	Rs.
1	25,000
2	35,000
3	50,000
4	40,000
5	25,000

Calculate internal rate of return and suggest whether the project should be accepted or not.

(**Ans.** Reject the machine)

13. SP Limited company is having two projects, requiring a capital outflow of Rs. 3,00,000. The expected annual income after depreciation but before tax is as follows:

Year	Rs.
1	9,000
2	80,000
3	70,000
4	60,000
5	50,000

Depreciation may be taken as 20% of original cost and taxation at 50% of net income:

You are required to calculate:

(a) Pay-back period

(b) Net present value

(c) According rate of return

(d) Net present value index

(e) Internal rate of return.

(**Ans.** 3.5 years, Rs. 25,745, 43.437%, 108.58%, 13.87%)

14. There are two mutually exclusive projects I and II. Each project requires an investment of Rs. 60,000. The following are the cash inflows and certainly co-efficient are as follows.

Year	Project I		Project II	
	Cash inflow	Certainty Co-efficient	Cash Inflow	Certainty Co-efficient
1	30,000	7	25,000	9
2	25,000	8	25,000	8
3	25,000	9	30,000	7

Risk-free cutoff rate is 10%. Evaluate which project will be considered.

(**Ans.** Project II is considered)

15. Mr. X is considering two mutually exclusive investment I and II. From the following details advice Mr. X.

Cost of investment	**Project I**	**Project II**
Annual income for 5 years Optimistic.	75,000	75,000
	37,500	41,250
Most likely Pessimistic.	26,250	22,500
	15,000	15,000

The cutoff rate is 12%. (**Ans.** Project B is preferred)

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UNIT-12 CASH MANAGEMENT

STRUCTURE

12.1 OBJECTIVES

After studying this unit, you should be able to describes :

- Meaning of Cash; Nature of Cash
- Motives for Holding Cash

- Factors Determining Cash Balances
- Meaning of cash management; Objectives of cash Management
- Managing Cash Flows; Importance of cash management
- Methods of Cash Management
- Cash Budget

12.2 INTRODUCTION

Since cash is the medium of exchange, it is the most important component of working capital. Cash is the basic input required to keep the organisation running on a continuous basis and the ultimate output expected to be realised by selling goods and services. It can be compared to the blood in the human body which gives life and strength to the body. Similarly, Cash keeps the organisation as a vital entity. The firm should keep sufficient cash, neither more nor less. Cash shortage will disrupt the firm's manufacturing operations while excessive cash remaining idle will increase the cost without contributing anything towards the profitability of the organisation and since cash is the most sensitive and fraud prone asset; there will be high chances of embezzlement. Therefore, for smooth functioning and for higher profitability effective cash management is of paramount importance. Apart from the fact that it is the most liquid current asset, it is the common denominator to which all current assets get converted eventually. This underlines the significance of cash management.

12.3 MEANING OF CASH

The term "Cash" with reference to management of cash is used in two ways. In a narrow sense cash refers to coins, currency, cheques, drafts and deposits in banks. The broader view of cash includes near cash assets such as marketable securities and time deposits in banks. The reason why these near cash assets are included in cash is that they can readily be converted into cash. Usually, excess cash is invested in marketable securities as it contributes to profitability.

Cash is one of the most important components of current assets. Every firm should have adequate cash, neither more nor less. Inadequate cash will lead to production interruptions, while excessive cash remains idle and will impair profitability. Any shortage of cash will hamper the operation of a concern and any excess of it will be unproductive. Cash is the most unproductive of all the assets. While fixed assets like machinery, plant, etc. and current assets such as inventory will help the business in increasing its earning capacity, cash in hand will not add anything to the concern.

Thus, cash is the balancing figures between debtors, stock and creditors, without adequate cash to meet working capital demands, it is impossible to extend credit, order stock or pay creditors.

12.4 NATURE OF CASH

Cash in the money which a firm can disburse immediately without any restriction. In cash management, the term cash is used in both narrow and broad senses. In narrow sense, it includes coins, currency, cheques, drafts held by the firm and demand deposits in its bank accounts.

In broader sense, it also covers near cash assets, i.e. marketable securities and time deposits in banks and other financial institution. The word 'cash management' is generally used for cash and near cash assets i.e. for both type of assets.

Cash has the following characteristics: -

1. Cash itself does not produce goods or services. Interest can be earned by depositing or lending it but it does not earn any profit like other assets. So it is called an unproductive asset. Shortage of cash is likely to harm the operations of a firm.
2. Every business needs to show a minimum cash to carry its business activities. If business does not show sufficient cash balance, it will not be able to pay its creditors on time. This may be called critical level of cash.
3. Cash is a medium of exchange and plays an important role as most of the transactions involve flow of cash funds.
4. Deploying extra funds always involves opportunity cost. Therefore, excess cash should be invested in a profitable way to yield something in the form of interest and dividend rather than remaining idle.

12.5 MOTIVES FOR HOLDING CASH

Motives or desires for holding cash refer to various purposes. The purpose may be different from person to person and situation to situation. There are four important motives to hold cash. The firm's for cash may be attributed to the following motives:

1) **Transaction Motive :** A firm needs cash for making transactions in the day to day operations. The cash is needed to make purchases, pay expenses, taxes, dividend, etc. The cash needs arise due to the fact that there is no complete synchronization between cash receipts and payments. But the cash inflows and cash outflows do not perfectly synchronise. Sometimes, cash receipts are more than payments while at other times payments exceed receipts. The firm must have to maintain sufficient (funds) cash balance if the payments are more than receipts. Thus, the

transactions motive refers to the holding of cash to meet expected obligations whose timing is not perfectly matched with cash receipts. Though, a large portion of cash held for transactions motive is in the form of cash, a part of it may be invested in marketable securities whose maturity conform to the timing of expected payments such as dividends, taxes etc.

2) **Precautionary Motive :** A firm is required to keep cash for meeting various contingencies. Though cash inflows and cash outflows are anticipated but there may be variations in these estimates. For example, a debtor who was to pay after 7 days may inform of his inability to pay; on the other hand a supplier who used to give credit for 15 days may not have the stock to supply or he may not be in a position to give credit at present. In these situations cash receipt will be less than expected and cash payments will be more as purchases may have to be made for cash instead of credit. Such contingencies often arise in a business. A firm should keep some cash for such contingencies or it should be in position to raise finances at a short period. The cash maintained for contingency needs is not productive or it remains idle. However, such cash may be invested in short period or low-marketable securities which may provide cash as and when necessary.

3) **Speculative Motive :** The speculative motive relates to holding of cash for investing in profitable opportunities as and when they arise. Such opportunities do not come in a regular manner. These opportunities cannot be scientifically predicted but only speculation can be made about their occurrence. **For Example,** the prices of shares and securities may be low at a time with an expectation that these will go up shortly. The prices of raw materials may fall temporarily and a firm may like to make purchases at these prices. Such opportunities can be availed of if a firm has cash balance with it. These transactions are speculative because prices may not move in a direction in which we suppose them to move. The primary motive of a firm is not to indulge in speculative transactions but such investment may be made at times.

4) **Compensation Motive/Compensating Balances :** This motive to hold cash balances is to compensate banks and other financial institutes for providing certain services and loans. Banks provide a variety of services to business firms like clearance of cheques, drafts, transfer of funds etc. Banks charge a commission or fee for their services to the customers as indirect compensation. Customers are required to maintain a minimum cash balance at the bank. This balance cannot be used for transaction purposes. Banks can utilize the balances to earn a return to compensate their cost of services to the customers. Such balances are compensating balances. These balances are also required by some loan agreements between a bank and its customers. Banks require a

chest to maintain a minimum cash balance to compensate when the supply of credit is restricted and interest rates are rising.

Thus cash is required to fulfill the above motives. Out of the four motives of holding cash balances, transaction motive and compensation motives are very important. Business firms usually do not speculate and need not have speculative balances. The requirement of precautionary balances can be met out of short-term borrowings.

12.6 FACTORS DETERMINING CASH BALANCES

The amount of cash for transaction requirements is predictable and depends upon a variety of factors which are as follows:

1. **Credit Position of the Firm:** The credit position influences the amount of cash required in two distinct ways:

a. If a firm's credit position is sound, it is not necessary to carry a large cash reserve for emergencies.

b. If a firm finances its inventory requirements with trade credit, its cash requirements are considerably smaller, since the firm can synchronize the credit terms it gives to its customers with the terms it receives.

2. **Status of Firm's Receivable:** The amount of time required for a firm to convert its receivable into cash also affects the amount of cash needed and of course, reduces total working capital employed. In other words, the longer the credit terms, the slower the turn over. When flow out is not synchronized with turnover, firm must carry amounts of cash relatively larger than would otherwise be required.

3. **Status of Firm's Inventory Account:** The status of a firm's inventory account also affects the amount of cash tied up at any one time. For example, if one business firm carries two months inventory on hand and other firm carries only one month's supply, the former has twice as much investment in inventory and will normally be called upon to maintain a larger investment in cash in order to finance its acquisition.

4. **Nature of Business Enterprise:** The nature of a firm's demand definitely affects the volume of cash required. For example, a firm whose demand is volatile needs a relatively larger cash reserve than one whose demand is stable. Public utility firms exhibit stable demand whereas firms that deal with high fashion merchandize or goods that tend to be "faddish" are subject to high degrees of volatility.

5. **Management's Attitude towards Risk:** A more conservative management will hold a larger cash reserve than one that is less

conservative. The former usually demands more liquidity than the latter and consequently does not experience the same degree of efficiency. A generalization is made that the firm that effectively plans policies is less conservative than one that does little or no planning. The obvious conclusion is that planning allows the firm to predict its requirements more accurately, thereby eliminating uncertainty, which is the basis for large cash reserves.

6. **Amount of Sales in Relation to Assets:** Another characteristic affecting the level of cash is the amount of sales in relation to assets. Firms with large sales relative to fixed assets are required to carry larger cash reserves. This is the result of having larger sums invested in inventories (particularly finished goods) and receivables. It should be remembered, however, that cash requirements do not increase in the same proportion as sales. The rule is that as sales increase, cash also increases but at a decreasing rate, it is impossible to determine to what extent each characteristic affects the total volume of cash, but these examples indicate that differences types of businesses have different cash requirements.

7. **Cash Inflows and Cash Outflows:** Every firm has to maintain cash balance because it's expected and outflows are not always synchronized. The timings of the cash inflows may not always match with the timing of the outflows. Therefore, a cash balance is required to fill up the gap arising out of difference in timings and quantum of inflows and outflows.

8. **Cost of Cash Balance:** Another factor to be considered while determining the minimum cash balance is the cost of maintaining excess cash or of meeting shortages of cash. There is always an opportunity cost of maintaining excessive cash balance. If a firm is maintaining excess cash then it is missing the opportunities of investing these funds in a profitable way.

12.7 MEANING OF CASH MANAGEMENT

Cash management is one of the key areas of working capital management. Cash is the most liquid current assets. Cash is the common denominator to which all current assets can be reduced because the other major liquid assets, i.e. receivable and inventory get eventually converted into cash. This underlines the importance of cash management.

Cash management refers to management of cash balance and the bank balance including the short terms deposits. For cash management purposes, the term cash is used in this broader sense, i.e., it covers cash, cash equivalents and those assets which are immediately convertible into cash.

A financial manager is required to manage the cash flows (both inflows and outflows) arising out of the operations of the firm. Cash Management, deals with optimization of cash as an asset and for this purpose the

financial manager has to take various decisions from time to time. He has to deal as the cash flows director of the firm even if a firm is highly profitable. Its cash inflows may not exactly match the cash outflows. He has to manipulate and synchronize the two for the advantage of the firm by investing excess cash, if any, as well as arranging funds to cover the deficiency.

12.8 OBJECTIVES OF CASH MANAGEMENT

The basic objectives of cash management are

(A). To make the payments when they become due and

(B). To minimize the cash balances. The task before the cash management is to reconcile the two conflicting nature of objectives.

(A). MEETING THE PAYMENTS SCHEDULE: The basic objective of cash management is to meet the payment schedule. In the normal course of business, firms have to make payments of cash to suppliers of raw materials, employees and so on regularly. At the same time firm will be receiving cash on a regular basis from cash sales and debtors. Thus, every firm should have adequate cash to meet the payments schedule. In other words, the firm should be able to meet the obligations when they become due. The firm can enjoy certain advantages associated with maintaining adequate cash. They are:

i. **Insolvency -** The question of insolvency does not arise as the firm will be able to meet its obligations.

ii. **Good relations** - Adequate cash balance in the business firm helps in developing good relations with creditors and suppliers of raw materials.

iii. **Credit worthiness** - The maintenance of adequate cash balances increase the credit worthiness of the firm. Consequently it will be able to purchase raw materials and procure credit with favorable terms and conditions.

iv. **Availing discount facilities -** The firm can avail the discounts offered by the creditors for payments before the due date.

v. **To meet unexpected facilities -** The firm can easily meet the unexpected cash expenditure in situations like strikes, competition from customers etc. with little strain.

So, every firm should have adequate cash balances for effective cash management.

(B). MINIMIZING FUNDS COMMITTED TO CASH BALANCES: The second important objective of cash management is to minimize cash balance. In minimizing the cash balances two conflicting aspects have to be reconciled. A high level of cash balances will ensure prompt payment together with all advantages, but at the same time, cash is a non- earning asset and the larger balances of cash impair profitability. On the other hand, a low level of cash balance may lead to the inability of the firm to meet the payment schedule. Thus the objective of cash management would be to have an optimum cash balance. The factors determining the cash needs of the industry is explained as follows:

i. **Matching of cash flows** - The first and very important factor determining the level of cash requirement is matching cash inflows with cash outflows. If the receipts and payments are perfectly coinciding or balance each other, there would be no need for cash balances. The need for cash management therefore, due to the non-synchronization of cash receipts and disbursements. For this purpose, the cash inflows and outflows have to be forecast over a period of time say 12 months with the help of cash budget. The cash budget will pin point the months when the firm will have an excess or shortage of cash.

ii. **Short costs** - Short costs are defined as the expenses incurred as a result of shortfall of cash such as unexpected or expected shortage of cash balances to meet the requirements. The short costs includes, transaction costs associated with raising cash to overcome the shortage, borrowing costs associated with borrowing to cover the shortage i.e. interest on loan, loss of trade-discount, penalty rates by banks to meet a shortfall in compensating, cash balances and costs associated with deterioration of the firm's credit rating etc. which is reflected in higher bank charges on loans, decline in sales and profits.

iii. **Cost of cash on excess balances** - One of the important factors determining the cash needs is the cost of maintaining cash balances i.e. excess or idle cash balances. The cost of maintaining excess cash balance is called excess cash balance cost. If large funds are idle, the implication is that the firm has missed opportunities to invest and thereby lost interest. This is known as excess cost. Hence the cash management is necessary to maintain an optimum balance of cash.

iv. **Uncertainty in business -** Uncertainty plays a key role in cash management, because cash flows cannot be predicted with complete accuracy. The first requirement of cash

management is a precautionary cushion to cope with irregularities in cash flows, unexpected delays in collections and disbursements, defaults and expected cash needs the uncertainty can be overcome through accurate forecasting of tax payments, dividends, capital expenditure etc. and ability of the firm to borrow funds through over draft facility.

v. **Cost of procurement and management of cash -** The costs associated with establishing and operating cash management staff and activities determining the cash needs of a business firm. These costs are generally fixed and are accounted for by salary, storage and handling of securities etc.

The above factors are considered to determine the cash needs of a business firm.

12.9 MANAGING CASH FLOWS

1. **Cash Planning**: Cash is the most important as well as the least unproductive of all current assets. Though, it is necessary to meet the firm's obligations, yet idle cash earns nothing. Therefore, it is essential to have sound cash planning neither excess nor inadequate.

2. **Management of Cash Flows:** This is another important aspect of cash management. Synchronization between cash inflows and cash outflows rarely happens. Sometimes, the cash inflows will be more than outflows because of receipts from debtors, and cash sales in huge amounts. At other times, cash outflows exceed inflows due to payment of taxes, interest and dividends etc. Hence, the cash flows should be managed for better cash management.

3. **Maintaining optimum Cash Balance:** Every firm should maintain optimum cash balance. The management should also consider the factors determining and influencing the cash balances at various point of time. The cost of excess cash and danger of inadequate cash should be matched to determine the optimum level of cash balances.

4. **Investment of Excess Cash:** The firm has to invest the excess or idle funds in short term securities or investments to earn profits as idle funds earn nothing. This is one of the important aspects of management of cash.

Thus, the aim of cash management is to maintain adequate cash balances at one hand and to use excess cash in some profitable way on the other hand.

12.10 IMPORTANCE OF CASH MANAGEMENT

Cash Management consists of taking the necessary actions to maintain adequate levels of cash to meet operational and capital requirements and to obtain the maximum yield on short- term investments of pooled, idle cash. A good cash management program is a very significant component of the overall financial management of a municipality. Such a program benefits the city or town by increasing non-tax revenues, improving the control and superintendence of cash, increasing contacts with members of the financial community and lowering borrowing costs, while at the same time maintaining the safety of the municipality's funds.

The following are the reasons due to which cash management is important for a company:

1) Cash Management is particularly important for those companies who make sales as well as purchase on credit, since creditor can demand money anytime and therefore it is important for a company to manage cash.

2) Cash management is also necessary to deal with contingencies such as fire, breakdown of machinery, payment of compensation in case of any lawsuit going against the company etc.

3) In this dynamic business world there is always a scope of takeover that is company can buy other company if it thinks that it is undervalued, cash will play a key role for successful takeover.

4) Since global commodity prices are fluctuating companies need cash in order to take advantage of decline in the raw material prices of the company's product.

5) Cash management assumes greater importance when company has taken debt, because interest payments are fixed and company has to pay it,, any delay in interest payment or principal repayment of debt can even result in company becoming bankrupt, therefore cash should be there for payment of such expense.

12.11 METHODS OF CASH MANAGEMENT

12.11.1 PROJECTION OF CASH FLOWS AND PLANNING

The cash planning and the projection of cash flows is determined with the help of cash budget. The cash budget is the most important tool in cash management. It is a device to help a firm to plan and control the use of cash. It is a statement showing the estimated cash inflows and cash outflows over the firm's planning horizon. In other words the net cash position i.e., surplus or deficiency of a firm is highlighted by the cash budget from one budgeting period to another period.

12.11.2 DETERMINING OPTIMAL LEVEL OF CASH HOLDING IN THE COMPANY

One of the important responsibilities of a finance manager is to maintain sufficient cash balances to meet the current obligations of a company. Determining to optimum level of cash balance influenced by a tradeoff between risk and profitability. Every business enterprise holding cash balances for transaction purposes and to meet precautionary, speculative and compensative motives. With the help of cash budget the finance manager predicts the inflows and outflows of cash during a particular period of time and there by determines the cash requirements of the company. While determining the optimum level of cash balance (neither excess nor inadequate cash balances) the finance manager has to bring a tradeoff between the liquidity and profitability of the firm. The optimum level of cash balances of a company can be determined in various ways. They are:

a) Inventory model (Economic Order Quantity) to cash management

b) Stochastic model

c) Probability model

d) The BAT Model

A) INVENTORY MODEL (EOQ) OF CASH MANAGEMENT - Economic Order Quantity (EOQ) model is used in determination of optimal level of cash of a company. According to this model optimal level of cash balance is one at which cost of carrying the inventory of cash and cost of going to the market for satisfying cash requirements is minimum. The carrying cost of holding cash refers to the interest foregone on marketable securities whereas cost of giving to the market means cost of liquidating marketable securities in cash.

Optimum level of cash balance can be determined as follows:

$$Q = \sqrt{\frac{2AO}{C}}$$

Where

Q = Optimum level of cash inventory

A = Total amount of transaction demand

O = Average fixed cost of securing cash from the market

(Ordering cost of cash / securities)

C = Cost of carrying cash inventory,

i.e., interest rate on marketable securities for the period involved.

ASSUMPTIONS: The model is based on the following assumptions:

1) The demand for cash, transactions costs of obtaining cash and the holding costs for a particular period are given and do not change during that period.

2) There is a constant demand for cash during the period under consideration.

3) Cash payments are predictable

4) Banks do not impose any restrictions on firms with respect of maintenance of minimum cash balances in the bank accounts.

For example: Teja & Company estimated cash payments of Rs. 36,000 for a period of 30 days. The average fixed cost for securing capital from the market (ordering cost) is Rs. 100 and the carrying cost or interest rate on marketable securities is 12% per annum. Determine the optimum quantity of cash balance?

A = Monthly requirement = Rs. 36,000

O = Fixed Cost for securing capital = Rs. 100

C = Cost of interest on marketable securities = 12% per year

Per month: 1% or (0.1)

Therefore:

$$Q = \sqrt{\frac{2AO}{C}} = \sqrt{\frac{2(3600 \times 100)}{0.1}}$$

Optimum transaction of cash: Rs. 8,485.28

LIMITATIONS: The EOQ model to determine the optimum size of cash balances is suffered with several practical problems. The first and important problem (limitation) is related with determination of fixed cost associated with replenishing cash. The fixed cost includes both explicit cost (interest rate at which required capital can be secured from the market and implicit cost (time spent in placing an order for getting financial assistance etc.) The computation of implicit cost is very difficult. The model is not useful and applicable where the cash flows are irregular in nature.

B) STOCHASTIC (IRREGULAR) MODEL - This model is developed to avoid the problems associated with the EOQ model. This model was developed by Miller and Orr. The basic assumption of this model is that cash balances are irregular, i.e., changes randomly over a period of time both in size and direction

and form a normal distribution as the number of periods observed increases. The model prescribes two control limits Upper control Limit (UCL) and Lower Control Limit (LCL). When the cash balances reaches 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 company should be liquidated to return the cash balances to its return point. The control limits are converting securities into cash and the vice – versa, and the cost carrying stock of cash.

THE MILLER AND ORR MODEL is the simplest model to determine the optimal behavior in irregular cash flows situation. The model is a control limit model designed to determine the time and size of transfers between an investment account and cash account. There are two control limits. Upper Limit (U) and lower limit (L).According to this model when cash balance of the company reach the upper limit, cash equal to "U – O" should be invested in marketable securities so that new cash balance touches "O" point. If the cash balance touch the "L' point, finance manager should immediately liquidate that much portion of the investment portfolio which could return the cash balance to 'O' point. (O is optimal point of cash balance or target cash balance)

The "O" optimal point of cash balance is determined by using the formula

$$O = \sqrt[3]{\frac{3TV}{4I}}$$

Where,

O = Target cash balance (Optimal cash balance)

T= Fixed cost associated with security transactions

I = Interest per day on marketable securities

V = Variance of daily net cash flows.

LIMITATIONS : This model is subjected to some practical problems

1) The first and important problem is in respect of collection of accurate data about transfer costs, holding costs, number of transfers and expected average cash balance.

2) The cost of time devoted by financial managers in dealing with the transfers of cash to securities and vice versa.

3) The model does not take in account the short term borrowings as an alternative to selling of marketable securities when cash balance reaches lower limit.

Besides the practical difficulties in the application of the model, the model helps in providing more, better and quicker information for management of cash. It was observed that the model produced considerable cost savings in the real life situations.

C) PROBABILITY MODEL - This model was developed by William Beranek. Beranek observed that cash flows of a firm are neither completely predictable nor irregular (stochastic). The cash flows are predictable within a range. This occurrence calls for formulating the demand for cash as a probability distribution of possible outcomes.

According to this model, a finance manager has to estimate probabilistic out comes for net cash flows on the basis of his prior knowledge and experience. He has to determine what is the operating cash balance for a given period, what is the expected net cash flow at the end of the period and what is the probability of occurrence of this expected closing net cash flows. The optimum cash balance at the beginning of the planning period is determined with the help of the probability distribution of net cash flows, cost of cash shortages, opportunity cost of holding cash balances and the transaction cost.

Assumptions :

1) Cash is invested in marketable securities at the end of the planning period say a week or a month.

2) Cash inflows take place continuously throughout the planning period.

3) Cash inflows are of different sizes.

4) Cash inflows are not fully controllable by the management of firm.

5) Sale of marketable securities and other short term investments will be affected at the end of the planning period.

The probability model prescribed the decision rule for the finance manager that the finance manager should go on investing in marketable securities from the opening cash balance until the expectation, that the ending cash balance will be below the optimum cash balance, where the ratio of the incremental net return per rupee of investment is equal to the incremental shortage cost per rupee.

D) THE BAT MODEL: The Baumol-Allais-Tobin (BAT) model is a classic means of analyzing the cash management problem. It is a straightforward model and very useful for illustrating the factors in cash management and, more generally, current asset management.

To develop the BAT model, suppose the Golden Socks Corporation starts at Time 0 with a cash balance of C 5 $1.2 million. Each week, outflows exceed inflows by $600,000. As a result, the cash balance drops to zero at the end of Week 2. The

average cash balance is the beginning balance ($1.2 million) plus the ending balance ($0) divided by 2, or ($1.2 million 1 $0)/2 5 $600,000 over the two-week period. At the end of Week 2, Golden Socks replaces its cash by depositing another $1.2 million. As we have described, the cash management strategy for Golden Socks is very simple and boils down to depositing $1.2 million every two weeks. Implicitly, we assume the net cash outflow is the same every day and it is known with certainty. These two assumptions make the model easy to handle. We indicate what happens when they do not hold in the next section. If C were set higher, say, at $2.4 million, cash would last four weeks before the firm would have to sell marketable securities, but the firm's average cash balance would increase to $1.2 million (from $600,000). If C were set at $600,000, cash would run out in one week and the firm would have to replenish cash more frequently, but its average cash balance would fall from $600,000 to $300,000.

Because transaction costs must be incurred whenever cash is replenished (for example, the brokerage costs of selling marketable securities), establishing large initial balances lowers the trading costs connected with cash management. However, the larger the average cash balance, the greater is the opportunity cost (the return that could have been earned on marketable securities).

12.12 STRATEGIES FOR CASH MANAGEMENT

Once cash flow projections are made and appropriate cash balances are established, the finance manager should take steps towards effective utilization of available cash resources. A number of strategies have to be developed for this purpose they are: a) Strategies towards accelerating cash inflows, and b) Strategies towards decelerating cash outflows

12.12.1 STRATEGIES TOWARDS ACCELERATING CASH INFLOWS

In order to accelerate the cash inflows and maximize the available cash the firm has to employ several methods such as reduce the time lag between the movement of a payment to the company is mailed and the movement of the funds are ready for redeployment by the company. This includes the quick deposit of customer's cheques, establishing collection centers and lock–box system etc.

i) **Quick deposit of customer's cheques** - The inflow is accelerated through quick deposit of cheques in the banks, the moment they are received. Special attention should be given to deposit the cheques without any delay.

ii) **Establishing collection centres** - In order to accelerate the cash inflows the organization may establish collection centres in various

marketing centres of the country. These centres may collect the cheques or payments from the customers and deposit them in the local bank. Thus, these cheques are collected immediately at the collection centre and the bank can transfer the surplus money, if any, to the company's main bank. Thus, the decentralized collection system of the company reduced the time lag in cash remittances and collections.

iii) **Lock-box method** - The new device which is popular in recent past is lock-box method which will help to reduce the time interval from the mailing of the cheque to the use of funds by the company. Under this arrangement, the company rents lock-box from post offices through its service area. The customers are instructed to mail cheques to the lock-box. The company's bank collects the mail from the lock-box several times a day and deposit them directly in the company's account on the same day. This will reduce the time in mailing cheques, deposit them in bank and thereby reduce overhead costs to the company. But one of the serious limitations of the system is that the banks will charge additional service costs to the company. However, this system is proved useful and economic to the firm.

12.12.2 STRATEGIES FOR SLOWING CASH OUTFLOWS

In order to accelerate cash availability in the company, finance manager must employ some devices that could slow down the speed of payments outward in addition to accelerating collections. The methods of slowing down disbursements are as follows:

i) **Delaying outward payment** - The finance manager can increase the cash turnover by delaying the payment on bills until the due date of the no-cost period. Thus, he can economize cash resources of the firm.

ii) **Making pay roll periods less frequent -** The firm can economies its cash resources by changing the frequency of disbursing pay to its employees. For example, if the company is presently paying wages weekly, it can effect substantial cash savings if the pay is disbursed only once in a month.

iii) **Solving disbursement by use of drafts** - A company can delay disbursement by use of drafts on funds located elsewhere. When the firm pays the amount through drafts, the bank will not make the payment against the draft unless the bank gets the acceptance of the issuer firm. Thus the firm need not have balance in its bank account till the draft is presented for acceptance. On the other hand, it will take several days for the draft to be actually paid by the company. Thus finance manager can economize large amounts

of cash resources for at least a fortnight. The funds saved could be invested in highly liquid low risk assets to earn income there on.

iv) **Playing the float -** Float is the difference between the company's cheque book balance and the balance shown in the bank's books of accounts. When the company writes a cheque, it will reduce the balance in its books of accounts by the amount of cheque. But the bank will debit the amount of its customers only when the cheque is collected. On the other hand, the company can maximize its cash utilization by ignoring its book balance and keep its cash invested until just before the cheques are actually presented for payment. This technique is known as "playing the float".

v) **Centralized payment system** - A firm can delay payments through centralized payment system. Under this system, payments will be made from a single central account. This will benefit the company.

vi) By transferring funds from one bank to another bank firm can maximize its cash turnover.

12.13 CASH BUDGET

Cash Budget is a planning tool in the hands of management of a business organization. As we have discussed earlier, the objective of cash management is to ensure that the firm has optimum balance of cash only i.e. neither the firm has excess cash balance nor shortage of cash at any stage. Cash budget is a statement of estimated cash inflows and cash expenditure over the firm's planning horizon and it helps the business organization in identification of periods when there will be excess cash and also those periods when there will be shortage of cash. After identification of cash surplus and cash shortage periods firm will be in a better position to do the appropriate planning for cash.

The objectives of preparing the cash budget are:

a) To identify the period when there is likely to be shortage of cash.

b) To identify the period when there is likely to be excess cash.

c) To enable the firm to do proper planning for the procurement of cash at the least possible cost during the periods when there is shortage of cash.

d) To enable the firm to do proper planning for the investment of cash at the highest possible rate of return when there is surplus of cash.

With advance planning through cash budget, firms get adequate time to take the necessary action for borrowing and lending of cash on the terms most advantageous to it.

Process of Preparation of Cash Budget

1. **Planning Period:** The first step in the process of preparation of cash budget is the selection of period to be covered by the cash budget and also the sub periods within that time span over which the cash flows are to be projected. There is no fixed rule for this legally or even otherwise. Planning period to be covered varies from firm to firm depending upon the business scale, nature of the business, credit policy and degree of uncertainty involved in the business. Higher the degree of certainty in a business, longer can be the horizon of cash budget and vice-versa. In case of organizations facing extreme degree of fluctuations, cash budget can be prepared even on daily basis.

2. **Consideration of Factors having a bearing on Cash Budget:** The second step in the process of preparation of cash budget is the identification of the factors effecting cash estimation and the magnitude of their effect on the cash positions. For the purpose of preparation of cash budget, cash receipts and cash payments can be classified into two categories i.e. Operating and Financial. Operating cash flows are the cash flows associated with the operations of the firm while financial cash flows include cash flows which have resulted from sources other than the operations of the business. The examples of operating cash flows include: receipts from sales, collections from debtors, Payments to suppliers, administrative and selling expenses etc. Examples of financial cash flows include Loan and Borrowings, interest received, Dividend received, interest paid, dividend paid etc.

After the decision is taken about the span of cash budget and also the factors to be considered in preparing the cash budget, one can move ahead and start preparing the cash budget.

Example: Cash Budget

The following is the detailed information of ABC ltd. You are required to prepare the Cash Budgets for the month of May and June:

	April (Actual) Rs.	**May (Estimated) Rs.**	**Jun (Estimated) Rs.**
Wages and Salaries	390000	410000	520000
Sales	1200000	1400000	1600000
Purchases	500000	600000	800000
Excise Duty	50000	60000	70000
Income Tax	Nil	Nil	30000
Closing Balance of Cash	450000	-	-

Additional Information

1. 50% of the wages and salaries are payable in next month.
2. 50% of the sales are on credit basis. Out of credit sales, 60% are received in the same month at a cash discount of 2%. 20% of the credit sales are received in the next month at a cash discount of 1% and the balance after two months.
3. 50% of the purchases are on credit basis. Out of credit purchases, 50% is payable in the month in which purchase is made, 25% one month after next month and the balance after two months.
4. Excise is payable in the next month.
5. Besides above information, firm is planning to buy a machine in the month of May for which payment will be made in the month of June. The price of the machine is Rs. 200000.

SOLUTION : Cash Budget for May/June

Particulars	**May**	**June**
	Rs.	Rs.
a) Opening Balance	450000	692900
b) Receipts		
i. Cash Sales(50% of Sales)	700000	800000
ii. Cash From Debtors	530400	729000
Total Cash	**1680400**	**2221900**
c) Payments		
i. Cash Purchases	325000	450000
ii. Payment to Creditors	212500	337500
iii. Wages and Salaries	400000	465000
iv. Excise Duty	50000	60000
v. Purchase of New Machine		200000
Total	**692900**	**709400**

12.14 SUMMARY

Management of cash and marketable securities is one of the key areas of working capital management. Cash is required to meet a firm's transactions and precautionary needs. A firm needs cash to make payments for acquisition of resources and services for the normal conduct of business. It keeps additional funds to meet any emergency situation. Some firms may also maintain cash for taking advantages of speculative changes in prices of input and output.

The aim of finance manager in cash management is to minimize the investments in cash and at the same time ensure that the firm has sufficient liquidity. The main objective of cash management is to trade-off liquidity and profitability in order to maximize the firm's value. Credit standing of the firm, relations with bank, management policies regarding holding inventory, liquidity preference etc. effects cash requirement of a firm. The finance manager can formulate strategies of cash management by (i) determining optimum level of cash (ii) cash planning and control (iii) managing the cash flows (iv) investing surplus cash. Cash budget is probably the most important tool of cash management.

The basic strategies that can be employed to minimize the operating cash balance are (a) Accelerating cash collection - Concentration banking, Lock box system deserve specific mention as principal methods of establishing a decentralized collection network. (b) Slowing disbursements - Centralized disbursement centre, Avoidance of early payments and Playing the float are the important techniques for slowing disbursement, but this slow down should not impair the credit rating or reputation of the firm.

A firm should hold an optimum balance of cash, and invest any temporary excess amount in marketable securities. In choosing these securities, the firm must keep in mind safety, maturity and liquidity of its investment.

12.15 SELF-ASSESSMENT QUESTIONS

1. What is Cash? Explain the motives for holding cash.

2. What is 'cash' in cash management? What are the motives of holding cash?

3. "A number of methods are being employed to speed up the collection process and maximize available cash". Explain these methods.

4. What are the objectives of cash management? Discuss the functions of cash management?

5. What is Baumol Model of cash management?

6. What is Miller-Orr Model of cash management?

7. Write a short note on the investment of idle cash in readily marketable securities.

8. Write short notes on : -

a) Concentration Banking

b) Lock Box System

c) Optimum Cash Balance

d) Playing the Float

9. Explain the techniques that can be used to accelerate the firm's collection.

10. How can the optimum level of operating cash balance be determined?

11. Explain the criteria that a firm should use in choosing the short term investment alternative in order to invest surplus cash.

12. From the following information compute optimum cash balance of a firm by using Baumol's Model.

Monthly cash requirement	Rs. 6,000
Fixed cost per transaction	Rs. 10
Interest rate on marketable securities	6%

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Financial Management

BLOCK

4

CAPITALISATION

परिशिष्ट–4
आन्तरिक कवर–दो का प्ररूप
Format of the II Inner Covers

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UNIT-13 THEORIES OF CAPITALISATION

UNIT STRUCTURE

13.1 OBJECTIVES

This unit is intended to enable the reader to:

1. Understand the concept of capitalization
2. Know the implications and causes of over and under capitalization
3. Understand the remedial measures of over and under capitalization
4. Come across with the theories for estimating fair capitalization for a given business
5. Familiarise with the concept of watered capital in business.

13.1 CONCEPT OF CAPITALIZATION

The total amount of long term funds available to the company is the capitalization of the company. According to Gerstenbug, capitalisation is that which "comprises of a company's ownership capital which includes capital stock and surplus in whatever form it may appear and borrowed capital which consists of bonds or similar evidences of long-term debt". The total amount of funds available to an undertaking, are broadly divided into owned capital and the borrowed capital. Both of these funds should be neither too much nor too low.

13.2 OVER-CAPITALIZATION

A concern is said to be **over-capitalized** if its earnings are not sufficient to justify a fair return on the amount of share capital and debentures that have been issued. It is said to be *over capitalized* when total of owned and borrowed capital exceeds its fixed and current assets i.e. when it shows accumulated losses on the assets side of the balance sheet.

According to Gerstenberg, "a corporation is over-capitalised when its earnings are not large enough to yield a fair return on the amount of stocks and not large enough to yield a fair return on the amount of stocks and bonds that have been issued or when the amount of securities outstanding exceeds the current value of assets".

Over-capitalisation is not synonymous with excess capital. Excess of capital may be one of the reasons for over-capitalisation. A company is over capitalised only because of its capital and funds not being effectively and profitably deployed with the result that there is a fall in the earning capacity of the company and in the rate of dividend to be paid to its shareholders as well as a fall in the market value of its shares.

13.3 CAUSES OF OVER CAPITALIZATION

Some of the important reasons of over-capitalization are:

1. Over-issue of capital: Defective financial planning may lead to excessive issue of shares or debentures. The issue would be superfluous and a constant burden on the earnings of the company.
2. Acquiring assets at inflated prices: Assets may be acquired at inflated prices or at a time when the prices were at their peak. In both the cases, the real value of the company is below its book value and the earnings are very low.
3. Formation during the boom period: If the establishment of a new company or the expansion of an existing concern takes place during the boom period, it may be a victim of over- capitalisation. The assets are acquired at fabulous prices. But when boom

conditions cease prices of products decline resulting in lower earnings. The original value of assets remains in books while earning capacity dwindles due to depression. Such a state of affairs results in over- capitalisation.

4. Over estimation of earnings: The promoters or the directors of the company may over-estimate the earnings of the company and raise capital accordingly. If the company is not in a position to invest these funds profitably, the company will have more capital than required. Consequently, the rate of earnings per share will be less.

5. Inadequate depreciation: Absence of suitable depreciation policy would make the asset-values superfluous. If the depreciation or replacement provision is not adequately made, the productive worth of the assets is diminished which will definitely depress the earnings. Lowered earnings bring about fall in share values, which represents over-capitalisation.

6. Liberal dividend policy: The company may follow a liberal dividend policy and may not retain sufficient funds for self-financing. It is not a prudent policy as it leads to over-capitalisation in the long run, when the book value of the shares falls below their real value.

7. Lack of reserves: Certain companies do not believe in making adequate provision for various types of reserves and distribute the entire profit in the form of dividends. Such a policy reduces the real profit of the company and the book value of the shares lags much behind its real value. It represents over-capitalisation.

8. Heavy promotion and organisation expenses: "A certain degree of over capitalisation ,"says Beacham, "may be caused by heavy issue expenses". If expenses incurred for promotion, issue and underwriting of shares, promoters' remuneration etc., prove to be higher compared to the benefits they provide, the enterprise will find itself over-capitalised.

9. Shortage of capital: If a company has small share capital it will be forced to raise loans at heavy rate of interest. This would reduce the net earnings available for dividends to shareholders. Lower earnings bring down the value of shares leading to over-capitalisation.

10. Taxation policy: High rates of taxation may leave little in the hands of the company to provide for depreciation and replacement and dividends to shareholders. This may adversely affect its earning capacity and lead to over-capitalisation.

13.4 REMEDIAL MEASURES TO CORRECT OVER-CAPITALISATION

i) Increase in earnings: The earning capacity of the company should be raised by enhancing the efficiency of human and non-human resources belonging to the company.

All types of wasteful expenditure should be avoided.

(ii) Plough back earnings: The remedy for over-capitalisation resulting from over-valuation of assets of the company lies in the squeezing of the water out of the stock by ploughing back earnings into the business for replacements and extensions.

(iii) Reduction of funded debt: It is desirable to correct over-capitalisation by reducing long-term debt. The debentures and bonds should be redeemed to restore parity between the book value of the company and its real value. True reduction of capitalisation would be affected if the debt is retired from earnings.

(iv) Reduction of interest rate on bonds: The old debenture holders may agree to take new debentures of lower rate of interest when premium is given on new debentures. But here, the scheme may not be successful without affecting reorganization.

(v) Redemption of preferred stock if it carries a high dividend: This can be tried in cases where the preferred stock is cumulative. Funds for the redemption would probably have to be procured from the sale of common-stock at low prices.

(vi) Reduction in par value of shares: It is a fine method, if the equity shareholders are ready to give their consent to it.

(vii) Reduction in the number of equity shares of common stock: There are difficulties in its implementation due to the average stockholders' proportionate interest in the equity, it is sometimes effectuated.

13.5 EFFECTS OF OVER-CAPITALISATION

Effects on company :

(i) Destroys the goodwill and credit worthiness: Over- capitalisation marked by low earning capacity destroys the reputation and goodwill of the company with deterrent effect on its prospects of business.

(ii) Difficulty in raising additional funds:

It causes decline in share values which brings down the credit-standing and financial reputation of the company. Thus, it finds difficulty in mobilising additional funds.

(iii) Borrowings at higher rate of interest:

An over-capitalised company which is not able to raise capital from the shareholders may get loans at higher rate of interest due to which the position may further deteriorate.

(iv) Resort to unfair practices:

It may force the management of the company to follow unhealthy practices of window dressing of earnings. For example, it may not provide sufficient depreciation and also neglect the maintenance and replacement of assets. This will decrease the earning capacity of the company and discourage the genuine investors from investing in the company.

B. Effects on shareholders :

The shareholders of an over-capitalised company are losers in all transactions, (i) The return on their investment is uncertain, irregular and nominal (ii) The market value of their holdings is reduced (iii) Their holdings have small value as collateral security, (iv) If the shares are sold, no fair consideration is obtained. (v) Speculation is encouraged in the shares and the real investors have to suffer on that account and (vi) When an over-capitalised company tries to set its house in order through reorganization, the shareholders are the worst sufferers.

Reorganization would usually take the form of reduction of capital for writing off past losses. At the time of liquidation too, the shareholders have to satisfy themselves with much less than their original investment.

C. Effects on consumers :

Over-capitalisation is unfair to the consumers also. Over-capitalised company desirous of increasing their earnings would unjustifiably raise the price of their products and ignore or lower the quality of the goods.

D. Effects on workers :

In order to make up deficient earnings, the over-capitalised concerns may reduce the workers' wages and withdraw the costly amentia admissible to them. Lower wages and adverse working conditions would demoralize the workers and decrease operational efficiency.

E. Effects on Society:

(i) An over-capitalised company increased prices and reduces the quality of goods. Thus, the public is a loser both as regards price and quality.

(ii) An over-capitalised company may try to increase its profits by reducing wages of workers. This may spoil industrial relations.

(iii) The closure of over- capitalised company may become the cause of general panic and alarm. This would affect the interests of the creditors. The workers would also lose their jobs.

(iv) Over-capitalisation results in misapplication of society's resources,

(v) The shares of an over-capitalised concern provide scope for speculation on the stock exchange. It is undesirable from the social point of view.

13.6 UNDER-CAPITALIZATION

Under-capitalisation is just reverse of over-capitalisation. The state of under-capitalisation is where the value of assets is much more than it appears in the books of the company. In well established companies, there is a large appreciation in assets, but such appreciation is not shown in the books. As against over-capitalisation, under-capitalisation is associated with an effective utilisation of investments, an exceptionally high rate of dividend and enhanced prices of shares. In other words, the capital of the company is less in proportion to its total requirements under the state of under-capitalisation. In the words of Gerstenberg, "A corporation may be under-capitalised when the rate of profits it is making on the total capital is exceptionally high in relation to the return enjoyed by similarly situated companies in the same industry or when it has too little capital with which to conduct its business".
Under-capitalisation is a condition where the real value of the company is more than its book value. The assets bring profits but it would appear to be much larger than warranted by book figures of the capital. In such cases, the dividend will naturally be high and the market value of shares will be much higher. Under-capitalisation and inadequacy of capital are regarded as inter-changeable terms but there is a difference between these two terms. Under-capitalisation does not mean inadequacy of capital. Profits are high in such companies and a part of the profits are ploughed back in the business directly or indirectly. The value of assets is shown at lower price than their real value. It means that there are secret reserves in under-capitalised companies.

13.7 CAUSES OF UNDER-CAPITALISATION

(i) Acquisition of Assets during Recession: Assets might have been acquired at low costs during necessary conditions in the market. And now higher incomes are being earned by their use.

(ii) Under-estimation of Requirements: There may be under-estimation of capital requirements of the company by the promoters. This may lead to capitalisation which is insufficient to conduct its operations.

(iii) Conservative Dividend Policy: The management may follow a conservative dividend policy leading to higher rate of ploughing back of profits. This would increase the earning capacity of the company.

(iv) Efficient Management: The management of a company may be highly efficient. It may issue the minimum share capital and may meet the additional financial requirements through borrowings at lower rates of interest.

(v) Creation of Secret Reserves: A company may have large secret reserves due to which its profitability is higher.

13.8 REMEDIES FOR UNDER-CAPITALIZATION

The following remedial steps may be taken to correct under-capitalisation of a company:

(i) Under-capitalisation may be remedied by increasing the par value and/or number of equity shares by revising upward the value of assets. This will lead to decrease in the rate of earnings per share.

(ii) Management may capitalise the earnings by issuing bonus shares to the equity shareholders. This will also reduce the rate of earnings per share without reducing the total earnings of the company.

(iii) Where under-capitalisation is due to insufficiency of capital, more shares and debentures may be issued to the public.

13.9 EFFECTS OF UNDER-CAPITALISATION

Effects of Under-capitalization on Shareholders:

The effects of under-capitalisation on shareholders are as follows:

(i) The profitability of the company may be very high. As a result, the rate of earnings per share will go up.

(ii) The value of its equity share in the market will go up.

(iii) The financial reputation of the company will increase in the market.

(iv) The shareholders can expect higher dividends regularly.

Effects of Under-capitalization on Company:

The company has to face the following consequences as a result of under-capitalisation:

(i) Because of higher profitability, the market value of company's shares would go up. This would also increase the reputation of the company.

(ii) The management may be tempted to build up secret reserves.

(iii) Higher rate of earnings will attract competition in the market.

(iv) The workers of the company may be tempted to demand higher wages, bonus and other benefits.

(v) If a company is earning higher profits, the customers may feel that they are being overcharged by the company.

(vi) The government may increase tax rates on companies earning exceptional profits.

Effects of Under-capitalization on Society:

The effects of under-capitalisation on the society are as follows:

(i) Under-capitalisation may lead to higher profits and higher prices of shares on the stock exchange. This may encourage unhealthy speculation in its shares.

(ii) Because of higher profits, the consumers feel exploited. They link higher profits with higher prices of the products.

(iii) The management of the company may build up secret reserves and pay lower taxes to the Government.

13.10 THEORIES OF CAPITALISATION

There are two recognized bases for capitalising new companies:

13.10.1 COST THEORY

According to the cost theory of capitalization, the value of a company is arrived at by adding up the cost of fixed assets like plants, machinery patents, etc., the capital regularly required for the continuous operation of the company (working capital), the cost of establishing business and expenses of promotion. The original outlays on all these items become the basis for calculating the capitalization of company. Such calculation of capitalisation is useful in so far as it enables the promoters to know the amount of capital to be raised. But it is not wholly satisfactory. One important objection to it is that it is based on a figure (i.e., cost of establishing and starting business) which will not change with variation in the earning capacity of the company. The true value of an enterprise is judged from its earning capacity rather than from the capital invested in it. If, for example, some assets become obsolete (out of date) and some others remain idle, the earnings and the earning capacity of the

concern will naturally fall. But such a fall will not reduce the value of the investment made in the company's business.

13.10.2 EARNINGS THEORY

The earnings theory of Capitalization recognizes the fact that the true value (capitalization) of an enterprise depends upon its earnings and earning capacity. According to it, therefore, the value or Capitalization of a company is equal to the capitalized value of its estimated earnings. For this purpose a new company has to prepare an estimated profit and loss account. For the first few year of its life, the sales are forecast and the manager has to depend upon his experience for determining the probable cost. The earnings so estimated may be compared with the actual earnings of similar companies in the industry and the necessary adjustments should be made. Then the promoters will study the rate at which other companies in the same industry similarly situated are earnings. The rate is then applied to the estimated earnings of the company for finding out the capitalization. To take an example a company may estimate its average profit in the first few years at Rs. 50,000. Other companies of the same type, let us assume, earn a return of 10 per cent on their capital. The Capitalization of the company will then be

$$\frac{50{,}000 \times 100}{10} = \text{Rs. } 5{,}00{,}000.$$

It will be noted that the earnings basis for Capitalization has the merit of valuing (capitalizing) a company at an amount which is directly related to its earning capacity. A company is worth what it is able to earn. But it cannot, at the same time be denied that new companies will find it difficult, and even risky, to depend merely on estimate of their earnings as the generally expected return in an industry. In case of new companies, therefore, the cost theory provides a better basis for capitalisation than the earning theory.

In established concerns too, the Capitalization can be arrived at either (i) on the basis of the cost of business, or (ii) the average or regular earnings and the rate of return expected in an industry. If cost is adopted as the basis, the Capitalization may fall to reveal the true worth of a company. The assets of a company stand at their original values while its earnings may have declined considerably. In such a situation, it will be risky to believe that the Capitalization of the company is high. Earnings, therefore, provide a better basis of Capitalization in established concerns.

13.11 ACTUAL AND PROPER CAPITALIZATION

The capitalisation of a company as arrived at by totalling up the value of the shares, debentures and non-divisible retained earnings of the company may be called the actual Capitalization of the company. Let us take the relevant items in a company balance sheet for illustration. The

actual Capitalization as per balance sheet given below will be Rs. 16,00,000.

Liabilities		Assets	
Paid-up capital Rs.		Sundry Asset	16,00,000
20,000, 8 percent preference Shares of Rs.10 each	2,00,000		
50,000 Shares of Rs. 8 each	4,00,000		
10,000 Debentures of Rs. 100 each	10,00,000		
	16,00,000		16,00,000

As against the actual Capitalization, the proper, normal or standard Capitalization for a company can be found out by capitalizing the average annual profits at the normal rate of return earned by comparable companies in the same line of business. Thus if a company gets an annual return of Rs. 1,50,000 and the normal rate of return in the industry is 10 per cent, the proper Capitalization will be arrived at as under:

$$1{,}50{,}000 \times \frac{100}{10} = \text{Rs. } 15{,}00{,}000$$

A comparison between the actual and the proper or normal Capitalization will show whether the company is properly capitalized, over-capitalized or under-capitalized.

13.12 WATERED CAPITAL

When the capital of a company is not represented by equivalent value, it is termed as watered capital signifying presence of water in the capital of the company.

The concern may pay too high a price for an asset acquired from a going concern. The capital becomes watered to the extent of the excess price paid for an asset. Thus, if a company pays Rs. 1,25,000 on account of goodwill, which if valued correctly is worth Rs. 50,000 only, the capital is watered to the extent of Rs. 75,000. 'Watered capital' must be

distinguished from 'over capitalisation'. 'Water enters the capital usually in the initial period-at the time of promotion. Over capitalisation can, however, be found out only after the company has worked for some time. Although watered capital can be a cause of over-capitalisation, yet it is not exactly the same thing.

If the earnings are up to the general expectation, a concern will not be over capitalized even though a part of its capital is watered.

13.13 SUMMARY

The above discussion of relating to capitalisation leads us to the conclusion that both over and under capitalisation are harmful, though under capitalisation may be regarded less harmful. Exceptionally high rate of profit and real value of assets being greater than shown in the books does not harm the company and shareholders as the low rate of profit or low real value. Further, a state of under capitalisation can be corrected in an easier manner than the state of over capitalisation.

Illustration

Following is the balance sheet of xyz ltd as 31st March, 2013:

Share capital:		Sundry assets	5,00,000
20,000 equity shares of Rs. 10 each	2,00,000		
1,000 preference shares of Rs. 100 each	1,00,000		
12% debentures	1,00,000		
Reserve and surplus	50,000		
Sundry creditors	50,000		
	5,00,000		5,00,000

Ascertain whether the company is over- capitalised or under -capitalised assuming that:

1. Earnings available for equity shareholders are :

   a) Rs. 10,000; **b)** Rs. 50,000

2. The normal earnings rate in case of similar companies is 10%

Solution:

To find out whether the company is over-capitalised or under-capitalised, the book value of equity share is to be compared with the real value of equity shares. The book value of equity shares is calculated on the basis of net assets available for equity shareholders and the real value of equity shares is computed on the basis of capitalised value of earnings.

Book value of equity shares:

Sundry assets		Rs. 5,00,000
Less: preference share capital	1,00,000	
12% debentures	1,00,000	
Sundry creditors	50,000	
	---	2,50,000

Net assets available for equity share holders		2,50,000

Book value of an equity share = 2,50,000/20,000= Rs. 12.50

a) Real value of equity shares when earnings are Rs 10,000

Capitalised value of earnings=

10,000x100/10= 1,00,000

Real value of an equity =

1,00,000/20,000= Rs 5

Since the real value of an equity is less than the book value of an equity (5<12.5), the company is over-capitalised.

b) Real value equity shares when earnings are Rs 50,000

Capitalised value of earnings=

50,000x100/10= 5,00,000

Real value of an equity =

5,00,000/20,000= Rs 25

Since the real value of an equity is higher than the book value of an equity (25>12.5), the company is under-capitalised.

13.14 SELF ASSESSMENT QUESTIONS/ EXERCISES

Theoretical Questions

1. "The consequence s of over-capitalisation are far more serious and fatal than under-capitalisation." Discuss.

2. Explain the causes and ill effects of under-capitalisation and suggest the remedies for the problem of under capitalisation.

3. What are the causes of over-capitalisation? How does it affect a business? Suggest measures to overcome the problem of over-capitalisation?

4. Elaborate the cost and earning theories of fair capitalisation.

5. Write short notes on the following:

   (a) Book value of share

   (b) Fair value of share

   (c) Over capitalisation

   (d) Under capitalisation

   (e) Fair capitalisation

   (f) Watered capital

Numerical Questions

1. Three situations of capitalisation are presented below:

Balance Sheet – One

Liabilities	Rs.	Assets	Rs.
Share capital	10,000	Fixed assets	15,000
Debentures	5,000	Current assets	10,000
Current liabilities	10,000		
	25,000		25,000

Balance Sheet – Two

Liabilities	Rs.	Assets	Rs.
Share capital	10,000	Fixed assets	12,000
Debentures	5,000	Current assets	13,000
Current liabilities	10,000		
	25,000		25,000

Balance Sheet – Three

Liabilities	Rs.	Assets	Rs.
Share capital	10,000	Fixed assets	16,000
Debentures	5,000	Current assets	9,000
Reserve fund	3,000		
Current liabilities	7,000		
	25,000		25,000

a) Explain with reasons how you find the three situations of capitalisation over, under or correctly capitalised.

b) How does the over capitalisation affect the financial health of a company?

2. Following are some information about company X Limited and company Y Limited. Company X Limited is a new company and company Y Limited is around 5 years old in the industry. Both the companies belong to same industry.

Company X Limited:

Cost of fixed assets
Rs. 87,80,000

Cost of working capital
8,55,000

Cost of promotion and establishment expenses
45,000

Company Y Limited:

Average Profits
Rs. 12,75,000

If average rate of earnings in the industry is 15 per cent, calculate the fair capitalisation for both the companies by using cost theory or earning theory as the case may be.

[Answer: fair capitalisation for co x ltd= Rs 96,80,000 for y ltd = Rs 85,00,000]

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UNIT-14 CAPITAL STRUCTURE

14.1 OBJECTIVES

This unit is intended to enable the reader to:

1. Understand concept of capital structure
2. Know the significance of capital structure for a business
3. Know how the optimum capital structure is constructed
4. Analyse the prevalent theories of capital structure.

14.2 MEANING OF CAPITAL STRUCTURE

Capital structure is the composition of different types of capital or financing employed by a company to acquire resources necessary for its business operations and growth. Commonly, the capital structure comprises of stockholders' investments (equity capital) and long-term loans (loan capital).

14.3 CAPITAL STRUCTURE VS. FINANCIAL STRUCTURE

- Capital structure of a company is long term financing which includes long term debt, common stock and preferred stock and retained earnings.
- Financial structure on the other hands also includes short term debt and accounts payable along with long term financing.

- Capital structure is thus a subset of financial structure of a company.

14.4 CAPITAL STRUCTURE VS. CAPITALISATION

- Capitalization means amount of capital invested in a business. It is used in the case of companies only. It includes all the sources of fund used in an organization.
- Capital structure is a qualitative term that gives the ratio in which the total capital is contributed by different sources. It may be high geared or low geared and is influenced by external factors.

14.5 FINANCIAL STRUCTURE VS. CAPITALISATION

- Financial **structure** refers to the balance between all of the company's liabilities and its equities. It thus concerns the entire "Liabilities *plus* Equities" side of the balance sheet.
- Capital structure, by contrast, includes equities and only the long term liabilities. It refers to the makeup of the company's underlying value, in particular the relative balance between funding from equities and funding from long term debt. The presumption is that funds from both sources are used for acquiring income-producing assets. *Capital structure is also known as capitalization.*

14.6 FACTORS DETERMINING CAPITAL STRUCTURE

1. **Trading on Equity Financial Leverage -** The word "equity" denotes the ownership of the company. Trading on equity means taking advantage of equity share capital to borrowed funds on reasonable basis. It refers to additional profits that equity shareholders earn because of issuance of debentures and preference shares. It is based on the thought that if the rate of dividend on preference capital and the rate of interest on borrowed capital is lower than the general rate of company's earnings, equity shareholders are at advantage which means a company should go for a judicious blend of preference shares, equity shares as well as debentures. Trading on equity becomes more important when expectations of shareholders are high.
2. **Degree of control-** In a company, it is the directors who are so called elected representatives of equity shareholders. These members have got maximum voting rights in a concern as compared to the preference shareholders and debenture holders.

Preference shareholders have reasonably less voting rights while debenture holders have no voting rights. If the company's management policies are such that they want to retain their voting rights in their hands, the capital structure consists of debenture holders and loans rather than equity shares.

3. **Flexibility of financial plan-** In an enterprise, the capital structure should be such that there is both contractions as well as relaxation in plans. Debentures and loans can be refunded back as the time requires. While equity capital cannot be refunded at any point which provides rigidity to plans. Therefore, in order to make the capital structure possible, the company should go for issue of debentures and other loans.

4. **Choice of investors-** The Company's policy generally is to have different categories of investors for securities. Therefore, a capital structure should give enough choice to all kind of investors to invest. Bold and adventurous investors generally go for equity shares and loans and debentures are generally raised keeping into mind conscious investors.

5. **Capital market condition-** In the lifetime of the company, the market price of the shares has got an important influence. During the depression period, the company's capital structure generally consists of debentures and loans. While in period of boons and inflation, the company's capital should consist of share capital generally equity shares.

6. **Period of financing-** When the company wants to raise finance for short period, it goes for loans from banks and other institutions; while for long period it goes for issue of shares and debentures.

7. **Cost of financing-** In a capital structure, the company has to look to the factor of cost when securities are raised. It is seen that debentures at the time of profit earning of company prove to be a cheaper source of finance as compared to equity shares where equity shareholders demand an extra share in profits.

8. **Stability of sales-** An established business which has a growing market and high sales turnover, the company is in position to meet fixed commitments. Interest on debentures has to be paid regardless of profit. Therefore, when sales are high, thereby the profits are high and company is in better position to meet such fixed commitments like interest on debentures and dividends on preference shares. If company is having unstable sales, then the company is not in position to meet fixed obligations. So, equity capital proves to be safe in such cases.

9. **Sizes of a company-** Small size business firms capital structure generally consists of loans from banks and retained profits. While on the other hand, big companies having goodwill, stability and an

established profit can easily go for issuance of shares and debentures as well as loans and borrowings from financial institutions. The bigger the size, the wider is total capitalization.

14.7 QUALITIES OF OPTIMUM CAPITAL STRUCTURE

While developing an appropriate capital structure for his company, the financial manager should aim at maximizing the long-term market price of equity shares. An appropriate capital structure should have the following features:

1. **Return** - The capital structure of the company should give maximum return to the shareholders. Within the constraints, maximum use of the leverage at a minimum cost should be made so as to obtain maximum advantage of trading on equity at minimum cost.

2. **Risk** - The capital structure should involve minimum risk of financial insolvency. The use of excessive debt threatens the solvency of the company. Since use of debt adds the risk of the company and shareholders, it should be used cautiously with equity.

3. **Flexibility** - The Company should be able to change the proportion of debt and equity in the capital structure, if required depending on changing conditions. The capital structure should be flexible to meet the changing conditions. It should also be possible for the company to provide funds whenever needed to finance its profitable activities.

4. **Capacity** - The Company should have capacity to pay the fixed periodic charges (e.g., interest) and the instalments of principal sum. The debt capacity of the company should not be exceeded. The debt capacity of a company depends on its ability to generate cash flows.

5. **Control** - The capital structure should not involve loss of control of the shareholders. If there is too much debt then shareholders are likely to lose control to debenture holders.

Thus, there is no mathematical formula which will determine the proportion of debt and equity.

The relative importance of each of these features may differ from company to company. *For example,* a company may give more importance to flexibility than control while another company may be more concerned about solvency than any other requirement. Furthermore, the relative importance of these requirements may change with changing conditions.

14.8 THEORIES OF CAPITAL STRUCTURE

14.8.1 NET INCOME (NI) APPROACH

Net Income theory was introduced by David Durand. According to this approach, the capital structure decision is relevant to the valuation of the firm. This means that a change in the financial leverage will automatically lead to a corresponding change in the overall cost of capital as well as the total value of the firm. According to NI approach, if the financial leverage increases, the weighted average cost of capital decreases and the value of the firm and the market price of the equity shares increases. Similarly, if the financial leverage decreases, the weighted average cost of capital increases and the value of the firm and the market price of the equity shares decreases.

Assumptions of NI approach :

1. There are no taxes
2. The cost of debt is less than the cost of equity.
3. The use of debt does not change the risk perception of the investors

According to net income approach, the value of the firm and the value of equity are determined as below:

Value of firm = S+B

Where, S= Market value of Equity and B= market value of debt

Market value of equity (S)

S= NI/Ke

Where, NI = Net income available to equity shareholders

Ke = equity capitalisation rate

Illustration 1

P Limited earned a profit of Rs. 20 lakhs before providing interest and tax. The company's capital structure is as follows:

i) 4,00,000 Equity shares of Rs 10 each and its market capitalisation rate is 16%.

ii) 25,000 14% percent secured redeemable debentures of Rs. 150 each

You are required to calculate the value of the firm under NI (Net Income) approach. Also calculate the overall capital of the firm.

Solutions:

Calculation of Net Income:

Profit before interest and tax Rs 20,00,000
Less: debenture interest @ 14 percent 5,25,000
Net income available to equity shareholders 14,75,000

Market value of Equity (S)

S= NI/Ke

Where,

NI = Net income available for equity shareholders i.e., Rs 14,75,000

Ke= Equity capitalisation rate i.e. 16%

S= 14,75,000/0.16 = Rs 92,18,750

Now, we can calculate the value of the firm

V=S+B

= 92,18,750+(25,000x150)=92,18,750+37,50,000=1,29,68,750

Calculation of overall cost of capital

Ke = EBIT/V = 20,00,000/1,29,68,750 = .1542 or 15.42%

Effect of change in the capital structure: (Increase in debt capital)

Let us assume that the firm decides to retire Rs 100,000 worth of equity by using the proceeds of new debt issue worth the same amount. The cost of debt and equity would remain the same as per the assumptions of the NI approach. This is because one of the assumptions is that the use of debt does not change the risk perception of the investors.

Calculation of new value of the Firm

Please note: Overall cost of capital can also be calculated by using the weights of debt and equity contents with the respective cost of capitals.

This proves that the use of additional financial leverage (debt) causes the value of the firm to increase and the overall cost of capital to decrease

14.8.2 NET OPERATING INCOME (NOI) APPROACH

Net Operating Income Approach was also suggested by Durand. This approach is of the opposite view of Net Income approach. This approach suggests that the capital structure decision of a firm is irrelevant and that any change in the leverage or debt will not result in a change in

the total value of the firm as well as the market price of its shares. This approach also says that the overall cost of capital is independent of the degree of leverage.

Features of NOI approach:

1. At all degrees of leverage (debt), the overall capitalization rate would remain constant. For a given level of Earnings before Interest and Taxes (EBIT), the value of a firm would be equal to EBIT/overall capitalization rate.

2. The value of equity of a firm can be determined by subtracting the value of debt from the total value of the firm. This can be denoted as follows:

   Value of Equity = Total value of the firm - Value of debt

3. Cost of equity increases with every increase in debt and the weighted average cost of capital (WACC) remain constant. When the debt content in the capital structure increases, it increases the risk of the firm as well as its shareholders. To compensate for the higher risk involved in investing in highly levered company, equity holders naturally expect higher returns which in turn increases the cost of equity capital.

Ascertainment of value of firm and value of equity

Value of firm (V)

V= EBIT/Ko

Where,

EBIT= Earnings before Interest and tax

Ko= Overall cost of capital

Value of Equity (S)

S= V-B

Where,

V= Value of firm and B= Value Debt

Illustration 2
A firm has an EBIT level of Rs 50,000, cost of debt 10%, the total value of debt Rs 200,000 and the WACC is 12.5%. Find out the total value of the firm, value of equity and the cost of equity capital (the equity capitalization rate).

Solution :

EBIT = Rs 50,000

WACC (overall capitalization rate) = 12.5%

Therefore, total market value of the firm = EBIT/Ko = 50,000/12.5%

= Rs 400,000
Total value of debt = Rs 200,000
Therefore, total value of equity = Total market value (V) – Value of debt (B)
= 400,000 - 200,000 = Rs 200,000

Equity capitalisation rate (Ke)

= Earnings available to equity holders/Total market value of equity shares

Ke = EBIT – Interest/V-B
= Rs 50,000 – (10% on 200,000) = 30,000
therefore, cost of equity capital = 30,000/200,000 = 15%
Verification of WAC:

Ko= Ke(S/V) + Kd(B/V)
10% x (200,000/400,000) + 15% x (200,000/400,000) ⇒ 12.5%

14.8.3 Traditional or Intermediate approach of capital structure:

Traditional approach is an intermediate approach between the net income approach and net operating income approach. According to this approach:

1. An optimum capital structure does exist.
2. Market value of the firm can be increased and average cost of capital can be reduced through a prudent manipulation of leverage.
3. The cost of debt capital increases if debts are increases beyond a definite limit. This is because the greater the risk of business the higher the rate of interest the creditors would ask for. The rate of equity capitalization will also increase with it. Thus there remains no benefit of leverage when debts are increased beyond a certain limit. The cost of capital also goes up.

   Thus at a definite level of mixture of debts to equity capital, average cost of capital also increases. The capital structure is optimum at this level of the mix of debts to equity capital. The effect of change in capital structure on the overall cost of capital can be divided into three stages as follows;

First stage - In the first stage the overall cost of capital falls and the value of the firm increases with the increase in leverage. This leverage has beneficial effect as debts as debts are less expensive. The cost of equity remains constant or increases negligibly. The proportion of risk is less in such a firm.

Second stage - A stage is reached when increase in leverage has no effect on the value or the cost of capital, of the firm. Neither the cost of capital falls nor the value of the firm rises. This is because the increase in the cost of equity due to the assessed financial risk offsets the advantage of low cost debt. This is the stage wherein the value of the firm is maximum and cost of capital minimum.

Third stage - Beyond a definite limit of leverage the cost of capital increases with leverage and the value of the firm decreases with leverage. This is because with the increase in debts investors begin to realize the degree of financial risk and hence they desire to earn a higher rate of return on equity shares. The resultant increase in equity capitalization rate will more than offset the advantage of low-cost debt. It follows that the cost of capital is a function of the degree of leverage.

Hence, an optimum capital structure can be achieved by establishing an appropriate degree of leverage in capital structure.

14.8.4 MODIGLIANI MILLAR APPROACH

Modigliani Millar approach, popularly known as the MM approach is similar to the Net operating income approach. The MM approach favours the Net operating income approach and agrees with the fact that the cost of capital is independent of the degree of leverage and at any mix of debt-equity proportions. The significance of this MM approach is that it provides operational or behavioural justification for constant cost of capital at any degree of leverage. Whereas, the net operating income approach does not provide operational justification for independence of the company's cost of capital.

Basic Propositions of MM approach :

1. At any degree of leverage, the company's overall cost of capital (ko) and the Value of the firm (V) remains constant. This means that it is independent of the capital structure. The total value can be obtained by capitalizing the operating earnings stream that is expected in future, discounted at an appropriate discount rate suitable for the risk undertaken.
2. The cost of capital (ke) equals the capitalization rate of a pure equity stream and a premium for financial risk. This is equal to the difference between the pure equity capitalization rate and ki times the debt-equity ratio.
3. The minimum cut-off rate for the purpose of capital investments is fully independent of the way in which a project is financed.

Assumptions of MM approach:

1. Capital markets are perfect.
2. All investors have the same expectation of the company's net operating income for the purpose of evaluating the value of the firm.
3. Within similar operating environments, the business risk is equal among all firms.
4. 100% dividend payout ratio.

5. An assumption of "no taxes" was there earlier, which has been removed.

Arbitrage process

Arbitrage process is the operational justification for the Modigliani-Miller hypothesis. Arbitrage is the process of purchasing a security in a market where the price is low and selling it in a market where the price is higher. This results in restoration of equilibrium in the market price of a security asset. This process is a balancing operation which implies that a security cannot sell at different prices. The MM hypothesis states that the total value of homogeneous firms that differ only in leverage will not be different due to the arbitrage operation. Generally, investors will buy the shares of the firm that's price is lower and sell the shares of the firm that's price is higher. This process or this behaviour of the investors will have the effect of increasing the price of the shares that is being purchased and decreasing the price of the shares that is being sold. This process will continue till the market prices of these two firms become equal or identical. Thus the arbitrage process drives the value of two homogeneous companies to equality that differs only in leverage.

Limitations of MM hypothesis:

1. Investors would find the personal leverage inconvenient.
2. The risk perception of corporate and personal leverage may be different.
3. Arbitrage process cannot be smooth due the institutional restrictions.
4. Arbitrage process would also be affected by the transaction costs.
5. The corporate leverage and personal leverage are not perfect substitutes.
6. Corporate taxes do exist. However, the assumption of "no taxes" has been removed later.

14.9 SELF ASSESSMENT QUESTIONS/ EXERCISES

Theoretical Questions

1. What is capital structure? Bring out the features of an optimum capital structure.
2. Differentiate between the following:
   a. Capital structure and financial structure
   b. Capital structure and capitalisation
   c. Financial structure and capitalisation

3. Enumerate the factors influencing the capital structure.

4. Write short notes on the following:

   a. Trading on equity

   b. Corporate taxes and capital structure

   c. Weighted Average Cost of Capital (WACC)

   d. Arbitraging and leverage

5. Compare and contrast the NI and NOI theories of capital structure.

6. Critically evaluate the MM theory of capital structure.

7. Explain the three stages of traditional theory of capital structure. Which is the most suitable stage for a business firm?

Numerical Questions

1. Quality construction ltd has earned a profit before interest and tax Rs 5 lakhs. The company's capital structure includes 20,000 14% debentures of Rs 100 each. The overall capitalisation rate of the firm is 16%. Calculate total value of the firm, value of equity and equity capitalisation rate.

   [**Answer**: Value of the firm=Rs 31,25,000; Value of equity=Rs 11,25,000, Equity capitalisation rate= 19.55%]

2. X Ltd and Y Ltd are identical in all respects including risk factors except for debt/equity mix. X Ltd having issued 12% debentures of Rs 30 lakhs, while Y Ltd issued only equity capital. Both the companies earn 24% before interest and taxes on their total assets of Rs 50 lakhs. Assuming a corporate tax rate of 40% and capitalisation rate of 18% for all equity company, compute the value of X Ltd and Y Ltd using:

   a) Net Income (NI) approach and,

   b) Net operating income (NOI) approach.

   [**Answer**: NI approach, value of X Ltd = Rs 58,00,000; value of Y Ltd = Rs 40,00,000. NOI approach, value of X Ltd Rs 52,00,000 and value of Y Ltd = Rs 40,00,000].

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UNIT-15 FINANCIAL PLANNING

UNIT STRUCTURE

15.1 OBJECTIVES

This unit is intended to enable the reader to:

1. Know the concept and importance of financial planning for a given business
2. Differentiate between short and long term financial planning and their nature
3. Take account the limitations of financial planning
4. The explore the factors constituting a good financial plan
5. Identify the factors affecting a financial plan

15.2 FINANCIAL PLANNING

Financial Planning is the process of estimating the capital required and determining its composition. It is the process of framing financial policies in relation to procurement, investment and administration of funds of an enterprise.

15.3 OBJECTIVES OF FINANCIAL PLANNING

Financial Planning has got many objectives to look forward to:

a. Determining capital requirements- This will depend upon factors like cost of current and fixed assets, promotional expenses and

long- range planning. Capital requirements have to be looked with both aspects: short- term and long- term requirements.

b. Determining capital structure- The capital structure is the composition of capital, i.e., the relative kind and proportion of capital required in the business. This includes decisions of debt-equity ratio- both short-term and long- term.

c. Framing financial policies with regards to cash control, lending, borrowings, etc.

A finance manager ensures that the scarce financial resources are maximally utilized in the best possible manner at least cost in order to get maximum returns on investment.

15.4 IMPORTANCE OF FINANCIAL PLANNING

Financial Planning is process of framing objectives, policies, procedures, programmes and budgets regarding the financial activities of a concern. This ensures effective and adequate financial and investment policies. The importance can be outlined as-

1. Adequate funds have to be ensured.

2. Financial Planning helps in ensuring a reasonable balance between outflow and inflow of funds so that stability is maintained.

3. Financial Planning ensures that the suppliers of funds are easily investing in companies which exercise financial planning.

4. Financial Planning helps in making growth and expansion programmes which helps in long-run survival of the company.

5. Financial Planning reduces uncertainties with regards to changing market trends which can be faced easily through enough funds.

6. Financial Planning helps in reducing the uncertainties which can be a hindrance to growth of the company. This helps in ensuring stability and profitability in concern.

15.5 TYPES OF FINANCIAL PLANNING : SHORT TERM AND LONG TERM

The main difference between short-term and long-term financial planning is the timing of cash flows. Usually, short-term financial decisions are defined as those that involve cash flows within the next 12 months. The long-term is usually defined as longer than one year.

The financial planning process begins with long-term, or strategic, financial plans. These, in turn, guide the formulation of short-term or operating plans and budgets. Generally, short-term plans and budgets implement the firm's long-term strategic objectives.

15.5.1 SHORT-TERM FINANCIAL OPERATIONS

Short-term financial operations are closely involved with the operational financial planning and control activities of a firm. These include financial ratio analysis, profit planning, financial forecasting, and budgeting.

15.5.1.1 FINANCIAL RATIO ANALYSIS

A firm's balance sheet contains many items that, if taken separately, have no clear meaning. Financial ratio analysis is a way of appraising their relative importance. The ratio of current assets to current liabilities, for example, gives the analyst an idea of the extent to which the firm can meet its current obligations. This is known as a liquidity ratio. Financial leverage ratios (such as the debt–asset ratio and debt as a percentage of total capitalization) are used to make judgments about the advantages to be gained from raising funds by the issuance of bonds (debt) rather than stock. Activity ratios, relating to the turnover of such asset categories as inventories, accounts receivable, and fixed assets, show how intensively a firm is employing its assets. A firm's primary operating objective is to earn a good return on its invested capital, and various profit ratios (profits as a percentage of sales, of assets, or of net worth) show how successfully it is meeting this objective.

Ratio analysis is used to compare a firm's performance with that of other firms in the same industry or with the performance of industry in general. It is also used to study trends in the firm's performance over time and thus to anticipate problems before they develop.

15.5.1.2 PROFIT PLANNING

Ratio analysis applies to a firm's current operating posture. But a firm must also plan for future growth. This requires decisions as to the expansion of existing operations and, in manufacturing, to the development of new product lines. A firm must choose between productive processes requiring various degrees of mechanization or automation—that is, various amounts of fixed capital in the form of machinery and equipment. This will increase fixed costs (costs that are relatively constant and do not decrease when the firm is operating at levels below full capacity). The higher the proportion of fixed costs to total costs, the higher must be the level of operation before profits begin, and the more sensitive profits will be to changes in the level of operation.

15.5.1.3 FINANCIAL FORECASTING

The financial manager must also make overall forecasts of future capital requirements to ensure that funds will be available to finance new investment programs. The first step in making such a forecast is to obtain an estimate of sales during each year of the planning period. This estimate is worked out jointly by the marketing, production, and finance

departments: the marketing manager estimates demand; the production manager estimates capacity; and the financial manager estimates availability of funds to finance new accounts receivable, inventories, and fixed assets.

For the predicted level of sales, the financial manager estimates the funds that will be available from the company's operations and compares this amount with what will be needed to pay for the new fixed assets (machinery, equipment, etc.). If the growth rate exceeds 10 percent a year, asset requirements are likely to exceed internal sources of funds, so plans must be made to finance them by issuing securities. If, on the other hand, growth is slow, more funds will be generated than are required to support the estimated growth in sales. In this case, the financial manager will consider a number of alternatives, including increasing dividends to stockholders, retiring debt, using excess funds to acquire other firms, or, perhaps, increasing expenditures on research and development.

15.5.1.4 BUDGETING

Once a firm's general goals for the planning period have been established, the next step is to set up a detailed plan of operation—the budget. A complete budget system encompasses all aspects of the firm's operations over the planning period. It may even allow for changes in plans as required by factors outside the firm's control.

Budgeting is a part of the total planning activity of the firm, so it must begin with a statement of the firm's long-range plan. This plan includes a long-range sales forecast, which requires a determination of the number and types of products to be manufactured in the years encompassed by the long-range plan. Short-term budgets are formulated within the framework of the long-range plan. Normally, there is a budget for every individual product and for every significant activity of the firm.

Establishing budgetary controls requires a realistic understanding of the firm's activities. For example, a small firm purchases more parts and uses more labour and less machinery; a larger firm will buy raw materials and use machinery to manufacture end items. In consequence, the smaller firm should budget higher parts and labour cost ratios, while the larger firm should budget higher overhead cost ratios and larger investments in fixed assets. If standards are unrealistically high, frustrations and resentment will develop. If standards are unduly lax, costs will be out of control, profits will suffer, and employee morale will drop.

15.4.2 LONG TERM OR STRATEGIC FINANCIAL PLANNING

Long term financial plans take into consideration the long term funds requirement of business. Funds are required to finance the fixed assets of new business or to replace or renew the assets of existing business to expand or diversify the existing business. Long term financial plans fulfill the strategic objectives of business. Strategic financial planning focuses the following aspects:

15.4.2.1 PREPARATION OR RESTRUCTURING FINANCIAL OR CAPITAL STRUCTURE

A company's capital structure refers to its debt level relative to equity on the balance sheet. It is a snapshot of the amount and types of capital that a firm has access to, and what financing methods it has used to conduct growth initiatives such as research and development or acquiring assets. The more debt that a firm carries, the more risk it is perceived to carry. An ideal capital structure represents a balance of debt and equity on a balance sheet.

15.4.2.2 CAPITAL BUDGETING OR FIXED ASSETS INVESTMENT PLANNING

Capital Budgeting is the process by which the firm decides which long-term investments to make. Capital Budgeting projects, *i.e.,* potential long-term investments, are expected to generate cash flows over several years. The decision to accept or reject a Capital Budgeting project depends on an analysis of the cash flows generated by the project and its cost.

15.4.2.3 MERGER AND ACQUISITION PLAN

Mergers and acquisitions are strategic decisions taken for maximization of a company's growth by enhancing its production and marketing operations ultimately leading to better profitability. They are being used in a wide array of fields such as information technology, telecommunications, and business process outsourcing as well as in traditional businesses in order to gain strength, expand the customer base, cut competition or enter into a new market or product segment. Merger and acquisition decision involves long term financial implications.

15.4.2.4 BUSINESS EXPANSION PLAN

Business expansion and diversification planning becomes necessary to capture full market potential. A judicious long term financing and investment planning is the backbone for both business expansion and diversification. Businesses diversify for a number of reasons. Perhaps the most basic of these is survival. By definition, a company that focuses on a narrow range of products will only have access to a finite number of customers. That’s fine if the market as it stands is big enough to support several competing businesses, but if the pool of customers is small, the cost of running the company may outstrip the potential for revenue.

15.4.2.5 LONG TERM PROFIT PLANNING

Though financial planning looks activity but this activity has to be linked with broader strategic objectives of the business. Long term profit planning can be done by appraising the efficiency level operating activities and if required incorporating the desired changes in the current business.

15.5 LIMITATIONS OF FINANCIAL PLANNING

Financial planning involves analyzing the financial flows of a company, forecasting the consequences of various investment, financing, and dividend decisions, and weighing the effect of various alternatives. The idea is to determine where the firm has been, where it is now, and where it is going. Not only the most likely course of events, but also the deviations from the most likely outcomes need to be planned. If things become unfavorable, the company should have a backup plan, so that it is not caught flat-footed, without financial alternatives. Financial plan or strategy embracing investment, financing and dividend decisions of the company for the firm's financial results are the product of these decisions. Since one tries to take account of possible surprises, risk necessarily is involved. The advantages of financial planning are that it forces management to take account of possible deviations from the company's anticipated path. Usually a firm will establish goals for it, helping it achieve these goals, is one of the main responsibilities of the finance manager. In the backdrop of this, we can sum up the important points of limitations of financial planning as below:

1. Financial plans are mere estimates; their successful implementation is the pre-condition.
2. Each financial plan needs alternative back up plan as a stand-by.
3. The fore-sightedness, experience of the pragmatic approach of the concerned managers is essential
4. Short term financial planning like ratio analysis, budgeting and cash forecasting are based on financial statements of the companies but these statements are historical or based on past business activities.
5. Environmental, legal, technological and political conditions may pose problems for the financial plans of the companies.

15.6 CHARACTERISTICS OF GOOD FINANCIAL PLAN

Every concern had to formulate a financial plan that would suit the specific circumstances in which it is operating. A concern should bear in mind certain considerations or principles while formulating or devising its financial plan:

1. **Simplicity of purpose**

   Financial plan should be drafted in terms of the purpose for which the enterprise is organized. It should contain a simple financial structure that can be implemented and managed easily and understood clearly by all. In short the financial plan should not be

too complicated to understand and implement by the executive managers.

2. Optimum use or intensive use

A wasteful use of capital is almost as bad as inadequate capital. A financial plan should be such that it will provide for an intensive use of funds. Funds should not remain idle and there should not be any paucity of it. The financial planners should keep in view the proper utilization of funds in the context of overall objective of maximization of wealth. Again they should see that there is a proper balance in maintenance between long-term and short-term funds, since the surplus of one will not be able to offset the shortage of the other.

3. Based on clear-cut objectives

Financial planning should be done by keeping in view the overall objectives of the company. It should aim to procure funds at the lowest cost so that profitability of the business is improved.

4. Long-term consideration

Financial planning should be formulated keeping in view the long-term requirements and not just the immediate or short-term requirements of the concern. This is because financial planning originally formulated would continue to operate for a long time after the formation of the concern.

5. Flexibility

The financial planning should be such that it can be modified or changed according to the changing needs of the business with minimum possible delay. There may be scope for raising additional funds if fresh opportunities occur. Flexibility in a plan will be helpful in coping with the demands of the future. Management should be ready to revise or completely change the firm's short-run objectives, policies and procedures in order to take advantage of changing conditions.

6. Planning foresight

Foresight is essential for any plan of business operations so that capital requirements may be assessed as accurately as possible. Accurate forecasts are required to be made regarding the future scope of operations of the concern, technological developments, etc. The making of accurate forecasts requires foresight on the part of financial planners. A financial plan visualized without foresight may fail to meet the present as well as the future requirements of funds and bring disaster to the concern.

7. Financial contingencies

The financial planning should make adequate provisions of funds for meeting the contingencies likely to arise in the future. This principle does not mean that large amount of funds should be kept idle as reserves for unforeseen contingencies. It simply means that

while formulating the financial plans, the financial planners should make proper forecasts of the contingencies likely to arise in the future and make adequate provisions for funds for meeting the future contingencies.

8. Solvency and Liquidity

Solvency means the ability of the concern to meet it long term debt obligations and liquidity means the ability of the business to meet its short term payments. The plan should take proper care of solvency because many of the companies have failed due to insolvency. There should be adequate liquidity in the financial plans. This ensures credit worthiness and goodwill to the concern and funds become available to it on very reasonable terms. It acts as a shock absorber in the event of business operations deviating from the normal course. It gives the financial plan a certain degree of flexibility. Above all, it will help in avoiding embarrassment to the management and a loss of reputation of the concern in the eyes of the public. Proper forecasting of future payments will be helpful in planning liquidity.

9. Profitability

A financial plan should maintain the required proportion between fixed charge obligations and the liabilities in such a manner that the profitability or the organization is not adversely affected. The most crucial factor in financial planning is the forecast of sale, for sales almost invariably represent the primary source of income and cash receipts. Besides, the operations of a business are geared to the anticipated volume of sales.

10. Economy to administer the financial plan

The financial plan should also ensure economy. It should ensure that the cost of raising funds is optimum. This is possible by having a proper debt-equity mix in the capital structure. The cost of capital is an important element in the formulation of a financial plan. An excessive burden of fixed charges on its earnings might inflate its cost of capital.

11. Conservative

A financial plan should be conservative, in the sense that the fund raising capacity of the plan should not be over exploited.

12. Varying risks

The financial plan should provide for ventures with varying degrees of risks so that it might enable a company to achieve substantial earnings from risky ventures.

13. Pragmatic approach :

A plan should be such that it should serve a practical purpose. It should be realistic and capable of being put to use.

14. Availability of required funds

The source of finance which a corporation may select may be available at a given point of time. If certain sources are not available, the corporation may even prefer to violate the principle of suitability. Availability sometimes bears no relation to cost. A corporation cannot always choose its source of funds. Availability of different kinds of funds often plays an important part in a firm's decision to use a debt or equity. This aspect may be considered while formulating a plan.

15. Investors' preference or temperament

Preferences of different investors vary. Some who are bold and venturesome prefer equity shares. Some investors who are cautious go for debentures. As such, the financial plan should keep in mind the temperament or the preference of investors, i.e. the financial plan should be formulated in accordance with preferences of investors.

16. Timing

A sound financial planning involves effective timing in the acquisition of funds. The key to effective timing is correct forecasting. This would depend upon the understanding of the management as to how business cycles behave during different phases of business operations.

17. Interaction with stakeholders

With outside parties including investors and other suppliers of funds, communication is an essential prerequisite. The outside parties would then know that the management is trying to control its business effectively and what it is doing.

18. Effective Implementation

A firm should see to it that plans are actually carried out. The data should be available at any level in detail and in certain frequency. This would enable a firm to take timely and corrective action whenever necessary.

19. Owners' Control

The capital structure of a firm may be such as to ensure that control does not pass in the hands of outsiders. For this purpose the use of debt financing may be encouraged. However stock should be broadly distributed to facilitate the maintenance of control.

20. Adequate Internal Financing

Long-term financial planning should aim to reduce dependence on outside sources. This can be possible by retaining a part of profits for ploughing back. The generation of own funds is the best way of financing operations. In the beginning, outside funds may be a

necessity but financial planning should be such that dependence on such funds may be reduced in due course of time.

21. Industrial Suitability

The needs for funds are different for various industries. The asset structure, element of seasonality and stability of earnings are not common factors for all industries. These variables influence or determine the size and structure of financial requirements.

22. Suitability financial plan to the company's reputation

This will influence a decision about the financial plan. The goodwill of the concern, credit rating in the market, past performances and attitude of the management are some of the factors which will be considered in formulating a financial plan.

23. Consideration to general economic conditions

The prevailing economic conditions at the national level and international level will influence a decision about financial plan. These conditions should be considered before taking any decisions about sources of funds. A favourable economic environment will help in raising funds without any difficulty. On the other hand, uncertain economic conditions may make it difficult for even a good concern to raise sufficient funds.

24. Legal compliance

The government policies regarding issue of shares and debentures, payment of dividend and interest rates, entering into foreign collaborations, etc. will influence a financial plan. The legislative restrictions on using certain sources, limit of dividends, etc. will make it difficult to raise funds. So Government controls should be properly considered while selecting a financial plan.

15.7 Factors affecting Financial Plan

Nature of the industry

The very first factor affecting the financial plan is the nature of the industry. Here, we must check whether the industry is a capital intensive or labour intensive industry. This will have a major impact on the total assets that a firm owns.

Size of the company

The size of the company greatly influences the availability of funds from different sources. A small company normally finds it difficult to raise funds from long term sources at competitive terms. On the other hand, large companies like Reliance enjoy the privilege of obtaining funds both short term and long term at attractive rates

Status of the company in the industry

A well established company enjoys a good market share, for its products normally command investors' confidence. Such a company can tap the capital market for raising funds in competitive terms for implementing new projects to exploit the new opportunities emerging from changing business environment

Sources of finance available

Sources of finance could be grouped into debt and equity. Debt is cheap but risky whereas equity is costly. A firm should aim at optimum capital structure that would achieve the least cost capital structure. A large firm with a diversified product mix may manage higher quantum of debt because the firm may manage higher financial risk with a lower business risk. Selection of sources of finance is closely linked to the firm's capability to manage the risk exposure.

The capital structure of a company

The capital structure of a company is influenced by the desire of the existing management (promoters) of the company to retain control over the affairs of the company. The promoters who do not like to lose their grip over the affairs of the company normally obtain extra funds for growth by issuing preference shares and debentures to outsiders.

Matching the sources with utilization

The prudent policy of any good financial plan is to match the term of the source with the term of the investment. To finance fluctuating working capital needs, the firm resorts to short term finance. All fixed asset – investments are to be financed by long term sources, which is a cardinal principle of financial planning.

Flexibility

The financial plan of a company should possess flexibility so as to effect changes in the composition of capital structure whenever need arises. If the capital structure of a company is flexible, there will not be any difficulty in changing the sources of funds. This factor has become a significant one today because of the globalization of capital market.

Government policy

SEBI guidelines, finance ministry circulars, various clauses of Standard Listing Agreement and regulatory mechanism imposed by FEMA and Department of corporate affairs (Govt. of India) influence the financial plans of corporate today. Management of public issues of shares demands

the compliances with many statues in India. They are to be complied with a time constraint.

15.8 SELF ASSESSMENT QUESTIONS

Theoretical Questions

1. What is meant by financial planning? Write the objectives and significance of financial planning for a modern business concern.
2. Differentiate between short term and long term financial plans.
3. Explain the role of ratio analysis and budgeting in financial planning.
4. What are the factors that constrain the effectiveness of financial planning in a business organization?
5. Enumerate the essential features of good financial plan.
6. Bring out the factors affecting the financial plan of a business undertaking.

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UNIT-16 LEVERAGE

16.0 OBJECTIVES

This unit is intended to enable the reader to:

1. Know about the concept of leverage in business
2. Differentiate the operating and financial leverage
3. Comprehend the impact of operating and financial leverage
4. Decide the optimum level of combined leverage for a given business

16.1 INTRODUCTION

Leverage can be defined as "the employment of an asset or source of funds for which the firm has to pay a fixed cost or fixed return". Because of the incurrence of fixed costs, the net income and the earnings available to the equity shareholders as well as the risk gets affected. Leverage is favourable when the earnings less the variable costs exceed the fixed costs or when the earnings before interest and taxes exceed the fixed return requirement. Leverage is unfavourable in the reverse situation.

Leverage can be of two types – Operating & Financial leverages.

Operating leverage

Operating leverage is the ratio that shows the between contribution (sales revenue less variable cost) and earnings before interest and tax or EBIT.

Sales revenue – variable cost = contribution Contribution – fixed cost = EBIT

$$\text{Operating leverage} = \frac{\text{Contribution}}{\text{EBIT}}$$

This ratio gives an idea about the presence of fixed cost and its volume as compared to the variable cost used in the business as depicted above.

Financial Leverage

Financial leverage is the ratio that shows relationship between earnings before interest and tax (EBIT) and earnings before tax (EBT).

EBIT – interest charges on the loans = EBT

$$\text{Financial leverage} = \frac{\text{EBIT}}{\text{EBT}}$$

This ratio gives an idea about the presence of loans and its volume as compared to equity capital in the business.

Combined leverage

This is the product of the operating and financial leverages.

$$\text{Combined leverage} = \frac{\text{Contribution}}{\text{EBIT}} \text{x} \frac{\text{EBIT}}{\text{EBT}} \text{ or } \frac{\text{Contribution}}{\text{EBT}}$$

16.2 Measuring the degree of leverages

Degree of leverage is a numerical measure of firm's leverage when a change in sale is given as compared to the previous level of sales resulting in a corresponding change in EBIT. The change in EBIT leads to the change in EPS.

1. Degree of operating leverage = $\frac{\% \text{ change in EBIT}}{\% \text{ Change in Sales}}$

2. Degree of financial leverage = $\frac{\% \text{ change in EPS}}{\% \text{ change in EBIT}}$

3. Degree of combined leverage =

$$\frac{\%\ \text{change in EBIT}}{\%\ \text{Change in Sales}} \times \frac{\%\ \text{change in EPS}}{\%\ \text{change in EBIT}} = \frac{\%\ \text{change in EPS}}{\%\ \text{change in Sales}}$$

Illustration 1

A factory produces and sells 1,000 units per annum. The selling price per unit is Rs. 200 and the variable cost per unit is Rs. 70. The fixed operating cost is Rs. 50,000. Calculate the operating leverage. If sales increase by 10% what will be the degree of operating leverage?

Solution

Sales	Rs. 2,00,000
Less variable cost	70,000
Contribution	1,30,000
Less fixed operating cost	50,000
Operating profit or EBIT	80,000

Operating leverage = contribution/operating profit = 1,30,000/80,000 = 1.625

Sales after 10% increase	Rs. 2,20,000
Less variable cost	77,000
Contribution	1,43,000
Less fixed operating cost	50,000
Operating profit or EBIT	93,000

Percentage change in operating = 13,000/80,000= 0.1625 or 16.25%

Degree of operating Leverage= % Change in EBIT/ % Change in Sales= 16.25/10=1.625

A 10% increase in sales resulting into 16.25% increase in operating profit is possible because of the presence of operating leverage. Moreover, 1.625 measure of degree of operating leverage shows the risk level of operating leverage in the business.

Illustration 2

Calculate from the following figures:

a. i) Operating leverage, ii) financial leverage iii) combined leverage; and

b. i) Degree of operating leverage, ii) degree of financial leverage and iii) degree of combined leverage.

	Original figures (Rs. In lakh)	After an increase of 10% in sales (Rs. In lakh)
Sales (150 lakh units at Rs 10 selling price)	1500	1650
Less: Variable cost (Rs 6 per unit)	900	990
Contribution	600	660
Fixed costs	450	450
Earnings before interest and tax (EBIT)	150	210
Less: Interest	50	50
Profit before tax	100	160
Tax @ 55%	55	88
Profit after tax	45	72
EPS (50 lakhs shares of Rs. 10 each0	0.9	1.44

Solution:

a) i) Operating leverage= contribution /earnings before interest and tax = 600/150 =4

ii) Financial leverage= earnings before interest and tax/earnings before tax

= 150/100 = 1.5

iii) Combined leverage= operating leverage x financial leverage

= 4x1.5 = 6

b) i) Degree of operating leverage= % change in EBIT/ % change in sales =40/10= 4

ii) Degree of financial leverage= % change in EPS/ % change in EBIT = 60/40=1.5

iv) combined degree of leverage= degree of operating leverage x degree of financial leverage = 4x1.5= 6

16.3 SIGNIFICANCE OF LEVERAGE

Leverage refers to the use of fixed costs in an attempt to increase the profitability. Leverage affects the level and variability of the firm's after tax earnings and hence, the firm's overall risk and return. The study of leverage is significant due to the following reasons.

1. Measurement of Operating Risk.

Operating risk refers to the risk of the firm not being able to cover its fixed operating costs. Since operating leverage depends on fixed

operating costs, larger fixed operating costs indicate higher degree of operating leverage and thus, higher operating risk of the firm. High operating leverage is good when sales are rising but bad when they are falling.

2. **Measurement of Financial Risk.**

   Financial risk refers to the risk of the firm not being able to cover its fixed financial costs. Since financial leverage depends on fixed financial cost, high fixed financial costs indicate higher degree of operating leverage and thus, high financial risk. High financial leverage is good when operating profit is rising and bad when it is falling.

3. **Managing Risk**.

   Relationship between operating leverage and financial leverage is multiplicative rather than additive. Operating leverage and financial leverage can be combined in a number of different ways to obtain a desirable degree of total leverage and level of total firm risk.

4. **Designing Appropriate Capital Structure Mix**

   To design an appropriate capital structure mix or financial plan, the amount of EBIT under various financial plans, should be related to earning per share. It is one widely used means of examining the effect of leverage to analyze the relationship between EBIT and earning per share.

5. **Increased Profitability**

   Leverage is an effort or attempt by which a firm tries to show high result or more benefit by using fixed costs assets and fixed return sources of capital. It insures maximum utilization of capital and fixed assets in order to increase the profitability of a firm. It helps to know the reasons not having more profit by a company.

16.4 ADVANTAGES AND LIMITATIONS OF A LOW DEGREE OF OPERATING LEVERAGE

If labour is cheap and plentiful it may make sense to minimize the investment in fixed assets and to produce the product largely with labour. This results in a low fixed cost and a high variable cost. Since the ratio of fixed cost to variable cost is low, the company will have a low degree of operating leverage. The advantage of this are summarised below:

1. The company's breakeven point is quite low, resulting in a relatively low risk level for the company.

2. If sales slowdown, the employees can be laid off until economic conditions improve.

3. Low operating leverage needs low level of capital investment.

Low operating leverage is advantageous on the one side; it also carries some limitations on the other. Some of these limitations are as under:

1. Profits increase slowly as sales increase since there is very little magnification due to low operating leverage

2. Sometimes it is inconvenient for the business because of the absence of fixed internal facilities and the work is to be outsourced or manually done internally resulting in more time and expenses.

16.5 ADVANTAGES AND DISADVANTAGES OF A HIGH DEGREE OF OPERATING LEVERAGE

If labour is expensive, it may make sense to minimize the number of workers and to produce the product largely with fixed assets. This results in a high fixed cost and a low variable cost. Since the ratio of fixed cost to variable cost is high, the company will have a high degree of operating leverage. The advantages of this are given below:

1. Company's profits increase rapidly as sales increase. Once the breakeven point is reached, most of the additional revenue from sales will flow directly into profits, since very little will be siphoned off in the form of expenses.

2. High degree of operating leverage equips the company with latest technology and investments into other fixed facilities. This makes the business operation smooth.

The disadvantage of high operating leverage can be summarised as below:

1. The breakeven point is quite high as a higher level of sales is required to meet the high level of fixed costs.

2. Investment into fixed assets is a sunk cost which is irreversible. High operating leverage cannot be decreased into a low level. This is a very serious limitation. Most of the businesses fail due to this reason of high operating leverage.

16.6 ADVANTAGES AND DISADVANTAGES OF A LOW DEGREE OF FINANCIAL LEVERAGE

There are many business concerns which prefer to employ low level of borrowed funds in their capital structure. The possible advantages they perceive are:

1. There is an obligation to pay a low level of interest.

2. It saves business from a high level of financial risk which is created when sales and market conditions are not so favourable for the business.

3. Liquidity position of business can be easily maintained as a fixed cash outflow in the form of interest is low.

4. Shareholders and lenders are comfortable with low level of financial leverage.

Since low level of financial position is not so admirable, following disadvantages can be indicated out of this:

1. Company may not be taking the full advantage of financial leverage and the shareholders are deprived of the extra advantage that might have been gained by employment of a reasonable borrowed capital.

2. Since the interest is a tax deductible expense, more benefit can be drawn be increasing the borrowed capital in the business.

3. It is considered to be judicious to have an optimum level of borrowed capital in the business. Companies having low level of financial leverage may not be appreciated by the good and informed investors. The market reputation of such companies may be affected.

16.7 ADVANTAGES AND LIMITATIONS OF A HIGH DEGREE OF FINANCIAL LEVERAGE

When the capital structure of the company has a high ratio of borrowed capital as compared to the owners' capital or equity capital this situation is said to be a high degree of financial leverage. High degree of financial leverage is advantageous for the following reasons:

1. When earnings of the company are higher than the rate of interest payable on borrowed capital, this is a positive financial leverage and the high level of financial leverage is the most advantageous situation for the shareholders as it maximises the earnings available to shareholders.

2. High degree of financial leverage saves the corporate taxes as interest payable on borrowed capital is tax deductible.

3. High degree of financial leverage can be reduced by paying off the redeemable debentures etc and the financial risk thereof can be reduced.

When a high level of financial leverage has certain advantages as given above, this situation carries some limitations which are discussed below:

1. When earnings of the company are lower than the rate of interest payable on borrowed capital, this is a negative financial leverage and the high level of financial leverage is the loss making situation for the shareholders as it reduces the earnings available to shareholders.

2. Excessive borrowed capital in the capital structure is perceived highly risky in the capital market. Raising further loans becomes difficult.

16.8 SIGNIFICANCE AND LIMITATIONS OF COMBINED LEVERAGE

Total risk involved in business can be determined by combining the operating and financial leverage. Since operating leverage emerges due to the presence fixed cost in the business operation and financial leverage is noticed when there is fixed cost capital is used in the business, the combined effect of both of these leverages provides a risk profile of the business.

The utility of combined leverage is realised by noticing the impact of change in sales revenue on the EPS or EBT of the company. The change in sales revenue may be positive (increase in the sales) or may be negative (decrease in the sales), the combined leverage may be favourable unfavourable.

As a general rule, businesses having high operating leverage should have a low financial leverage and vice versa. If both the leverages in the business are high, it is a very highly risky position because the combined effect of the two leverages is the multiple of these two leverages.

To conclude, low operating leverage implies a high controllable cost (variable costs) and low uncontrollable costs (fixed costs) and therefore, less risky situation. A high financial leverage suggests the business has adequately taken the help of fixed interest bearing securities while planning its capital structure for maximising the shareholders' profits. *Therefore, it is most desirable that the business should have low operating leverage and high financial leverage. Because both the leverages a under managerial control and hence involve less risk.*

16.9 SELF ASSESSMENT QUESTIONS/ EXERCISES

Theoretical Questions

1. Make a comparative study of operating and financial leverage and analyse the impact of both on the working of a company?

2. How is operating and financial leverage measured? Explain with suitable examples.

3. Comment the on the combined leverage of the following situations and conclude which is the most suitable situation for a business:

- **a.** High operating leverage and high financial leverage
- **b.** Low operating leverage and low financial leverage
- **c.** High operating and low financial leverage
- **d.** Low operating and high financial leverage

4. "A high break- even point means a high operating leverage." Comment.

Numerical Questions

1. Calculate operating leverage, financial leverage and combined leverage from the following figures:

Sales 1,00,000 units @ Rs. 20 per unit

Variable cost per unit @ Rs 7

Fixed costs Rs 8,00,000

Interest charges Rs. 20,000

[Answer: operating leverage= 2.6; financial leverage= 1.04; combined leverage= 2.7]

2. An analytical statement of AB Company is shown below. It is based on an output level of 80,000 units:

Sales	Rs. 9,60,000
Less variable cost	Rs. 5,60,000
Revenue before fixed cost	Rs. 4,00,000
Less fixed cost	Rs. 2,40,000
EBIT	Rs. 1,60,000
Less interest	Rs. 60,000
EBT	Rs. 1,00,000
Tax @ 50%	Rs. 50,000
PAT	Rs. 50,000

Calculate the degree of i) operating leverage, ii) financial leverage, and iii) combined leverage from the above data.

[Answer: i) 2.5; ii) 1.6; iii) 4]

3. The capital structure of progressive company consists of equity share capital of Rs 10,00,000 (shares of Rs 100 each) and 10% debentures of Rs 10,00,000. Sales increased by 20% from 1,00,000 to 1,20,000 units. The selling price is Rs 10 per unit; variable cost amount to Rs. 6 per unit and fixed expenses amount to Rs. 2,00,000. The income tax is assumed to be 50 per cent.

You are required to calculate the following:

i) The percentage increase in earnings per share

ii) The degree of financial leverage at 1,00,000 and 1,20,000 units

iii) The degree of operating leverage at 1,00,000 and 1,20,000 units

iv) Comment on the behaviour of operating and financial leverage in relation to increase in production from 1,00,000 to 1,20,000 units.

[Answer: i) 80% ii) 2, 1.55 iii) 2, 1.71 iv) Business risk and financial risk decrease significantly]

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Financial Management

BLOCK

5

WORKING CAPITAL MANAGEMENT

परिशिष्ट–4
आन्तरिक कवर–दो का प्ररूप
Format of the II Inner Covers

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BLOCK-V WORKING CAPITAL MANAGEMENT

In **Block-V** the learner will know about the introductory part of working capital management; methods of demand forecasting; inventory management and receivables management etc.

Unit-17 discusses about definition of working capital management, traditional and modern concept of working capital, determining factors of working capital, advantages of adequate working capital, and sources of working capital.

Unit-18 explains methods of forecasting, methods of working capital forecasting- operating cycle method, forecasting of current assets and liabilities methods, cash forecasting method, projected balance sheet method, profit and loss adjustment method, and criteria of efficiency of working capital manager.

Unit-19 deals with concept of inventory management, objectives and techniques of inventory management-EOQ, ABC analysis, VED analysis, determinations of material levels, factor determining the investment level in inventory.

Unit-20 deals with receivables management, introduction, benefits and cost of receivables, factor influencing the size of receivables, optimum credit policy, and functions of receivables management.

UNIT-17 INTRODUCTORY

UNIT FRAMEWORK

17.1 OBJECTIVES

After completing this unit you will be able to:

- to explain concept of Working Capital
- to know the types of Working Capital
- to list the determinants of Working Capital
- to point out advantages and disadvantages due to adequate and excessive Working Capital
- to describe the methods of estimation of Working Capital requirements

17.2 INTRODUCTION

Working Capital is the part of the firm's capital which is required for financing short term or current assets such as stock, receivables, marketable securities and cash. Money invested in these current assets keep revolving with relative rapidity and is being constantly converted into cash. These cash flows rotate again in exchange of other such assets. Working Capital is also called as "short term capital". "Liquid Capital", "Circulating or revolving capital", The Working Capital management refers to management of the working capital or to be more precise the management of current assets and current liabilities. The goal of working capital management is to manage the firms' current assets and current liabilities in such a way that a satisfactory level of working capital is maintained. This is so because, if the firm cannot maintain a satisfactory level of working capital, it is likely to become insolvent and may even be forced into bankruptcy. Each of the short term sources of financing must be continuously managed to ensure that they are obtained and used in the best possible way. The current assets should be large enough to cover its current liabilities in order to ensure a reasonable margin of safety.

17.3 CONCEPT WORKING CAPITAL

There is no unanimous decision with the definition of working capital. The word working with reference to capital refers to circulation of capital from one form to another during day-to-day operations of business. The word capital refers to the monetary values of all assets of the business. There is lot of difference of opinions among accountants, entrepreneurs and economists.

17.4 MEANING OF WORKING CAPITAL MANAGEMENT

Working capital management is a very important to ensure that the company has enough funds to carry on with its day-to-day operations smoothly. A business should not have a very long Cash Conversion Cycle. A cash Conversion Cycle measures the time period for which a firm will be deprived of funds if it increases its investments as a part of its business growth strategies. For this the company has to take certain measures such as reduce the credit period of the customers, negotiate with the suppliers and increase its own credit period with them, maintaining the right level of inventory which reduces the raw material costs and proper cash management which ensures that cash holding costs are reduced. If these measures are followed, the working capital requirement automatically comes down.

17.5 TRADITIONAL AND MODERN CONCEPT OF WORKING CAPITAL

There are two concepts of working capital:

17.5.1 Gross working capital =Traditional concepts of working capital

17.5.2 Net working capital = Modern concepts of working capital

17.5.1 GROSS WORKING CAPITAL

In the broad sense, the term working capital refers to the gross working capital and represents the amount of funds invested in current assets. Thus, the gross working capital is the capital invested in total current assets of the enterprise. Current assets are those assets which in the ordinary course of business can be converted into cash within a short period of time normally one accounting year. Examples of current assets are:

1) Cash in Hand and Bank Balances,

2) Bills Receivables.

3) Sundry Debtors (less provision for bad debts)

4) Short-Term loans and advances.

5) Inventories of stocks, as :

- **i)** Raw-materials
- **ii)** Work-in-process
- **iii)** Stores and spares
- **iv)** Finished goods

6) Temporary investment of surplus funds

7) Prepaid Expenses

8) Accrued Incomes

17.5.2NET WORKING CAPITAL

In a general sense, the term working capital refers to the net working capital is the excess of current assets over current liabilities. Or say:

Net Working Capital = Current Assets – Current Liabilities

Net working capital may be positive or negative. When the current assets exceed the current liabilities, the working capital is positive and the negative working capital results when the current liabilities are more than the current assets.

Current Liabilities are those liabilities which are intended to be paid in the ordinary course of business within a short period of time normally one accounting year, out of the current assets or the income of the business. Examples of current liabilities are:

1) Bills payable.

2) Sundry Creditors or Accounts Payable,

3) Accrued or Outstanding Expenses.

4) Short-term loans, advances and deposits,

5) Dividends Payable.

6) Bank Overdraft.

7) Provision for taxation, if it does not amount to appropriation of profits.

The gross concept is sometimes preferred to the net concept of working capital for the following reasons.

1) It enables the enterprise to provide correct amount of working capital at the right time.

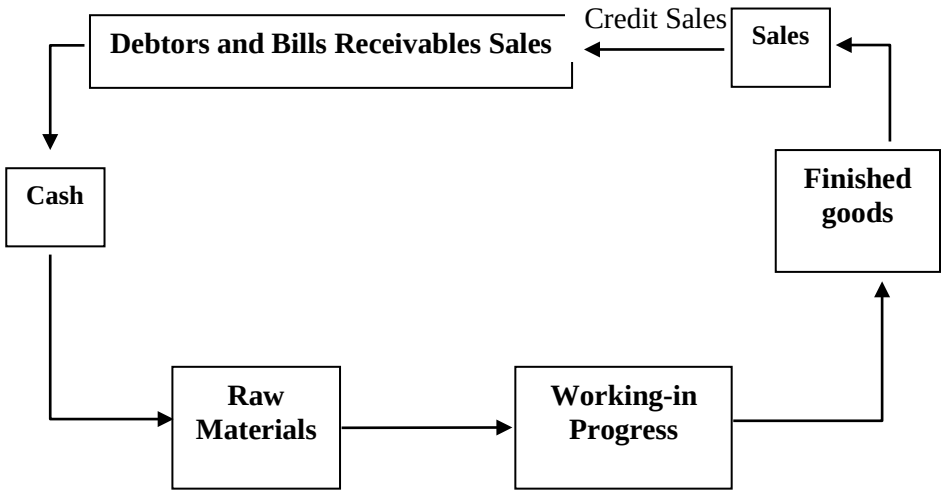
2) Every management is more interested in the total current assets with which it has to operate than the sources from where it is made available.

3) The gross concept takes into consideration the fact that every increase in the funds of the enterprise would increase its working capital.

4) The gross concept of working capital is more useful in determining the rate of return on investments in working capital.

Another concept is "operating concept." The duration or time required to complete the sequence of events right from purchase of raw materials/goods for cash to the realization of sales in cash is called the operating cycle or working capital cycle.

Operating Cycle



The net duration of operating cycle is calculated by adding the number of days involved in the different stages of operation. This concept is more appropriate than others. According to this concept, the necessary liquid funds required by a firm for production, administration and selling can be determined for the whole year. If cash working capital requirements are known in advance, then non-cash current assets may be better managed. Now it is an important tool in projecting working capital requirements of an enterprise.

17.6 GROSS VS. NET WORKING CAPITAL

The distinction between gross working capital and net working capital does not in any way undermine the relevance of the concepts of either gross or net working capital. A financial manager must consider both of them because they provide different interpretations. The gross working capital denotes the total working capital or the total investment in current assets. A firm should maintain an optimum level of gross working capital. This will help avoiding:

1) The unnecessarily stoppage of work or chance of liquidation due to insufficient working capital, and

2) Effect on profitability (because over flowing working capital implies cost) Therefore, a firm should have just adequate level of total current assets. The gross working capital also gives an idea of total funds required for maintaining current assets.

On the other hand, net working capital refers to the amount of funds that must be invested by the firm, more or less, regularly in current assets. The remaining portion of current assets is financed and maintained by the firm.

Both concepts of working capital i.e. the gross working capital and the net working capital have their own relevance and a financial manager should give due attention to both of these. The cash inflows and outflows for any firm are seldom synchronized and so, some working capital is necessary. The cash outflows occurring from the existence of current liabilities are more easily and correctly predictable but the cash flows assets are difficult to be accurately predicted.

The more predictable, these cash flows are, the less the net working capital required by the firm. The firm with more and more uncertain cash inflows must maintain higher and higher level of current assets adequate to cover the current liabilities.

17.7 TYPES OF WORKING CAPITAL

17.7.1 ON THE BASIS OF BALANCE SHEET

(i) Gross working Capital

(ii) Net working capital

(These have explained earlier.)

17.7.2 ON THE BASIS OF TIME

(i) Permanent working capital

(ii) Variable (Temporary) working capital

(a) Seasonal working capital

(b) Specific working capital

(i) PERMANENT WORKING CAPITAL: It means that minimum amount which is permanently blocked in the business and that cannot be converted into cash in the normal course of business. This amount is definitely required throughout the year on a continuous basis for maintaining the circulation of current assets. Tondon committee has identified this capital as core current assets. As the business grows the requirement of permanent working capital also increases due to increase in current assets. This portion of working capital is financed through long-term sources.

(ii) VARIABLE WORKING CAPITAL: The amount which is above the permanent level of working capital is called as temporary working capital. Such requirement of this part of working capital financed from short-term funds, whenever needed. It is classified further:

(a) SEASONAL WORKING CAPITAL: Some of the industries like refrigerators and coolers may need extra fund to carry on production and to accumulate stock before the sale operations. It is of short term nature, it has to be financed from short term sources like bank loan etc.

(b) SPECIFIC WORKING CAPITAL: Such capital is required to meet unforeseen contingencies like slumps and others. It is arranged to meet special exigencies.

17.8 COMPONENTS OF WORKING CAPITAL

The working capital has two components:

17.8.1 CURRENT ASSETS

Current assets are those which are either in the form of cash or can be converted into cash within a year. Current assets are important to business because they are the assets that are used to fund day-to-day operations and pay ongoing expenses. The main items that comprise current assets are:

i) Inventories: Inventories represent raw materials and components, work in progress and finished goods.

ii) Trade Debtors: Trade Debtors comprise credit sales to customers.

iii) Prepaid Expenses: These are those expenses, which have been paid for goods and services whose benefits have yet to be received.

iv) Loan and Advances: They represent loans and advances given by the firm to other firms for a short period of time.

v) Investment: These assets comprise short-term surplus funds invested in government securities, shares and short-term bonds.

vi) Cash and Bank Balances: These assets represent cash in hand and at bank, which are used for meeting operational requirements. One thing you can see here is that this current asset is purely liquid but non-productive.

17.8.2 CURRENT LIABILITIES

Current liabilities form part of working capital that represents obligations which the firm has to clear to the outside parties in a short-period, generally within a year, it includes:

i) Sundry Creditors: These liabilities stem out of purchase of raw materials on credit terms usually for a period of one to two months.

ii) Bank Overdrafts: These include withdrawals in excess of credit balance standing in the firm's current accounts with banks.

iii) Short-term Loans: Short-terms borrowings by the firm from banks and others form part of current liabilities as short-term loans.

iv) Provisions: These include provisions for taxations, proposed dividends and contingencies.

17.9 DETERMINING FACTORS OF WORKING CAPITAL

In order to determine the proper amount of working capital of a firm, the following factors should be considered carefully:

1. Seasonal nature of the firm

2. Firm's credit policy

3. Size of Business

4. Nature of business

5. Rate of growth of business

6. Business cycle

7. Duration of operating cycle

8. Change in terms of purchase and sales.

The amount of working capital required depends upon a large number of other factors like political stability, means of transport, co-ordination of activities, rate of industrial development, speed of circulation of working capital, profit margin etc. The above determinants should be considered, because no certain criteria to determine the amount of working capital needs that may be applied to all firms.

17.10 ADVANTAGES OF ADEQUATE WORKING CAPITAL

Inadequate working Capital is harmful for a business organisation. Adequate working capital is a source of energy to a business. The profitability of a business also depends upon planning of adequate working capital. Following are the advantages to a business enterprise if adequate working capital is available with the firm:

1. Adequate working capital enables a firm to pay its suppliers immediately.

2. It creates an environment of confidence, high morale, confidence and increases overall efficiency of the business.

3. Adequate working capital increases the productivity and efficiency of fixed assets in the business. Adequacy of working capital affects the use of fixed assets.

4. Due to adequate working capital a firm can pay its debt in time and also its collection from debtors is relatively in time. Hence, it increases goodwill of the firm because adequate working capital provides better security.

5. Despite of sufficient profits, if a firm has inadequate working capital, then it cannot distribute appropriate and enough dividend. Hence, if there is adequate working capital a firm can distribute sufficient profits and it can bring satisfaction among shareholders.

6. Due to a better credit worthiness, a firm can easily fetch short-term loans and advances from banks for completing its seasonal and short period needs.

17.11 DISADVANTAGES FROM EXCESS WORKING CAPITAL

Excess working capital refers to idle funds which do not earn any profit for the firm. If there is idle funds with a firm following disadvantages are:

1. If management is not utilizing its current resources than it indicate inefficient management.

2. Excess working capital means, there is a defective credit policy and collection policy.

3. There may be more change of holding excess inventory, if there is excess working capital such situation result upon company's profitability and efficiency in using its resources.

4. In excess working capital results the low rate of return and it will causing dissatisfaction among shareholders.

5. Due to idle funds the efficacy of firm to earn profits is affected, hence due to more interest liability, it reduces the amount of profits.

Hence, if can be concluded that excess working capital reduces return on investment while adequate working capital increase the firm's profitability as-well-as goodwill.

17.12 METHODS FOR FORECASTING OF WORKING CAPITAL

There are following methods for estimation of working capital:

17.12.1 PERCENTAGE OF SALES METHOD

Relationship between sales and working capital is calculated over the year; if it is found stable then it is taken as a base for determining

working capital. In this method, percentage of each item of working capital is determined. On the basis of this relationship value of each component of working capital is calculated and then this estimated amount is sum up for final result. We can learn it from following example.

Illustration 1: Suppose sales for the year 2015-2016 is Rs. 20 Lakh, and anticipated sales for the year 2016-2017 is Rs. 30 Lakh. The Balance Sheet of the company as on 31st March 2016 is as follows:

Liabilities	Amount Rs.	Assets	Amount Rs
Capital	3,00,000	Fixed Assets	3,50,000
Reserves & Surplus	2,00,000	Stock	1,00,000
Creditors	1,00,000	Receivables	1,00,000
		Cash in hand and at Bank	50,000
	6,00,000		6,00,000

Calculate estimated working capital requirement for 2016-2017 adding 10% per annum for contingencies.

Solution:

	Actual 2015-16 Rs.	% of Sales 2015-16	Estimates for 2016-17 Rs.
Sales	20,00,000	100	30,00,000
(A) Current Assets	1,00,000	5%	1,50,000
Stock	1,00,000	5%	1,50,000
Receivables	50,000	2.5%	75,000
Cash in hand and At Bank	2,50,000		3,75,000
	1,00,000	5%	1,50,000
(B) Current Liabilities	1,00,000		2,25,000
Sundry Creditors			22,500
(C) Net Working Capital (A-B)			2,47,500
Add: 10% for contingencies			

17.12.2 REGRESSION ANALYSIS METHOD

It is a statistical technique in which working capital requirements is calculated by using least square method. The relationship between sales and working capital is expressed by the following equation:

y = a + bx

x = Sales (Independent variable)

y = Working Capital (Dependent variable)

a = Intercept

b = Slop of the time

We can learn it from following example:

Illustration 2: The sales and working Capital for a period of seven years are given below: **(Rs. in crores)**

Year	**Sales (Rs.)**	**Working Capital (Rs.)**
2009-10	100	35
2010-11	120	39
2011-12	130	50
2012-13	150	58
2013-14	180	65
2014-15	210	80
2015-16	240	85

Estimate the working capital requirement by using regression analysis for the year 2016-17, if anticipated sales are Rs. 275 crores.

Solution:

Year	**Sales (x)**	**Working Capital (y)**	**XY**	**X2**
2009-10	100	35	3500	10000
2010-11	120	39	4680	14400
2011-12	130	50	6500	16900
2012-13	150	58	8700	22500
2013-14	180	65	11700	32400
2014-15	210	80	16800	44100
2015-16	240	85	20400	57600
	1130	**412**	**72280**	**197900**

y	=	a + bx	
xy	=	na + b£x	
exy	=	a£x + b£x2	
412	=	7a + 1130 b	(i)
72280	=	1130a + 197900 b	(ii)

Multiplying (i) equation by 1130 & second by 7

465560	=	7910 a + 1276900 b	
505960	=	7910 a + 1385300 b	
(-)		(-)	(-)
(-) 40400	=	-108400 b	

b = .3727

Finding the value of a by multiplying value of b in equation (i)

412	=	7a + 421.14	
-7a	=	9.1439	
a	=	9.1439 / 7	
a	=	(-) 1.3062	
Hence y	=	a + bx	
y	=	-1.3062 + 0.3727x	
y	=	-1.3062 + 0.3727 x 275	
or	=	-1.30692 + 102.4925	
or	=	101.4563	
y	=	Working Capital = Ans. Rs. 101.4563 crores	

When sales in Rs. 275 crores the working capital Rs. 101.4563 crores.

17.12.3 OPERATING CYCLE METHOD

In this method following steps are for computation of working capital:

1. Calculation of Operating Expenses :

Value of Raw Material Consumed			
	Opening Stock of Raw Material	-	
	(+) Purchases	-	
		-	
	(+) Closing stock of Raw Material	-	-

Direct Wages	-
Prime Cost	-
Add: Manufacturing overhead	-
Add: Opening stock of work in progress	-
	-
Less: Closing stock of working Progress	-
Cost of Production	-
Add: Administrative Overhead	-
Add: Opening Stock of finished goods	-
Less: Closing stock of finished goods	-
Cost of Goods sold	-
Add: Selling & Distribution expenses	-
Total operating expenses	-

Note: 1. Depreciation, non-cash items and amortization of intangible assets should not include. Similarly capital expenses and appropriation of profits and tax payments should not include.

2. **Calculation of Operating Cycle Period :** Total number of days involved in the different stages of operation as materials storage period, conversion period, finished goods storage period, debtors collection period and creditors payments period. It is a total period involved in different stages of operations, which may be calculated as follows:

   Operating Cycle Period: Material storage period + conversion period + finished goods storage period + debtor's collection period - creditor's payment period. The calculations of each are as follows:

   (a) Material Storage Period: It is the period for which raw material will remain in stores before they are issued for production. It is calculated by following formula:

$$Material\ Storage\ Period = \frac{(Opening\ stock\ Closing\ stock)/2}{Materia\ consumed\ for\ the\ year/365}$$

Note: Raw material consumed = Opening stock of raw material + Purchases - closing stock of raw material

(b) Conversion Period (Work-in-Progress Period): The time which is taken in converting the raw material into finished goods. It is calculated by following formula:

$$Conversion\ Period = \frac{(opening\ WIP\ Closing\ WIP)/2}{Total\ Production\ Cost/365}$$

Total production cost = value of R.M. consumed + Direct Wages+ Manufacturing expenses (excluding depreciation) + Op. stock of WIP - closing stock of WIP

(c) Finished Goods Storage Period: It is the period for which goods have to remain in the go-down before sale taken place. It is calculated as follows:

$$Finished\ Goods\ Storage\ Period = \frac{(opening\ stock\ Closing\ Stock)/2}{Total\ cost\ of\ goods\ sold/365}$$

Note : Total cost of goods sold: Cost of Production (excluding depreciation) + opening stock of finished goods - closing stock of finished goods. It does not include adm. expenses and selling and distribution expenses.

(d) Debtors Collection Period: It is the time lag in payments by debtors. It is calculated as follows:

$$\frac{(Opening\ Debtors\ \&\ B/R\ + Closing\ Debtors\ \&\ B/R\ /2)}{Total\ credit\ sales/365}$$

(e) Creditors Payment Period: It is the length of credit period available from trade creditors. It is calculated as follows:

$$\frac{(Opening\ Debtors\ \&\ B/R\ + Closing\ Debtors\ \&\ B/R\ /2)}{Total\ credit\ purchases/365}$$

Note :

(1) In the absence of any information, total purchases and total sales are treated as credit.

(2) There is no hard and fast rule and for taking 365 days as number of days in a year, however, sometimes even 360 days may be considered.

(3) If, opening values of stock, debtors or creditors are not available then closing balances of these items should be taken.

3. **Number of Operating Cycles:** The numbers of operating cycles in a year are determined by the following formula:

$$No.Operating\ cycle = \frac{365/360}{Operating\ cycle\ period}$$

4. **Calculation of amount of Working Capital:** The amount of actual Working Capital required is calculated by dividing the total operating expenses for the period by the number of operating cycles in that period. It is expressed as follows:

$$Working\ Capital = \frac{No\ Operating\ cycle}{Operating\ Expenses}$$

Alternatively working capital may be calculated as follows:

$$Working\ Capital$$

$$= Cash\ Balance\ required + \frac{Operating\ cycle\ period}{365/360}$$

$$\times Estimated\ cost\ of\ goods\ sold$$

5. **Provision for Contingencies:** The above calculation of working capital is based on estimates hence it may not be more accurate, Therefore, a provision for contingencies as required 5% or 10% may be added while ascertaining the final amount of estimated working capital.

Through, the following illustration above calculation can be understandable:

Illustration 3 : From the following information calculate the working capital requirement under operating cycle method taking 5% reserve for contingencies:

Particulars		Amount Rs.
Opening Stock :	Raw Material :	9,000
	Work-in-progress	9,000
	Finished goods	4,000
	Purchases (credit)	36,000

Wages & manufacturing Exp.	15,000
Administrative expenses (excluding Dep.)	12,000
Selling and distribution expenses	13,000
Sales (credit)	1,05,000
Closing Stock	
Raw Materials	10,000
Work-in-progress	9,500
Finished goods	4,500
Opening Receivables	6,000
Closing Receivables	10,000
Opening payables	5,000
Closing Payables	10,000

Calculation of operating cycle Period

(**A**)Raw material storage period

$$= \frac{(\text{Opening stock} + \text{closing stock of Raw Materials})/2}{\text{Raw Materials Consumed}/365}$$

Raw Materials consumed = Opening stock of R.M. + Purchases - Closing stock of Raw Materials

Rs. 9000 + 36000 – 10000 = Rs. 35000

$$= \frac{(9000 + 10000)\ /\ 2}{35000/365\ \ 97} = \frac{9500}{95.87} = 99 days$$

$$(\mathbf{B})\ \text{Conversion period} = \frac{(\text{Opening stock} + \text{closing stock of WIP})/2}{\text{Total Production Cost}/365}$$

$$= \frac{(9000 + 9500)\ /\ 2}{49000/365} = \frac{9750}{135.6164} = 99 days$$

Production cost: Rs.

Material consumed (as above)	35,000
Add: Wages & Manufacturing Exp.	15,000
Add: Opening Stock of WIP	9,000
	59,000
Less: Closing Stock of WIP	9,500
	49,500

(**C**) Finished goods storage Period

$$= \frac{\text{(Opening stock + closing stock of Finished goods)/2}}{\text{Cost of goods sold/365}}$$

$$= \frac{(4000 + 4500) \,/\, 2}{49000/365} = \frac{4250}{134.246} = 32 days$$

Cost of goods sold:	Rs.
Production cost (as above)	49,500
Add: Opening Stock of Finished goods	4,000
Less: Closing Stock of Finished goods	4,500
	49,000

(**D**) Debtors Collection Period

$$= \frac{\text{(Opening Receivables + Closing Receivables)/2}}{\text{Sales/365}}$$

$$= \frac{(6000 + 10000) \,/\, 2}{105000/365} = \frac{8000}{287.67} = 28 days$$

(**E**) Creditors Payment Period

$$= \frac{\text{(Opening payables + Closing payables)/2}}{\text{Purchases/365}}$$

$$= \frac{(5000 + 10000) \,/\, 2}{36000/365} = \frac{7500}{98.63} = 76 days$$

(F) Net operating cycle Period = A + B + C + D - E

99 + 72 + 32 + 28 - 76 = 155 Days

(G) Computation of working Capital required =

(i)No. of operating cycle per year $= \frac{365}{\text{Net operating cycle period}}$

$$= \frac{365}{155} = 2.3548$$

(ii) Total operating expenses.	Rs.
Cost of goods sold (as above)	49,000
Add: Adm. expenses	12,000
Add: Selling & distribution expenses	13,000
	74,000

(iii) $Working\ Capital\ required\ = \frac{Total\ operating\ expenses}{No\ of\ operating\ cycles\ in\ a\ year}$

(iv) Working Capital required

	Rs.	31,425
+ 5% Reserve for Contingencies	Rs.	1,571
	Rs.	32,996

17.12.4 FORECASTING NET CURRENT ASSETS METHOD

It's a method which is also recommended by Tondon Committee for computing working capital requirements. In this method of forecasting first of all, estimate of stock of raw materials, estimated value of work-in-process, estimated value of stock of finished goods, amount receivable from debtors and others and estimate minimum cash balance required to meet day today payments required. Then also estimate outstanding payment for material, wages, and other administrative expenses. Now, difference between forecasted amount of current assets and current liabilities gives net working capital requirements of the firm. A flat percentage may be added in this amount of provision for contingencies.

A specimen of calculating working capital requirements in given below:

Statement Showing Estimated Working Capital Requirements

	Rs. Amount	
(A) Current Assets :		-
(i) Stock of Raw Materials (for..... months consumption)		
(ii) Work-in-process (for.....months)		
(A) Raw-materials	-	-
(B) Direct wages	-	
(C) Overheads		
(iii) Stock of finished goods (for..... months)		
(A) Raw Materials		-
(B) Direct Wages		
(C) Overheads		
(iv) Receivables (for..... month's sales)		
(A) Raw Materials		-
(B) Direct wages		-
(C) Overheads		-
(v) Payment in advance (if any)		-
(vi) Cash - balance required		
(vii) others (if any)		
(B) Current Liabilities :		
(i) Creditors (for..... months purchase of Raw Material)		-
		-
(ii) Lag in payment of expenses (outstanding Exp..... months)		-
		-
(iii) others (if any)		
Net working Capital (A-B)		
Add : Provision for contingencies		
Working Capital required		

Notes:

1. While preparing above statement there are two approaches: (A) Total approach: In this method all cost including depreciation and profit margin are included (B) Cash cost approach: under this approach depreciation is excluded from cost of production. The profit margin is also not considered while calculating investment in receivables, i.e. debtors are valued at cash cost of sales, which includes administrative expenses, selling and distribution expenses.

2. Investment in work-in-process is calculated on the assumption that material is input in the beginning of the process, where labour and overhead should be introduced for half the process time, hence on the assumption that wages and overhead should be evenly spread during the production.

3. Students are advised to write specific assumption which student used while solving the problem.

4. Normally, debtors are calculated on cash cost basis.

We can learn this method from the following example:

Illustration 4: X Ltd. plans to sell 60000 units next year. The expected cost of goods sold is as follows:

	Rs. Per unit
Raw Material	100
Manufacturing expenses (including wages	30
Selling, Administration Expenses	25
Selling Price	200

The duration of various stages of the operating cycle is expected to be as follows:

Raw Material	2 Months
Work-in-progress	1 Months
Finished	1 Months
Debtors	1 Months

Assuming sales are evenly spread over throughout the year, wages and overhead are evenly incurred. It is also assumed that a minimum Rs. 50000 cash balance is desired. The company enjoys a credit of 1/2 month on its purchases. Workout net working capital requirement for next year.

Solution : Statement of Working Capital requirements

		Rs. Amount
(A) Current Assets :		
(i) Raw Materials (2 months)		
(5000 X 100 X 2)		10,00,000
(ii) WIP (1 month)		
Raw Material (5000 X 100 X 1)	5,00,000	
Manufacturing Expenses (5000 X 30 X 1/2)	75,000	5,75,000
(iii) Finished goods (1 month)	5,00,000	
Raw Material (5000 X 100 X 1)	1,50,000	6,50,000
Manufacturing Expenses (5000 X 30 X 1)		7,75,000
(iv) Debtors (1 Month)		50,000
(5000 X 155 X 1)		30,50,000
(v) Cash balance		
(A) Current Assets		2,50,000
(B) Current Liabilities		28,00,000
Creditors (1/2 months) (5000 X 100 X 1/2)		
Net Working Capital required **(A-B)**		

Working notes :

1. It is assumed that all sales and purchases are on credit.
2. Debtors are calculated on the basis of cash cost of sales.

17.12.5 PROJECTED BALANCE SHEET METHOD

In this method, estimates of different assets (excluding cash) and liabilities are made, with taking into consideration the transactions in the ensuing period. After that, a "Projected Balance Sheet is prepared on the

basis of these forecasts. If the total of assets side is more than the total of liabilities side, then it indicates the deficiency of working capital which is to be collected by the management either taking bank loan or from other sources. On the contrary, if total of liabilities side is more than total of assets side than it represents cash balance available to the firm. Such surplus cash may invest outside the business or as management plans for it.

This method is not a popular method and calculations made through this method are not more scientific.

17.13 SUMMARY

Working Capital is that part of the total Assets of the business that changes from one form to another form in the ordinary course of business operations. Gross working capital means the sum of the current assets of the business. Net working capital is the difference between current assets and current liabilities of the business. The time required to complete the sequence of business events starting from cash raw material work-in-process finished goods debtor's cash is called as operating cycle or working capital cycle. As per Balance-Sheet concept Working Capital is classified as Gross Working Capital and Net Working Capital. Inadequate working capital as-well-as excessive working capital is disastrous for the business. A Corporation can preserve its image with meeting all the expenses and liabilities promptly and take care for emergency needs, if its hold adequate working capital. Return on investment will reduce if a Corporation has excessive or redundant working capital. There are so many factors which should be considered for determination of working capital.

17.14 SELF-ASSESSMENT QUESTIONS

1. Explain the concept of working capital.

2. Differentiate between Gross and Net working capital.

3. What is the importance of working capital for a firm?

4. What is Working Capital Cycle?

5. Explain the factors that determine the working capital need of a firm.

6. What are the types of working capital? Explain it

7. "Profitability of the business also depends upon working capital". Explain the statement.

8. "Excessive working capital is harmful for the business". Explain the statement.

9. From the following information, calculate the estimated working capital by using regression analysis method.

Year	Sales Rs. in crores	Working Capital Rs. in crores
2012-13	55	20
2013-14	75	30
2014-15	100	40
2015-16	130	50
2016-17	170	60

10. Compute operating cycle period from the following information's, taking 365 days in a year.

	Rs.
Average Stocks:	
Raw Materials	30,000
Work-in-progress	36,000
Finished goods	25,000
Total production cost (excluding depreciation Rs. 10000)	9,60,000
Raw Material consumption	4,00,000
Average debtors	45,000
Total Cost of sales (excluding depreciation Rs. 10000)	11,00,000
Sales	16,00,000

Average period allowed by Suppliers: 15 days

11. You are required to calculate estimated working capital from the following information:

1.	Level of activity	5000 units
2.	Elements of costRaw Materials	Rs. 8 per Unit
	Direct wages	Rs. 2 per Unit

Overheads (excluding dep) Rs. 6 per Unit

Selling price Rs. 20 per Unit

3. Raw materials are in stock on an average one month.

4. Credit allowed by creditors is one month.

5. Materials are in process, on an average half a month.

6. Credit allowed to debtors is 3 months.

7. Lag in payment of wages in one week.

8. Assume 52 weeks in a year and 4 weeks in a month.

9. Expected bank balance required to Rs. 7000.

10. It is assumed that the production is carried on evenly during the year, wages and overheads accrue similarly.

12. Calculate working capital requirements by using operating cycle method:

Stocks :	**Opening**	**Closing**
	Rs.	**Rs.**
Raw Material	20,000	26,000
Work-in –process	12,000	16,000
Finished goods	20,000	24,000
Purchases (all credit)		1,40,000
Cost of goods sold		2,00,000
Sales (all Credit)		2,40,000
Debtors		40,000
Creditors		16,000

Assume 360 days in a year.

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UNIT-18 METHODS OF FORECASTING OF WORKING CAPITAL

UNIT FRAMEWORK

18.1 OBJECTIVES

After studying this unit, you will be able to describe:

- Methods of Working Capital Forecasting; Forecasting of Current Assets and Liabilities Methods
- Operating Cycle Method; Profit and Loss Adjustment Method
- Percent of Sales Method; Projected Balance Sheet Method
- Cash Forecasting Method; and Criteria of Efficiency of Working Capital Management
- Impact of Inflation on Working Capital Requirement

18.2 INTRODUCTION

Forecasting is the process of making predictions of the future based on past and present data and most commonly by analysis of trends. A commonplace example might be estimation of some variable of interest at some specified future date. Prediction is a similar, but more general term. Both might refer to formal statistical methods employing time series, cross-sectional or longitudinal data, or alternatively to less formal judgmental methods. Usage can differ between areas of application: for example, in hydrology the terms "forecast" and "forecasting" are sometimes reserved for estimates of values at certain specific future times, while the term "prediction" is used for more general estimates, such as the number of times floods will occur over a long period.

Working capital forecasting is a difficult task. The reason is that the total current assets requirements should be forecasted in estimating the working capital requirements. Working capital forecasting is based on the overall financial requirements and financial policies of the concern. The basic objective of working capital forecasting is either to measure the cash position of the concern or to exercise control over the liquidity position of the concern. In this context, any one of the following methods can be adopted for working capital forecasting.

Risk and uncertainty are central to forecasting and prediction; it is generally considered good practice to indicate the degree of uncertainty attaching to forecasts. In any case, the data must be up to date in order for the forecast to be as accurate as possible.

18.3 METHODS OF WORKING CAPITAL FORECASTING

"Working Capital is the life blood and controlling nerve center of a business." No business can be successfully run without an adequate amount of working capital. To avoid the shortage of working capital at once, an estimate of working capital requirements should be made in advance so that arrangements can be made to procure adequate working capital. But estimation of working capital requirements is not an easy task and large numbers of factors have to be considered before starting this exercise. There are different methods available to estimate the working capital requirements of a firm which are as follows:

- Forecasting Of Current Assets and Liabilities Methods
- Operating Cycle Method
- Profit And Loss Adjustment Method
- Projected Balance Sheet Method
- Cash Forecasting Method

18.4 FORECASTING OF CURRENT ASSETS AND LIABILITIES METHODS

This method of estimation of working capital requirement is based on the fact that the total assets of the firm are consisting of fixed assets and current assets. On the basis of past experience, a relationship between (i) total current assets i.e., gross working capital; or net working capital i.e. Current assets – Current liabilities; and (ii) total fixed assets or total assets of the firm is established. The estimation of working capital therefore, depends upon the estimation of fixed capital which depends upon the capital budgeting decisions. Both the above methods to the estimation of working capital requirement are simple in method but difficult in calculation.

18.5 OPERATING CYCLE METHOD

In this method, the working capital estimate depends upon the operating cycle of the firm. A detailed analysis is made for each component of working capital and estimation is made for each of these components. The different components of working capital may be enumerable as follows:

Current Assets	Current Liabilities
Cash and Bank Balance	Creditors for Purchases
Inventory of Raw Material	Creditors for Expenses
Inventory of Work-in-Progress	
Inventory of Finished Goods	

For manufacturing organisation, the following factors have to be taken into consideration while making an estimate of working capital requirements.

OPERATING CYCLE : This is the chronological sequence of events in a manufacturing company in regard to working capital. We know that working capital is the excess of current assets over current liabilities. In reality such excess of current assets over current liabilities may be either more or less than the working capital requirement of the company. Accordingly it is necessary to calculate the working capital of the company. This is illustrated with an example. Such computation of working capital requirement may also be necessary for planning increase of sales from existing level.

The operating cycle is the length of time for a company to acquire materials, produce the products, sell the products, and collect the proceeds from customers. The normal operating cycle is the average length of time for a company to acquire materials, produce the products and collect the proceeds from customers.

From the above it is very clear that the working capital is required to meet the **time-gap** between the raw materials and actual realisation of stocks. This time gap is technically termed as operating cycle or working capital cycle. The operating cycle can be sub-divided into two on the basis of the nature of the business namely trading cycle and manufacturing cycle. Operating cycle method is divided into two parts, which are as follows:

(A). Trading cycle for trading business

(B). Manufacturing cycle for manufacturing business

(A) TRADING CYCLE: Trading business does not involve any manufacturing activities. Their activities are limited to buying finished goods and selling the same to consumers. Therefore operating cycle requires a short time span behaviour cash to cash, the requirement of working capital will be low because very less number of processes in the operation is given below:

Cash --Inventories --Debtors ---Bills ----Receivable ----Cash

In the case of trading firm the operating cycle includes time required to convert (1) Cash into inventories (2) Inventories into debtors (3) Debtors into cash. In the case of financing firm, the operating cycle is still less when compared to trading business. Its operating cycle includes time taken for (1) Conversion of cash into suitable borrowers and (2) Borrowers into cash.

The formula to calculate operating cycle:

Operating cycle = Age of inventory + collection period

Net operating cycle = Age of inventory + collection period – deferred payments

For calculating net operating cycle, various conversion periods may be calculated as follows:

Raw material cycle period (RMCP) = (Average Raw material stock/Total raw material Consumable) x 365 Working progress cycle period (WPCP)

= (Average work in progress/Total cost of Production) x 365 Finished goods cycle period (FGCP)

= (Average finished goods/Total cost of goods Sold) x 365 Accounts receivable cycle period (ARCP)

= (Average Account receivable/Total of sales) x 365 Accounts payable cycle period (APCP)

= (Average account payable/Total credit purchase) x 365

Where, Total credit purchase = cost of goods sold + ending inventory – beginning of inventory

For above calculations, the following points are essential:

(a). The average value is the average of opening balance and closing balance of the respective items. In case the opening balance is not available, only the closing balance is taken as the average.

(b). The figure 365 represents number of days in a year. Sometimes even 360 days are considered.

(c). The calculation of RMCP, WPCP and FGCP the denomination is taken as the total cost raw material consumable, total cost of production total, cost of goods sold respectively since they form respective end products.

On the basis of the above, the operating cycle period:

Total operating cycle period (TOCP) = RMCP + WPCP + FGCP + ARCP

Net operating cycle period (NOCP) = TOCP-DP (deferred payment) (APCP)

The operating cycle for individual components are not constant in the growth of the business. They keep on changing from time to time, particularly the Receivable Cycle Period and the Deferred Payment. But the company tries to retain the Net Operating Cycle Period as constant or even less by applying some requirements such as inventory control and latest technology in production. Therefore regular attention on the firm's operating cycle for a period with the previous period and with that of the industrial average cycle period may help in maintaining and controlling the length of the operating cycle.

Illustration 1: From the following data of a trading company compute the realisation period

(Operating cycle)	**Rs. in lakhs**
Average inventories	13.0
Average Debtors	22.5
Average Creditors	14.0
Purchases	240.0
Cost of goods sold	260.0
Sales	300.0

Solution:

Inventory holding period	(13/260) x 360 = 18 days
Debtors holding period	(22.5/300) x360 = 27 days
Less: Availing creditors extending loan period	(14/240) x360 = (21) days
Realisation period	= 24 days

(B) MANUFACTURING CYCLE: In the case of manufacturing company the operating cycle refers to the time involvement from cash through the following events and again leading to collection of cash.

Cash --------Purchase of raw materials --------Work-in-progress -------- Finished goods --------Debtors --------Bills receivable --------Cash

Operating cycle of a manufacturing concern starts from cash to purchase of raw materials, conversion of work in progress into finished goods, conversion of finished goods into Bills Receivable and conversion of Bills Receivable into cash. In the other words the operating cycle is the number of days from cash to inventory to accounts receivable back to cash. The operating cycle denotes how long cash is tied up in inventories and receivables. If the operating cycle requires a longer time span between cash to cash, the requirement of working capital will be more because of the huge funds required in all the process. If there is any delay in a particular process there will be further increase in the working capital requirement. A long operating cycle means that less cash is available to meet short-term allegations. A distillery has to make a heavy investment in working capital rather than a bakery, which has a low working capital.

Suggested pro-forma for estimation of working capital requirements are given below:

STATEMENT OF WORKING CAPITAL REQUIREMENTS

	Amount (Rs.)	Amount (Rs.)
Current Assets		
1. Stock of Raw materials		-------
2. Work-in-progress (for … months)		
a) Raw materials	--------	
b) Direct labour	--------	
c) Overheads	--------	-------
3. Stock of finished goods		-------
4. Debtors		-------
Less: **Current liabilities**		
i. Creditors	--------	
ii. Lag in payment of expenses	--------	
iii. Others (if any)	--------	-------
Working Capital (C. A. - C. L.)		-------
Add: Provision/Margin for contingencies		-------

Net working capital required = -------

IMPORTANCE OF OPERATING CYCLE : If a company can shorten the operating cycle, cash can accumulate more quickly, and due to the time value of money, there should be a positive impact on the share value. Holding everything else constant, an investor would prefer a company with a short operating cycle to a similar company with a longer operational cycle.

18.6 PROFIT AND LOSS ADJUSTMENT METHOD

Working capital is forecasted on the basis of opening cash and bank balances. Under this method, some of the items are added and some of the items are deducted to arrive closing cash and bank balances i.e. working capital. The items like depreciation, preliminary expenses written off, deferred revenue expenses, goodwill written off, reduction in closing stock, decrease in sundry debtors and bills receivable, decrease in investments and marketable securities, increase in sundry creditors and other liabilities, increase in loans and accrued expenses are added with opening cash and bank balances.

The items like accrued rent, accrued interest/Dividend/ Royalty, increase in closing stock, increase in sundry debtors, increase in investments, increase in bills receivables, decrease in sundry creditors, bills payable and other liabilities, payment of expenses of last year and payment of dividend are deducted from opening cash and bank balances. The net amount will be required working capital.

18.7 PERCENT OF SALES METHOD

The existing relationship between sales and working capital is identified for one or two years. If the relationship is steady over a period of time, certain percent is fixed to determine working capital over the forecasted sales. The relationship between sales and working capital and its various components may be expressed in three ways:

- as number of days of sales;
- as turnover;
- as percentage of sales.

This method is suitable for short period since the relationship does not vary for short period. Moreover, this method is not suitable for public limited companies and Multinational Corporation. This method to estimate the working capital requirement is based on the fact that the working capital for any firm is directly related to the sales volume of that firm. So, the working capital requirement is expressed as a percentage of expected sales for a particular period. This method is based on the assumption that

higher the sales level, the greater would be the need for working capital. There are three steps involved in the estimation of working capital.

a) To estimate total current assets as a % of estimated net sales.

b) To estimate current liabilities as a % of estimated net sales, and

c) The difference between the two above is the net working capital as a % of net sales.

18.8 PROJECTED BALANCE SHEET METHOD

A projected balance sheet is prepared by adjusting the anticipated transactions for the ensuring year in the opening balances. The closing balances of all accounts are arrived other than cash and bank balances. The accountant has confirmed that all the assets and liabilities are balanced and recorded in the balance sheet. Lastly, closing cash and bank balances are arrived to find the working capital.

There are two interpretations of Working Capital under the balance sheet method, viz., (i) Gross Working Capital Method (GWC), and (ii) Net Working Capital Method (NWC)

In the broad sense, the term Working Capital refers to the Gross Working Capital and represents total amount of funds invested in Current Assets. Gross Working Capital is the capital invested in total Current Assets of the enterprise. Although Current Assets vary from industry to industry, they constitute between 50 to 60 per cent of the total assets of manufacturing concerns

Current Assets are those assets which, in the ordinary course of business, can be converted into Current Assets within a short period of time, say, one year. The constituents of Current Assets are: -

- Cash in hand and bank balance
- Bills receivables
- Sundry debtors less provision for bad debts
- Short-term loans and advances
- Inventories of stock – Raw materials, work-in-progress, stores and spares,
- finished goods,
- Temporary investment of surplus funds
- Prepaid expenses, and
- Accrued incomes

In a narrow sense, the term Working Capital refers to Net Working Capital. When accountants use the term Working Capital, they generally

refer to Net Working Capital, which is the difference between Current Assets and Current Liabilities.

Net Working Capital refers to the difference between Current Assets and Current Liabilities. Current Liabilities are those claims of outsiders that are expected to mature for payment within an accounting year and include the following:

- Bills Payables
- Sundry Creditors
- Accrued or outstanding expenses
- Short-term loans, advances and deposits
- Dividends payable
- Bank overdraft, and
- Provision for taxation, if it does not amount to appropriation of profits

The Net Working Capital may be positive or negative. A positive Net Working Capital will arise when Current Assets exceed Current Liabilities. Negative Net Working Capital occurs when Current Liabilities are in excess of Current Assets. The Current Liabilities that amounted to 24 per cent unrepresented by Current Assets, which, in turn, drastically affected turnover levels of heavy engineering. The Gross Working Capital is financial or going concern concept while Net Working Capital is an accounting concept of Working Capital. These two concepts of Working Capital are not exclusive. The Net Working Capital may be suitable only for proprietary form of organizations such as sole-trader or partnership firms. The gross concept of Working Capital, on the other hand, is suitable to the company form of organization where there is diverse between ownership, management and control

18.9 CASH FORECASTING METHOD

Cash forecasting can be a valuable aid to the cash manager if it is prepared well and used properly. Where it is prepared badly, it can be a significant waste of time to all involved. In companies that make good use of cash forecasting it may be used as an aid for some, or all, of the following:

- to set borrowing limits and minimize cost of funds;
- to maximize interest earnings;
- for liquidity management;
- for foreign exchange risk management;

- for setting and monitoring longer term investment and funding strategies;
- for financial control;
- to monitor and set strategic objectives;
- for monitoring various lender and investor ratios;
- for budgeting for capital expenditure and project appraisal; and
- as a tool for working capital management.

Total cash receipts and cash disbursements for a particular period are taken into consideration under cash forecasting method. Cash receipts may be estimated cash sales, cash collected from debtors, and bills receivables, other miscellaneous cash receipts and sale of fixed assets and investments. Delay in cash receipts is taken into consideration.

Cash disbursements may be relating to estimated cash purchases, payment to sundry creditors, repayment of loan, payment over bills payable, payment of wages, salaries, bonus, and advances, payable to suppliers, repayment of loans and advances interest and principal amount and the like. The minimum cash balance designed to be maintained is added with the required disbursements and provision is also made for additional borrowings and the like. Both cash receipts and cash disbursements are recorded in a format. In this way, working capital is forecasted under cash forecasting method.

1. **SETTING AND MONITORING LONGER-TERM INVESTMENT AND FUNDING STRATEGIES :** In this case cash forecasting techniques can be used as modeling tools. These should be able to identify future structural cash shortages and surpluses. Generally, this will be for periods in excess of one year.

2. **FINANCIAL CONTROL** : Cash forecasting can often be used to model payables and receivables against known sales and purchases. This type of forecasting identifies mismatches between credit periods granted to customers and the amount of credit actually taken (Days Sales Outstanding). It can also enable comparison with credit taken from suppliers (Days Purchases Outstanding) and hence to identify working capital financing requirements. Such forecasts may be reconciled against actuals to ensure that subsidiary companies are managing their cash flows in line with plans and corporate policy (see also below section on working capital management).

3. **MONITORING AND SETTING STRATEGIC OBJECTIVES** : Various corporate strategies and objectives can be planned using cash forecasting and reviewed or monitored by comparing actual cash flows relating to specific products, projects, or business units, against those planned.

4. **MONITORING VARIOUS LENDER AND INVESTOR RATIOS :** Borrowers normally have to comply with covenants set by lenders, or the company itself may either impose ratios on it or use them to benchmark itself against peer groups. Cash forecasting would be one of the techniques used within the company to monitor and even plan certain types of ratios.

5. **CAPITAL BUDGETING** : This type of cash flow projection will often be carried out by companies to ascertain that they are generating sufficient cash, not only to finance normal operating needs but also to finance the acquisition of new capital goods (e.g. machinery). It is also often requested by banks or finance companies to ensure that potential borrowers are generating sufficient cash to enable them to make loan and interest payments without jeopardizing the other activities of the business.

6. **WORKING CAPITAL MANAGEMENT TOOL :** Increasingly cash forecasting techniques are being linked to working capital management. In this respect concepts such as 'just in time' delivery of raw materials can be refined and linked with 'just in time' payments and cash management. As raw materials are ordered, paid for and consumed, and stocks of finished goods are warehoused or sold the cash forecasts can be continually refined so that they become both a detailed cash planning tool and a method for managing actual and predicted cash flows and account balances.

7. **SHORT-TERM FORECASTING :** Short-term cash forecasting will be used for periods from 'end of business today' forward to 30 days. The objective of short-term forecasting is to identify cash receipts and payments with reasonable accuracy to aid day-to-day management of bank accounts. It seeks to identify short-term funding requirements and short-term surpluses that can be used for investment and will aid the cash manager in his borrowing and investment decisions. Short-term forecasting should be the main tool used to ensure that there are no idle balances sitting on noninterest or low-interest-bearing accounts.

8. **MEDIUM-TERM FORECASTING :** Medium-term forecasting is used to estimate net cash positions for periods from one month to one year. This seeks to establish overall averages, rather than detailed daily positions, and gives the treasurer a feel for the overall funding/investment patterns expected over the year. Typically, companies using medium-term forecasting have a rolling monthly forecast that might be projected 12-months forward. In some volatile industries, where going as far forward as 12 months makes no sense, companies may only project forward three months. The forecasts should be regularly updated on a monthly or quarterly basis as figures become more solid and as events change (e.g. sales forecasts being exceeded or not being met).

18.10 CRITERIA OF EFFICIENCY OF WORKING CAPITAL MANAGEMENT

To measure Efficiency of Working Capital Management, there are major indices viz., Performance Index, Utilization Index and Efficiency Index etc.

1. **PERFORMANCE INDEX (PI) :** Performance Index of Working Capital Management represents average Performance Index of the various Current Assets. A company may be said to have managed its Working Capital efficiently if the proportionate rise in sales is more than the proportionate rise in Current Assets during a particular period.

2. **UTILIZATION INDEX (UI) :** While Performance Index represents the average overall performance in managing the components of Current Assets, Utilization Index indicates ability of the company for the utilization of its Current Assets as a whole for the purpose of generating sales. If an increase in total Current Assets is coupled with more than a proportionate rise in sales, the degree of utilization of these assets with respect to sales is said to have been improved and vice versa. This ultimately reflects in the operating cycle of the firm. This can be shortened by means of increasing the degree of utilization. Thus, a value of Utilization Index >1 is desired.

3. **EFFICIENCY INDEX (EI) :** Efficiency Index is a measure of performance, which reflects the combined effect of both the Performance Index and Utilization Index i.e., this is the product of the Performance Index and Utilization Index and measures ultimately the efficiency of the Working Capital Management of a firm. Hence, the values of Utilization Index >1 is desirable. Efficiency Index of Working Capital Management (EIWCM) can be calculated by multiplying The Overall Performance Index of Working Capital Management with the Working Capital Utilization Index. Thus

EFFICACIES INDEX OF WORKING CAPITAL MANAGEMENT EI = PI WORKING CAPITAL MANAGEMENT x UI WORKING CAPITAL MANAGEMENT

4. **PROFITABILITY :** Profit is the difference between revenue and expenses. The profit and loss account (P & L A/c) or income and expenditure statement shows the profitability of the firm by giving details about revenue and expenses, during a period of time and measures its profitability. Some companies calculate profit before depreciation, interest and taxes as their gross profit. The difference

between the revenue (sales value) and cost of goods sold is called the gross profit. When all the other expenses are deducted (including interest and taxes form gross profit), the profit after taxes (PAT) or net profit (NP) is obtained. Operating profit is the difference between gross profit and operating expenses consisting of general, administrative, selling expenses and depreciation. It is also known as profit or earnings before interest and taxes (EBIT).

18.11 IMPACT OF INFLATION ON WORKING CAPITAL REQUIREMENT

When the inflation rate is high, it will have its direct impact on the requirement of Working Capital as explained below:

- Inflation will figure at a higher level even when there is no increase in the quantity of sales. The higher sales mean the higher the levels of balances in receivables.
- Inflation will result in the increase of raw material prices and hike in the payment for expenses and as a result, increase in balances of trade creditors and creditors for expenses.
- Increase in valuation of closing stocks results in showing higher profits but without realizing it into cash, causing the firm to pay higher taxes, dividend and bonus. This will lead the firm to serious problems of fund shortage to meet its short-term obligations.
- Increase in requirement in Current Assets means the increase in requirements of Working Capital without corresponding increase in sales or profitability of the business firm.
- Considering the above mentioned factors, the finance manager should be careful about the impact of inflation in the assessment of Working Capital Requirement and its management.

18.12 SUMMARY

In summary, cash forecasting is an essential tool to the cash manager if the forecasts are well prepared using reliable base data; produced using time horizons appropriate to the company concerned; updated regularly to reflect changes experienced or known future events and checked against actuals and refined over time to improve accuracy. Unfortunately, many companies make poor use of cash forecasting and as a result the whole process falls into disrepute.

No business can be successfully run without an adequate amount of Working Capital. An estimate of Working Capital Requirement should be made in advance, in order to procure adequate Working Capital and

thereby avoid shortage of it. A large number of factors have to be considered in estimation, viz., cost of material and operating cycle.

Most popular method for estimating Working Capital requirement is forecasting Net Current Assets Method. The total amount of investment of a firm in current assets is known as Gross Working Capital. Working capital is very necessary for a firm to meet its daily obligation. Working capital of a firm should be very balanced; means there should be neither excess nor deficit. The working capital requirement of a firm can be forecasted with the help of operating or working capital cycle. Operating cycle means the time duration which a firm required to get converted its sales in cash after the manufacturing.

Working capital forecasting is based on the overall financial requirements and financial policies of the concern. The basic objective of working capital forecasting is either to measure the cash position of the concern or to exercise control over the liquidity position of the concern.

18.13 SELF-ASSESSMENT QUESTIONS

1. What is forecasting?

2. Discuss the methods of working capital forecasting?

3. Explain Forecasting of Current Assets and Liabilities Methods.

4. Explain the meaning of the term “Operating Cycle Method”. State its importance and pro-forma.

5. What are trade cycle and manufacturing cycle? Why are these prepared?

6. Discuss the profit and loss adjustment method.

7. What is percent of sales method? Discuss it with suitable examples.

8. Explain the projected balance sheet method.

9. Describe the cash forecasting methods?

10. What are the criteria of efficiency of working capital management? Explain it.

11. What is the impact of inflation on working capital requirement? Discuss it.

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UNIT-19 INVENTORY MANAGEMENT

UNIT FRAMEWORK

19.1 OBJECTIVES

After Studying this unit you should be able to:

- Explain the concept of inventory management.
- List out various objectives for holding inventories.
- Identify the factors affecting investment level in inventory.
- Describe the risk and cost associated with holding inventory.
- Explain re-ordering, physical verification systems of inventory management.
- Determine stock levels, reorder point and economic order quantity.
- Use selective inventory management techniques like ABC, VED, JIT etc.

19.2 INTRODUCTION

The role of capital is crucial in this increased pace of industrialization. The capital raised by a firm is invested in fixed assets and current assets for carrying on its activities. Inventory constitutes the

largest portion of current assets. As such, inventories are a vital element in the efforts of the firm to achieve desired goals.

The concept of inventory management has been one of the many analytical aspects of management. It involves optimization of resources available for holding stock of various materials. Excessive inventory leads to unnecessarily blockage of funds, resulting decreased profit. On the other hand, lack of inventory not only impairs the profitability but also results in interruption in production and causes inefficiencies. Often one is inclined to agree with the observation that “when you need money, look at your inventories, before you look at your banker.” Even, if there is no shortage of funds in a business the financial manager has to participate actively in the formulation of inventory policies with a view to speeding inventory turnover ratio and maximizing return on investment.

19.3 MEANING OF INVENTORY AND INVENTORY MANAGEMENT

Inventories are resources of any kind having an economic value.

S.E. Bolten defines it as "The term 'Inventory' refers to the stockpile of the product, a firm is offering for sale and the components that make up the product."

The Accounting Research and Terminology Bulletin defines the term inventory as "The aggregate of those items of tangible personal property which;

(a) are held for sale in the ordinary course of business,

(b) are in the process of production for such sales, or

(c) are to be currently consumed in the production of goods or services to be available for sale."

CIMA defines it as "The function of ensuring that sufficient goods are retained in stock to meet all requirements without carrying unnecessarily large stocks."

The following items are included in inventory:

1. **Raw Materials:** These are goods that have not yet been committed to production in a manufacturing firm i.e. stored for use in future production.

2. **Works-in-Progress:** This category includes those materials that have been committed to the production process but have not been completed at the end of a financial year. Thus, these are neither raw materials nor finished goods.

3. **Finished Goods:** These are completed products awaiting sale. For a trading concern inventory always means finished goods, while

for a manufacturing firm they are the final output of the production process.

4. **Consumables and Stores:** Loose tools, cotton, lubricant, oil, grease etc. which are required for running and maintenance of plant and machineries are called consumables and stores. Though these are not held for sale, but have significant importance.

The problems of managing inventories in manufacturing enterprises are relatively complex.

INVENTORY MANAGEMENT : The area of inventory management covers the following individual phases: determining the size of inventory to be carried and lot sizes for new orders, establishing timing schedules and procedures, ascertaining safety levels, providing proper storage facilities, coordinating inventory policies with sales and production, arranging the procurement and disbursement of materials, record keeping, assigning responsibilities for carrying out the inventory control functions and providing necessary reports for supervising the overall activity. Within these individual phases acquisition, Unit/physical control i.e. material handling and production related decision are made by persons within purchasing and production departments. The financial executive is only one of the persons in top management who is concerned with the levels and fluctuations of investment in inventories. He is concerned with any aspect of inventory management that is controllable from the stand point of reducing inventory costs and risks. This is also called value control.

As per **Gordon B. Carson**, "Inventory control refers to the process by which the investment in materials and parts carried in stock are regulated within pre-determined limits set in accordance with the inventory policy established by the management".

Thus, inventory management refers to a system which ensures the supply of required quantity and quality of inventory at the required time and at the same time prevents unnecessary investment in inventories.

19.4 OBJECTIVES OF INVENTORY MANAGEMENT

Reducing inventories without impairing operating efficiency frees working capital that can be effectively employed elsewhere. The aim of a sound inventory management system is to secure the best balance between "too much and too little." Too much inventory carries financial burden and too little reacts adversely on continuity of productions and competitive dynamics. The real problem is not the reduction of the size of the inventory as a whole but to secure a scientifically determined balance between several items that make up the inventory. Thus, Inventory management should strike a balance between excess inventory and too little inventory. The primary objects of inventory management are-

I. to minimize wastage and losses of material in course of purchase, storage, handling and uses,

II. to achieve maximum economy in purchasing and inventory holding,

III. to make minimum investment in working capital by forecasting the demand and production in advance,

IV. to ensure uninterrupted flow of materials of the right quality for continuous production,

V. to provide better service to customers by maintaining an adequate inventory level.

19.5 BENEFITS OF HOLDING INVENTORY

Primarily, inventory is held for transaction purposes. Today's inventory is tomorrow's consumption. An enterprise cannot ensure uninterrupted production unless it maintains adequate inventory of raw materials. By holding inventories the firm is able to separate the processes of purchasing, producing and selling. By doing the separation of these functions, the firm realizes a number of specific benefits:

1. **Avoid Losses of Sale:** Inadequate inventory may disturb the production function and resulting the firm may not be in a position to deliver the goods within the scheduled time to its customers and it may lose customer forever. The ability of the firm to give quick service and to provide prompt delivery is closely tied to the proper management of inventory.

2. **Gaining Quantity Discounts:** If a firm is willing to maintain large inventory in selected product lines, it may be able to make bulk purchases of goods at heavy discount. Suppliers frequently offer a greatly reduced price if the firm orders double or triple of its normal order. By paying less for its goods, the firm can increase profits, as long as the costs of maintaining the inventories are less than the amount of the discount.

3. **Continuity in Production:** Inadequate inventory may cause production interruption and inefficiencies. It is very difficult to procure raw material whenever it is needed. If the firm has scheduled a long run and begins production, only due to shortage of a vital raw material, the production may be halted at considerable cost to the firm. So it is necessary to maintain an adequate level of inventory to continue the production process without any interruption.

4. **Low Ordering Cost:** Every time a firm places an order it incurs certain costs. The variable cost associated with individual orders can be reduced if the firm places a few large rather than numerous small orders.

5. **To Meet Contingencies:** Inventory is also held as a precaution or as a contingency for increase in lead time or consumption rate. This increase may be due to suppliers strike, labour strike, transporters strike, short supplies or bulk orders etc.

6. **Optimum Utilization of Resources:** In a manufacturing concern production planning can be done with an object to have optimum utilization of resources namely men, machines and materials. This objective can be achieved only if we hold sufficient inventory.

19.6 FACTORS AFFECTING LEVEL OF INVENTORY

As stated above, a firm should maintain its inventory at reasonable level. There are different factors, which determine the level of inventory; the important among them are as follows.

1. **Nature of the Product:** The nature of the product greatly affects the quantity of inventory, like in case of perishable and fashion goods. It is not feasible to store large quantity. If the firm deals in such type of products for which raw material is available only in a particular season, then the organisation has to invest a huge fund in the season.

2. **Nature of Business:** If the business deals with luxury and consumer products, then it may maintain lower level of inventory. But if it deals with industrial goods it has to maintain a higher level of inventory.

3. **Terms of Purchase:** If supplier provides heavy discount and liberal credit facilities on bulk purchase, then firm may maintain high level of inventory. Similarly, if supply conditions are favourable, no disturbance in supply chain then inventory level can be low, but in adverse condition or uncertainty, firm should maintain high level of inventory.

4. **State of Economy:** In case of booming economy, firm will maintain high level of inventory to grab the high chances of emerging large orders and vice-versa.

5. **Inventory Turnover Rate:** When the turnover rate is high, investment in inventories tends to be low and vice-versa.

6. **Value of the Product:** In case of high value product, firm cannot afford to have large inventory. In case of low value products, firm can keep large quantities in stock.

7. **Attitude of Management:** Conservative management does not bother much in forecasting, demand and consider it safer to carry large stocks, while energetic or dynamic manager decides this by using advanced techniques of forecasting.

8. **Other Factors:** Many other factors like market structure, fluctuations in price level, availability of funds, government policies, period of operating cycle etc. also affect the level of inventories.

19.7 RISK AND COSTS ASSOCIATED WITH HOLDING INVENTORY

When a firm holds goods for future sale, it exposes itself to a number of risks and costs. Inventories constitute a large percentage of the total cost. Inventory management is one of balancing tactics of various costs so that the total cost can be minimized. These costs are as follows:

1. **Material Cost:** These are the cost of purchasing the goods plus transportation and handling charges. This may be calculated by adding the purchase price, the delivery charges and the sales tax charged by the supplier (if any).

2. **Cost of Ordering:** It is the cost of placing an order and securing the supplies. The ordering cost is of variable nature and increases in proportion to the number of orders placed but has negative relation with level of inventory. It includes the following;

    - Preparation of purchase order.
    - Documentation processing costs.
    - Costs of receiving goods (Inspection and handling).
    - Quality analysis expenses.
    - Transport costs.
    - Addition costs of frequent or small quantity order, rejecting faulty goods.
    - Follow up costs.
    - Where goods are manufactured internally, the set up and tooling costs associated with each production run, which is also known as 'set up cost'.

3. **Cost of Holding or Carrying Inventory:** These are the expenses of storing goods. Once the goods have been accepted, they become part of the firm's inventories. It comes around 30% of the total inventory cost in most of the industrial undertakings. Cost of carrying stocks includes the following:

    - Storage costs (rent, lighting, heating, refrigeration, air conditioning etc.)
    - Stores staffing, equipment maintenance and running costs.
    - Material handling costs.

- Capital cost and opportunity cost.
- Accounting, audit, stock taking or perpetual inventory costs.
- Product risk costs (deterioration and obsolescence)
- Insurance and security costs.
- Pilferage, damage and theft cost.

4. **Under Stocking Costs:** It is the penalty incurred to the concern on account of the inability to meet the demand in time. It includes the following:
   - Loss of goodwill.
   - Loss of profit due to reduction in sales.
   - Machine and man hours lost due to unavailability of materials.
   - Loss of future sales because customers go elsewhere.
   - Compensation payable on account of non- fulfilment of orders.
   - Extra costs associated with urgent purchases.
5. **Over Stocking Costs:** In situations where disproportionate amount of funds are invested in inventories, excessive borrowing or financing would be required. It increases interest expenses and reduces profits. It also involves increase in associated costs like opportunity, obsolescence, loss due to decline in prices etc.

The costs of ordering opposes the cost of carrying while the under stocking costs opposes overstocking costs. If these costs operate in the same direction, there will be no inventory problem. The under stocking and overstocking costs, help an industrial unit to determine the service level that has to be maintained for the inventory. The costs of ordering and the cost of carrying enable us to optimize on the number of orders and the quantity of inventory to be ordered.

19.8 TECHNIQUES OF INVENTORY MANAGEMENT

In managing inventories, the firm's objective should be in consonance with the shareholder wealth maximization principle. To achieve this, the firm should determine the optimum level of inventory. Efficiently controlled inventories make the firm flexible. Inefficient inventory control results in unbalanced inventory and inflexibility-the firm may sometimes run out of stock and sometimes may pile up unnecessary stocks. This increases the level of investment and makes the firm unprofitable.

Designing a sound inventory management system is a large pre-requisite for balancing operations. Reducing inventories without impairing operating efficiency frees working capital that can be effectively employed elsewhere. Various techniques applied for inventory management are as follows:

I. REORDERING SYSTEMS

- **(a)** Two bins system
- **(b)** Order cycling system
- **(c)** Min max system

II. PHYSICAL VERIFICATION SYSTEMS

- **(a)** Continuous stock taking
- **(b)** Periodic stock taking

III. ACCOUNTING SYSTEMS

- **(a)** Perpetual inventory system
- **(b)** Establishment of system of budgets

IV. INVENTORIES CONTROL RATIOS

- **(a)** Input output ratio
- **(b)** Inventory turnover ratio

V. SETTING OF VARIOUS STOCK LEVELS

VI. ECONOMIC ORDER QUANTITY

VII. ABC ANALYSIS

VIII. VED ANALYSIS

IX. JIT SYSTEM

I. REORDERING SYSTEMS

(a) Two Bin System: Bin means the drawer, Almira or other place of keeping the goods. Under the two bin system, each item of material is stored in two bins and material is continuously issued from one bin until the stock of materials is emptied in that bin. Then material from the second bin is started using and action will be taken to replenish the materials in the first bin. The material in the second bin will be sufficient enough until the fresh delivery is received. The major advantage of this system is that stock can be kept at a lower level because of the ability to re-order whenever stock falls to a low level, rather than waiting for the next re-order date.

(b) Order Cycling System: In case of this system the review of materials in hand is undertaken periodically. If the review discloses that stock of a particular material will last before the next review date keeping in view of its consumption rate, an order for replenishment of that material is made immediately. The review period differs from material to material. Critical items of stock have a shorter review period; on the other hand less critical stock items will have a larger interval. This technique is also called as periodic order system.

(c) Min Max System: According to this plan, for every material two levels are fixed (i) minimum level and (ii) the maximum level. The minimum level functions as the re-order point. As soon as the stock of material comes down to minimum level a new order is placed for quantity which will bring it to the maximum level. This method is one of the oldest methods of materials control. It is very simple to operate and easy to understand.

II. PHYSICAL VERIFICATION SYSTEMS

(a) Continuous Stock Taking: Under this system, physical stock verification is made for each item of stock on continuous basis. It is physical checking of the stock records with actual stock on continuous basis. It is a method of verification of physical stock on a continuous basis instead of at the end of the accounting period. It is a verification conducted round the year, thus covering each item of store twice or thrice. Valuable items are checked more frequently than the stocks with lesser value.

CIMA defines "Continuous stock taking is the process of counting and valuing selected items at different times on a rotating basis."

The main benefits of this technique are that day to day work is not disturbed; discrepancies, irregularities or changes are detected at early stage. Thus it acts as an effective deterrent to malpractices.

Continuous stock taking is not, however without disadvantages. It imposes regular strain on the stores staff and unless carried out very carefully, may lead to misplacement of materials.

(b) Periodic Stock Taking: Under this system the stock levels are reviewed at fixed intervals e.g., at the end of every month or three months. All the items of stocks in the store are reviewed periodically.

CIMA defines periodic stock taking as "a process where by all stock items are physically counted and then valued". The aim of periodic stock taking is to find out the physical quantities of materials of all types are physically counted at a given date.

III. ACCOUNTING SYSTEMS

(a) Perpetual Inventory System: Basically it is a method of accounting for inventory. Under this system inventory records are maintained in such a way that it can show the balance of the stock after each receipt and issue. Bin cards and stores ledger are used under this system.

CIMA defines perpetual inventory system as "the recording as they occur of receipts, issues and the resulting balances of individual items of stock in either quantity or quantity and value".

The main benefit of this system is that every time we have updated record of inventory and the checking and verification is done at any time without disturbing the normal function. It is worthwhile to mention the difference between perpetual inventory system and physical verification system. Under the perpetual inventory system only balances are updated on concurrent basis while in the physical verification system the inventory is physically verified and checked with the actual balances drawn from the stores ledger.

(b) Establishment of Systems of Budgets: To control investment in the inventories, it is necessary to know in advance about the inventories requirement during a specific period usually a year. Under this technique estimates are prepared regarding the requirement of various materials and on the basis of these estimate budget is prepared. Such a budget will discourage the unnecessary investment in inventories.

IV. INVENTORY CONTROL RATIOS

Inventory control ratios also play a vital role in controlling the inventory. The ratios work as a comparison tool. The various ratios are as given below:

(a) Input Output Ratio: This ratio indicates the relation between the quantity of material used in the production and the quantity of final output. This acts as a performance indicator of a particular production center.

$$Input\ output\ ratio = \frac{Input\ Units}{Output\ Units} \times 100$$

(b) Inventory Turnover Ratio: This ratio indicates the movement of average stock holding of each item of material in relation to its consumption during the accounting period

$$Inventory\ Turnover\ ratio = \frac{Cost\ of\ materials\ consumed}{Costs\ of\ average\ stock\ held\ during\ the\ period}$$

$$Inventory\ Turnover\ ratio\ (in\ days) = \frac{Days\ during\ the\ period}{Inventory\ turnover\ ratio}$$

Stock turnover figures may reveal the following types of stocks:

(i) Fast Moving Stock: These are materials which are in great demand. An attempt should be made to keep these materials in stock at all the times.

(ii) Slow Moving Stock: These are materials which have a low turnover ratio. Thus inventory of such materials should be maintained at very low level.

(iii) Dormant Stock: Materials which have no demand are classified as dormant stocks. The purchase officer, the store-keeper, the production controller and cost accountant should sit together to decide whether to retain these materials because of good chance of future demand or to decide whether demand or to cut losses by scrapping the materials while they may have some market value.

(iv) Obsolete Stock: These are materials which are no longer in demand because a better substitute has been found. These materials should either be scrapped or discarded.

(c) Other Ratio: Other ratio like inventory as a percentage of current assets, total assets are also useful.

V. SETTING OF VARIOUS STOCK LEVELS

Various stock levels are fixed for effective management of inventories. These levels serve as indices for initiating action on time so that the quantity of each item of inventory is controlled.

- **Re-Order Level :** This is the point fixed between the maximum and minimum stock levels and at this time, it is essential to initiate purchase action for fresh supplies of the material. In order to cover the abnormal usage of material or unexpected delay in delivery of fresh supplies, this point will usually be fixed slightly higher than the minimum stock level. The following factors are taken into account while fixing the re-order level:

1. Maximum usage of materials

2. Maximum lead time

3. Maximum stock level

4. Minimum stock level

Re-order level is the level of stock availability when a new order should be raised. The stores department will initiate the purchase of material when the stock of material reaches at this point. This level is fixed between the minimum and maximum stock levels. The re-order level can be determined by applying the following formula:

Re-Order level= (Maximum consumption rate x Maximum re-order period)

Or

Re-order level= (Lead time x Usage rate per day) + Safety stock

While deciding this level (i) the rate of consumption of the material, and (ii) the time required in receiving the supply are kept in mind. Re- order level is the determined so much above the minimum stock level that by the time new stock is received, if the material is consumed at the normal rate, actual stock in the store may not go below the minimum stock level.

- **Minimum Stock Level:** Minimum stock level is the lower limit below which the stock of any stock item should not normally be allowed to fall. This level is also called safety stock or buffer stock level. The main object of establishing this level is to protect against stock- out of a particular stock item.

  The following factors are taken into account while fixing the minimum stock level:

  1. Average rate of consumption of material.
  2. Average lead time. The shorter the lead time, the lower is the minimum level.
  3. Re-order level.
  4. Nature of the item.
  5. Stock out cost.

The following two points are kept in view while determining the minimum stock level:

(a) Time Required for Receiving Fresh Stock: After order for purchase of some item is placed, it takes some time in receiving the goods. If this time is more, the minimum stock level should be kept more; and if the time taken is less, minimum stock level will also be kept low.

(b) Rate of Consumption of the Material: If a material is consumed in large quantity per day, its minimum stock level has to be kept

higher. If the consumption per day is in small quantity, its minimum stock level is kept low.

Minimum stock level is computed by using following formula:

Minimum stock level = Re-order level - (Normal consumption rate x Normal re-order period)

Or

Minimum stock level = Usage rate per day x Days of safety

- **Maximum Stock Level:** Maximum stock level represents the upper limit beyond which the quantity of any item is not normally allowed to rise to ensure that unnecessary working capital is not blocked in stock items. The maximum level of stock is fixed after due consideration of the storage costs of holding excessive stock, cost of insurance, cost of obsolescence, risk of deterioration, cost of capital, time required in receiving fresh stock and average rate of consumption. It represents the total of safety stock level and economic order quantity.

The following factors are taken into consideration while fixing the maximum stock level:

1. Average rate of consumption of material.

2. Lead time.

3. Re-order level.

4. Maximum requirement of materials for production at any time.

(a). Total Cost

(b). Carrying Costs

(c). Ordering Cost

(d). Quantity per order Cost

5. Storage space available cost of storage and insurance.

6. Financial consideration such as price fluctuations, availability of capital, discounts due to seasonal and bulk purchases, etc.

7. Keeping qualities e.g. risk of deterioration, obsolescence, evaporation, depletion and natural waste, etc.

8. Any restrictions imposed by local or national authority in regard to materials i.e. purchasing from small scale industries and public sector undertakings, price preference clauses, import policy, explosion in case of explosive materials, risk of fire, etc.; and

9. Economic ordering quantity is also considered.

It is computed by the following formula:

Maximum stock level = (Re-order level + Re-order quantity) - (Minimum consumption rate x Minimum re-order period)

Or

Maximum stock level = Economic order quantity + Safety stock

- **Average Stock Level:** Average stock level is obtained by adding the minimum and maximum stock levels and dividing the sum by two.

Average stock level = (Minimum stock level + Maximum stock level)/2

Or

Average stock level = Minimum stock level +1/2 Re-order quantity

- **Danger Level :** This is the level below the minimum stock level. When the stock reaches this level, immediate action is needed for replenishment of stock. As the normal lead time is not available, regular purchase procedure cannot be adopted resulting in higher purchase cost. Hence, this level is useful for taking corrective action only. If this is fixed below the re- order level and above the minimum level, it will be possible to take preventive action.

  Danger level of stock is fixed below the minimum stock level and if stock reaches below this level, urgent action for replenishment of stock should be taken to prevent stock out position.

Danger Stock level= Minimum rate of consumption x Minimum re-order period.

Illustration 1 : In a factory components A and B are used weekly as follows:

Normal Usage		50 units
Maximum Usage		75 units
Minimum Usage		25 units
Re-order Quantity	A =	300 units
	B =	500 units
Re- order Period	A =	4 to 6 weeks
	B =	2 to 4 weeks

Calculate for each component:

(i) Re-order Level

(ii) Maximum Stock Level

(iii) Minimum Stock Level

Solution: Calculation of various stock levels

(1) Re- Order Level = (Max. Usage x Max. re-order period)

Component A = (6 x 75) = 450 units

Component B = (4 x 75) = 300 units

(2) Maximum Stock Level = (Re-order level + Re-order quantity) - (Minimum consumption rate x Minimum re-order period)

Component A = (450+300) - (25 x 4) = 650 units

Component B = (300+500) - (25 x 2) =750 units

(3) Minimum Stock Level = Re-order level - (Normal Usage x Normal re-order period)

Component A = 450 - (50 x 5) = 200 units

Component B = 300 - (50 x 3) = 150 units

VI. ECONOMIC ORDER QUANTITY

It is important to note that only the correct quantity of materials is to be purchased. For this purpose, the factors such as maximum level, minimum level, danger level, re-ordering level, and quantity already on order, quantity reserved, availability of funds, quantity discount, and interest on capital, average consumption and availability of storage accommodation are to be kept in view. There should not be any over stock vis-à-vis a question of non-stock. Balance should be made between the cost of carrying and cost of non-carrying i.e. cost of stock-out. Cost of carrying includes the cost of storage, insurance, obsolescence, interest on capital invested. Cost of not carrying includes the costly purchase, loss of production and sales and loss of customer's goodwill. Economic Ordering Quantity (EOQ) is the quantity fixed at the point where the total cost of ordering and the cost of carrying the inventory will be the minimum. If the quantity of purchases is increased, the cost of ordering decreases while the cost of carrying increases. If the quantity of purchases is decreased, the cost of ordering increases while the cost of carrying decreases. But in this case, the total of both the costs should be kept at minimum. Thus, EOQ may be arrived at by Tabular method by preparing purchase order quantity tables showing the ordering cost, carrying cost and total cost of various sizes of purchase orders.

The economic order quantity refers to the order size that will result is the lowest total of order and carrying costs for an item of inventory. If a firm places unnecessary orders, it will incur unneeded ordering cost. If it places too few orders, it must maintain large stocks of goods and will have excessive carrying cost. So it is clear that there is negative co-relation between ordering cost and carrying cost. By calculating an economic order

quantity, the firm identifies the number of units to order that results in the lowest total of these two costs.

Assumptions of Economic Order Quantity:

- The rate of demand is known and sales occur at a constant rate.
- The lead time, the time between the placement of order and the receipt of the order, is known and constant.
- Stock holding costs are not changed with time factor and are known.
- There are no price discount and no quantity discount.
- Ordering costs are in proportion to number of orders.
- The replenishment is made instantaneously.

Economic order quantity can be computed by using the following formula :

$$EOQ = \sqrt{2AB/CS}$$

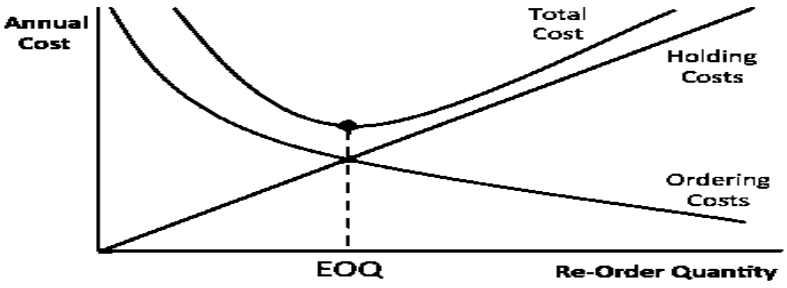
Here, EOQ = Economic order quantity

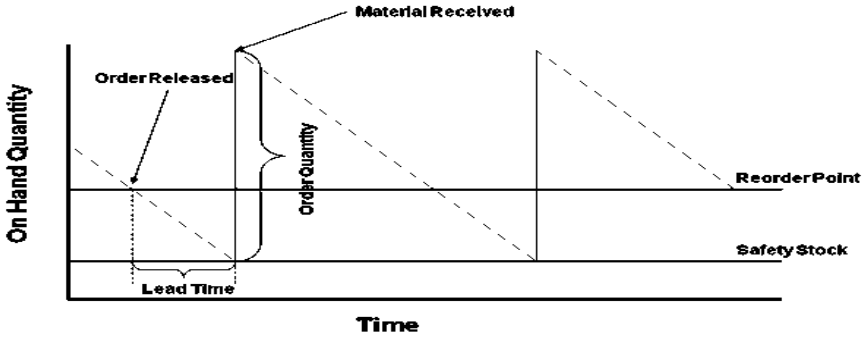
A = Annual consumption

B = Buying or ordering cost per order

C = Cost per unit

S = Storage or inventory carrying cost





One of the major inventory management problems to be resolved is how much inventory should be added when inventory is replenished. If the firm is buying raw materials, it has to decide the lots in which it has to be purchased on replenishment. If the firm is planning a production run, the issue is how much production to schedule (or how much to make). These problems are called order quantity problems, and the task of the firm is to determine the optimum or economic order quantity (or economic lot size). 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 that minimizes the total of ordering and carrying costs.

(a) Ordering costs : The term ordering costs is used in case of raw materials (or supplies) and includes the entire costs of acquiring raw materials. They include costs incurred in the following activities: requisitioning, purchase ordering, transporting, receiving, inspecting and storing (store placement). Ordering costs increase in proportion to the number of orders placed.

(b) Carrying costs : Costs incurred for maintaining a given level of inventory are called carrying costs. 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 (administrative costs), incurred in recording and providing special facilities such as fencing, lines, racks etc.

Carrying costs vary with inventory size. This 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.

(c) Ordering and carrying costs trade-off : The optimum inventory size is commonly referred to as **economic order quantity**. It is that order size at which annual total costs of ordering and holding are the minimum.

(d) Order-formula approach: The trial and error, or analytical, approach is somewhat tedious to calculate the EOQ. An easy way to determine EOQ is to use the order-formula approach. Let us illustrate this approach.

Illustration 2: The annual usage of a refrigerator manufacturing company is 1,60,000 units of a certain component. The order placing cost is Rs. 100 per order and the cost of carrying one unit for a year is 10% of the cost per unit which is Rs. 80. Calculate the economic order quantity.

Solution :

$$EOQ = \sqrt{2AB/CS}$$

$$= \sqrt{2 \times 1,60,000 \times 100 / 10\% \text{ of Rs. } 80}$$

= 2,000 units

Illustration 3 : From the following information find out economic order quantity-

1. Annual usage = 3,200 units
2. Price per unit : Rs. 30
3. Cost of placing an order : Rs. 100
4. Cost of working capital : 10 % per annum
5. Cost of rent, insurance, tax etc. per unit per annum: Re. 1

Solution:

EOQ $= \sqrt{2AB/CS}$

$= \sqrt{2 \times 3,200 \times 100 / 4}$

= 400 units

Note :- Inventory carrying cost = Cost of rent, insurance etc.+ Interest

= 1 + 30*10%

= 1 + 3 = Rs. 4 per unit

Illustration 4: For one of the A class item the purchase manager spent Rs. 500 in procuring 1,000 units in a single lot in a year and thereby avails a discount of 5% on the price of Rs. 10 per unit. No discount will be given for any other order quantity. Inventory carrying charges work out to 40%. If he follows EOQ policy what would be the gain or loss to the organisation?

Solution:

(a) $= \sqrt{2AB/CS}$

$= \sqrt{2 \times 1,000 \times 500 / 4}$

= 500 units

Note: No. of orders per year = 1,000/500 = 2 orders

(b) If 5% discount is availed

No. of orders	= 1 order
Product price	= 10 - 5% of 10
	= Rs. 9.5
Inventory carrying cost	= 9.5 x 40/100
	= Rs. 3.80

	Without discount	**With 5% discount**
EOQ units	500	1,000
Ordering cost	2 x 500 = 1,000	1 x 500 = 500
carrying cost	(50 0/2) x 4 = 1,000	(1,000/2) x 3.8 = 1, 900
Material Purchase cost	1,000 x 10 = 10,000	1,000 x 9.5 = 9,500
Total cost	12,000	11,900

Suggestion : - If he follows EOQ, organization will bear a loss of Rs. 100 (12,000 - 11,900), so 5% discount were be beneficial for the organisation.

Advantages of EOQ

- Constant or uniform demand: The demand or usage is even through-out the period
- Known demand or usage: Demand or usage for a given period is known i.e. deterministic
- Constant unit price: Per unit price of material does not change and is constant irrespective of the order size
- Constant Carrying Costs: The cost of carrying is a fixed percentage of the average value of inventory
- Constant ordering cost: Cost per order is constant whatever be the size of the order

Limitations of EOQ are:

- Only Applicable to Non-Perishable products with staple demand.
- Ignores Delivery Quantities & Discounts.
- Assumes Storage space is unlimited.
- Assumes retailer controls delivery Scheduling.

VII. ABC ANALYSIS

ABC analysis is a basic analytical management tool which enables top management to place the effort where the result will be greatest. This is a rational approach for determining the degree of control that should be exercised on each item of inventory. The technique tries to analyse the distribution of any characteristics by stock value of importance in order to determine its priority. This is also known as ' Always Better Control' techniques. Under this technique the items in inventory are classified in three categories:

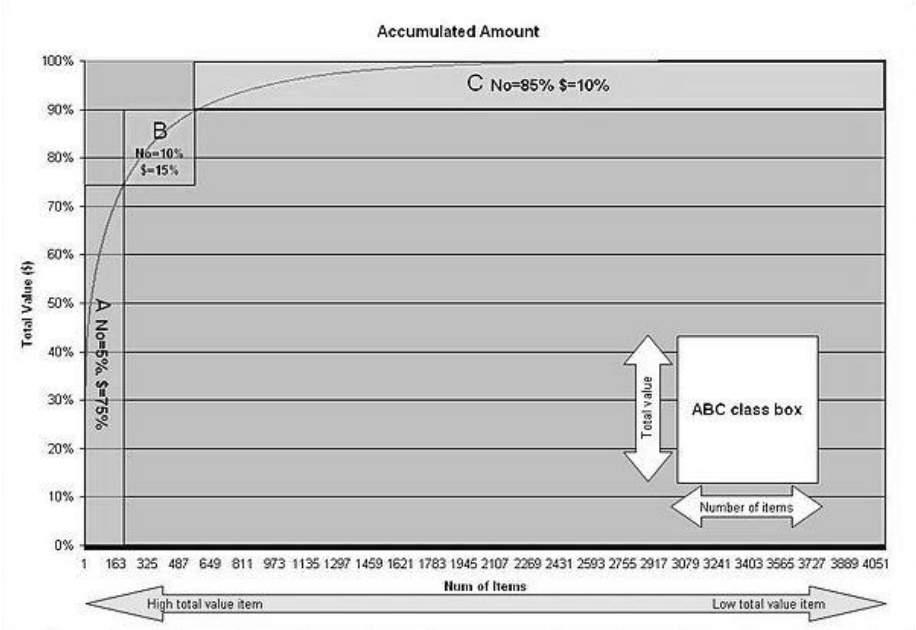
- **Category A :** In this category such items are selected which are comparatively costly and are substantial in the cost structure. Number of such items is very small, but these items represent the major portion of the total value of materials. Items selected in this group are very sensitive in nature.
- **Category B :** In this category those items of material are included which are less important and less costly as compared to those included in group 'A'. Capital needed for purchase of these items is neither too large nor too small.
- **Category C :** Items of the material in the store which have very low cost are included in this category. Number of such items is large, but these represent a very small fraction of the total cost of material. As the purchase of these items requires only a small capital, such items are purchased in large quantity at a time.

Obviously, ‘A’ class items should be subject to strict management control under either continuous review or periodic review with short review cycles. Constant attention is paid by purchases and stores management i.e. no or very low safety stock is maintained, centralized and frequent purchase system is followed, rigorous value analysis is done, efforts for minimization of wastage are done etc. ‘C’ class items require little attention and can be relegated down the line for periodic review. Control over 'B' class items should be somewhere in between.

Classification of Inventory

Category	% of items	% of value	Control Required	Supervision
A	10% to 15%	50% to 70%	Strict control system	Top management
B	25% to 30%	25% to 30%	Continuous watch over inventory	Middle management
C	60% to 65%	10% to 15%	General control	Lower management

The graphic presentation of ABC classification is as follows;



Note: The number (percentage) is just indicative and actual break up can vary from situation to situation. In inventory management, this technique has been applied in those areas which need selective control, such as criticality of items, obsolete stocks, purchasing orders, and receipts of materials, inspection, store keeping and verification of bills. This approach helps the material manager to exercise selective control and focus his attention only on a few items when he is confronted with lakhs of stores items. Many organisations those adopted this technique have claimed that ABC analysis has helped in reducing the clerical costs and resulted in better planning and improved inventory turnover.

The general procedure for classifying A, B or C items is as follows:

1. Ascertain the cost and consumption of each material over a given period of time.
2. Multiply unit cost by estimated usage to obtain net value.
3. List out all the items with quantity and value.
4. Arrange them in descending order in value i.e., ranking according to value.
5. Ascertain the monetary limits for A, B or C classification.
6. Accumulate value and add up number of items of A items. Calculate percentage on total inventory in value and in number.
7. Similar action for B and C class items.

Advantages of ABC Analysis

1. To minimize purchasing cost and carrying cost (i.e. holding cost).
2. Closer and stricter control on these items which represent a high portion of total stock value.
3. Ensuring availability of supplies at all times.
4. Clerical costs can be reduced.
5. Inventory is maintained at optimum level and thereby investment in Inventory can be regulated and will be minimum. ‘A; items will be ordered more frequently and as such the investment in inventory is reduced.
6. Maintaining enough safety stock for ‘C’ items.
7. Equal attention to A, B and C items are not desirable as it is expensive.
8. It is based on the concept of Selective Inventory Management and it helps in maintaining high stock-turnover ratio.

Limitations : Though, ABC analysis is a powerful scientific and systematic approach in the direction of cost reduction and saving time as it helps to control items with a selective approach. Some items though negligible in monetary value, may be vital for smooth functioning of plant and constant attention is needed. For example diesel, oil is categorized in class 'C' items in most of the manufacturing firms, will become the most high value item during power crises. So, the results of ABC analysis have to be periodically reviewed and updated.

VIII. VED CLASSIFICATION

This type of classification divides items into three categories in the descending order of their criticality. Here 'V' stands for vital items and their stock analysis requires more attention, because out of stock situation will result in stoppage of production for example, needle for the machine. Thus, 'V' items must be stored adequately to ensure smooth operation of the plant. 'E' means Essential items. Such items are considered essential for efficient running but without these items the system would not fail but production capacity will be affected. For example, lubricant oil for machine etc. Care must be taken to see that they are always in stock. 'D' stands for Desirable items which do not affect the production immediately but availability of such items will lead to more efficiency and less fatigue. This technique is mainly used in the storage of spare parts and more suitable method for automobile industries.

IX. JUST-IN-TIME (JIT) SYSTEMS

Its origin and development in Japan, largely in the 1960s and 1970s and particularly at Toyota, Just-In-Time (JIT) is a very

simple idea but one that is essential in modern supply chain management. JIT sets out to cut costs by reducing the amount of goods and materials a firm holds in stock.

Japanese firms popularized the Just-In-Time (JIT) system in the world. In a JIT system, material or the manufactured components and parts arrive to the manufacturing sites or stores just few hours before they are put to use. The delivery of material is synchronized with the manufacturing cycle and speed. JIT system eliminates the necessity of carrying large inventories, and thus, saves carrying and other related costs to the manufacturer. The system requires perfect understanding and coordination between the manufacturer and suppliers, in terms of the timing of delivery and quality of the material. Poor quality material or components could halt the production. The JIT inventory system complements the Total Quality Management (TQM). The success of the system depends on how well a company manages its suppliers. The system puts tremendous pressure on suppliers. They will have to develop adequate systems and procedures to satisfactorily meet the needs of manufacturers.

ADVANTAGES :

- There should be minimal amounts of inventory obsolescence,
- The very low inventory levels mean that inventory holding costs (such as warehouse space) are minimized.
- The company is investing far less cash in its inventory, since fewer inventories is needed.
- Fewer inventories can be damaged within the company,
- Production mistakes can be spotted more quickly and corrected

19.9 COMPUTERIZED INVENTORY CONTROL SYSTEMS

More and more companies, small or large size, are adopting the computerized system of controlling inventories. A computerized inventory control system enables a company to easily track large items of inventories. It is an automatic system of counting inventories, recording withdrawals and revising the balance. There is an in-built system of placing order as the computer notices that the reorder point has been reached. The computerized inventory system is inevitable for large retail stores, which carry thousands of items. The computer information systems of the buyers and suppliers are linked to each other. As soon as the supplier's computer receives an order from the buyer's system, the supply process is activated.

Out-Sourcing : A few years ago there was a tendency on the parts of many companies to manufacture all components in-house. Now more and more companies are adopting the practice of out-sourcing. Out-sourcing is a system of buying parts and components from outside rather than manufacturing them internally. Many companies develop a single source of supply, and many others help developing small and middle size suppliers of components that they require. Tata Motors has, for example, developed number of ancillary units around its manufacturing sites that supply parts and components to its manufacturing plants. With the help of Tata Motors, the ancillaries are able to maintain the high quality of the manufactured components. The car manufacturing company, Maruti, which is now controlled by Suzuki of Japan, has the similar system of supply.

19.10 SUMMARY

Inventory represents the major portion of the total current assets in most of the concerns. Every business concern maintains some level of inventory, therefore it is important to manage and control the inventory for smooth functioning of business. The basic problem of inventory management is to strike a balance between the operating efficiency and the cost of investment and other costs associated with large inventories. Inventory constitutes an important item in the working capital of many business concerns. Since inventories constitute about 50 to 60 percent of current assets, the management of inventories is crucial to successful working capital management. Working capital requirements are influenced by inventory holding. Hence, the need for effective and efficient management of inventories.

A good inventory management is important to the successful operations of most organisations, unfortunately the importance of inventory is not always appreciated by top management. This may be due to a failure to recognize the link between inventories and achievement of organizational goals or due to ignorance of the impact that inventories can have on costs and profits. Inventory management refers to an optimum investment in inventories. It should neither be too low to effect the production adversely nor too high to block the funds unnecessarily. Excess investment in inventories is unprofitable for the business. Both excess and inadequate investments in inventories are not desirable. The firm should operate within the two danger points. The purpose of inventory management is to determine and maintain the optimum level of inventory investment.

19.11 SELF-ASSESSMENT QUESTIONS

1. What is inventory management?

2. The major objective of inventory management is 'to minimize cash outlays for inventories'. Explain how this can be achieved.

3. What do you mean by 'Economic order quantity'? How is it determined?

4. How would you determine the optional order size when quantity discounts are available? Illustrate your answer with a suitable example?

5. Discuss the selective inventory management techniques.

6. Explain the formulas of determination of minimum and maximum stock levels. What factors are taken into account in fixing these limits?

7. Explain the concept of 'ABC analyses' as a technique of inventory control.

8. Write short notes on:

(a) ABC analysis

(b) Just in time approach

(c) Double bin system

9. The average annual consumption of a material is 20,000 units at a price of Rs. 40 per units. The cost of placing an order is Rs. 150 and the storage cost is 40% on average inventory. How much quantity is to be purchased at a time.

10. A company manufactures a special product which requires a component 'A'. The following detail is available-

(i) Annual demand= 16000 units

(ii) Cost per unit = Rs. 800

(iii) Carrying cost = 20%

(iv) Cost of placing an order = Rs. 400 per order.

The company has been offered a quantity discount of 8% on the purchase of 'A' provided the order size is 8000 components at a time.

You are required to

(a) Calculate the economic order quantity.

(b) Advise whether the company should avail quantity discount.

11. The following information is supplied to you in respect of an item of stores.

Minimum usage = 100 units

Maximum usage = 300 units

Reorder quantity = 1200 units

Reorder period = 4 to 6 weeks

You are required to ascertain.

(i) Reorder level

(ii) Minimum stock level

(iii) Maximum stock level

(iv) Average stock level

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UNIT-20 RECEIVABLES MANAGEMENT

STRUCTURE

20.1 OBJECTIVES

After studying this unit, you should be able:

- To explain the meaning and definition of receivables;
- To list the benefits and cost of receivables,
- To identify the factors influencing the size of receivables,
- To describe the optimum credit policy,
- To explain functions of receivables management

20.2 INTRODUCTION

A firm should use this information in preparing categories of customers according to their creditworthiness and default risk. This would be an important input for the financial or credit manager in formulating its

credit standards. Trade credit happens when a firm sells its products or services on credit and does not receive cash immediately. It is an essential marketing tool, acting as a bridge for the movement of goods through the production and distribution stages to customers. Trade credit creates accounts receivable or trade debtors that the firm is expected to collect in the near future. A credit sale involves an element of risk since the cash payments are yet to be received.

20.3 MEANING AND NATURE OF RECEIVABLES

Receivables mean the book debts or debtors and these arise, if the goods are sold on credit which may be converted to cash after the credit period. Debtors form about 30% of current assets in India. Debt involves an element of risk and bad debts also. Hence, it calls for careful analysis and proper management. The goal of receivables management is to maximize the value of the firm by achieving a tradeoff between risk and profitability. For this purpose, a finance manager has:

(i) To obtain optimum (non-maximum) value of sales;
(ii) To control the cost of receivables, cost of collection, administrative expenses, bad debts and opportunity cost of funds blocked in the receivables.
(iii) To maintain the debtors at minimum according to the credit policy offered to customers.
(iv) To offer cash discounts suitably depending on the cost of receivables, bank rate of interest and opportunity cost of funds blocked in the receivables.

20.4 OBJECTIVE OF RECEIVABLE MANAGEMENT

Accounts receivable management means managing the credit sales of the firm. The basic objective of accounts receivable management is to collect the funds due and to help the management in meeting their cash flow requirements. An effective accounts receivable management in achieving the desired cash flow through the timely collection of outstanding debts.

20.5 FACTORS AFFECTING THE SIZE OF RECEIVABLES

The size of accounts receivable is determined by a number of factors. Some of the important factors are as follows

1. **Level of credit sales** - This is the most important factor in determining the size of accounts receivable. Generally in the same industry, a firm having a large volume of credit sales will be

having a larger level of receivables as compared to a firm with a small volume of credit sales. Sales level can also be used for forecasting change in accounts receivable. For example, if a firm predicts that there will be an increase of 20% in its credit sales for the next period, it can be expected that there will also be a 20% increase in the level of 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 quantity 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 receivables as compared to a firm with a more rigid or stringent credit policy. This is because of the two reasons:

   (i) A lenient credit policy encourages even the financially strong customers to make delays in payment resulting in increasing the size of the accounts receivables.

   (ii) Lenient credit policy will result in greater defaults in payments by financially weak customers thus resulting in increasing the size of receivables.

3. **Terms of trade** - The size of the receivables is also affected by terms of trade (or credit terms) offered by the firm. The two important components of the credit terms are (i) Credit period and (ii) Cash discount.

   (i) **Credit Period:** The term credit period refers to the time duration for which credit is extended to the customers. It is generally expressed in terms of "Net days". For example, if a firm's credit terms are "Net 15", it means the customers are expected to pay within 15 days from the date of credit sale.

   (ii) **Cash Discount:** Most firms offer cash discount to their customers for encouraging them to pay their dues before the expiry of the credit period. The terms of cash discount indicate the rate of discount as well as the period for which the discount has been offered. For example, if the terms of cash discount are changed from "Net 30" to "2/10 Net 30", it means the credit period is of 30 days but in case customer pays in 10 days, he would get 2% discount on the amount due by him. Of course, allowing cash discount results in a loss to the firm because of recovery of fewer amounts than what is due from the customer but it reduces the volume of receivables and puts extra funds at the disposal of the firm for alternative profitable investment. The amount of loss thus

suffered is, therefore, compensated by the income otherwise earned by the firm.

20.6 OPTIMUM SIZE OF RECEIVABLES

The optimum investment in receivables will be at a level where there is a trade-off between costs and profitability. When the firm resorts to a liberal credit policy, the profitability of the firm increases on account of higher sales. However, such a policy results in increased investment in receivables, increased chances of bad debts and more collection costs. The total investment in receivables increases and, thus, the problem of liquidity is created. On the other hand, a stringent credit policy reduces the profitability but increases the liquidity of the firm. Thus, optimum credit policy occurs at a point where there is a "Trade-off" between liquidity and profitability.

20.7 COSTS OF MAINTAINING RECEIVABLES

The costs with respect to maintenance of receivables can be identified as follows

1. **Capital costs** - Maintenance of accounts receivable results in blocking of the firm's financial resources in them. This is because there is a time lag between the sale of goods to customers and the payments by them. The firm has, therefore, to arrange for additional funds to meet its own obligations, such as payment to employees, suppliers of raw materials, etc., while awaiting for payments from its customers. Additional funds may either be raised from outside or out of profits retained in the business. In first the case, the firm has to pay interest to the outsider while in the latter case, there is an opportunity cost to the firm, i.e., the money which the firm could have earned otherwise by investing the funds elsewhere.

2. **Administrative costs** - The firm has to incur additional administrative costs for maintaining accounts receivable in the form of salaries to the staff kept for maintaining accounting records relating to customers, cost of conducting investigation regarding potential credit customers to determine their credit worthiness etc.

3. **Collection costs** - The firm has to incur costs for collecting the payments from its credit customers. Sometimes, additional steps may have to be taken to recover money from defaulting customers.

4. **Defaulting costs** - Sometimes after making all serious efforts to collect money from defaulting customers, the firm may not be able to recover the over dues because of the inability of the customers.

Such debts are treated as bad debts and have to be written off since they cannot be realized.

20.8 BENEFITS OF MAINTAINING RECEIVABLES

1. **Increase in Sales** - Except a few monopolistic firms, most of the firms are required to sell goods on credit, either because of trade customers or other conditions. The sales can further be increased by liberalizing the credit terms. This will attract more customers to the firm resulting in higher sales and growth of the firm.

2. **Increase in Profits** - Increase in sales will help the firm (i) to easily recover the fixed expenses and attaining the break-even level, and (ii) increase the operating profit of the firm. In a normal situation, there is a positive relation between the sales volume and the profit.

3. **Extra Profit** - Sometimes, the firms make the credit sales at a price which is higher than the usual cash selling price. This brings an opportunity to the firm to make extra profit over and above the normal profit.

4. **To Face the Competition** – The firm may efficiently face the challenges pose by the competitors.

20.9 CREDIT POLICY : NATURE AND GOALS

The credit policy of a firm affects the working capital by influencing the level of debtors. The firm should use discretion in granting credit terms to its customers. Depending upon the individual case, different terms may be given to different customers. A liberal credit policy, without rating the credit-worthiness of customers, will be detrimental to the firm and will create a problem of collection later on. The firm should be prompt in making collections. A high collection period will mean tie-up of large funds in debtors. Slack collection procedures can increase the chance of bad debts.

In order to ensure that unnecessary funds are not tied up in debtors, the firm should follow a rationalised credit policy based on the credit standing of customers and other relevant factors. The firm should evaluate the credit standing of new customers and periodically review the credit-worthiness of the existing customers. The case of delayed payments should be thoroughly investigated.

(A) CREDIT POLICY VARIABLES: In establishing an optimum credit policy, the financial manager must consider the important decision variables which influence the level of receivables. The major controllable decision variables include the following:

- Credit standards and analysis

- Credit terms
- Collection policy and procedures

The financial manager or the credit manager may administer the credit policy of a firm. It should, however, be appreciated that credit policy has important implications for the firm's production, marketing and finance functions. Therefore, it is advisable that a committee that consists of executives of production, marketing and finance departments formulates the firm's credit policy. Within the framework of the credit policy, as laid down by this committee, the financial or credit manager should ensure that the firm's value of share is maximized. He does so by answering the following questions:

- What will be the change in sales when a decision variable is altered?
- What will be the cost of altering the decision variable?
- How would the level of receivable be affected by changing the decision variable?
- How are expected rate of return and cost of funds related?

The most difficult part of the analysis of impact of change in the credit policy variables is the estimation of sales and costs. Even if sales and costs can be estimated, it would be difficult to establish an optimum credit policy, as the best combination of the variables of credit policy is quite difficult to obtain. For these reasons, the establishment of credit policy is a slow process in practice. A firm will change one or two variables at a time and observe the effect. Based on the actual experience, variables may be changed further, or change may be reversed. It should also be noted that the firm's credit policy is greatly influenced by economic conditions. As economic conditions change, the credit policy of the firm may also change. Thus, the credit policy decision is not one time static decision. The impacts of changes in the major decision variables of credit policy are discussed below.

(B) CREDIT STANDARDS : Credit standards are the criteria which a firm follows in selecting customers for the purpose of credit extension. The firm may have tight credit standards, that is, it may sell mostly on cash basis and may extend credit only to the most reliable and financially strong customers. Such standards will result in no bad debt losses and less cost of credit administration but the firm may not be able to expand sales. The profit sacrificed on lost sales may be more than the costs saved by the firm. On the contrary, if credit standards are loose, the firm may have larger sales but the firm will have to carry larger receivable. The costs of administering credit and bad-debt losses will also increase. Thus, the choice of optimum credit standards involves a trade-off between incremental return and incremental costs.

(C) CREDIT ANALYSIS: Credit standards influence the quality of the firm's customers. There are two aspects of the quality of customers: (i) the time taken by customers to repay credit obligation and (ii) the default rate. The average collection period (ACP) determines the speed of payment by customers. It measures the number of days for which credit sales remain outstanding. The longer the average collection period, the higher the firm's investment in accounts receivable. Default rate can be measured in terms of bad-debt losses ratio—the proportion of uncollected receivable. Bad-debt losses ratio indicates default risk. Default risk is the likelihood that a customer will fail to repay the credit obligation. On the basis of past practice and experience, the financial or credit manager should be able to form a reasonable judgment regarding the chances of default. To estimate the probability of default, the financial or credit manager should consider three *C's*: (*a*) character (*b*) capacity and (*c*) condition.

(a). Character: It refers to the customer's willingness to pay. The financial or credit manager should judge whether the customers will make honest efforts to honour their credit obligations. The moral factor is of considerable importance in credit evaluation in practice.

(b). Capacity*:* It refers to the customer's ability to pay. Ability to pay can be judged by assessing the customer's capital and assets which he may offer as security. Capacity is evaluated by the financial position of the firm as indicated by analysis of ratios and trends in firm's cash and working capital position. The financial or credit manager should determine the real worth of assets offered as collateral (security).

(c). Condition*:* It refers to the prevailing economic and other conditions which may affect the customers' ability to pay. Adverse economic conditions can affect the ability or willingness of a customer to pay. An experienced financial or credit manager will be able to judge the extent and genuineness to which the customer's ability to pay is affected by the economic conditions.

Information on these variables may be collected from the customers themselves, their published financial statements and outside agencies which may be keeping credit information about customers. A firm should use this information in preparing categories of customers according to their creditworthiness and default risk. This would be an important input for the financial or credit manager in formulating its credit standards. The firm may categorize its customers, at least, in the following three categories:

- **Good accounts**, that is, financially strong customers.
- **Bad accounts**, that is, financially very weak, high risk customers.

- **Marginal accounts**, that is, customers with moderate financial health and risk (falling between good and bad accounts).

The firm will have no difficulty in quickly deciding about the extension of credit to good accounts and rejecting the credit request of bad accounts. Most of the firm's time will be taken in evaluating marginal accounts, that is, customers who are not financially very strong but are also not so bad to be out rightly rejected. A firm can expand its sales by extending credit to marginal accounts. But the firm's costs and bad-debt losses may also increase. Therefore, credit standards should be relaxed upon the point where incremental return equals incremental cost.

20.10 CREDIT EVALUATION OF CUSTOMER

Credit evaluation of the customer involves the following 5 stages

i. **Gathering credit information** of the customer through:

a) Financial statements of a firm,

b) Bank references,

c) References from Trade and Chamber of Commerce,

d) Reports of credit rating agencies,

e) Credit bureau reports,

f) Firm's own records (Past experience),

g) Other sources such as trade journals, Income-tax returns, wealth tax returns, sales tax returns, Court cases, Gazette notifications etc.

ii. **Credit analysis:** After gathering the above information about the customer, the creditworthiness of the applicant is to be analyzed by a detailed study of 5 C's of credit as mentioned below in the determinants of credit policy.

iii. **Credit decision**: After the credit analysis, the next step is the decision to extend the credit facility to potential customer. If the analysis of the applicant is not up to the standard, he may be offered cash on delivery (COD) terms even by extending trade discount, if necessary, instead of rejecting the credit to the customer.

iv. **Credit limit**: If the decision is to extend the credit facility to the potential customer, a limit may be prescribed by the financial manager, say, Rs. 25,000 or Rs. 1,00,000 or so, depending upon the credit analysis and credit-worthiness of the customer.

v. **Collection procedure**: A suitable and clear-cut collection procedure is to be established by a firm and the same is to be intimated to every customer while granting credit facility. Cash

discounts may also be offered for the early payment of dues. This facilitates faster recovery.

20.11 DETERMINANTS OF CREDIT POLICY

The following are the aspects of credit policy:

i) Level of credit sales required to optimize the profit.

ii) Credit period i.e. duration of credit, whether it may be 15 days or 30 or 45 days etc.

iii) Cash discount, discount period and seasonal offers.

iv) Credit standard of a customer: 5 C's of credit:

- **a.** Character of the customer i.e. willingness to pay.
- **b.** Capacity-ability to pay.
- **c.** Capital-financial resources of a customer.
- **d.** Conditions-special conditions for extension of credit to doubtful customers and prevailing economic and market conditions and;
- **e.** Collateral security.

v) Profits.

vi) Market and economic conditions.

vii) Collection policy.

viii) Paying habits of customers.

ix) Billing efficiency, record-keeping etc.

x) Grant of credit size and age of receivables.

20.12 OPTIMUM CREDIT POLICY

A firm should establish receivables policies after carefully considering both benefits and costs of different policies. These policies relate to:

(i) Credit Standards,

(ii) Credit Terms, and

(iii) Collection Procedures.

Each of these has been explained below:

i. **Credit standards** - The term credit standards represent the basic criteria for extension of credit to customers. The levels of sales and receivables are likely to be high if the credit standards are

relatively loose, as compared to a situation when they are relatively tight. The firm's credit standards are generally determined by the five "C's". Character, Capacity, Capital, Collateral and Conditions. Character denotes the integrity of the customer, i.e. his willingness to pay for the goods purchased. Capacity denotes his ability to manage the business. Capital denotes his financial soundness. Collateral refers to the assets which the customer can offer by way of security. Conditions refer to the impact of general economic trends on the firm or to special developments in certain areas of economy that may affect the customer's ability to meet his obligations.

Information about the five C's can be collected both from internal as well as external sources. Internal sources include the firm's previous experience with the customer supplemented by its own well developed information system. External resources include customer's references, trade associations and credit rating organisations such as Don & Brad Street Inc. of USA. This Organisation has more than hundred years' experience in the field of credit reporting. It publishes a reference book six times a year containing information about important business firms region wise. It also supplies credit reports about different firms on request.

An individual firm can translate its credit information into risk classes or groups according to the probability of loss associated with each class. On the basis of this information, the firm can decide whether it will be advisable for it to extend credit to a particular class of customers.

ii. Credit terms - It refers to the terms under which a firm sells goods on credit to its customers. As stated earlier, the two components of the credit terms are (a) Credit Period and (b) Cash Discount. The approach to be adopted by the firm in respect of each of these components is discussed below:

(a) Credit period - Extending the credit period stimulates sales but increases the cost on account of more tying up of funds in receivables. Similarly, shortening the credit period reduces the profit on account of reduced sales, but also reduces the cost of tying up of funds in receivables. Determining the optimal credit period, therefore, involves locating the period where the marginal profits on increased sales are exactly offset by the cost of carrying the higher amount of accounts receivable.

(b) Cash discount - The effect of allowing cash discount can also be analyzed on the same pattern as that of the credit period. Attractive cash discount terms reduce the average collection period resulting in reduced investment in accounts receivable. Thus, there is a saving in capital costs. On the other hand, cash discount itself is a loss to the firm. Optimal

discount is established at the point where the cost and benefit are exactly offsetting.

iii. **Collection procedures** - A stringent collection procedure is expensive for the firm because of high out-of-pocket costs and loss of goodwill of the firm among its customers. However, it minimizes the loss on account of bad debts as well as increases savings in terms of lower capital costs on account of reduction in the size of receivables. A balance has therefore to be stuck between the costs and benefits of different collection procedures or policies.

OPTIMUM CREDIT POLICY : A MARGINAL COST-BENEFIT ANALYSIS

The firm's operating profit is maximized when total cost is minimized for a given level of revenue. Credit policy at point *A* in Figure represents the maximum operating profit (since total cost is minimum). But it is not necessarily the optimum credit policy. Optimum credit policy is one which maximizes the firm's value. The value of the firm is maximized when the incremental or marginal rate of return of an investment is equal to the incremental or marginal cost of funds used to finance the investment. The incremental rate of return can be calculated as incremental operating profit divided by the incremental investment in receivable. The incremental cost of funds is the rate of return required by the suppliers of funds, given the risk of investment in accounts receivable. Note that the required rate of return is not equal to the borrowing rate. Higher the risk of investment, higher the required rate of return. As the firm loosens its credit policy, its investment in accounts receivable becomes more risky because of increase in slow-paying and defaulting accounts. Thus the required rate of return is an upward sloping curve.

In sum, we may state that the goal of the firm's credit policy is to maximize the value of the firm. To achieve this goal, the evaluation of investment in accounts receivable should involve the following four steps:

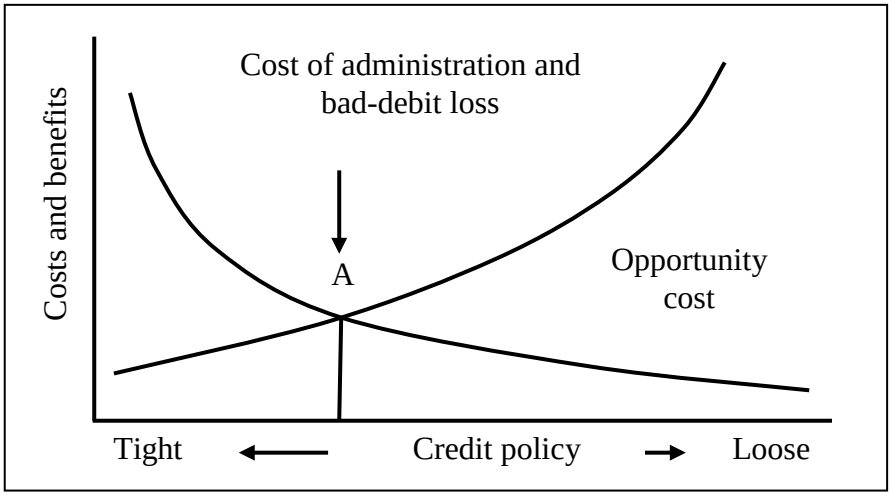

Figure Costs of Credit Policy

- Estimation of incremental operating profit.
- Estimation of incremental investment in accounts receivable.
- Estimation of the incremental rate of return of investment.
- Comparison of the incremental rate of return with the required rate of return.

20.13 SUMMARY

Receivables mean the book debts or debtors and these arise, if the goods are sold on credit. Debtors form about 30% of current assets in India. Debt involves an element of risk and bad debts also. Hence, it calls for careful analysis and proper management. The goal of receivables management is to maximize the value of the firm by achieving a tradeoff between risk and profitability. The optimum investment in receivables will be at a level where there is a trade-off between costs and profitability. When the firm resorts to a liberal credit policy, the profitability of the firm increases on account of higher sales. However, such a policy results in increased investment in receivables, increased chances of bad debts and more collection costs.

The levels of three kinds of inventories for a firm depend on the nature of its business. Firms also maintain a fourth kind of inventory, supplies or stores and spares. Supplies include office and plant maintenance materials like soap, brooms, oil, fuel, light bulbs, etc. These materials do not directly enter production, but are necessary for production process. Usually, these supplies are small part of the total inventory and do not involve significant investment. Inventory in the stock help by an organization in goods. Because of huge investment involves in inventory many organizations give special emphasis to the management of inventory. The finance manger the inventory and the benefit of holding the inventory. In order to manage the inventory efficiently, a large number of technique are being employed.

20.14 SELF-ASSESSMENT QUESTIONS

1. Explain receivable management.

2. Describe the nature of receivable.

3. Illustrate the concept of optimum credit policy.

4. What are the objectives of Receivable Management?

5. Explain the factors affecting the size of receivables.

6. What is the optimum size of receivables?

7. Describe the costs of maintaining receivables.

8. Explain the role played by various credit policy variables.

9. "In establishing an optimum credit policy, the financial manager must consider the important decision variables which influence the level of receivables." Discuss the importance of credit policy.

10. Write short notes on the following:

(i) raw materials (ii) work-in-process (iii) finished goods.

11. Write a note on the cash and benefit associated with receivables management.

12. What are the firms credit standard?

13. Discuss the credit evaluation of customer.

14. What are the benefits of receivable management?

15. Critically examine the marginal cost-benefit analysis of optimum credit policy.

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Rough Work