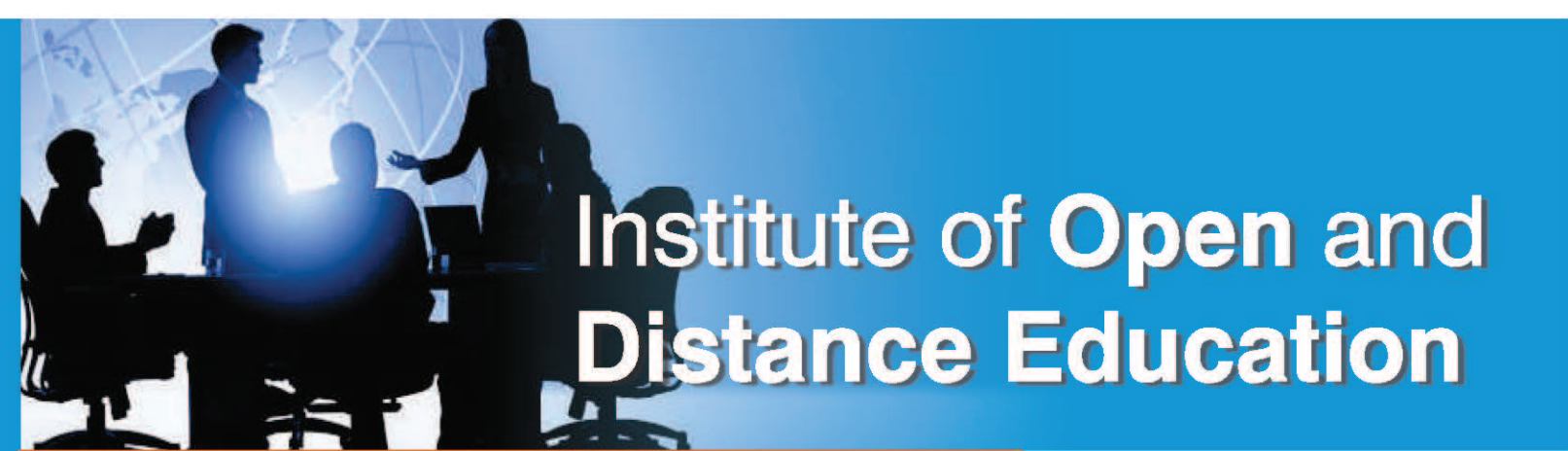




Financial Management



Institute of Open and Distance Education

Faculty of Management

# Financial Management



4BBA3



**Dr. C.V. Raman University**  
Kargi Road, Kota, BILASPUR, (C. G.),  
Ph. : +07753-253801, +07753-253872  
E-mail : [info@cvru.ac.in](mailto:info@cvru.ac.in) | Website : [www.cvru.ac.in](http://www.cvru.ac.in)



**DR. C.V. RAMAN UNIVERSITY**

**Chhattisgarh, Bilaspur**

A STATUTORY UNIVERSITY UNDER SECTION 2(F) OF THE UGC ACT

**4BBA3**

**Financial Management**

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**Subject Expert Team**

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***Dr. Vivek Bajpai,***  
*Dr. C.V. Raman University, Kota,*  
*Bilaspur, Chhattisgarh*

***Dr. Rajeev H. Peters,***  
*Dr. C.V. Raman University, Kota,*  
*Bilaspur, Chhattisgarh*

***Dr. Niket Shukla,***  
*Dr. C.V. Raman University, Kota,*  
*Bilaspur, Chhattisgarh*

***Dr. Satish Sahu,***  
*Dr. C.V. Raman University, Kota,*  
*Bilaspur, Chhattisgarh*

***Dr. Archana Agrawal,***  
*Dr. C.V. Raman University, Kota,*  
*Bilaspur, Chhattisgarh*

***Dr. Vikas Kumar Tiwari,***  
*Dr. C.V. Raman University, Kota,*  
*Bilaspur, Chhattisgarh*

---

**Course Editor:**

---

- **Dr. Preeti Shrivastava, Associate Professor**  
Rabindranath Tagore University, Bhopal, Madhya Pradesh

---

**Unit Written By:**

---

- 1. Dr. Indu Santosh**  
Associate Professor, Dr. C. V. Raman University
- 2. Dr. Priyank Mishra**  
Associate Professor, Dr. C. V. Raman University
- 3. Dr. Anshul Shrivastava**  
Assistant Professor, Dr. C. V. Raman University

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# **BLOCK I**

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## UNIT

# 1

## FOUNDATION OF FINANCE

### CONTENTS

- 1.0 Aims and Objectives
- 1.1 Introduction
- 1.2 Meaning of Finance
  - 1.2.1 Features of Finance
  - 1.2.2 Finance Function
  - 1.2.3 Objectives of Finance Function
  - 1.2.4 Interrelation with Other Departments
- 1.3 General Organisational Structure of Finance Function
- 1.4 Types of Finance
- 1.5 Let Us Sum Up
- 1.6 Unit End Activity
- 1.7 Keywords
- 1.8 Questions for Discussion
- 1.9 References/ Suggested Readings

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### 1.0 AIMS AND OBJECTIVES

After studying this lesson, you should be able to:

- Explain the meaning of finance
- Discuss the features of finance
- Understand the organisational structure of finance function

---

### 1.1 INTRODUCTION

Every business whether big or small needs finance to meet its requirements. It is impossible to conduct business without finance. Therefore, finance is rightly considered as the lifeblood of business. A world without finance cannot be imagined. Finance is the soul of the economic activities. To perform any economic activity, resources are required, which are pooled in terms of money. Finance is a pre-requisite for obtaining physical resources, required to perform productive activities and carry business operations.

Thus, finance is an inseparable part of day-to-day lives.

## 1.2 MEANING OF FINANCE

The word 'finance' has its origin in French culture. In the 18<sup>th</sup> century, English speaking communities referred finance as management of money. In today's world, finance is not just a word but an entire academic discipline which is of great significance. Finance is also considered as exchange of available resources. But finance is not just restricted to the exchange and management of money. A barter trading system is also considered finance. Thus, finance is an art of managing various available resources such as money, assets, investments and securities.

Finance has been defined differently by different groups of people.

1. In General sense, "Finance is the art and science of managing money."
2. According to Experts, "Finance is a simple task of providing the necessary funds (money) required by the business of entities like companies, firms, individuals and others on the terms that are most favourable to achieve their economic objectives."
3. According to Entrepreneurs, "Finance is concerned with cash. It is so, since, every business transaction involves cash directly or indirectly."
4. According to Academicians, "Finance is the procurement (to get, obtain) of funds and effective (properly planned) utilisation of funds. It also deals with profits that adequately compensate for the cost and risks borne by the business."

Finance has also been defined differently by different economists and authors as below:

"Finance is study how scarce resources are allocated over time."

– Bodie and Merton

"Finance refers to all activities related to obtaining money and effective use."

– O. Ferrel C. and Geoffrey Hirt

"The Science on study of the management of funds and the management of fund as the system that includes the circulation of money, the granting of credit, the making of investments and the provision of banking facilities."

– Webster's Ninth New Collegiate Dictionary

"Finance is concerned with the process institutions, markets and instruments involved in the transfer of money among individuals, business and governments."

– Gitman

"Finance is concerned with decision about money or more appropriately cash flows."

– Scott and Brigham

"Finance may be defined as the position of money at the time it is wanted."

– F.W. Paish

"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."

– John J. Hamplon

"Finance may be defined as that administrative area or set of administrative functions in an organisation which relates with the arrangement of each and credit so that the organisation may have the means to carry out the objectives as satisfactorily as possible."

– Howard and Upton

“Financing consists in the raising, providing, managing of all the money, capital or funds of any kind to be used in connection with the business.”

– *Bonneville and Dewey*

“An organism composed of a myriad of separate enterprise, each working for its own ends but simultaneously making a contribution to the system as a whole, some force is necessary to bring about direction and co-ordination. Something must direct the flow of economic activity and facilitate its smooth operation. Finance is the agent that produces this result.”

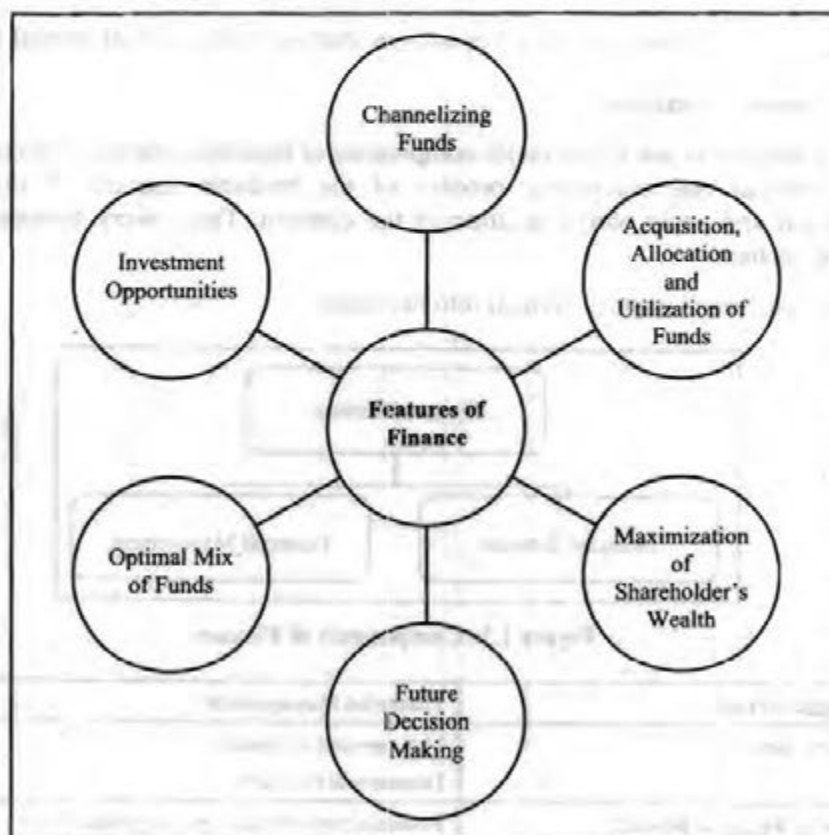
– *Hurband and Dockery*

From the above definitions we can say that;

- Finance is a branch of the economy.
- It deals with the acquisition and effective use of money. That is, it helps to make decisions on how much to spend, how much to save, how much to invest, how much risk to take.
- It affects individuals, businesses, organisations and states.

### 1.2.1 Features of Finance

The main features of finance are:



**Figure 1.1: Features of Finance**

- **Channelizing Funds:** Financial sector and financial markets channel funds from people who have surplus to people who have shortage.



- **Acquisition, Allocation and Utilization of Funds:** Business needs to decide about the mode of raising funds. Once funds are acquired, they have to be allocated to various projects and services. Business should ensure that the funds are utilized efficiently and effectively to achieve its objectives.
- **Maximization of Shareholder's Wealth:** Finance helps to maximise shareholder's wealth by defining policies and through management of working capital.
- **Future Decision Making:** Finance is concerned with future decisions of organisation. Sound and better decision making is possible only through proper analysis of financial needs and availability.
- **Optimal Mix of Funds:** Finance is concerned with best optimal mix of funds to get desired and pre-determined results. There are two types of funds:
  - ❖ Owned funds - Promoter Contribution, Equity shares
  - ❖ Borrowed funds - Bank Loan, Bank overdraft, Debentures
- **Investment Opportunities:** Investment means utilization of money for profit or returns. Investment can be done by:
  - ❖ Creating physical assets with the money such as development of land, acquiring commercial assets.
  - ❖ Carrying on business activities such as manufacturing.
  - ❖ Acquiring financial securities such as shares, bonds, units of mutual funds.

### 1.2.2 Finance Function

Finance function is one of the major components of business concern. It is required for the permanent and continuous process of the business concern. It reflects the operational and profit ability position of the concern. Thus, every business focuses more on finance.

Finance function is majorly divided into two parts:

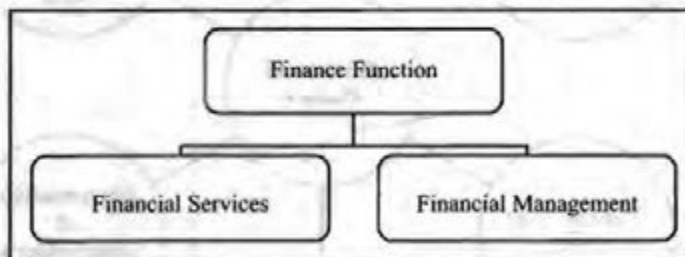
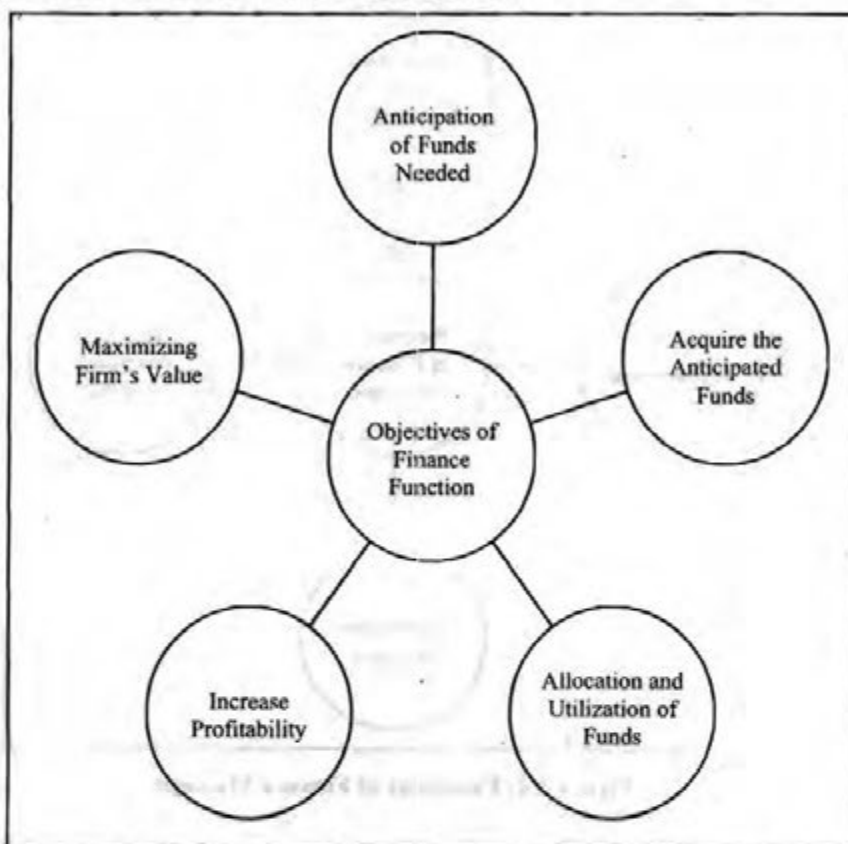


Figure 1.2: Components of Finance

Financial services	Financial Management
Advisory services	Management of finance Department in a firm
Designing Financial products	Financial/non-financial/public/private/NGO
Investments, real estate & insurance	Budgeting Forecasting
Personal Financial planning	Cash & credit management Investment analysis

### 1.2.3 Objectives of Finance Function

The objectives of finance function are listed below:



**Figure 1.3: Objectives of Finance Function**

**Anticipation of Funds Needed:** Before starting any operation or project, there is a need to assess the available assets for available funds. Proper evaluation of assets to select them is necessary to anticipate the funds required for financing them.

**Acquire the Anticipated Funds:** The prime objective of finance function is to assess the requirements of a concern and then raise the funds from suitable source.

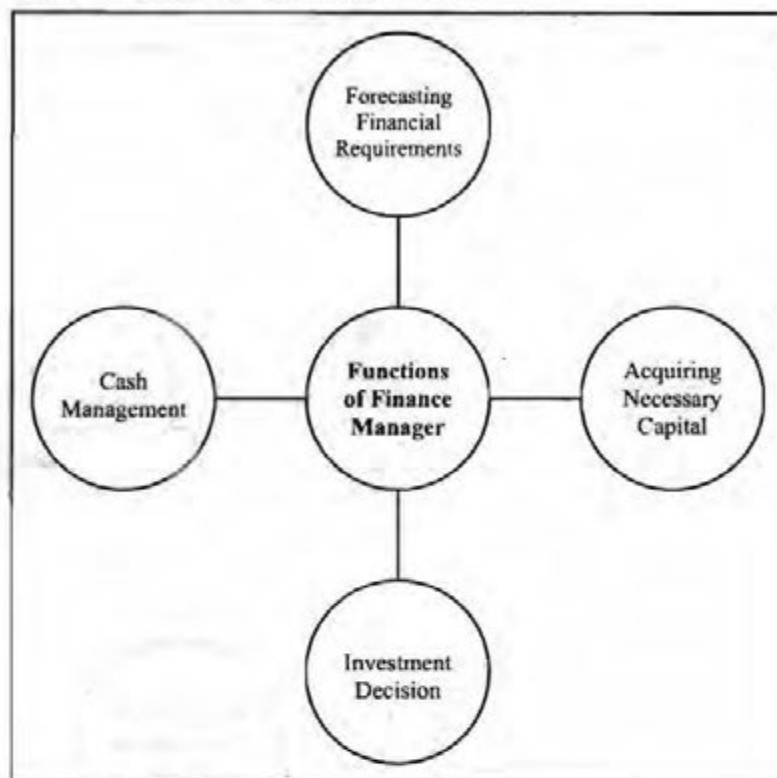
**Allocation and Utilization of Funds:** Efficient allocation and utilization of funds is one of the primary objectives of finance function. Efficient allocation means investing funds in profitable projects.

**Increase Profitability:** Proper planning and control of finance function means increase in profitability of the firm. Thus, it is vital to arrange sufficient funds at right time and on right asset.

**Maximizing Firm's Value:** Every firm aims to maximize its value by taking right decisions. Finance function helps the firms to do so.

Finance managers play an important role in performing the finance function within an organisation. He is the person who deals finance related activities and possesses required knowledge in the area of accounting, finance, economics and management.

Finance manager performs the following functions:



**Figure 1.4: Functions of Finance Manager**

#### ***Forecasting Financial Requirements***

Forecasting financial requirements is the primary function of the Finance Manager. He is required to estimate how much finances are needed to acquire fixed assets. He is required to forecast the amount needed to meet the working capital requirements in future.

#### ***Acquiring Necessary Capital***

After deciding the financial requirement, the finance manager should concentrate how the finance is mobilized and where it will be available.

#### ***Investment Decision***

The finance manager must carefully select best investment alternatives and consider the reasonable and stable return from the investment. He must have thorough knowledge of capital budgeting techniques to determine the effective utilization of investment. The finance manager should follow the principles of safety, liquidity and profitability while deciding on investment options.

#### ***Cash Management***

Cash management plays a major role in the area of finance because proper and effective cash management is essential for effective utilization of cash and helps to meet the short-term liquidity position of the concern.

#### **1.2.4 Interrelation with Other Departments**

Finance is an inter-related function and thus the finance manager deals with various functional departments such as marketing, production, personnel, system, research, development. Finance manager should have sound knowledge not just in finance but also in other areas as well.

Relationship of finance with other business functions is depicted below:

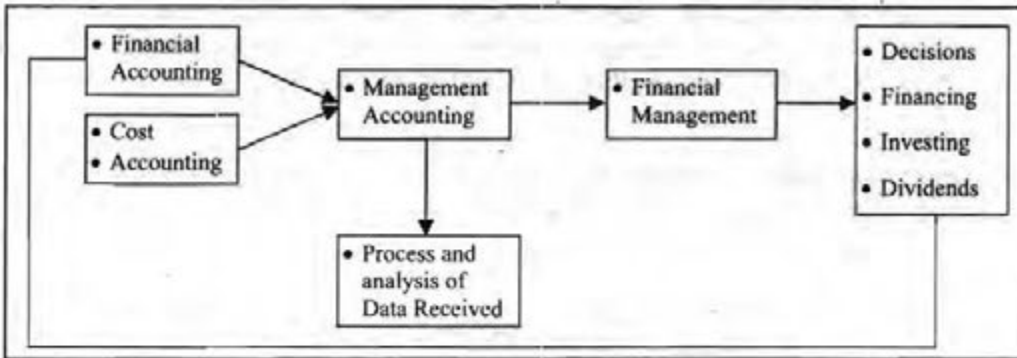


Figure 1.5: Relationship of Finance with other Business Functions

- **Finance and Production:**

- ❖ Finance is the basis of production and is needed at every stage of production.
- ❖ Planning & preparation of project report.
- ❖ Acquiring raw materials, plant & machinery, tools & spares, technological know-how.

- **Finance and Marketing:**

- ❖ Finance is needed in all vital areas of marketing such as Sales promotion & Advertising, introduction of new products, diversification of existing lines to satisfy customers changing needs, physical distribution of goods etc.

- **Finance and Human Resource:**

- ❖ Finance in personnel is required for recruitment, selection, training and promotion schemes.

- **Finance and Research & Development:**

- ❖ Finance in R&D is used for Innovation, Technological upgradation
- ❖ To meet and cater the demands of changing needs & preferences of customers
- ❖ To stay competitive

### 1.3 GENERAL ORGANISATIONAL STRUCTURE OF FINANCE FUNCTION

General organisational structure of finance function is depicted below:

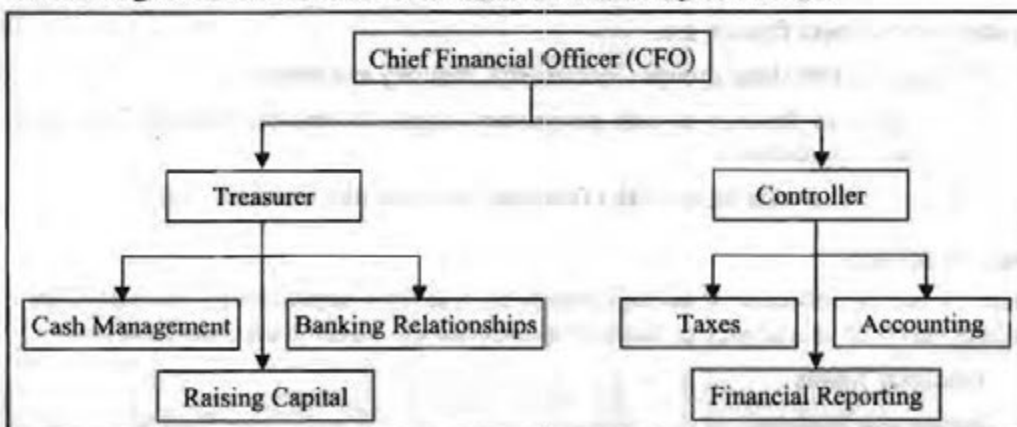


Figure 1.6: General Organisational Structure of Finance Function



**Treasurer**

He is concerned mainly with financing and investment activities including cash management, relationship management with bankers, credit management, portfolio management, inventory management and dividend disbursement.

**Controller**

His functions are related to management and control of assets like cost and financial accounting, taxation, auditing, budget preparation.

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## 1.4 TYPES OF FINANCE

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Finance can be divided into the following categories:

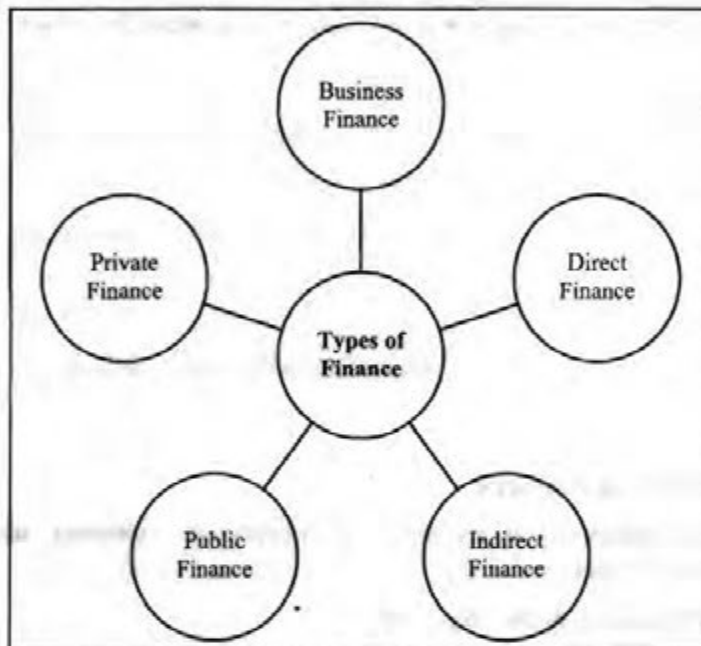


Figure 1.7: Types of Finance

**Business Finance**

According to Guthmann and Dougall, business finance can be defined as “the activity concerned with planning, raising, controlling and administering of funds used in the business.”

Business finance simply means finances of business activities. It is a process of raising, arranging and managing money to be used for business activities. It is the process of procuring and appropriately utilizing funds.

Features of business finance are:

- It is divided into three groups – commerce, industry and service.
- It incorporates finance of sole proprietary organisations, partnership firms and corporate organisations.
- Its deals with a wide range of the financial activities of a business firm.

**Direct Finance**

Direct finance is collection of savings directly from savings-surplus units, channelized into investments with interference of financial intermediaries. Direct finance has three parts:

1. Financial Assets
2. Investment Bankers
3. Stock Exchange

### Advantages of Direct Finance

- Removes the cost of a financial intermediary if a borrower attains a loan from a finance institution, they will have to pay a profit margin to the intermediary.
- Allows to diversify funding sources by accessing both domestic and international money and capital markets to reduce the risk of exposure to a single funding source.
- Provides greater flexibility in the type of funding instruments used to meet financing needs.
- Enhances an organizations international profile.

### Disadvantages of Direct Finance

- Inability to match preferences between lenders and borrowers
- Not all instruments have an active secondary market
- Includes search and transaction costs
- Assessment of risk is difficult

### Indirect Finance

Indirect finance is collection of savings channelized into investments with interference of financial intermediaries.

Advantages of Indirect Finance are:

- Resolves conflicting preferences between surplus and deficit units
- Offers range of financial products to customers
- Incentivizes savings for small surplus units.
- Offers products with a range of terms to maturity
- Pools many small short-term deposits and lend out as long-term loans
- Actively manages sources of funds to meet future loan demand
- Has expertise in assessing risk of borrowers.
- Has ability to convert a financial asset into cash
- Has ability to lower transaction fees by spreading fixed costs
- Creates cost efficient distribution systems

Below image depicts the process of Direct and Indirect Finance.

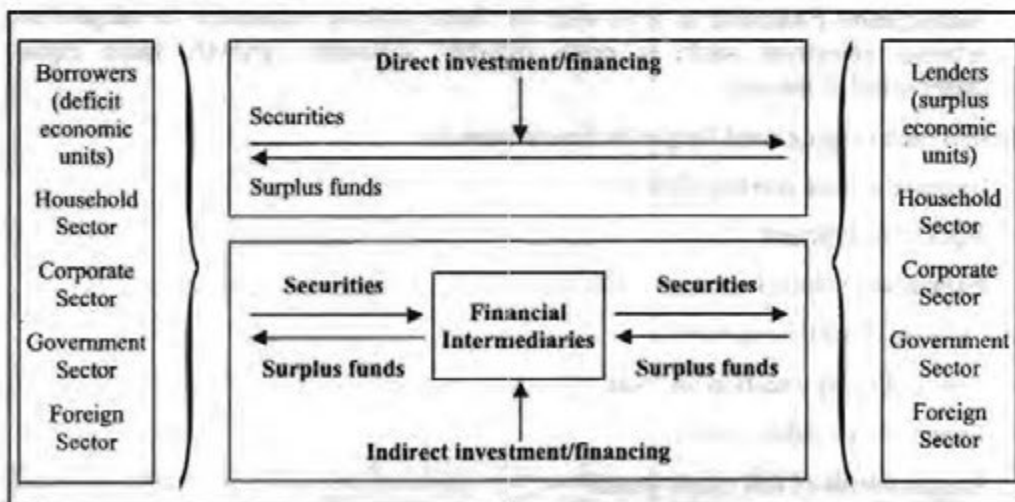


Figure 1.8: Process of Direct and Indirect Finance

## Public Finance

According to Dalton, "Public finance is concerned with the income and expenditure of public authorities and with the adjustment of one to the other." Public finance is the finance which deals with question of allocation of resources given the budget constraint of the government. Professor Richard Musgrave defined Public Finance as, "The complex of problems that centres around the revenue-expenditure process of Government is referred to traditionally as public finance."

The features of public finance are as follows:

- It identifies and appraises the effects of the policies of the government.
- It examines the effects and consequences of different types of taxation and expenditures on individuals, institutions, organisations, and on the entire economy.
- It analyzes the effectiveness of the policies and develops procedures and techniques to increase the effectiveness of the policy.

### Major Functions of Public Finance

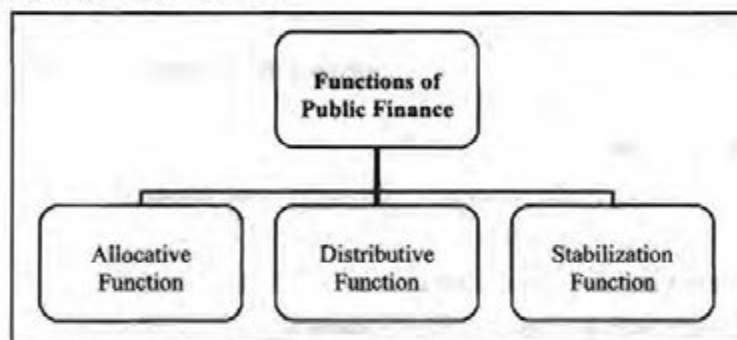


Figure 1.9: Functions of Public Finance

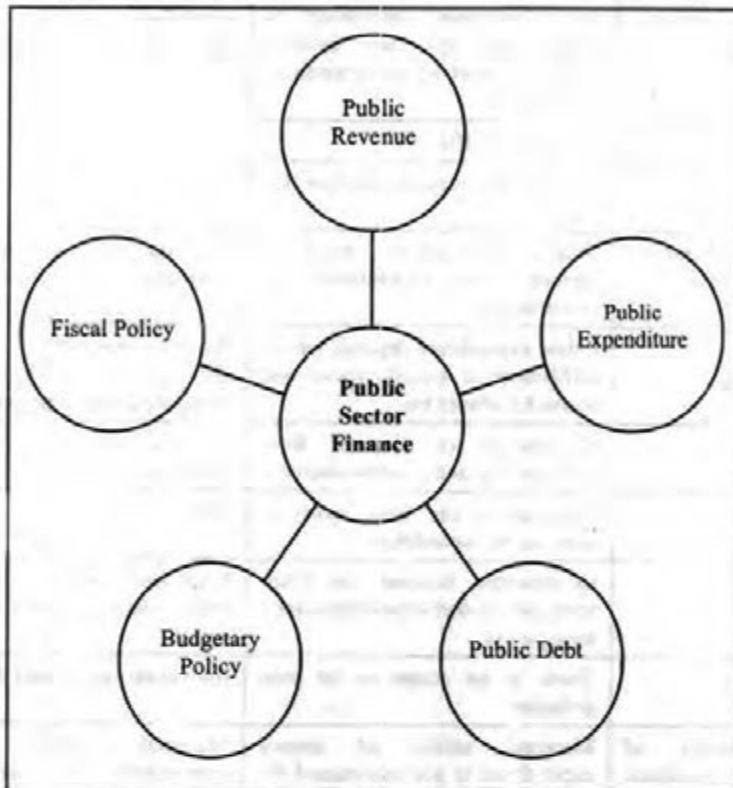
- **Allocative Function:** It deals with the answer to what are the sources of government revenue, i.e., how much amount government will earn from each earning source.
- **Distributive Function:** It deals with the answer to what are the categories of government expenditure, i.e., how much amount government will spend for each common benefit for the people of the country.
- **Stabilization Function:** It deals with the fiscal policies required to be adopted to achieve objectives such as price stability, economic growth, more equal distribution of income.

There is an emerging need for public finance due to:

- Increase in area and population
- Equal development
- Expansion in social services
- Increase in welfare activities
- Law and order situation and war
- Expansion of public sector
- Requirements of full employment

- Economic development
- Equal distribution of income

Public Sector Finance is further categorized as:



**Figure 1.10: Types of Public Sector Finance**

- **Public Revenue:** It includes revenue earned by government from both tax (income tax, sales tax, import duty, etc.) and non-tax sources (different kinds of fines, fees, etc.).
- **Public Expenditure:** It deals with various types of expenditures of the government required for its proper functioning.
- **Public Debt:** When the public expenditure of a government exceeds its revenue, the government borrows from the public giving rise to public debt.
- **Budgetary Policy:** Public or budgetary deficit arises when public expenditure exceeds public revenue.
- **Fiscal Policy:** Fiscal Policy is concerned with the policy framework of the government after taking into consideration government spending, avenues of government earning, government borrowings.

### **Private Finance**

Private finance helps a business to raise cash to avoid limited time frame monetary shortfalls. This method typically serves a firm that is not listed on a securities exchange or is unable to seek financing on such markets. A private financing plan also may be suitable for a non-profit entity.



Difference between public and private finance is tabulated below:

**Table 1.1: Differences between Public and Private Finance**

Basis	Public Finance	Private Finance
Adjustment of income and expenditure	First Government determines its expenditure, and then collects money to meet up its determined expenditure.	Individuals determine their expenditure according to their income.
Welfare	For social welfare	For family's welfare
Timing	Government prepares budget for 1 year.	No specific time-period for preparing budget.
Concealment of income and expenditure	There is no scope to conceal the income and expenditure of Government.	The income and expenditure of individual can be concealed.
Determinants	Public expenditure depends on the fulfillment of specific social and economic objectives.	Private expenditure depends on consumption pattern, social status, living standard of an individual.
Debt	Government can borrow from both internal and external sources.	Individual can only borrow from external sources.
Issue of note	Government can issue notes to meet up its expenditure.	There is no scope to issue notes.
Focus on	Government focusses on long-term plan to derive benefits after a long period.	Individual focusses on short-term plan to derive benefits within a short-period.
Loan defaulter	There is no scope to be loan defaulter.	Individual can be loan defaulter.
Marginal utility of money expenditure concept	Marginal utility of money expenditure is not maintained for public expenditure.	Marginal utility of money expenditure is maintained for individual.
Deficit budget	Deficit budget is common for Government budget.	Individual always prepares surplus budget.
Burden of debt	Burden of public debt is not imposed directly on Government.	Burden of individual debt is directly imposed on individual.

#### Check Your Progress

Fill in the blanks:

1. Finance is the art and science of \_\_\_\_\_ money.
2. \_\_\_\_\_ is concerned mainly with financing and investment activities including cash management, relationship management with bankers.
3. \_\_\_\_\_ is collection of savings directly from savings-surplus units, channelized into investments with interference of financial intermediaries.
4. When the public expenditure of a government exceeds its revenue, the government borrows from the public giving rise to \_\_\_\_\_.
5. \_\_\_\_\_ arises when public expenditure exceeds public revenue.

### 1.5 LET US SUM UP

- Finance is the study of how money is managed.
- Finance is the process of acquiring needed funds.
- Concept of finance includes capital, funds, money and amount.

- Finance manager is responsible for planning the finance, raising the finance, investing the finance and monitoring the finance.

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## 1.6 UNIT END ACTIVITY

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Prepare a report listing different types of money used since the beginning of civilisations. Evaluate each of the characteristics of a good money material.

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## 1.7 KEYWORDS

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**Equity shares:** They are the part of ownership in which a shareholder takes the maximum risk associated with a business venture.

**Debenture:** It is a long-term security issued by a company yielding a fixed rate of interest and secured against assets.

**Bond:** It is a loan that an investor provides to a company or government.

**Mutual funds:** It is an investment scheme which is run by an asset management company which pools funds from many investors for investing in securities.

**Capital budgeting:** It is the process to evaluate effectiveness of organization's long-term investments.

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## 1.8 QUESTIONS FOR DISCUSSION

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1. Define finance.
2. Explain the functions of finance.
3. Describe the features of finance.
4. Discuss the types of finance.
5. Describe relationship of finance with other disciplines.
6. Explain the role of finance manager.

### Check Your Progress: Model Answer

1. Managing
2. Treasurer
3. Direct Finance
4. Public debt
5. Budgetary deficit

---

## 1.9 REFERENCES/SUGGESTED READINGS

---

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## UNIT

# 2

## BASICS OF FINANCIAL MANAGEMENT

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### CONTENTS

- 2.0 Aims and Objectives
- 2.1 Introduction
- 2.2 Meaning of Financial Management
- 2.3 Evolution of Financial Management
- 2.4 Significance of Financial Management
- 2.5 Role of Financial Management
- 2.6 Advantages of Financial Management
- 2.7 Goals of Business Finance
  - 2.7.1 Profit Maximisation
  - 2.7.2 Wealth Maximisation
  - 2.7.3 Growth Maximisation
- 2.8 Differences between Profit Maximisation and Wealth Maximisation
- 2.9 Functions of a Financial Manager
- 2.10 Finance Functions
  - 2.10.1 Interrelation among Financial Decisions
- 2.11 Financial Planning
  - 2.11.1 Objectives of Financial Planning
  - 2.11.2 Principles of Financial Planning
  - 2.11.3 Types of Financial Plans
  - 2.11.4 Steps in Financial Planning
- 2.12 Let Us Sum Up
- 2.13 Unit End Activity
- 2.14 Keywords
- 2.15 Questions for Discussion
- 2.16 References/Suggested Readings

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### 2.0 AIMS AND OBJECTIVES

After studying this lesson, you should be able to:

- Explain the meaning of financial management
- Discuss the evolution of financial management

- Examine the significance of financial management
- Discuss the role of financial management
- List the advantages of financial management
- Explain the goals of business finance
- Differentiate between profit maximisation and wealth maximisation
- Discuss the functions of finance manager
- Explain finance functions

## 2.1 INTRODUCTION

Henry Ford said, "Money is an arm or a leg. You either use it or lose it". The statement itself emphasises on the importance of money or finance in all economic activities of a business. Finance is the lifeblood of all businesses entities which requires it to commence its operations, continue them and expand for growth. Thus, financial management is the need for all business organisations to manage money (funds) to attain goals and objectives. Financial management is a specialised function performed by the senior executives of a company or the top management. It mainly involves various activities, such as raising capital, allocating financial resources and managing dividend policies of shareholders.

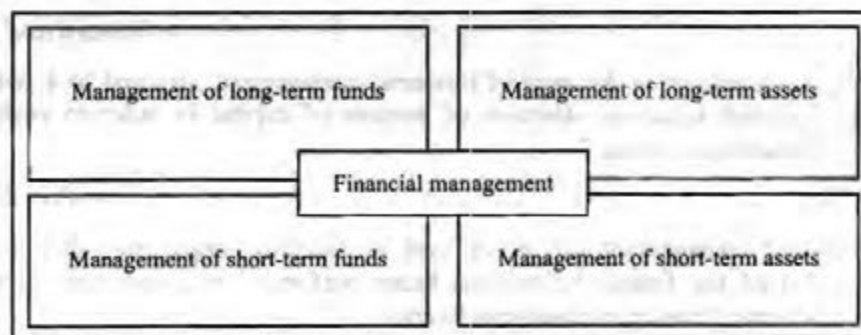
## 2.2 MEANING OF FINANCIAL MANAGEMENT

Financial management simply means planning, procuring and controlling business's financial resources. Financial management not only deals with utilisation of funds but also assesses needs for funds, raise required funds, take capital budgeting decisions and distribute surplus funds.

Financial management is thus concerned with acquiring and using funds by a business organisation. It deals with four broad questions:

1. How large a firm should be?
2. What should be the composition of assets?
3. What should be the financing mix?
4. How should firm control its financing activities?

Below figure shows framework of financial management.



**Figure 2.1: Framework of Financial Management**

It clearly shows financial management includes anticipating financial needs, acquiring financial resources and allocating finance in business. These are known as 3 A's of financial management.



Dr. S. C. Saxena, however added two more A's of financial management – Appropriation (dividing company's profits among shareholders) and Assessment (controlling financial activities).

Various definitions of financial management have been provided by several authors.

“Financial management deals with procurement of funds and their effective utilisation in the business.”

—S.C. Kuchal

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

—Joseph and Massie

“Financial management is properly viewed as an integral part of overall management rather than specially concerned with funds raising operations. In this broader view, the central issue of financial policy is the wise use of funds and the central process involved is a rational matching of the advantage of potential uses against the cost of alternative potential sources so as to achieve the broad financial goals which an enterprise sets for itself. In addition to raising funds, financial management is directly concerned with production, marketing and other functions within an enterprise whenever decisions are made about the acquisition or distribution of funds.”

—Ezra Solomon

“Finance management is directly concerned with production, marketing and other functions, within an enterprise whenever decisions are made about the acquisition or distribution of assets.”

—F.J. Weston

“Financial management is concerned with the management decisions that result in the acquisition and financing of the long-term and short-term of a firm.”

—Phillippatuo

“Financial management deals with how the corporation obtains the funds and how it uses them.”

—Hoagland

“Financial management is the application of the planning and control functions to the finance functions; financial management involves the application of general management principles to a particular financial operation.”

—Howard and Upton

“Financial management is the area of business management, devoted to a judicious use of capital and a careful selection of sources of capital in order to enable the direction of reaching it goods.”

—Prof Bradley

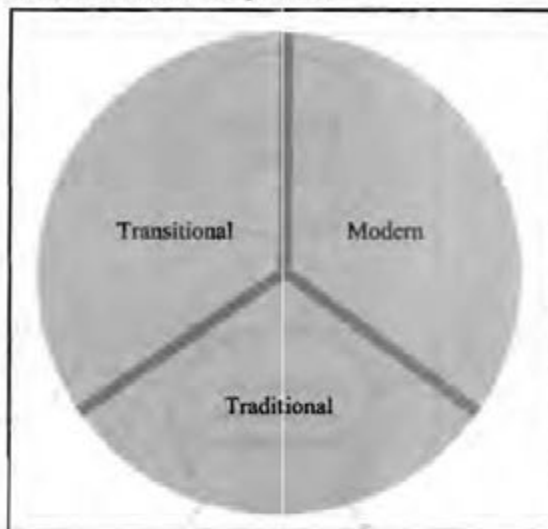
Thus, financial management can be defined as planning, organising, directing and controlling of all the financial functions being performed in a company. It is also called as corporate finance and business finance.

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## 2.3 EVOLUTION OF FINANCIAL MANAGEMENT

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The concept of financial management evolved with the developments of large enterprises. It became a prominent field in 20<sup>th</sup> century.



**Figure 2.2: Evolution of Financial Management**

1. **Traditional Phase:** This phase lasted for four decades. This phase had different features like:
  - (a) This phase emphasized on corporate finance.
  - (b) It put less importance to financing problems of non-corporate enterprises.
  - (c) It viewed concept of finance from external point of view such as lenders and investment banks. It gave less importance to finance decision maker of the firm.
  - (d) Under this phase, financial management was not considered as managerial function.
  - (e) It emphasized on long-term financing thus lacked emphasis on working capital management.
  - (f) The focus of financial management was on events such as issuance of capital, mergers, acquisitions and liquidation aspects of lifecycle of firm.
2. **Transitional Phase:** It started in early 1940s and continued to early 1950s. In this phase, emphasis was given to day-to-day problems faced by financial managers. Capital budgeting techniques were developed in this phase.
3. **Modern Phase:** Modern phase began in mid-1950s and made financial management more logical, analytical and quantitative. This phase focused on rational matching of funds to their uses to maximize shareholder's wealth.

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## 2.4 SIGNIFICANCE OF FINANCIAL MANAGEMENT

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Financial management is the core functional area of any business. Financial management impacts all activities of a firm and therefore it has a significant place. The most important responsibility of financial management is to discharge finance function. Successful administration of finance is required for a business to reach its potential and growth.

Significance of financial management can be highlighted from below points:



**Figure 2.3: Significance of Financial Management**

#### ***Setting Clear Goals***

Financial management helps to set goals of the firm clearly. Be it maximising shareholder's wealth or profit maximization; defining and setting goals helps firms to take decisions in the best interest of the stakeholders. Financial management directs all functional areas of the business towards achieving this goal.

#### ***Efficient Utilization of Resources***

Firms put lot of money to use fixed and current assets. They buy assets that can earn minimum return and add to shareholder's value. Many times, decisions regarding buying and disposing assets damages the survival of a business. Here, financial management helps to take careful decisions. It provides answers to questions like which asset to buy, when to buy, when to dispose it. Firm also uses current assets for its daily operations. Financial management thus helps to decide level of current assets to be maintained.

#### ***Deciding Sources of Financing***

Firms need long term finance to buy assets. The sources of long term finance may be equity shares, preference shares, bond, term loan. Firms need to decide which sources to use to buy assets to have low cost and low risk. Financial management helps to select these sources of finance.

#### ***Helps Making Dividend Decision***

Dividend is the return to the shareholders. Businesses has to decide how much to pay as dividend and how much to retain in the firm. Here, financial management comes into the picture. It also helps to decide in what form they should pay dividend.

Financial management involves investing decision, financing decision, dividend decision and risk management decision. When these decisions are taken wisely, businesses are able to grab economically viable projects which facilitates growth and development which ultimately results in improved standard of living.

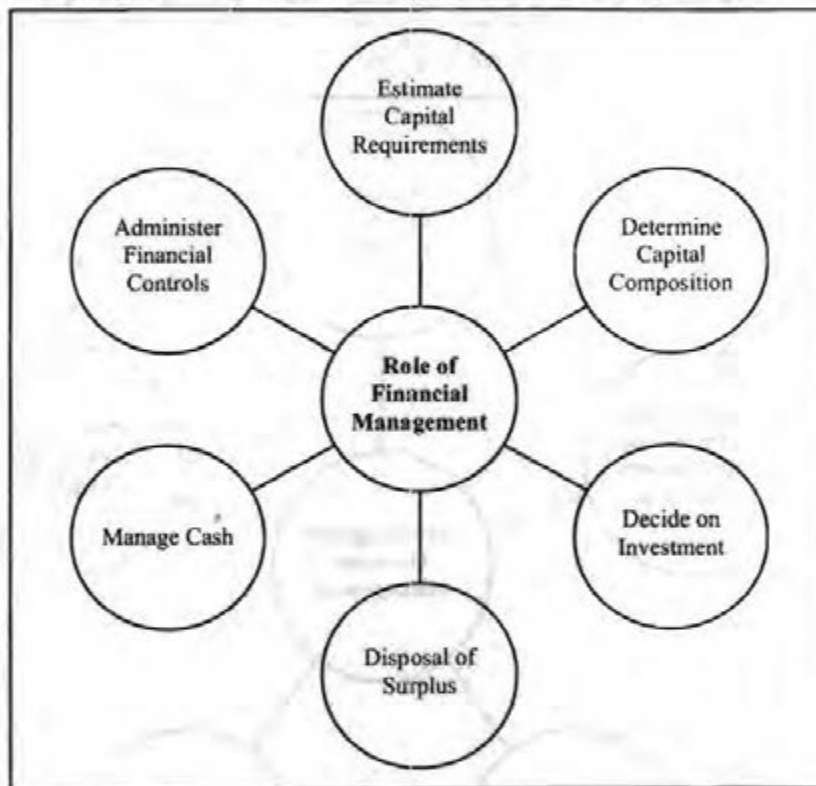
Thus, financial management is not only important to the finance managers who make decisions in the firm. It also helps to supply quality product to customers, pay higher salary to employees and provide greater return to investors.

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## 2.5 ROLE OF FINANCIAL MANAGEMENT

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Financial management has a very important role in the functioning and growth of a business organization. Below figure shows the role of financial management:



**Figure 2.4: Role of Financial Management**

Let us discuss them in detail.

- **Estimate capital requirements:** Finance management helps in forecasting the financial needs of an organization. The finance manager of an organization determines the finances required for the acquisition of assets and working capital, in future.
- **Determine capital composition:** After estimating capital requirements, the finance manager must decide the capital structure, by carrying out debt equity analysis for both short term and long term.
- **Decide on investment:** Financial management also helps in making investment related decisions. Finance manager must determine the profitable ventures to make investment to ensure safe and regular returns.

- **Disposal of surplus:** Finance manager is also responsible for ascertaining net profits by declaring dividends and profits. The profits retained are decided after ascertaining the company's plans for expansion, innovations and diversification.
- **Manage cash:** Cash is one of the primary requirements for organisations as it is needed various purposes, such as payment of wages and salaries, payment of electricity and water bills, meeting current liabilities, maintenance of enough stock, purchase of raw materials, etc. All these requirements can be fulfilled with adequate cash management, for which finance manager is responsible.
- **Administer financial controls:** Financial management also involves controlling the funds. For this, finance manager may employ different techniques, such as ratio analysis, financial forecasting, cost and profit control, etc.

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## 2.6 ADVANTAGES OF FINANCIAL MANAGEMENT

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Strong and good financial management helps to:



Figure 2.5: Advantages of Financial Management

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## 2.7 GOALS OF BUSINESS FINANCE

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The primary goal of any business function is to earn profits. For this, all the functions of management must be performed effectively, including finance.



- Maximise the profits by increasing the rupee/dollar income
- Raise the profitability of an organisation
- Raise profits while maintaining adequate cash balance to meet cash requirements in times of need
- Increase the organisation's present value to its owners
- Attempt to attain the most favourable combination of risk and return

### 2.7.1 Profit Maximisation

The main aim of any business organisation is profit maximization. Thus, organisations adopt financial management to maximize their profits. In financial management, profit maximisation is the process of making all finance related decisions related to investment, financing, dividend etc., to maximise the profits to optimum levels.

Profit maximisation implies that all the decisions made in an organisation are assessed based on their profit-making capacity. This includes decisions made by top executives related to new assignments, acquiring of asset, raising capital, distributing dividends, etc., are considered to ascertain their effects on profits and profitability. If the outcome of a decision is perceived to bring raise in profits, the management of a company decides to implement it.

#### Approvals

Organisations approve and encourage profit maximisation theory as the basis for making decisions mainly because of the following advantages:

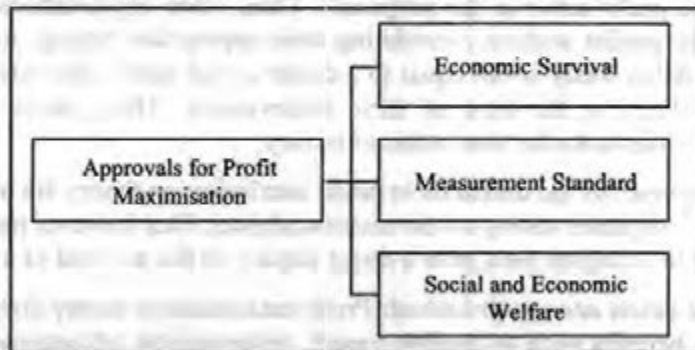


Figure 2.6: Approvals for Profit Maximisation

- **Economic survival:** For the survival of an organisation, profit maximisation is a necessary requirement. As profits form the basis for profit maximisation theory, it is regarded as a valid ground for decision-making.
- **Measurement standard:** Profits serve as the realistic measure to assess the viability of a business model. In the absence of profits, the primary objective of an organisation is lost, which directly affects its survival.
- **Social and economic welfare:** With the maximisation of profits, an organisation intends to cater to social and economic welfare needs of people associated with it. In other words, profit maximisation enables organisation to take care of the needs of employees, consumers, shareholders, etc. In a business, profits prove efficient utilization and allocation of resources.

### Objections

Profit maximisation is not completely free from limitations. Thus, it has been objected by many business executives and others associated with making financial decisions. The objections against profit maximisation are raised due to the following limitations:

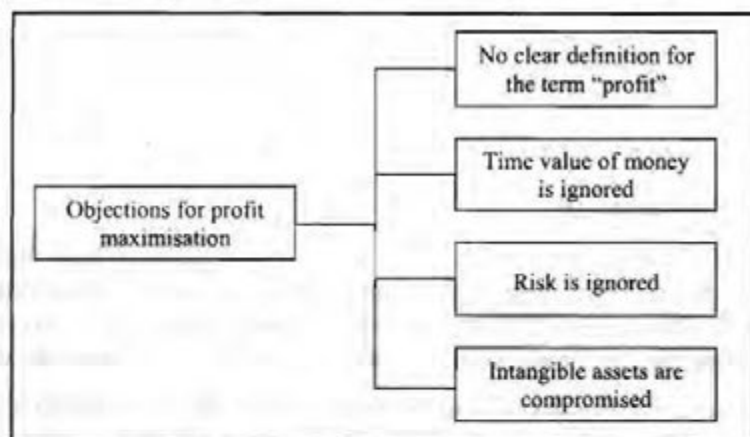


Figure 2.7: Objections for Profit Maximisation

- **No clear definition for the term "profit":** The term "profit" means differently to everyone and has no standard definition. For example, the meaning of profits may vary from net profit, gross profit, before tax profit, or the rate of profit etc., in accordance with the mindset of people. Thus, no standard profit maximisation rule for profits can be established.
- **Time value of money is ignored:** According to the profit maximisation theory, "higher the profit better is the proposal". Thus, often organisations place higher value to the profits without considering their appropriate timing. And as there is saying "a dollar today is not equal to a dollar a year later", the value of expected profits declines in the time of their achievement. Thus, profit maximisation completely overlooks the time value of money.
- **Risk is ignored:** As the decisions in profit maximisation theory are made in favour of profits, companies disregard the associated risks. This however may prove to be unaffordable as higher risks have a direct impact on the survival of a business.
- **Intangible assets are compromised:** Profit maximisation theory does not consider intangible benefits such as quality, image, technological advancements etc. Such intangible assets have a long-term impact on the running of business and are indirectly responsible for generating assets for an organisation.

#### 2.7.2 Wealth Maximisation

Wealth maximisation is a modern superior approach to financial management. Wealth can be defined as the market price of the capital investment made by shareholders. Thus, wealth maximisation implies increase in the wealth of shareholders. In simple words, it refers to the maximisation of a company's net worth. Thus, wealth maximisation is also regarded as net worth maximisation.

Taking care of shareholders' interests is the responsibility of finance managers. On the other hand, shareholders or investors aim to attractive returns on their capital and safety of their capital. Thus, to attain both the objectives, finance managers use wealth maximisation as basis for making decisions.

Following are some important advantages of wealth maximisation over profit maximisation:

- Cash flows form the basis for wealth maximisation they are more exact and definite in nature. Thus, there is little scope of ambiguity associated with accounting profits.
- Wealth maximisation enables businesses to focus on long-term goals which are necessary to attain sustainability.
- The time value of money is considered in wealth maximisation. Thus, to denote the present value of cash flows accurately, they are discounted at an appropriate rate.
- The factors of risk and uncertainty are taken into consideration while discounting rate. With the increase in uncertainty, the discounting rate rises and vice-versa.

### 2.7.3 Growth Maximisation

Both profit maximisation and wealth maximisation have their advantages and limitations. To overcome the limitation of the both the theories, organisations are switching to growth maximisation as an objective of financial management.

In an organisation, managers and owners are affected by goals of financial management. Managers are mainly concerned with their personal goals of salary hikes, promotions, raise in status, etc. So, they support the running of their organisation to achieve their personal goals. Owners, on the other hand, have goals of maximising wealth by increasing companies' gains, market share, capital, etc. Growth maximisation as a financial objective can be highly instrumental in developing a win-win situation for both managers and owners. With the attainment of growth of organisation, there is rise in profits, market share, sales, etc., that lead to maximisation of wealth for owners. Similarly, growth maximisation provides better opportunities for managers with raise in salaries and promotions. This in turn uplifts the status of both organisation as well as the managers who would be appreciated for bringing the company to the higher levels.

According to Professor Penrose and Marris, the main objective of financial management is balanced growth rate. According to their assumption, growth implies the rate at which:

- demand for the product produced/sold by the organisation grows
- supply of capital to the organisation increases

To achieve the maximum balanced growth rate, both growth rates must be equal.

## 2.8 DIFFERENCES BETWEEN PROFIT MAXIMISATION AND WEALTH MAXIMISATION

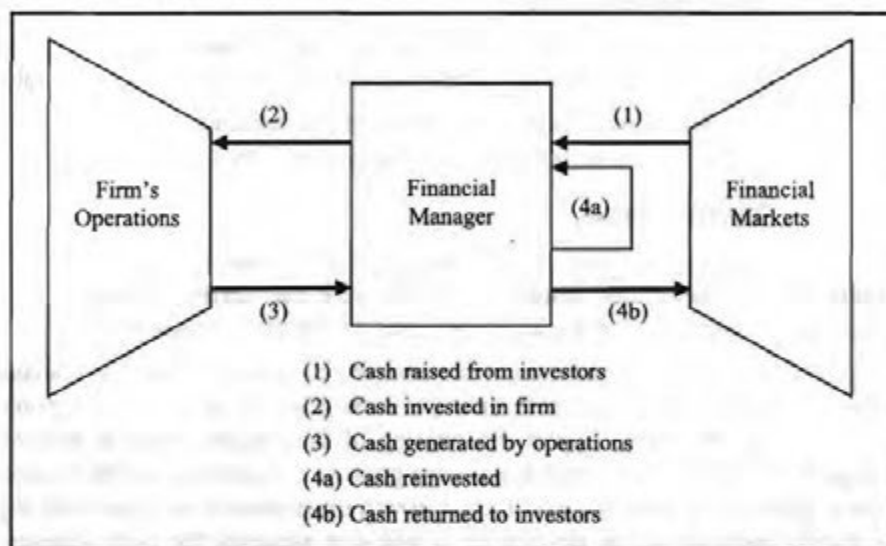
Now we are aware of the both, profit maximisation and wealth maximisation, let us now understand the main differences between them. Below table lists the major differences between profit maximisation and wealth maximisation:

**Table 2.1: Profit Maximisation vs. Wealth Maximisation**

Profit Maximisation	Wealth Maximisation
It is solely based on rise and fall of profits of a business organisation.	It is based on a business organisation's cash flows.
The focus remains on achieving short-term goals.	The focus remains on achieving long-term goals.
Time value of money is ignored in profit maximisation.	Time value of money is considered in wealth maximisation.
Risk and uncertainty are ignored.	Risk and uncertainty are considered.
It results in exploitation of employees and consumers and also brings inequalities in an organisation.	It results in effective allocation of resources and also ensures the economic welfare of people.

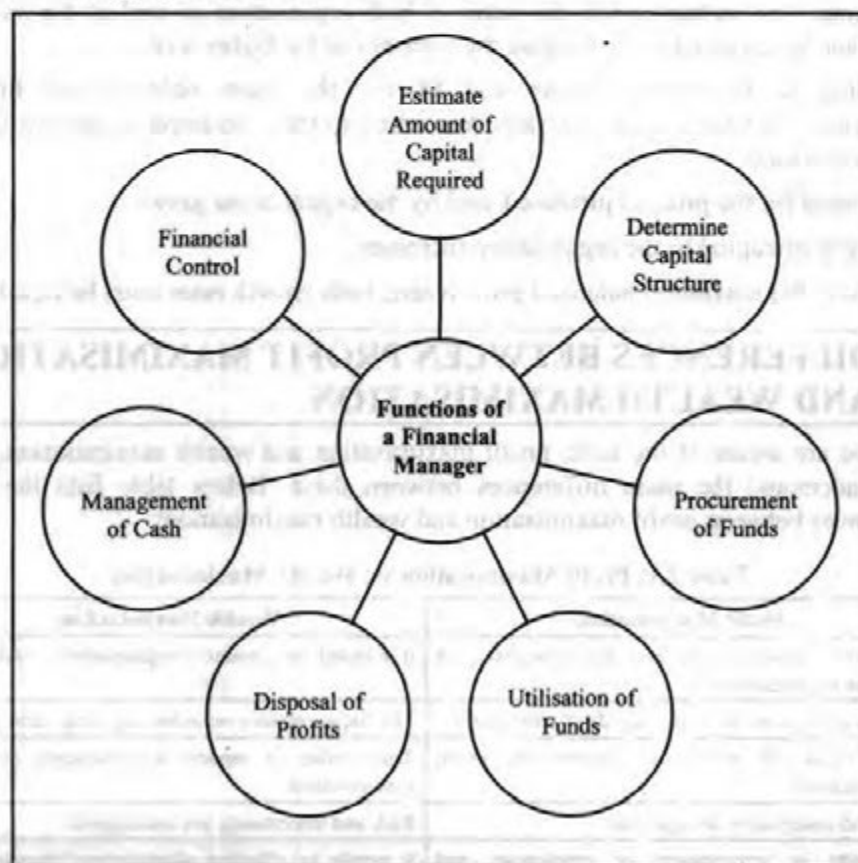
## 2.9 FUNCTIONS OF A FINANCIAL MANAGER

Finance management is one of the most complex activities of the firm. Thus, every business needs a finance manager to manage finance activities. A financial manager is a person who manages all financial functions of an organization. His actions directly impact the profitability, growth and goodwill of the firm. Basic function of a finance manager can be depicted as follows:



**Figure 2.8: Basic Functions of a Financial Manager**

A finance manager performs below functions:



**Figure 2.9: Functions of a Financial Manager**

### ***Estimate Amount of Capital Required***

Business needs capital for purchasing fixed assets, meeting working capital requirements, and for expansion of business. Thus, financial manager estimates how much funds are required to meet long-term and short-term needs.

### ***Determine Capital Structure***

Once how much funds required are estimated, finance manager decides from which sources funds has to be taken. Finance manager decides a proper mix of equity and debt. He decides such a mix which minimises cost of capital and maximises shareholder's wealth.

### ***Procurement of Funds***

To carry day-to-day operations, a financial manager needs to ensure enough cash and liquidity. Thus, he takes necessary steps to procure funds for the business. He may negotiate with creditors and financial institutions. He is responsible to issue prospectus. He considers factors such as general market conditions, choice of investors, government policy before procuring funds.

### ***Utilisation of Funds***

Funds once procured must be invested in various assets to maximise the return on investment. A financial manager decides in which assets funds must be invested while paying attention to three factors – safety, profitability and liquidity.

### ***Disposal of Profits***

Next, financial manager decides how much funds to be distributed as dividend to shareholders and how much has to be retained. He considers factors such as pattern of earnings, pattern of market prices of shares, the requirements of funds for self-financing the future programmes.

### ***Management of Cash***

Financial manager is responsible for management of cash and other current assets. He forecasts cash inflows and outflows to ensure that there is neither shortage nor surplus of cash with the firm. He is responsible for continuous supply of funds for the purchase of materials, payment of wages and meeting day-to-day expenses.

### ***Financial Control***

Lastly, financial manager must evaluate financial performance of a business. He uses various techniques of financial control such as Return on Investment (ROI), budgetary control, cost control, internal audit, break-even analysis and ratio analysis.

Besides above, there are few other emerging functions of a financial manager:

- Financial Engineering
- Foreign Exchange Management
- Treasury Operators
- Investors Communication
- Management Control
- Investment Planning
- Pension Fund Management



- Credit Manager
- Tax Management
- Insurance Risk Management

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## 2.10 FINANCE FUNCTIONS

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Financial management functions can be divided into three major decisions:



**Figure 2.10: Finance Functions**

These decisions are taken by an organisation keeping in mind the objective of maximizing shareholders' wealth. An organisation takes these decisions simultaneously and continuously in the normal course of its business. They may not take these decisions sequentially.

**Investment Decision:** This is the most important decision. It involves determining the total amount of assets to be held by the firm. That is, investment decision is related to the selection of assets, that a firm will invest funds in. The assets required by the firm are of two types:

1. **Long-term Assets:** These are the fixed assets such as plant & machinery, land and buildings. Long-term assets require huge investments and yield a return over a period of time in future. Investment in long-term assets is also known as capital budgeting.
2. **Short-term Assets:** These are the current assets such as raw materials, working in the process, finished goods, debtors and cash. Short-term assets can be converted into cash within a financial year without any impact in its value. Investment in current assets is also known as working capital management. Investment in short-term assets is an important decision for a firm as short-survival is the prerequisite for long-term success.

**Financing Decision:** Once the assets and the funds those are required to purchase, then the budget is estimated and here financing decision comes into play. Now, the financial manager is concerned with the left-hand side of the balance sheet which is related to the financing mix. Financing mix or capital structure or leverage refers to the proportion of debt and equity. A finance manager must choose an optimum finance mix, one which maximizes shareholders' wealth and balances risk and return.

**Dividend Decision:** Third financial decision relates to dividend policy. The dividend is a part of profits that are available for distribution to equity shareholders.

Decision related to payment of dividends is very crucial. There are two options when dealing with the net profits of a firm:

1. Distribution of profits as dividends to the ordinary shareholders
2. Retention of earnings for the financing of any business activity

Distribution of dividends or retaining should be determined in terms of its impact on the shareholders' wealth. The Financial manager should determine optimum dividend policy, which maximizes the market value of the share thereby market value of the firm.

### 2.10.1 Interrelation among Financial Decisions

Financial management decisions are not independent, but interrelated with an underlying objective of maximisation of shareholders' wealth. The interrelation between three financial decisions can be depicted in figure below:

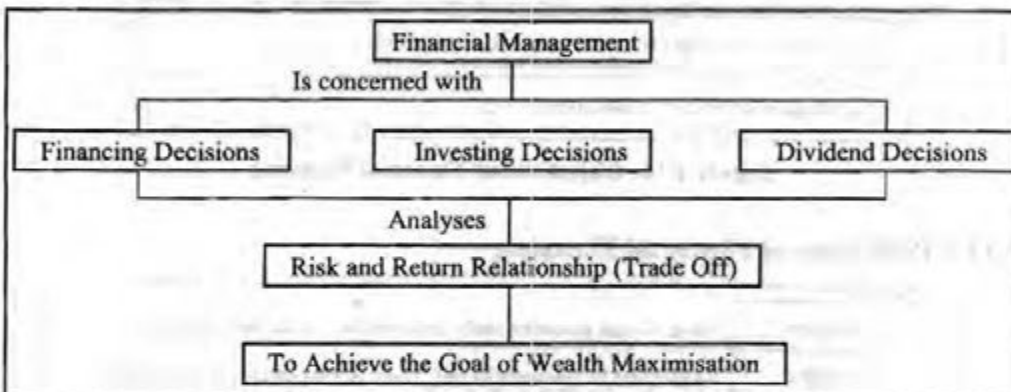


Figure 2.11: Interrelation among Financial Decisions

**The Interrelation between Investment and Financing Decisions:** While taking the investment decision, the finance manager selects the types of asset. Selecting a particular asset helps to determine the amount of funds required to finance the asset. For instance, the investment on fixed assets is ₹ 10 crore and investment in current assets is ₹ 4 crores. The total fund required to finance the total assets is ₹ 14 crore. Once the funds are estimated, the next decision is financing decision. Financing decision means raising ₹ 14 crore by various instruments.

Thus, investment decision and financing decision are inter-related as without knowing the amount of funds required and types of funds (short-term and long-term) it is not possible to raise funds.

**The Interrelation between Financing Decision and Dividend Decision:** Financing decision influences and is influenced by dividend decision, since retention of profits for financing selected assets reduces the profit available to ordinary shareholders, thereby reducing dividend payout ratio. For example, the amount required to finance assets is ₹ 14 crore. The financial manager plans to raise ₹ 7 crore from outside and the remaining amount through retained earnings, the dividend decision is 100% payout ratio, then the financial manager has to depend completely on outside sources to raise the required funds.

Thus, dividend decision and financing decision are inter-related.

**The Interrelation between Dividend Decision and Investment Decision:** Dividend decision and investment decision are interrelated because retention of profits for financing the selected assets depends on the rate of return on proposed investment and the opportunity cost of the retained profits. Profits are retained when the return on investment is higher than the opportunity cost of retained profits and vice-versa. Hence, there is an inter-relation between investment decision and dividend decision.

## 2.11 FINANCIAL PLANNING

Financial planning is the process of ascertaining an organisation's financial needs for the future and identifying how to achieve them.

### 2.11.1 Objectives of Financial Planning

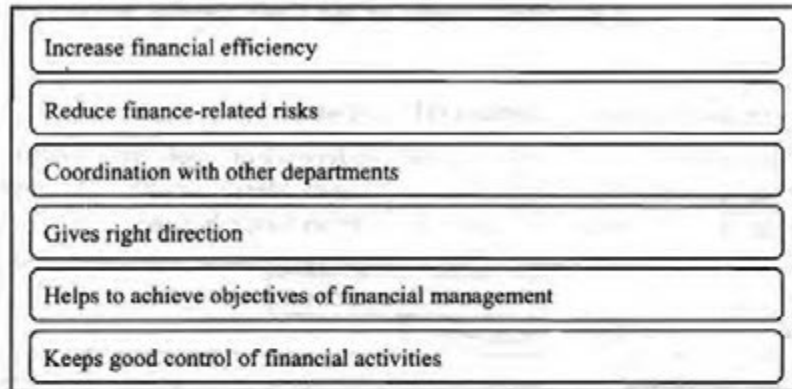


Figure 2.12: Objectives of Financial Planning

### 2.11.2 Principles of Financial Planning

Simplicity	Financial plan should be easily understandable to all the stake holders.
Liquidity	An asset can be converted to cash, financial plan should ensure availability.
Objectivity	Provide clarity and direction for strategic planning.
Economy	Cost of borrowing funds should always be kept in mind.
Flexibility	Easily changed or modified, adjusted when there is a change.
Provision for contingencies	Provision of funds should be made for meeting the contingencies.
Optimum use	Efficiently, effective use of funds.

Figure 2.13: Principles of Financial Planning

### 2.11.3 Types of Financial Plans

After the company starts, the finance manager does the financial planning.

There are three types of financial plans:

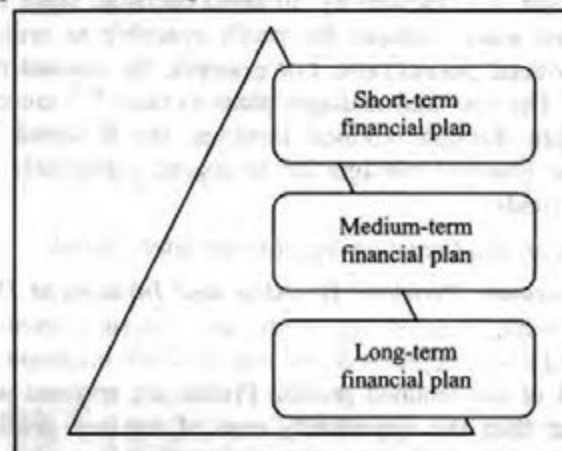


Figure 2.14: Types of Financial Plans

1. Short-term financial plan is prepared for maximum one year. This plan looks after the working capital needs of the company.
2. Medium-term financial plan is prepared for a period of one to five years. This plan looks after replacement and maintenance of assets, research and development, etc.
3. Long-term financial plan is prepared for a period of more than five years. It looks after the long-term financial objectives of the company, its capital structure, expansion activities, etc.

#### 2.11.4 Steps in Financial Planning

Steps in financial planning are depicted below:

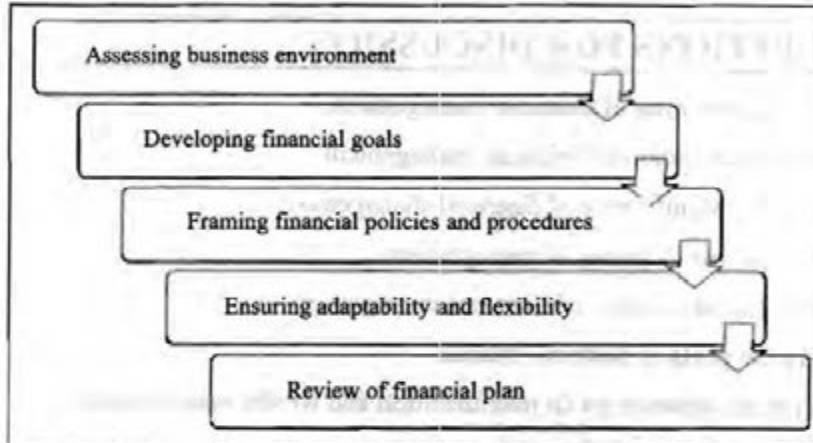


Figure 2.15: Steps in Financial Planning

#### Check Your Progress

Fill in the blanks:

1. \_\_\_\_\_ is a feasible objective of finance management.
2. Financial management is also known as \_\_\_\_\_.
3. According to Professor Penrose and Marris, the objective of financial management is \_\_\_\_\_.
4. Objective of profit maximisation ignores \_\_\_\_\_.
5. \_\_\_\_\_ refers to the maximisation of a company's net worth.

#### 2.12 LET US SUM UP

- Finance management is concerned with acquisition, financing and management of funds.
- Profit maximisation goal of financial management is criticised for being vague, ignoring time value of money and quality of benefits.
- Wealth maximisation means maximising net present value of a course of action to its shareholders.
- The main functions of a finance manager are anticipating financial needs, acquiring financial resources and allocating funds in business.



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## 2.13 UNIT END ACTIVITY

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Prepare a presentation on areas of application of financial management.

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## 2.14 KEYWORDS

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**Capital budgeting:** It is the planning process used to determine if an organization's long-term investments are worth the funding of cash through the firm's capitalization structure.

**Financing mix:** It is the specific mixture of long-term debt and equity that a company uses to finance its operations.

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## 2.15 QUESTIONS FOR DISCUSSION

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1. Explain the meaning of financial management.
2. Discuss the evolution of financial management.
3. Examine the significance of financial management.
4. Discuss the role of financial management.
5. Describe the advantages of financial management.
6. Explain the goals of business finance.
7. Differentiate between profit maximisation and wealth maximisation.
8. Explain the functions of finance manager.
9. Discuss the types of financial decisions.
10. Explain the inter-relationship between financial decisions.

### Check Your Progress: Model Answer

1. Wealth Maximisation
2. Business Finance
3. Balanced growth rate
4. Risk factors
5. Wealth Maximisation

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## 2.16 REFERENCES / SUGGESTED READINGS

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## **BLOCK II**

## CAPITAL STRUCTURE

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### CONTENTS

- 3.0 Aims and Objectives
- 3.1 Introduction
- 3.2 Meaning of Capital Structure
- 3.3 Objectives of Capital Structure
- 3.4 Factors Influencing Capital Structure
- 3.5 Components of Capital Structure
- 3.6 Classification of Capital Structure
- 3.7 Optimal Capital Structure
- 3.8 Capital Structure and Financial Structure
- 3.9 Theories of Capital Structure
- 3.10 Let Us Sum Up
- 3.11 Unit End Activity
- 3.12 Keywords
- 3.13 Questions for Discussion
- 3.14 References/Suggested Readings

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### 3.0 AIMS AND OBJECTIVES

After studying this lesson, you should be able to:

- Explain the meaning of capital structure
- Describe the objectives of capital structure
- Explain the factors influencing capital structure
- Discuss the components of capital structure
- Classify capital structure
- Differentiate between capital structure and financial structure
- Explain the meaning of optimal capital structure
- Examine the different theories of capital structure

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### 3.1 INTRODUCTION

Companies do not rely on just one source to raise money. They are available with multiple sources to finance the firm. This is known as capital structure. It is the mix of the financial securities used to make the firm as valuable as possible.

### 3.2 MEANING OF CAPITAL STRUCTURE

Capital structure means the arrangement of capital from various sources. Thus, it refers to the array of long-term funds required for the business. Capital structure of the firm consists of combination of debentures, long-term loans, retained earnings, equity share capital and preference share capital. Thus, capital structure is the permanent financing of a firm excluding short-term borrowings. A business chooses that combination of sources which will minimize the cost of capital and maximize the earnings per share. Thus, an organisation can opt for the below capital structure mix:

- Equity capital only
- Preference capital only
- Debt only
- A mix of equity and debt capital.
- A mix of debt and preference capital.
- A mix of equity and preference capital.
- A mix of equity, preference and debt capital in different proportions.

Some of the important definitions of capital structure are given below:

"Capital structure of a company refers to the composition or make up of its capitalization and it includes all long-capital resources viz., loans, reserves, shares and bonds."

—Gerestenberg

"Capital structure is essentially concerned with how the firm decides to divide its cash flows into two broad components, a fixed component that is earmarked to meet the obligations toward debt capital and a residual component that belongs to equity shareholders."

—P. Chandra

"Balancing the array of funds sources in a proper manner, i.e., in relative magnitude or in proportions."

—Keown et. al.

"Capital structure is the combination of debt and equity securities that comprise a firm's financing of its assets."

—John J. Hampton

It is important for a company to determine its capital structure because:

- A sound capital structure increases the market price of shares and securities, which thereby increases the value of the company.
- A good capital structure helps the company to utilise its available funds effectively.
- A good capital structure protects business from over-capitalisation and under-capitalisation.
- A sound capital structure helps in determining the financial requirements of a company.
- A sound capital structure helps companies increase profits in the form of higher return to the equity shareholders.

- A sound capital structure minimises cost of capital; thus, maximises shareholder's wealth.
- A sound capital structure provides room for expansion or reduction of debt capital.
- A sound capital structure provides undisturbed controlling to equity shareholders.
- A sound capital structure protects business from financial risk through a judicious mix of debt and equity in the capital structure.

### 3.3 OBJECTIVES OF CAPITAL STRUCTURE

The objectives of capital structure are given below.

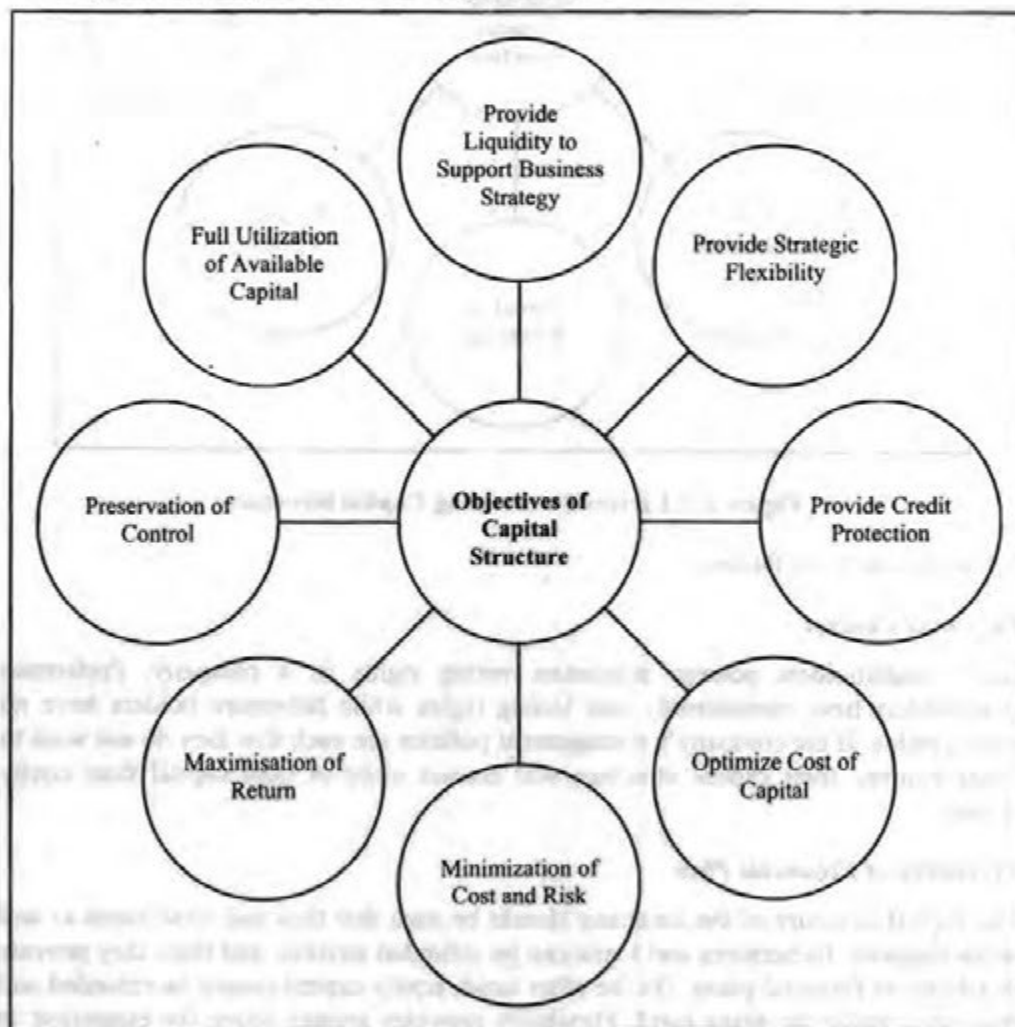
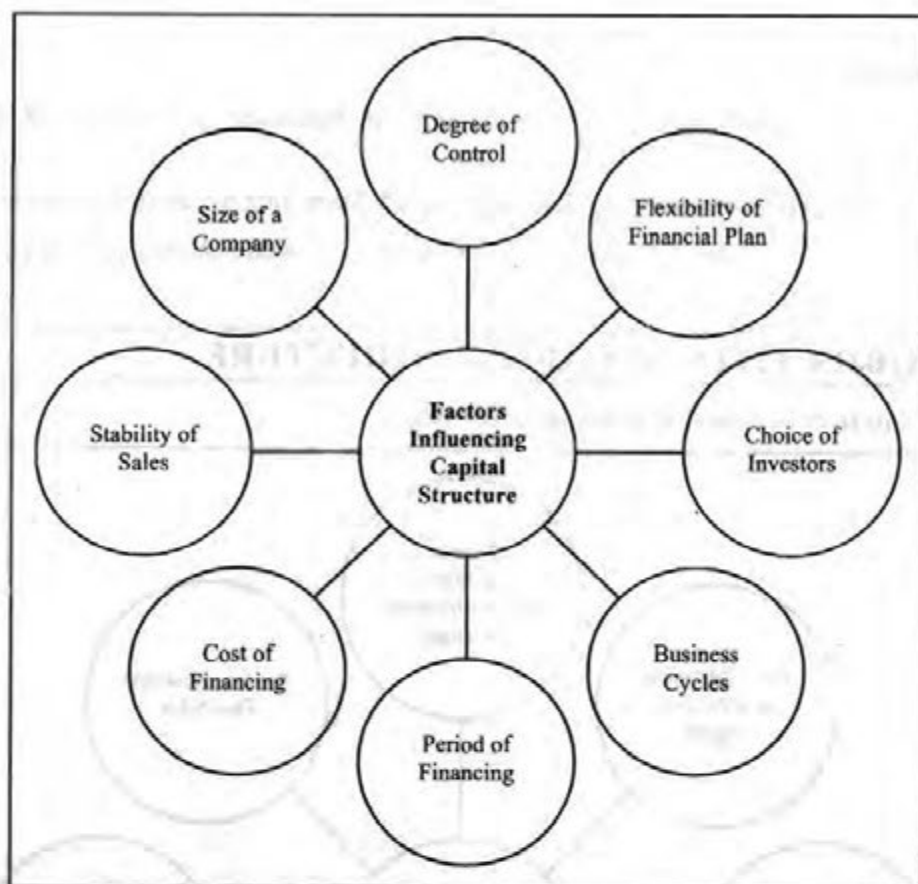


Figure 3.1: Objectives of Capital Structure

### 3.4 FACTORS INFLUENCING CAPITAL STRUCTURE

There are several factors that help in determining the capital structure. These factors are shown in figure given on next page:



**Figure 3.2: Factors Determining Capital Structure**

Let us discuss these factors.

***Degree of Control***

Equity shareholders possess maximum voting rights in a company. Preference shareholders have considerably less voting rights while debenture holders have no voting rights. If the company's management policies are such that they do not want to dilute control, their capital structure will consist more of debt capital than equity shares.

***Flexibility of Financial Plan***

The capital structure of the company should be such that they can raise funds as and when required. Debentures and loans can be refunded anytime and thus, they provide flexibility to financial plans. On the other hand, equity capital cannot be refunded and thus, they make the plans rigid. Flexibility provides greater scope for expansion in terms of low cost and low risk profile.

***Choice of Investors***

Capital structure should consist of appropriate combination of debt and equity such that it gives enough choice to investors to invest. Bold and risk-taking investors prefer equity shares while profit-conscious investors go for loans and debentures.

***Business Cycles***

In depression, the company's capital structure consists of debentures and loans. However, during boom and inflation, the company's capital consists of equity shares.



### *Period of Financing*

When a company wants to raise finance for short period, it goes to banks and other institutions for loans. On the other hand, if the finances are required for long period, the company issues share and debentures.

### *Cost of Financing*

Companies consider factor of cost when they raise funds. Debentures are cheaper source of finance as compared to equity shares where equity shareholders demand an extra share in profits.

### *Stability of Sales*

When sales of a company are high, its profits are also high and it is in a better position to pay interest on debentures and dividends on preference shares. If the sales are unstable, company is not in a position to meet fixed obligations. So, equity capital is preferred.

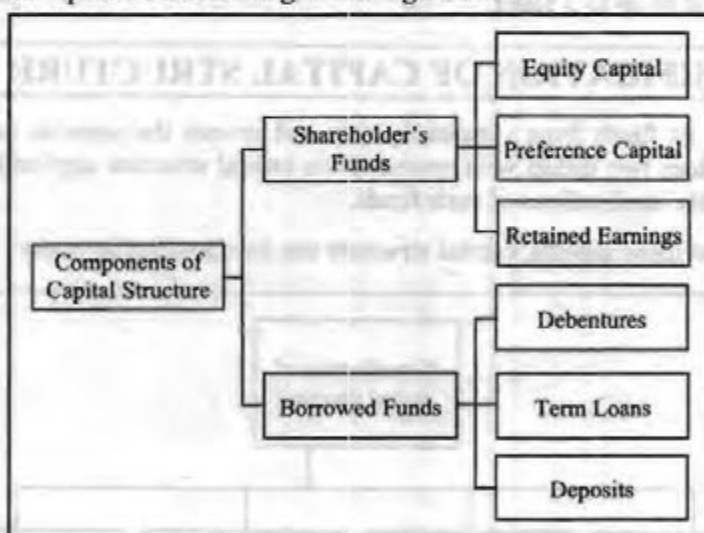
### *Size of a Company*

The bigger the size of the company, the wider is its capitalisation. Big companies having higher profits, goodwill, stability go for issuance of shares and debentures as well as loans and borrowings from financial institutions. Small companies use loans from banks and retained profits to fill their capital structure.

## 3.5 COMPONENTS OF CAPITAL STRUCTURE

Capital structure includes different sources from which the required long-term capital is raised by an organisation.

Components of capital structure are given in figure below:



**Figure 3.3: Components of Capital Structure**

**Shareholder's Funds:** These are the funds provided or contributed by the owners. It is also known as owned capital or ownership capital. Owned capital consists of:

- **Equity Capital:** Equity share capital represents the ownership capital of the company. It is the permanent capital and cannot be withdrawn during the lifetime of the company. Equity share capital holders bear the real risk, but they also enjoy rewards. Their liability is restricted to their capital contributed. Equity Capital is also known as Owned Capital, Risk Capital or Venture Capital.

- **Preference Capital:** Preference shareholders are also owners of the firm, and they get preference regarding payment of dividends and repayment of capital. They are cautious investors. Preference shares carry a stipulated dividend. Preference shares are of different types such as:
  - ❖ Redeemable and Non-redeemable
  - ❖ Convertible and Non-convertible
  - ❖ Cumulative and Non-cumulative preference shares
- **Retained Earnings:** In components of capital structure, instead of distributing all the profits to shareholders by way of a dividend, the firm retains/keeps/saves a part of the profit for self-financing. Retained earnings constitute the sum total of those profits which have been realized over the years and have been reinvested in the business. Thus, it is also known as self-financing or ploughing back of profits. Thus, it is also known as self-financing or working back of profits.

**Borrowed Funds:** Borrowed funds are the amount raised by way of loans or credit. Borrowed capital includes:

- **Debentures:** Debenture capital is a part of borrowed capital. The creditors of the company are the debenture holders.
- **Term Loans:** Organizations can get long-term and medium-term loans from banks and financial institutions. Term loans are repayable by instalments. Collateral security has to be offered by the organization to get term-loan.
- **Public Deposits:** Public deposit means any money received by a non-banking company by way of deposit or loan from the public, including employees, customers and shareholders of the company other than in the form of shares and debentures. Public deposits are unsecured. A company can accept public deposits for a period of up to 3 years.

### 3.6 CLASSIFICATION OF CAPITAL STRUCTURE

A firm raises its funds from various sources and invests the same in various assets. Thus, a firm does two things with respect to its capital structure application – sources of funds, and the applications of such funds.

On the basis of these aspects, capital structure can be classified as under:

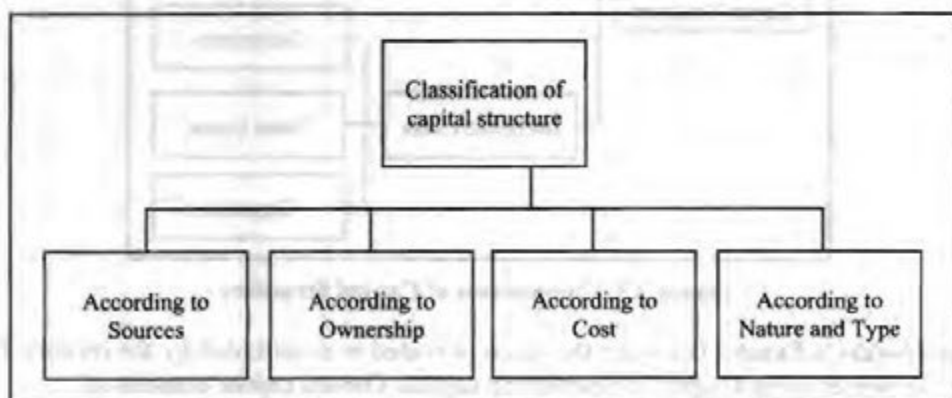


Figure 3.4: Classification of Capital Structure

Sources of funds can be classified as:

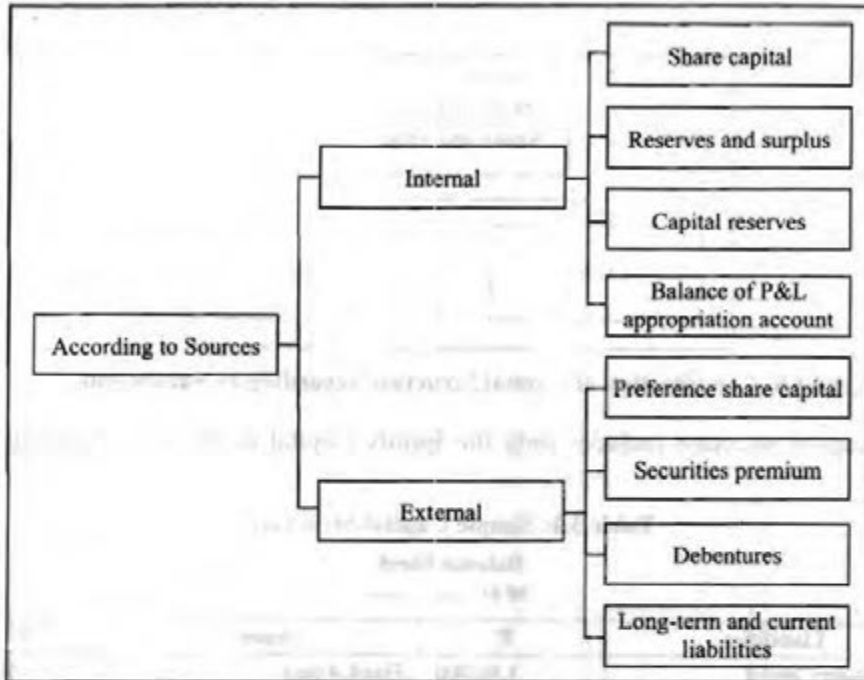


Figure 3.5: Classification of Capital Structure according to Sources of Funds

#### According to Ownership

According to ownership, capital is classified as:

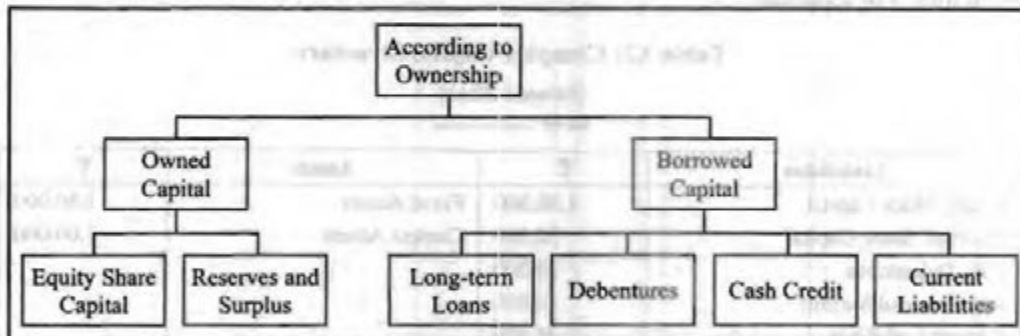


Figure 3.6: Classification of Capital Structure according to Ownership of Capital

#### According to Cost

According to cost, capital structure is classified as:

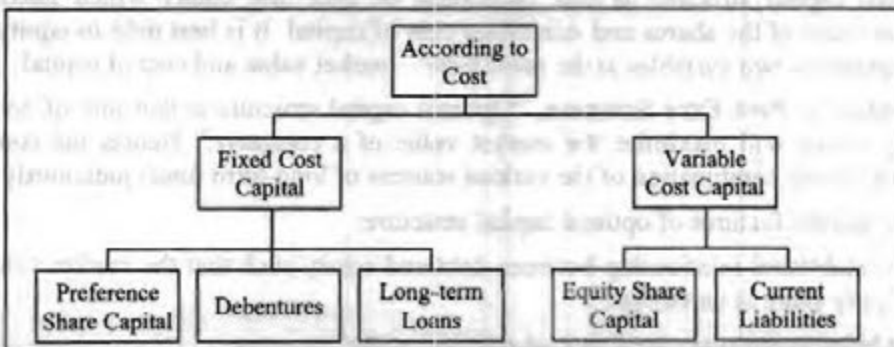
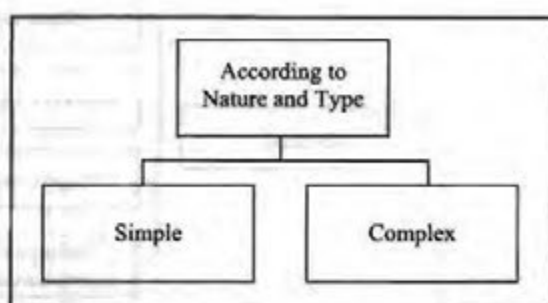


Figure 3.7: Classification of Capital Structure according to Cost

### According to Nature and Type

According to the nature and type of the firm, capital structure of the firm can be classified as:



**Figure 3.8: Classification of Capital Structure according to Nature and Type**

Simple capital structure includes only the Equity Capital or Retained Earnings. For example,

**Table 3.1: Simple Capital Structure**

Balance Sheet  
as at .....

Liabilities	₹	Assets	₹
Equity Share Capital	1,00,000	Fixed Assets	70,000
		Current Assets	30,000
	1,00,000		1,00,000

Capital structure consisting of more than one source is known as Complex Capital Structure. For example,

**Table 3.2: Complex Capital Structure**

Balance Sheet  
as at .....

Liabilities	₹	Assets	₹
Equity Share Capital	1,00,000	Fixed Assets	1,50,000
8% Pref. Share Capital	50,000	Current Assets	1,00,000
10% Debentures	50,000		
Reserves and Surplus	10,000		
Current Liabilities	40,000		
	2,50,000		2,50,000

## 3.7 OPTIMAL CAPITAL STRUCTURE

Optimal capital structure is that proportion of debt and equity which maximises market value of the shares and minimises cost of capital. It is best debt-to-equity ratio that optimises two variables at the same time – market value and cost of capital.

According to **Prof Ezra Solomon**, "Optimal capital structure is that mix of debt and equity which will maximize the market value of a company." Hence, the company should choose combination of the various sources of long-term funds judiciously.

Below are the features of optimal capital structure:

- It establishes relationship between debt and equity such that the market value per equity share is maximum.
- It helps to maintain the financial stability of the company.
- It takes into account the advantage of the leverage offered by corporate taxes.

- If capital structure consists of more borrowings, it increases the value of company.
- Cost of capital is minimum and market price of share is maximum at optimal capital structure.

Every company tries to achieve and maintain optimal capital structure. It keeps adjusting its debt-equity proportion to reach the optimum level. However, achieving optimal capital structure is difficult due to below constraints:

- The optimal debt-equity mix exists in theory and is difficult to achieve it in reality.
- The concept of appropriate capital structure exists in reality than the concept of optimal capital structure.
- If market value of an equity share falls due to risk of high debt content, it becomes difficult to achieve optimal capital structure.
- The market price of equity share does not change with the change in debt-equity mix which makes it difficult to achieve optimum capital structure.
- Lot of complex market factors influence market value of equity share which makes it difficult to predict amount of decrease in the market value of an equity share.

### 3.8 CAPITAL STRUCTURE AND FINANCIAL STRUCTURE

The terms capital structure and financial structure are often used interchangeably. However, these two terms differ in the sense that Capital Structure includes only the long-term sources of funds, whereas financial structure represents the way assets of the company are financed.

Both structures are related to the Liabilities + Equities side of the Balance sheet equation. Financial structure is the balance between all of the company's liabilities and its equities. It is related to Liabilities + Equities side of the Balance sheet. Capital structure is the balance between equities and long-term liabilities. It does not include short-term liabilities.

Below figure shows financial and capital structures on a firm's Balance sheet.

Grande Corporation		Figures in 1,000s
Balance Sheet at 31 December 20XX		
<b>Assets</b>		<b>Asset Structure</b>
Current Assets	9,609	
Long Term Investment & Funds	1,460	
Property, Plant & Equipment	9,716	
Intangible Assets	1,222	
Other Assets	68	
	<b>22,075</b>	<b>Total Assets</b>
<b>Liabilities</b>		<b>Financial Structure</b>
Current Liabilities	3,464	
Long Term Liabilities	5,474	
	<b>8,938</b>	<b>Total Liabilities</b>
<b>Owners Equity</b>		
Contributed Capital	9,439	
Retained Earnings	3,698	
	<b>13,137</b>	<b>Total Equity</b>
<b>Capital Structure</b>		
	<b>22,075</b>	<b>Total Liabilities and Equities</b>

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Figure 3.9: Financial and Capital Structures on a Firm's Balance Sheet



Below table shows major differences between capital structure and financial structure.

**Table 3.3: Differences between Capital Structure and Financial Structure**

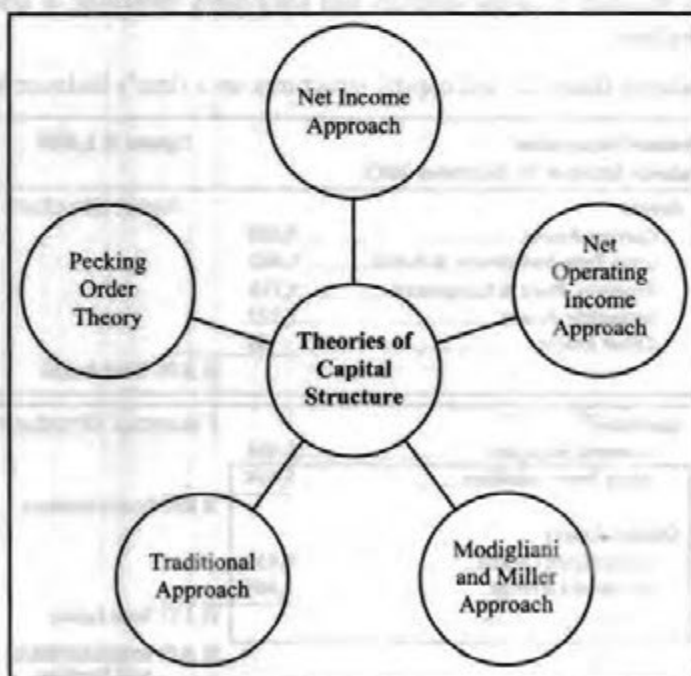
Basis	Capital Structure	Financial Structure
Meaning	The combination of long-term sources of funds raised by the business is known as Capital Structure.	The combination of long-term and short-term financing depicts the financial structure of the company.
Appear on Balance Sheet	Under the head Shareholders fund and Non-current liabilities.	The equities and liabilities side.
Components	Equity capital, preference capital, retained earnings, debentures, long term borrowings.	Equity capital, preference capital, retained earnings, debentures, long-term borrowings, account payable, short-term borrowings.
Relation with each other	The capital structure is a section of financial structure.	Financial structure includes capital structure.

### 3.9 THEORIES OF CAPITAL STRUCTURE

Capital structure theories are related to a question if change in capital structure influences the value of a firm or not. All capital structure theories are based on few assumptions given below:

- Firms use only two sources of funds-equity and debt.
- There is no change in investment decisions of the firm.
- There are no retained earnings.
- Business risk of firm is not affected by the financing mix.
- There is no corporate or personal taxation.
- Investors expect future profitability of the firm.

Below are the various capital structure theories:



**Figure 3.10: Capital Structures Theories**

Let us now discuss capital structure theories.

### Net Income Approach

Net Income (NI) approach was given by Durand. According to this theory, there is definite relationship between capital structure and the value of firm. Capital structure influences the cost of capital (WACC) which affects the value of the firm.

$$\text{WACC} = \text{Required Rate of Return} \times \text{Amount of Equity} + \text{Rate of Interest} \times \text{Amount of Debt}$$

According to NI approach, value of the firm is determined by below formula:

$$\text{Value of firm} = \text{Earnings} / \text{WACC}$$

According to Durand, value of the firm increases by decreasing the overall cost of capital which is measured in terms of Weighted Average Cost of Capital. This is possible through higher proportion of debt. Thus, as per this approach, firm will have maximum value at a point where WACC is minimum, that is, when the firm is almost debt financed.

This is shown in figure below. As the proportion of debt ( $K_d$ ) in capital structure increases, WACC ( $K_o$ ) reduces.

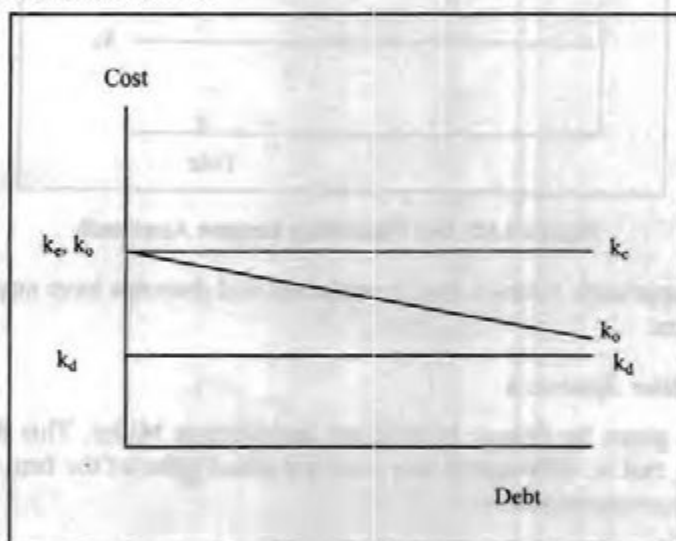


Figure 3.11: Net Income Approach

Net income approach is based on below assumptions:

- Continuous increase in debt will not affect the risk perception and confidence level of the investors.
- The cost of debt is less than the cost of equity.
- No corporate tax is levied.

### Net Operating Income Approach

Net Operating Income (NOI) Approach is opposite of Net income approach. This approach is also given by Durand, according to whom WACC remains constant and value of the firm is independent of its capital structure. That is, value of the firm is not affected by the change in the debt component of the capital structure.

NOI approach proposes that:

- If capital structure comprises of higher debt component, risk of shareholders increases.
- Increase in shareholders risk, increases the cost of equity ( $K_e$ ).
- Increase in cost of equity, offsets the advantage gain due to cheaper cost of debt ( $k_d$ )

This is shown in figure below. WACC ( $K_o$ ) is constant, as the proportion of debt ( $k_d$ ) increases, there is no change in WACC.

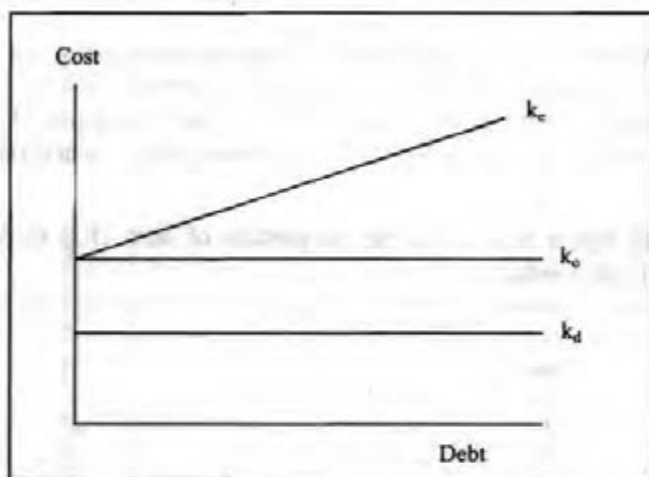


Figure 3.12: Net Operating Income Approach

Thus, in NOI approach, finance mix is irrelevant and does not have any impact on the value of the firm.

#### **Modigliani Millar Approach**

This theory is given by Franco Modigliani and Merton Miller. This theory supports NIO approach, that is, debt-equity mix does not affect value of the firm. MM approach is based on below assumptions:

- There are no corporate taxes and no transaction cost.
- Investors are rational and have access to same information as firms have.
- Securities are indefinitely divisible.
- Investors can borrow without restrictions at par with the firms.
- There is no retention of profits.

MM approach gives two propositions:

**Proposition 1:** Capital structure does not have any effect on the value of the firm. Therefore, value of the firm is given by capitalising the operating income (EBIT) by the appropriate rate (WACC). Thus,

$$\begin{aligned}\text{Value of the firm} &= \text{Market value of equity} + \text{Market value of debt} \\ &= \text{Expected EBIT/Expected WACC}\end{aligned}$$

Two identical firms, except capital structure will have the same level of earnings. If the identical firms have different market value, arbitrage process will take place. In this process, investors will switch their securities from levered firms to unlevered firms and receive same return from both firms.

**Proposition 2:** The cost of equity is a linear function of the company's debt/equity ratio. As the company uses more debt, in its capital structure, the cost of equity will increase. The WACC is constant because as more of the cheaper source of capital is used (debt), the cost of equity increases.

$$K_e = K_o + (K_o - K_d) D/S$$

Here,

$K_e$  = Cost of equity

$K_o$  = Average cost of capital

$K_d$  = Cost of debt

$D$  = Market value of debt

$S$  = Market value of common shares

### Traditional Approach

Traditional approach is the intermediate approach between NI and NOI approach. According to traditional approach, optimal capital structure exists with minimum WACC and maximum value of the firm. According to traditional approach, value of the firm will be maximum at best possible mix of debt and equity.

Traditional approach works in three stages:

1. Value of the firm increases with increase in debt, and as a result cost of capital reduces but till a certain point.
2. After this point, cost of capital stabilises and does not reduce further. Additional increase in debt does not affect cost of capital and value of the firm stagnates.
3. Further increase in debt, increases the shareholders risk which increase the cost of equity. Cost of debt also rises due to higher debt component; cost of capital increases and value of firm falls.

This scenario is depicted in figure below:

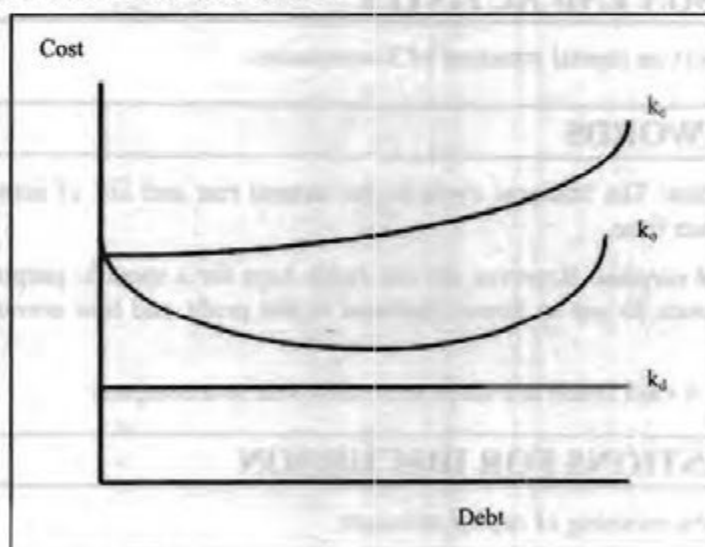


Figure 3.13: Traditional Approach

### Pecking Order Theory

Pecking order theory was first suggested by Donaldson in 1961 and later popularised by Stewart C. Myers. The theory states that the cost of financing increases with



asymmetric information. There are three main sources of funds – internal funds, debt and new equity. When a company decides to raise capital it first prefers internal funds, then debt and new equity in last.

Thus, the theory states that new equity is least preferred method of raising capital as it is commonly issued by managers. According to investors, managers overvalue the firm and take advantage of this over-valuation. Therefore, investors give lower value to issue new equity. This theory gives hierarchy of financing sources.

#### Check Your Progress

Fill in the blanks:

1. At optimal capital structure, firm's value is \_\_\_\_\_ and cost of capital is \_\_\_\_\_.
2. According to Net Income Approach, value of the firm can be calculated as \_\_\_\_\_.
3. Capital structure should be such which \_\_\_\_\_.
4.  $WACC = \text{Required Rate of Return} \times \text{Amount of Equity} + \text{Rate of Interest} \times \text{_____}$ .
5.  $K_e = K_o + (K_o - K_d) D / \text{_____}$

### 3.10 LET US SUM UP

- Capital structure refers to distribution of debt and equity to make the finances of the company.
- Capital structure theories explore the relationship between debt financing, equity financing and the market value of the firm.

### 3.11 UNIT END ACTIVITY

Prepare a report on capital structure of 5 companies.

### 3.12 KEYWORDS

**Business cycles:** The business cycle is the natural rise and fall of economic growth that occurs over time.

**Reserves and surplus:** Reserves are the funds kept for a specific purpose, which the company intends to use in future. Balance in the profit and loss account is called a surplus.

**Cash credit:** A cash credit is a short-term cash loan to a company.

### 3.13 QUESTIONS FOR DISCUSSION

1. Explain the meaning of capital structure.
2. Describe the objectives of capital structure.
3. Explain the factors influencing capital structure.
4. Discuss the components of capital structure.
5. Classify capital structure.



6. Differentiate between capital structure and financial structure.
7. Explain the meaning of optimal capital structure.
8. Examine the different theories of capital structure.

### Check Your Progress: Model Answer

1. Maximum, Minimum
2. Value of firm = WACC/Earnings
3. Maximises firm's value
4. Amount of Debt
5. S

## 3.14 REFERENCES / SUGGESTED READINGS

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## UNIT

# 4

## LONG-TERM FINANCING AND LEVERAGES

### CONTENTS

- 4.0 Aims and Objectives
- 4.1 Introduction
- 4.2 Financial Market of India
  - 4.2.1 Capital Market
  - 4.2.2 Money Market
- 4.3 Long-term Sources of Finance
- 4.4 Medium-term Sources of Finance
- 4.5 Short-term Sources of Finance
- 4.6 Leverages
  - 4.6.1 Importance of Leverage
- 4.7 Types of Leverages
- 4.8 EBIT-EPS Analysis
- 4.9 Indifference Point
- 4.10 Let Us Sum Up
- 4.11 Unit End Activity
- 4.12 Keywords
- 4.13 Questions for Discussion
- 4.14 References/Suggested Readings

### 4.0 AIMS AND OBJECTIVES

After studying this lesson, you should be able to:

- Describe the financial market of India
- Define capital market
- Discuss about money market
- Describe the long-term sources of finance
- Explain the medium-term sources of finance
- Describe the short-term sources of finance
- Explain the meaning of leverage
- Examine the importance of leverage
- Explain the types of leverages

- Discuss EBIT-EPS Analysis
- Explain the meaning of indifference point

## 4.1 INTRODUCTION

Business needs to raise short-term and long-term funds to meet its working and fixed capital requirements. This not only requires availability of such funds but also a transfer mechanism which will help providers of the funds interact with users of the funds. This is done by financial markets which transfer the funds from investors to business units.

## 4.2 FINANCIAL MARKET OF INDIA

Money flows from surplus sector to deficit sector. Thus, there are two groups of people, one who lend money and others who use money. Financial markets act as a link between these two groups. It acts as an intermediary between the borrowers and lenders of money. Therefore, financial market is defined as a transfer mechanism between lenders and the users through which transfer of funds is facilitated.

Indian financial market is one of the oldest and fastest growing markets. Till early 1990s, financial markets in India were characterised by restrictions on transactions, barrier to entry, low liquidity and high transaction costs. From 1991 onwards, financial markets reforms came up which eased the restrictions on transactions, reduced transaction costs and enhanced systemic liquidity.

On the basis of the maturity of claims, financial markets can be divided into capital market and money market.

### 4.2.1 Capital Market

Capital market is the market for medium and long-term funds. It is the market for the securities having direct or indirect claims to capital. Thus, it comprises of all long-term borrowings from banks and financial institutions, foreign markets and raising capital by issuing securities such as shares, debentures and bonds. The primary role of capital market is to make investments from investors having surplus funds to the ones running on deficit.

The features of capital market are as follows:

- It deals with medium and long-term securities.
- It performs trade-off function.
- It creates dispersion in business ownership.
- It helps in capital formation.
- It helps in creating liquidity.

Securities market is further segmented into primary and secondary market.

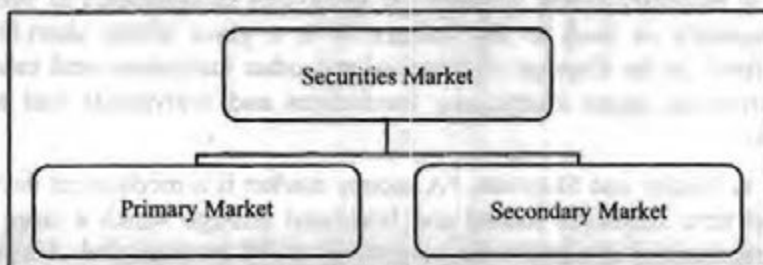


Figure 4.1: Types of Securities Market

**Primary market:** Primary market deals with procurement of long-term funds through fresh issue of shares and debentures. It is that market in which shares, debentures and other securities are sold for the first time for collecting long-term capital. Therefore, the primary market is also called new issue market. This market helps in the capital formation since it involves flow of funds from savers to borrowers. The money collected from this market is used by the companies to modernize the plant, buying machinery and buildings, business expansion, and setting up new business unit.

The few features of primary market are given below:

- It is related to new issues.
- It does not have particular place to deal.
- It has various methods to float capital such as:
  - ❖ Public Issue
  - ❖ Offer for Sale
  - ❖ Private Placement
  - ❖ Right Issue
  - ❖ Electronic-Initial Public Offer

**Secondary market** or stock exchange market provides market for existing long-term securities. That is, it deals with buying and selling of previously used securities. Transactions of the secondary markets are carried through stock exchange; thus, it is also known as stock exchange. The main objective of secondary market is to create liquidity in securities.

The features of secondary market are as follows:

- It creates liquidity.
- It is an organised market and comes after primary market.
- It has a particular place where existing and approved securities can be bought and sold easily.
- It encourages new investments.

#### 4.2.2 Money Market

Money market is the market where short-term financial instruments are traded. Such instruments have high liquidity and short-term maturity, less than a year. Treasury bills, commercial papers and certificates of deposit are few negotiable instruments dealt in money market. Money market is considered to be a safe market to invest as it deals with high liquidity securities.

According to the RBI, "The money market is the centre for dealing mainly of short character, in monetary assets; it meets the short-term requirements of borrowers and provides liquidity or cash to the lenders. It is a place where short-term surplus investible funds at the disposal of financial and other institutions and individuals are bid by borrowers, again comprising institutions and individuals and also by the government."

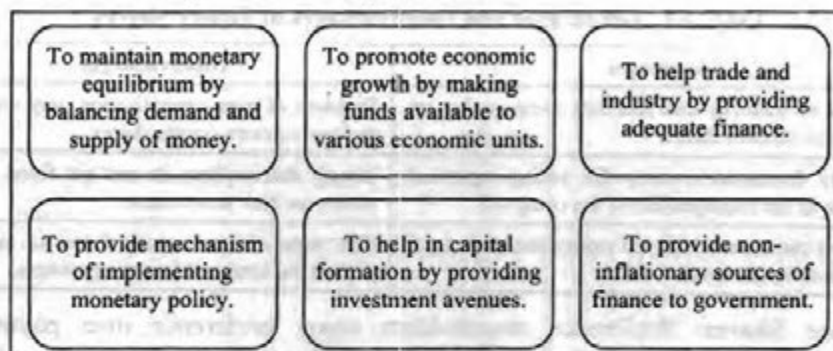
According to Nadler and Shipman, "A money market is a mechanical device through which short term funds are loaned and borrowed through which a large part of the financial transactions of a particular country or world are degraded. A money market is distinct from but supplementary to the commercial banking system."



The features of money market are given below:

- It is an unregulated and informal market and not organised like the capital markets.
- It gives lesser return to investors but provides a variety of products.
- They are for short period of time and therefore withdrawing money from them is easier.

The functions of money market are depicted below:

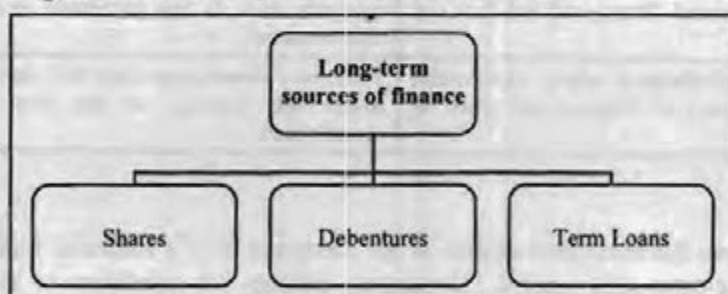


**Figure 4.2: Functions of Money Market**

### 4.3 LONG-TERM SOURCES OF FINANCE

Long-term sources of finance consist of long-term debts and financial obligations having maturity of more than a year. Long-term sources of finance are required for investment in fixed assets and are obtained from capital market. They are used for expansion plans, funding operations, increasing production, thus have long-term impact on the business.

Three main long-term sources of finance are described below:

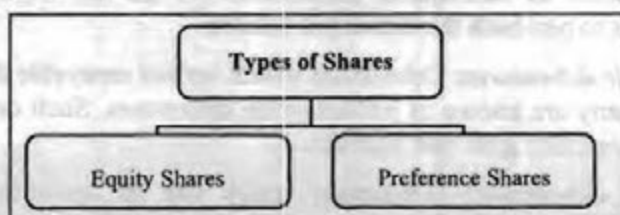


**Figure 4.3: Long-term Sources of Finance**

#### **Shares**

Shares are an important source of fixed capital. The capital of the company is divided into equal parts called shares which entitle its holder to a proportion of the profits.

There are two types of shares:



**Figure 4.4: Types of Shares**



**Equity Shares:** Equity shares represent the investment made by the owners of the business. These owners are known as equity shareholders who carry the ownership rights. They enjoy the rewards and bear the risk of ownership. Equity shares are also called ordinary share because shareholders are the real owners of the company. Equity shares are risky to invest in as there is no guarantee of getting a dividend. Also, during winding up of the company, there is no guarantee of repayment of capital to equity shareholders.

The advantages and disadvantages of equity shares are detailed in the following table.

**Table 4.1: Advantages and Disadvantages of Equity Shares**

Advantages	Disadvantages
They have no maturity date and thus company has no obligation to redeem them.	Problem of over-capitalisation may arise due to issue of extra equity shares.
The equity shareholders enjoy full voting right and participate in the management of the company.	Equity shareholders do not get fixed rate of return on their investment.
Companies can issue additional equity shares through right issue or bonus issue.	The issue of new equity shares to outsiders dilutes the control of existing owners.

**Preference Shares:** Preference shareholders enjoy preference over payment of dividend which is paid at fixed rate. Also, when at the winding-up or shutting down of the company preference shareholders get repayment of capital before equity shareholders.

The advantages and disadvantages of preference shares are given below.

**Table 4.2: Advantages and Disadvantages of Preference Shares**

Advantages	Disadvantages
Preference shareholders do not have voting rights; therefore, control is not diluted.	Preference shares are very expensive source of financing as dividend paid on them is not a tax-deductible expense.
Company is not legally bound to pay preference dividend. Hence, will not face any legal action.	Preference shareholders get voting rights if the company fails to pay preference dividends for a certain period.
Preference shareholders enjoy preferential right for payment of dividend and return of capital.	Preference shareholders have first right to claim the assets and earnings of the firm over equity shareholders.

### Debentures

Debentures are the borrowed capital of the company. It is a financial instrument used to raise long-term debt capital. Debenture holders are creditors of the company. According to Section 2(12) of the Companies Act, 1956, "debenture includes debenture stock, bonds and any other securities of a company, whether constituting a charge on the assets of the company or not."

Debentures are classified as:

- **Redeemable debentures:** Debentures which are redeemed after specified period of time are known as redeemable debentures. At the end of the maturity date, company has to pay back the debenture holders.
- **Irredeemable debentures:** Debentures which are not repayable during the lifetime of the company are known as irredeemable debentures. Such debentures are paid only when company goes into liquidation.
- **Convertible debentures:** Debentures which can be converted into equity or preference shares at a specified exchange rate are called convertible debentures.

- **Non-convertible debentures:** Debentures which cannot be converted into equity or preference shares and are redeemed at the end of maturity period are called non-convertible debentures.

The advantages and disadvantages of debentures are provided in the table below:

**Table 4.3: Advantages and Disadvantages of Debentures**

Advantages	Disadvantages
Cost of debenture is much lower than the cost of equity or preference share capital.	Cost of issuing debentures is very high.
There is no dilution of control of the company by the issue of debentures.	Debenture holders do not have voting rights.
Investment in debenture provides a regular flow of permanent income.	Raising capital through debentures increases the financial risk of the company.
They carry less risk and assured return on investment.	Raising capital through debentures involves fixed interest and principal repayment obligation, failing which can hamper company's operations.
They are put before equity or preference shareholders at the time of winding-up.	There is a limit to the extent of raising funds through long-term debt.

### Term Loans

Term loans are standard commercial loans used to raise long-term debt having maturity period between one to ten years. Term-loan is repaid in regular payments over a period of time.

The features of term loans are explained below:

- **Security:** Terms loans are secured loans i.e., they are backed by collateral. If the borrower defaults, the creditor can take possession of the asset used as collateral to satisfy as debt.
- **Obligation:** Borrower of term loan is under the obligation to pay interest and repay principle.
- **Interest:** Term loans carry a fixed rate of interest which is negotiable between borrowers and lenders.
- **Maturity:** Term loans have maturity period of 5-10 years and are repaid in instalments.
- **Convertibility:** Terms loans can be converted to equity.

The advantages and disadvantages of term loans are provided in the table below:

**Table 4.4: Advantages and Disadvantages of Term Loans**

Advantages	Disadvantages
For borrower: It is cheaper source of finance. It provides tax benefit on interest payable. It is flexible as terms and conditions are negotiable between the borrowers and lenders. It does not dilute control of equity shareholders.	For borrower: They are under obligation to pay interest and repay principal, failing which will question their liquidity position. Increases financial risk of the company.
For lender: It is secured. It provides regular and steady income to lenders as borrowers are under obligation to pay interest and repay principal. If converted to equity, borrowers will get control over management.	For lender: Terms and conditions of term loans are negotiable between borrower and lenders. They do not have any right to control the affairs of the company.

## 4.4 MEDIUM-TERM SOURCES OF FINANCE

The various medium-term sources of finance are described below:

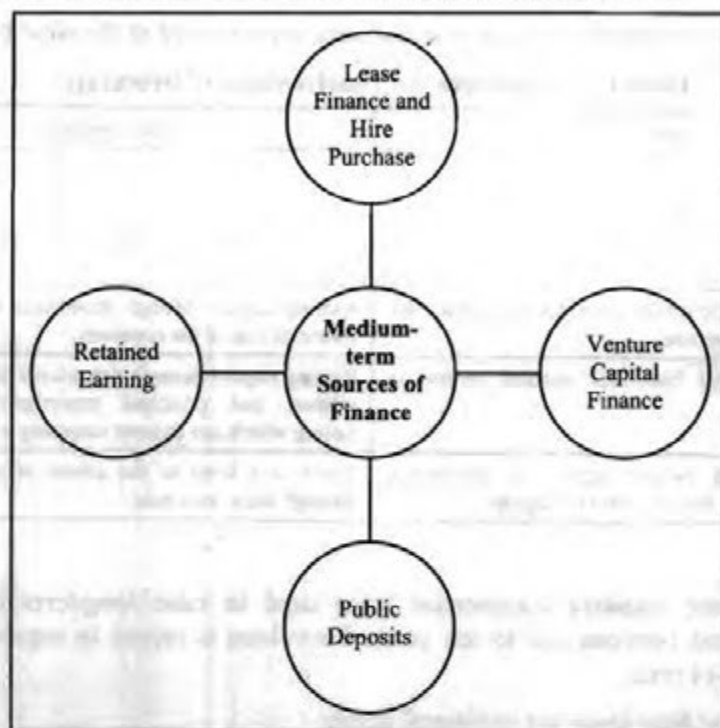


Figure 4.5: Medium-term Sources of Finance

### ***Lease Finance and Hire Purchase***

Lease finance is the written agreement between two parties – lessor, who is the owner of the asset and lessee, who is the user of the asset. In lease finance, lessor gives the asset to lessee on lease basis to use the asset and pay rent in return. Lessee doesn't really have to purchase the asset rather he hires the asset on rent.

Hire purchase is a type of instalment purchase where the hirer agrees to pay the cost of the asset in specified instalments over a period of time. This instalment covers the principal amount as well as the interest cost for the purchase of an asset for the period the asset is utilized. The hirer gets the possession of the asset as soon as the hire purchase agreement is signed. The hirer becomes the owner of the asset after the last payment is made. The hirer has the right to terminate the agreement any time before taking the title or the ownership of the asset.

### ***Venture Capital Finance***

Venture capital finance is the funds available for start-up companies and small business. It is long term capital generally used for high technology projects. Although venture capital finance involves high risk but they also have strong growth potential.

The SEBI defined Venture Capital fund as, "a fund established in the form of a company or trust which raises money through loans, donations, issue of securities or units as the case may be and makes or proposes to make investments in accordance with the regulations."

The features of venture capital are:

- High risk
- Participation in management

- Lack of liquidity
- Long-term horizon
- Used to finance new and rapidly growing companies
- Used to finance small and less mature companies

### **Public Deposits**

Public deposits are unsecured loans, that is, they are not backed by the collateral security. Companies collect the loans from depositors or public for maximum three years of duration. Public includes general public, employees, shareholders of company. Companies need public deposits to meet their working capital requirements. The few features of public deposit are as follows:

- They are very popular as they provide high rate of interest.
- The procedure of taking public deposits is simple.
- It is economical.

### **Retained Earning**

Retained Earnings are the undistributed profits earned by the company. They are the company's cumulative earnings which are not distributed as dividend but retained to be reinvested in the business.

Features of retained earnings are:

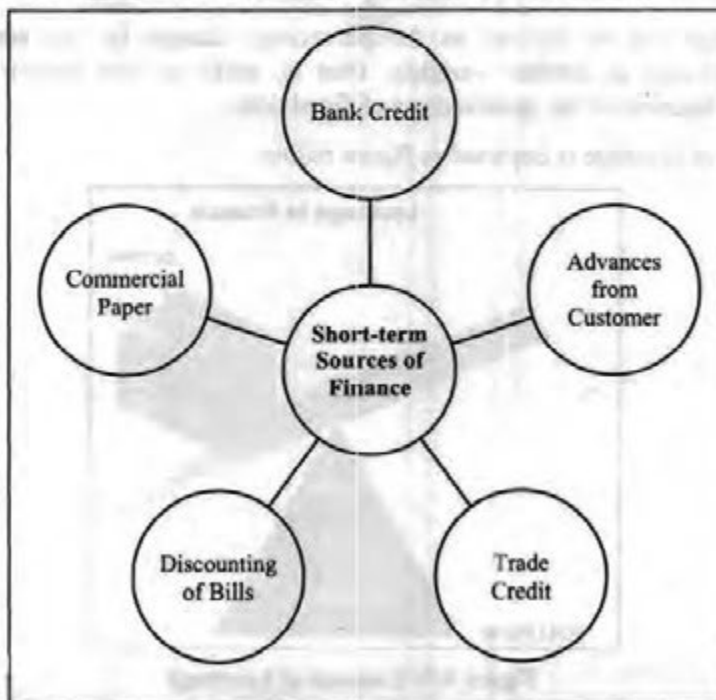
- They have no cost to company.
- Use of retained earnings, avoids flotation cost.
- Use of retained earnings does not require compliance of any legal formalities.

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## **4.5 SHORT-TERM SOURCES OF FINANCE**

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The various short-term sources of finance available to business are:



**Figure 4.6: Short-term Sources of Finance**



- **Bank credit:** Also known as bank loan is a secured loan taken from bank generally by manufacturing and trading companies. Company has to give security to the bank to obtain the loan. Once the loan is approved, companies pay interest on the loan.
- **Advances from customer:** Sometimes, companies take advance from the customers to meet their working capital requirements. For example, automobile companies take advance from customers at the time of booking the car.
- **Trade credit:** It is the advance obtained from the dealers when they purchase goods from the company. Such type of advance is generally given for 60 to 90 days. Rate of interest in this type of source of finance is low.
- **Discounting of bills:** Companies sell goods on the credit for which they get bills receivable from the creditors. Banks discount these bills to give money to companies which can be used for short term needs.
- **Commercial paper:** They are unsecured short-term promissory notes issued by companies and purchased by banks and financial institutions at discount. Thus, banks give short-term finance to companies in exchange for commercial paper.

## 4.6 LEVERAGES

In general, lever is used to lift heavy objects. Same concept is used in business as well.

According to James Home, leverage is "the employment of the asset or source of funds for which the firm has to pay a fixed cost or fixed return."

A firm can raise its funds either through equity or debt or from both sources. When designing capital structure, a firm can use debt to maximise a shareholder's wealth. Thus, leverage is defined as the ability of a firm to use debt to maximise returns to shareholders. It describes firm's ability to use fixed cost assets to increase the return to its owners. Simply, leverage in finance is the relationship between two interrelated variables. These variables can be cost, output, sales, revenue, EBIT and EPS.

Thus, leverage can be defined as the percentage change in one variable to the percentage change in another variable. That is, profit or loss experienced by the organisation because of the involvement of fixed cost.

The concept of leverage is depicted in figure below.

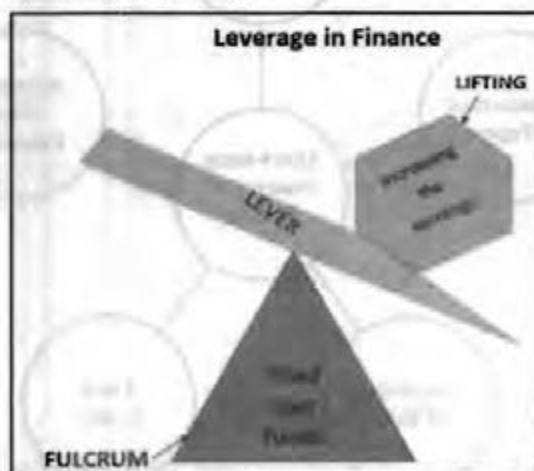


Figure 4.7: Concept of Leverage



### 4.6.1 Importance of Leverage

It is important to understand the concept of leverage due to below reasons:

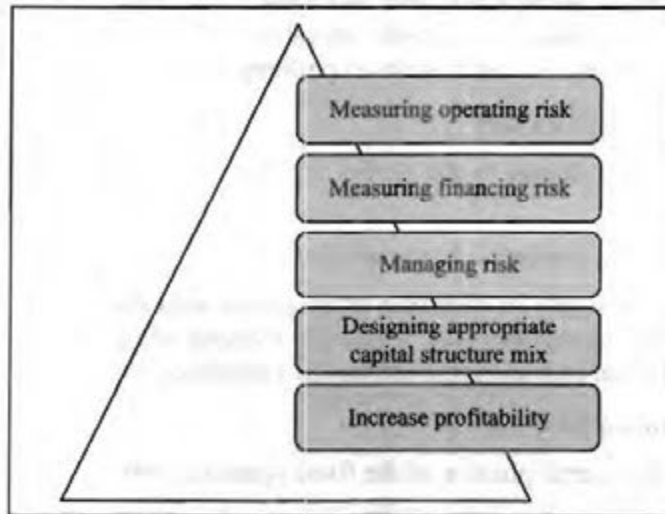


Figure 4.8: Importance of Leverage

## 4.7 TYPES OF LEVERAGES

Leverage is of three types — Operating leverage, Financial leverage and Combined leverage.

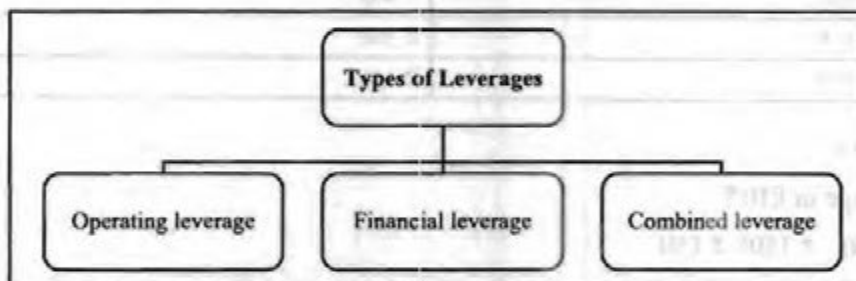


Figure 4.9: Types of Leverages

### *Operating Leverage*

Operating leverage exists when the company has fixed operating cost, irrespective of the volume of output or sales. It establishes relationship between operating profit and sales. It is defined as the ability of the firm to use operating cost to affect sales disproportionately. Operating leverage is a function of the following three factors:

1. Amount of fixed cost
2. Contribution margin
3. Volume of sales

Operating leverage is given by:

$$= \text{Contribution} / \text{Operating Profit}$$

where operating profit means the Earnings Before Interest and Tax (EBIT) and

$$\text{Contribution} = \text{Sales} - \text{Variable cost}$$

Or

Operating leverage =  $\frac{\text{Quantity} \times (\text{Price} - \text{Variable cost per unit})}{\text{Quantity} \times (\text{Price} - \text{Variable cost per unit}) - \text{Fixed Operating Cost}}$

Operating leverage can be favourable and unfavourable. If the contribution is more than the fixed cost, there is favourable operating leverage. If the contribution is less than the fixed cost, there is unfavourable operating leverage.

#### Degree of Operating Leverage

It is the percentage change in the profits resulting from percentage change in sales, that is,

$\text{DOL} = \frac{\% \text{ change in profits}}{\% \text{ change in sales}}$

A firm has a high degree of operating leverage if it uses greater amount of fixed cost and small amount of variable cost. It has a low degree of operating leverage if it uses less amount of fixed cost and large amount of variable cost.

#### Utility of Operating Leverage

- It defines the overall position of the fixed operating cost.
- It helps to identify the position of fixed cost and variable cost.
- It measures the relationship between the sales and revenue of the company.

Let us look at some examples of operating leverage.

**Example:** Calculate degree of operating leverage for below data:

Sales 2015	₹ 500
Sales 2014	₹ 400
EBIT 2015	₹ 200
EBIT 2014	₹ 150

#### Solution:

% change in EBIT  
 $= \frac{₹ 200 - ₹ 150}{₹ 150}$   
 $= 33\%$

% change in Sales  
 $= \frac{₹ 500 - ₹ 400}{₹ 400}$   
 $= 25\%$

#### Degree of Operating Leverage

$= 33/25$   
 $= 1.32x$

This means that for operating profit changes by 2% for every 1% change in Sales.

**Example:** Calculate degree of operating leverage for below data:

Price of Product	₹ 10
Variable Cost per unit	₹ 6
Fixed Costs	₹ 12000
Units sold	5000

**Solution:**

DOL =

$$\frac{\{(\text{₹ } 10.00 - \text{₹ } 6.00) \times 5,000\}}{[\{(\text{₹ } 10.00 - \text{₹ } 6.00) \times 5,000\} - \text{₹ } 12,000]}$$

$$= 2.5$$

**Example:** Tom runs a leading software business. The fixed cost incurred is ₹ 780000 and the cost per unit is ₹ 0.08. The company sells 300000 units for ₹ 25 each. Calculate degree of operating leverage for Tom. If the company increases sales to 450000 units for ₹ 20 each, calculate its degree of operating leverage.

**Solution:**

DOL = [Quantity × (Price – Variable Cost per Unit)] / [Quantity × (Price – Variable Cost per Unit) – Fixed Operating Costs]

$$= \frac{[300000 \times (25 - 0.08)]}{(300000 \times (25 - 0.08) - 780000)}$$

$$= 7437000 / 6657000$$

$$= 112\% \text{ or } 1.12$$

This means that a 10% increase in sales will yield a 12% increase in profits.

If the company increases sales to 450000 units for ₹ 20 each, the new DOL will be:

$$\frac{[450000 \times (20 - 0.08)]}{(450000 \times (20 - 0.08) - 780000)}$$

$$= 8964000 / 8184000$$

$$= 110\% \text{ or } 1.10$$

This means that a 10% increase in sales will yield an 11% increase in profits.

**Financial Leverage**

Financial leverage establishes relationship between the operating profit and the earning available to equity shareholders. It is the use of fixed cost capital by a firm. It is defined as the tendency of the net income to vary disproportionately with operating profit. Financial leverage exists when:

- Fixed interest bearing securities such as debentures are present in the total capital structure.
- Return on investment is not equal to percentage of interest.
- Debt and equity are used to finance a firm's activities.

Financial leverage is given by:

$$= \text{Operating profit} / \text{Profit before tax but after interest}$$

where operating profit means EBIT.

Financial leverage can also be favourable and unfavourable. When the firm earns more on assets than what debt costs, there is favourable financial leverage. When the firm earns less on assets than what debt costs, there is unfavourable financial leverage.

**Degree of Financial Leverage**

It is the percentage change in the profits resulting from percentage change in sales, that is,

$$\text{DFL} = \% \text{ change in EPS} / \% \text{ change in EBIT}$$

A firm has high degree of financial leverage if the EPS varies greatly due to the change in operating profit. It has low degree of finance if the EPS varies to small extent due to the change in operating profit.

#### *Utility of Financial Leverage*

- It is a tool for profit planning.
- It helps to design capital structure.
- It helps to maintain balance between debt and equity capital.
- It helps to maximise shareholder's wealth.
- It helps to analyse impact on EPS.
- It helps to measure financial risk of shareholders.

Let us look at some examples of financial leverage.

**Example:** A food company expects EBIT of ₹ 10000 in the current year. It has a ₹ 20000 bond with 10% annual coupon rate of interest and an issue of 600 shares of ₹ 4 (annual dividend per share) preferred stock outstanding. It also has 1000 shares of common stock outstanding. The annual interest on the bond issue is ₹ 2000 ( $0.10 \times ₹ 20000$ ). The annual dividends on the preferred stocks are ₹ 2400 ( $₹ 4.00/\text{share} \times 600$  shares). Calculate the degree of financial leverage at EBIT levels of ₹ 6000, ₹ 10000 and ₹ 14000 if the firm is in 40% tax bracket.

#### **Solution:**

EBIT	₹ 6000	₹ 10000	₹ 14000
(-) Interest	₹ 2000	₹ 2000	₹ 2000
Net profits before taxes	₹ 4000	₹ 8000	₹ 12000
(-) Taxes (T = 0.40)	₹ 1600	₹ 3200	₹ 4800
Net profit after taxes	₹ 2400	₹ 4800	₹ 7200
(-) Preferred stock dividends	₹ 2400	₹ 2400	₹ 2400
Earnings available for common	₹ 0	₹ 2400	₹ 4800
Earnings per share	$0/1000 = 0$	$2400/1000 = ₹ 2.40$	$4800/1000 = ₹ 4.80$

Degree of financial leverage =  $100/40$

= 2.5

#### **Combined Leverage**

Combined leverage or composite leverage combines both operating and financial leverages. It establishes relationship between revenue and taxable income. Combined leverage shows percentage change in sales due to percentage change in taxable income.

Combined leverage = Operating leverage  $\times$  Financial leverage

$$= C/OP \times OP/PBT$$

$$= C/PBT$$

Degree of Combined leverage (DCL) = % change in EPS/% change in sales

Let us look at some examples of combined leverage.

**Example:** Given below is the data for 2 companies. Calculate the degree of combined leverage.

Company A:

Sales: ₹ 1000000

Total variable operating costs: ₹ 400000

Fixed operating costs: ₹ 200000

Interest: ₹ 50000

Company B:

Contribution margin: ₹ 400000

Earnings before interest and taxes: ₹ 300000

Interest: ₹ 75000

Preferred dividends: ₹ 35000

Tax rate is 30%.

**Solution:**

$$\begin{aligned} DCL_A &= \text{Sales} - \text{Total variable cost} / \text{Sales} - \text{Total variable cost} - \text{Fixed cost} - \text{Interest payment} \\ &= 1000000 - 400000 / 1000000 - 400000 - 200000 - 50000 \\ &= 1.71 \end{aligned}$$

$$\begin{aligned} DCL_B &= \text{Contribution Margin} / \text{EBIT} - \text{Interest} - (\text{Preference Dividend's} / 1 - \text{taxes}) \\ &= 400000 / 300000 - 75000 - (35000 / 1 - 0.3) \\ &= 2.29 \end{aligned}$$

**Example:** Calculate degree of operating leverage, degree of financial leverage and the degree of combined leverage for below data:

	Firm A	Firm B	Firm C
Output (Units)	300000	75000	500000
Fixed Cost	350000	700000	75000
Variable Unit Cost	1.00	7.50	0.10
Interest Expenses	25000	40000	Nil
Unit Selling Price	3.00	25.00	0.50

**Solution:**

	Firm A	Firm B	Firm C
Sales	900000	1875000	250000
(-) Variable Cost	300000	562500	50000
Contribution	600000	1312500	200000
(-) Fixed Cost	350000	700000	75000
EBIT	250000	612500	125000
(-) Interest Expenses	25000	40000	-
EBT	225000	572500	125000
DOL = Contribution/Margin	2.4	2.14	1.6
DFL = EPS/EBIT	1.11	1.07	1.00
DCL = Contribution/EBIT	2.67	2.29	1.6



In nutshell, below figure shows the general income statement format and types of leverages.

Operating leverage	{	Sales revenue	}	Total leverage
		Less: Cost of goods sold		
		Gross profits		
		Less: Operating expenses		
Financial leverage	{	Earnings before interest and taxes (EBIT)		
		Less: Interest		
		Net profits before taxes		
		Less: Taxes		
		Net profits after taxes		
		Less: Preferred stock dividends		
		Earnings available for common stockholders		
		Earnings per share (EPS)		

Figure 4.10: General Income Statement Format and Types of Leverages

## 4.8 EBIT-EPS ANALYSIS

EPS analysis, also known as EBIT-EPS approach is a technique used to design a firm's capital structure. It is a scientific method to compare various financial plans used by the firm. It evaluated various sources of financing a project at different levels of EBIT and provides best source with highest EPS at the most profitable level of EBIT.

Simply, EPS analysis measures the impact of financial leverage on EPS with varying levels of EBIT. It analyses the impact of change in the capital structure on earnings available to equity shareholders. EPS is an important tool in the hands of finance manager which helps them analyse how different capital structures affect the earnings and risk levels of their firms.

The statement of calculation of EPS can be prepared as follows:

Table 4.5: Statement of Calculation of EPS

Particulars	Amount (₹)
EBIT	XXX
Less: Interest	XXX
EBT	XXX
Less: Tax	XXX
EAT	XXX
Less: Preference Dividend	XXX
Earnings Available to Equity Shareholders	XXX
Number of Equity Shares	XXX
EPS (Earnings to ESH/ No. of Equity Shares)	XXX

EBIT-EPS analysis is used for:

- **Financial Planning:** It is used to determine optimum financial planning having highest EPS.
- **Comparative Analysis:** EBIT-EPS analysis helps to evaluate the relative efficiency of departments by identifying EBIT earned by these departments. EBIT-EPS analysis can also be used to compare efficiency of product lines and various markets.
- **Performance Evaluation:** It is used to evaluate performances of various sources of funds and determine if selected fund produces a rate of return higher than its cost.

- **Determining Optimum Mix:** It helps to select the optimum mix of debt and equity in the capital structure. It helps to choose an alternative with highest EPS or the most profitable level of EBIT.

### Limitations of EBIT-EPS Analysis

This technique suffers from few limitations:

- **No consideration for risk:** Leverage increases the level of risk, but this technique ignores the risk factor.
- **Contradictory results:** It gives contradictory results where alternative financing plans are considered. Also, comparison becomes difficult when number of alternatives increase.
- **Over-capitalization:** The technique fails to determine state of over-capitalization of a firm.

## 4.9 INDIFFERENCE POINT

Indifference Point is the concept used in debt funding. It is the point at which EPS is same, irrespective of firm using debt or equity or preferred stock. It is that level of EBIT beyond which benefits of finance leverage operates with respect to EPS.

- If the EBIT exceeds the indifference point of EBIT, financial leverage would be favourable.
- If the EBIT is less than the indifference point of EBIT, financial leverage would not be favourable.

Indifference Point between two alternative financial plans is mathematically represented as:

$$(EBIT - I_1)(1 - T)/S_1 = (EBIT - I_2)(1 - T)/S_2$$

Where,

EBIT = EBIT indifference level

$I_1$  = Fixed interest costs under alternative 1.

$I_2$  = Fixed interest costs under alternative 2.

$T$  = Tax rate

$S_1$  = Number of equity shares outstanding under alternative 1.

$S_2$  = Number of equity shares outstanding under alternative 2.

### Check Your Progress

Fill in the blanks:

1. Debentures which are not repayable during the lifetime of the company are known as \_\_\_\_\_.
2. Funds available for start-up companies and small business are known as \_\_\_\_\_.
3. \_\_\_\_\_ is the advance obtained from the dealers when they purchase goods from the company.
4. \_\_\_\_\_ are unsecured short-term promissory notes issues by companies and purchased by banks and financial institutions at discount.
5. If operating leverage is 2.5 and financial leverage is 1.67, combined leverage is \_\_\_\_\_.

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## 4.10 LET US SUM UP

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- Financial market is divided into capital market and money market.
- Capital market is divided into primary and secondary market.
- Various long-term, medium-term and short-term sources of finance are available for a business to raise funds.
- Leverage refers to the use of borrowed capital to increase the return of an investment. Degree of leverage means how much leverage a firm uses.
- Operating leverage is ratio between firm's fixed costs and variable costs. Financial leverage is use of fixed cost source of financing rather than variable cost sources.
- EPS analysis examines the effect of financial leverage on EPS under various financing plans with varying levels of EBIT.

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## 4.11 UNIT END ACTIVITY

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Gather financial data of any 5 companies and compute their leverage.

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## 4.12 KEYWORDS

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**SEBI:** The Securities and Exchange Board of India (SEBI) is the regulator for the securities market in India.

**Debentures:** Debentures are the borrowed capital of the company.

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## 4.13 QUESTIONS FOR DISCUSSION

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1. Describe the financial market of India.
2. Discuss about capital market.
3. Discuss about money market.
4. Describe the long-term sources of finance.
5. Discuss the medium-term sources of finance.
6. Describe the short-term sources of finance.
7. Explain the meaning of leverage.
8. Examine the importance of leverage.
9. Explain the types of leverages.
10. Discuss EBIT-EPS analysis.
11. Explain the meaning of indifference point.

---

### Check Your Progress: Model Answer

1. Irredeemable debentures
2. Venture capital finance
3. Trade credit
4. Commercial paper
5. 4.18

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#### 4.14 REFERENCES/ SUGGESTED READINGS

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## **BLOCK III**



## UNIT

# 5

## CASH FLOW STATEMENT AND CAPITAL BUDGETING

### CONTENTS

5.0 Aims and Objectives

5.1 Introduction

5.2 Cash Flow Statement (AS-3)

5.3 Uses of Cash Flow Statement

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5.5 Meaning of Capital Budgeting

5.6 Objectives of Capital Budgeting

5.7 Features of Capital Budgeting

5.8 Significance of Capital Budgeting

5.9 Process of Capital Budgeting

5.10 Estimation of Cash Flows

5.10.1 Profit vs. Cash Flow

5.10.2 Calculation of Cash Flow

5.11 Let Us Sum Up

5.12 Unit End Activity

5.13 Keywords

5.14 Questions for Discussion

5.15 References/Suggested Readings

### 5.0 AIMS AND OBJECTIVES

After studying this lesson, you should be able to:

- Explain the meaning of cash flow statement
- List the uses of cash flow statement
- Prepare cash flow statement
- Explain the meaning of capital budgeting
- Discuss the objectives of capital budgeting
- List the features of capital budgeting
- Explain the significance of capital budgeting
- Explain the process of capital budgeting
- Explain how cash flows are estimated

## 5.1 INTRODUCTION

Is it worth to put money in this project? Or it is worth to use that money to buy new machine? Or is it worth to use that money in business expansion? A financial manager is surrounded with all these questions while dealing with money or capital. These decisions are known as capital budgeting decisions and play a crucial role in determining the profitability of the business.

The resources of a business firm are invested in current and fixed assets. Current assets are acquired for the smooth running of business whereas fixed assets are purchased for generating revenue. The profitability of a firm depends upon the productive capacity of the fixed assets. Furthermore, the decision of investing in fixed assets has far-reaching impact because it requires huge capital for long period. The failure of any project may lead the firm in the door of liquidation. Therefore, the cost, benefit and probable risk of the proposed project should be analysed systematically before making the investment.

## 5.2 CASH FLOW STATEMENT (AS-3)

Every business needs ready cash to carry its day-to-day activities. Businesses receive cash from sales, debtors, sale of assets. It needs cash to pay to suppliers, pay salaries, wages, rent, dividends and interest. Thus, a business needs constant inflow and outflow of cash. Therefore, an essential component of financial management is to plan cash and ensure sufficient cash is available. For this purpose, cash flow statement is prepared. It is a tool used for effective cash planning and control.

A cash flow statement is a statement showing inflows and outflows of cash. Transactions which increase the cash are called as inflows of cash and those which decrease the cash are outflows. That is, it depicts receipts and disbursements of cash for a particular period of time. Thus, it is the statement of changes in the financial position of a firm on cash basis.

Cash flow statement traces the sources which bring the cash such as sale of current and fixed assets, issue of share capital and areas where cash is applied such as purchase of current and fixed assets and redemption of debentures.

The Institute of Cost and Works Accountants of India defines Cash Flow statement as "a statement setting out the flow of cash under distinct heads of sources of funds and their utilisation to determine the requirements of cash during the given period and to prepare for its adequate provision."

According to Khan and Jain, "Cash Flow statements are statements of changes in financial position prepared on the basis of funds defined as cash or cash equivalents."

Thus, features of cash flow statement can be summarised as:

- It is a periodical statement as it shows cash position for a particular period of time, month or year.
- It shows movement of cash between two balance sheet dates.
- It establishes the relationship between net profit and changes in cash position of the firm.
- It is not based on matching cost-revenue principle.
- It shows the sources and application of cash.
- It records the changes in fixed assets as well as current assets.
- A projected cash flow statement is referred to as cash budget.

- It indicates cash earning capacity of the firm.
- It depicts how financial position of a firm changes over a period of time.

Accounting Standard-3 issued by the Accounting Standards Board provides definitions of the followings:

Cash means cash in hand and demand deposits with the bank.

Cash Fund includes:

- (i) Cash in hand
- (ii) Demand deposits with banks, and
- (iii) Cash equivalents

Cash equivalents are short-term, highly liquid investments, readily convertible into cash, which are subject to insignificant risk of changes in values. It consists of bank overdraft, cash credit, short-term deposits and marketable securities.

### 5.3 USES OF CASH FLOW STATEMENT

Cash flow statement is used for following purposes:

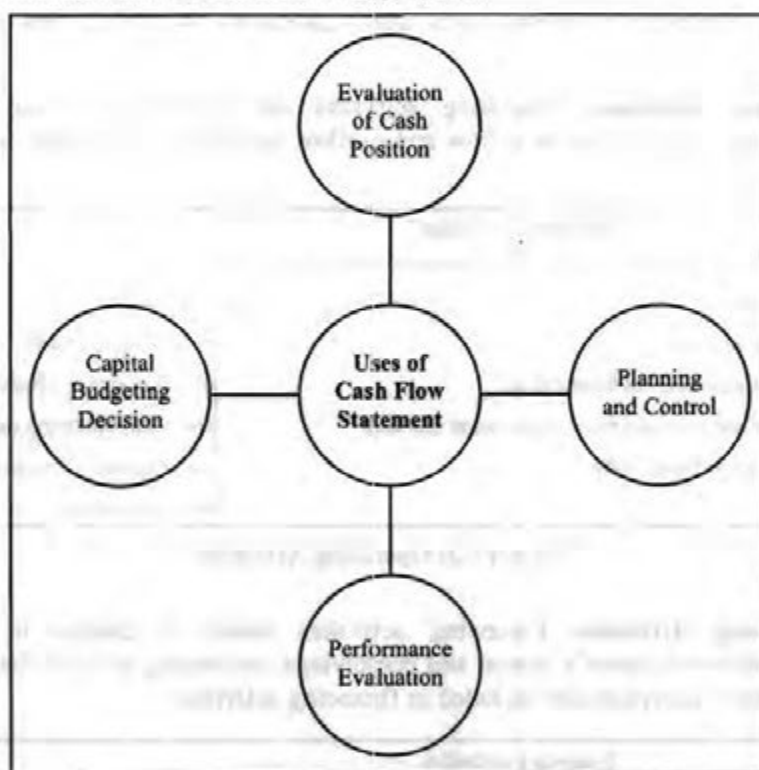


Figure 5.1: Uses of Cash Flow Statement

#### ***Evaluation of Cash Position***

Cash flow statement helps to understand the cash position of a firm. It helps to know the current status of the cash, its shortage, adequacy and sufficiency. In case of shortage of cash, cash is arranged and in case of surplus cash, cash is invested, Thus, Cash flow statement shows current cash position of the firm.

### Planning and Control

Cash flow statement is an effective tool of planning. It helps management plan and coordinate current financial activities as well future plans. Cash flow statement provides valuable information on the basis of which payment of long term loans, expansion and modernisation can be planned.

### Performance Evaluation

Cash flow statement is also a tool of historical analysis. It helps to compare actual cash flow statement with the projected cash flow statement to depict failure or success of the management in cash management. Business can take corrective actions for the deviation found.

### Capital Budgeting Decision

A cash flow statement helps management in taking capital budgeting decisions by providing information on cash used in operating, investing and finance activities. This information also helps to evaluate financial structure of the firm.

## 5.4 PREPARATION OF CASH FLOW STATEMENT

Cash flow statement is divided into three categories of cash inflows and cash outflows:

1. **Operating Activities:** Operating activities are revenue-generating activities. According to AS-3, below inflow and outflow activities are included in operating activities.

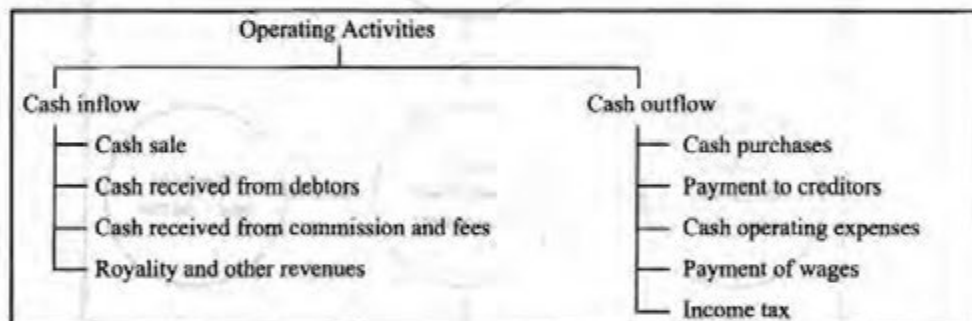


Figure 5.2: Operating Activities

2. **Financing Activities:** Financing activities result in change in size and composition of owner's capital and borrowings. According to AS-3, below inflow and outflow activities are included in financing activities.

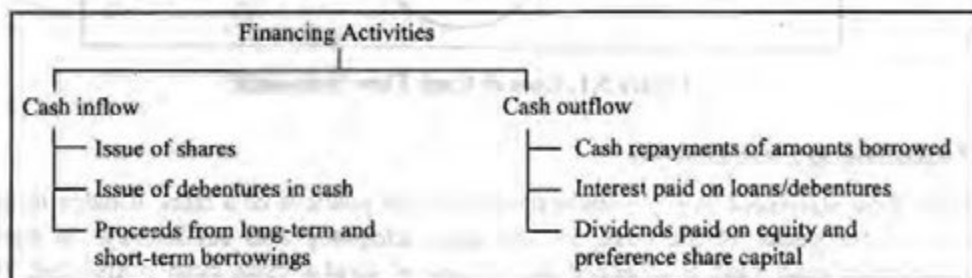


Figure 5.3: Financing Activities

3. **Investing Activities:** Investing activities are involved in purchasing and disposing long-term assets and other investments. According to AS-3, below inflow and outflow activities are included in investing activities.

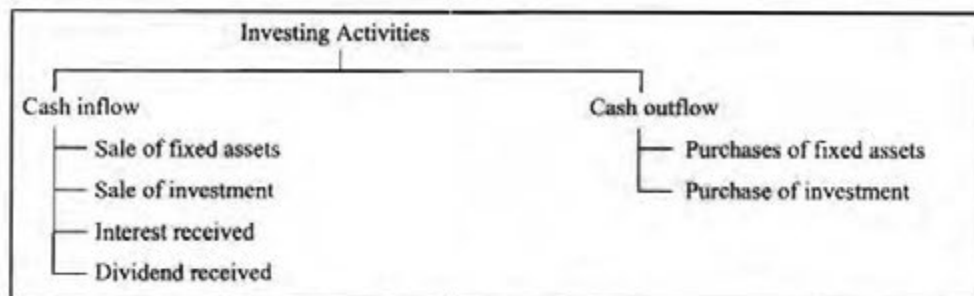


Figure 5.4: Investing Activities

Before we understand how cash flow statement is prepared, let us know what information is required to prepare it.

- **Comparative balance sheet:** Balance sheet at the beginning and end of accounting period shows changes in assets and liabilities.
- **Profit and Loss account:** It determines cash provided by or used in operations.
- Any additional information

As per AS-3, there are two methods to prepare cash flow statement:

1. Indirect
2. Direct

Under indirect method, cash flow statement is prepared as:

Particulars		₹
(i) Cash flows from operating Activities		
Net Profit as per Profit and Loss A/c	xxx	
Add: Transfer to reserve	xxx	
Proposed dividend for current year		
Interim dividend paid during the year		
Net profit before taxation		xxx
Add:	xxx	
Depreciation		
Preliminary expenses		
Discount on issue of shares and debentures written off		
Interest on borrowings and debentures		
Loss on sale of fixed assets		
Less:	xxx	
Interest income/received		
Dividend income received		
Rental income received		
Profit on sale of fixed asset		
D. Operating profits before working capital changes (A + B – C)		xxx
E. Add: Decrease in current assets and increase in current liabilities	xxx	

Contd...



F. Less: Increase in current assets and decrease in current liabilities	xxx	
G. Cash generated from operations (D + E – F)		xxx
Net cash from operating activities		xxx
(ii) Cash from investing accounting		
Add:	xxx	
Proceeds from sale of fixed assets		
Proceeds from sale of investments		
Proceeds from sale of intangible assets		
Interest and dividend received		
Less:	xxx	
Rent income		
Purchase of fixed assets		
Purchase of investment		
Purchase of intangible assets like goodwill		
Net cash from (or used in) investing activities		xxx
(iii) Cash flows from financing activities		
Add:	xxx	
Proceeds from issue of shares and debentures		
Proceeds from other long term borrowings		
Less:	xxx	
Final dividend fund		
Interim dividend fund		
Interest on debentures and loans paid		
Repayment of loans		
Redemption of debenture preference shares		
Net cash from (or used in) financing activities		xxx
(iv) Net increase/Decrease in cash and cash equivalent (i + ii + iii)		xxx
(v) Add: cash and cash equivalents in the beginning of the year		xxx
(vi) Less: cash and cash equivalents in the end of the year		xxx
		xxx

Under direct method, cash flow statement is prepared as:

Particulars		₹
(i) Cash flow from operating activities		
A. Operating cash receipts	xxx	
Cash sales	xxx	
Cash received from customers	xxx	
Trading commission received	xxx	
Royalties received	xxx	xxx
B. Less: Operating cash payment		
Cash purchase	xxx	
Cash paid to the supplier	xxx	
Cash paid for business expenses like office expenses, Manufacturing expenses, selling and distribution expenses	xxx	xxx
C. Cash generated from operation (A – B)		xxx
D. Less Income tax paid (Net of tax refund received)		xxx

Contd...

E. Cash flow before extraordinary items	xxx
F. Adjusted extraordinary items (+)/Receipt/payment	xxx
G. Net cash flow from (or used in) operating activities	xxx
(ii) Cash flow from investing activities (calculation same as under indirect method)	xxx
(iii) Cash flow from financing activities (Calculation same as under indirect method)	xxx
(iv) Net increase/decrease in cash and cash equivalents (i + ii + iii)	xxx
(v) Add cash and cash equivalent in the beginning of the year (same as under indirect method)	xxx
(vi) Less cash under cash equivalent in the end of the year	xxx

Let's take an example of cash flow statement now.

**Example:** Below is the balance sheet of the company.

Liabilities	1-1-05	31-12-05	Assets	1-1-05	31-12-05
Creditors	36,000	41,000	Cash	4,000	3,600
Loan from Partner	-	20,000	Debtor	35,000	38,400
Loan from Bank	30,000	25,000	Stock	25,000	22,000
Capital	1,48,000	1,49,000	Land	20,000	30,000
			Building	50,000	55,000
			Machinery	80,000	86,000
	2,14,000	2,35,000		2,14,000	2,35,000

During the year ₹ 26,000 paid as dividend. The provision made for depreciation against machinery as on 1.1.05 was ₹ 27,000 and on 31.12.05 ₹ 36,000. Cash flow statement for this firm will be prepared as below:

**Solution:**

**Machinery Account**

Particulars	₹	Particulars	₹
To Balance b/d	80,000	By Prov. for depreciation	36,000
To Prov. for depreciation	27,000	By Balance c/d	86,000
To Bank (purchase)	15,000		
	1,22,000		1,22,000

**Cash flow statement for the year ended 31.12.2005**

Particular	₹	₹
<b>1. Cash flows from operating activities:</b>		
Net profit before tax	27000	
Adjustment for dep.	9000	
Inc. in current liabilities	36000	
Inc. in debtor	5000	
Decrease in stock	(3400)	
	3000	
Net cash from operating activities		40600
<b>2. Cash flows from investing activities</b>		
Purchase of land	(10000)	

Contd..

Purchase of building	(5000)	
Purchase of machinery	(15000)	
Net cash from investing activities		(30000)
3. Cash flows from financing activities:		
Loan	20000	
Repayment of bank loan	(5000)	
Payment of Dividends	(26000)	
Net cash from financing activities		(11000)
Net Cash Flow from all activities (A + B + C)		(400)
Add: opening cash balance		4000
Closing cash balance		3600

Working Notes	
Net profit before tax	
Capital (1.1.05)	148000
Capital (31.12.05)	149000
Difference	1000
Add: Dividends	26000
	<b>27000</b>

**Example:** From the following information, prepare cash flow statement.

Liabilities	1-1-15	31-12-15	Assets	1-1-15	31-12-15
Share Capital	2,00,000	2,00,000	Cash	8,000	10,000
Profit & Loss	50,000	90,000	Bank	22,000	20,000
Bank Loan	10,000	-	Debtors	10,000	20,000
Outstanding Expenses	5,000	1,000	Stock	25,000	15,000
Creditors	15,000	20,000	Non-current asset	2,35,000	2,75,000
Provision for tax	20,000	25,000			
Unclaimed Dividend	-	4,000			
	3,00,000	3,40,000		3,00,000	3,40,000

Net profit for the year 2012 after providing ₹ 20,000 as depreciation, was ₹ 60,000. During 2012, company declared equity dividend @ 10% and paid ₹ 15,000 as Income tax.

**Solution:**

**Cash flow statement for the year ended on December 2012**

Particulars	₹	₹
1. Cash flows from operating activities:		
Increase in Profit & Loss account	40000	
Add: Proposed dividend (10% of 2,00,000)	20000	
<b>Net Profit</b>	<b>60000</b>	
Add: Depreciation	20000	

Contd...

Provision of Income tax	20000	
Funds from operations	100000	
Add: Increase in creditors	5000	
Decrease in stock	10000	
Less: Increase in debtors	(10000)	
Decrease in outstanding expenses	(4000)	
Cash generated from operations	101000	
Less: Tax paid	(15000)	
<b>Net cash from operating activities</b>	126000 - 40000	86,000
<b>2. Cash flows from investing activities:</b>		
Purchase of Non-current Asset (2,95,000 – 2,35,000)	(60000)	
<b>Net cash from investing activities</b>		(60000)
<b>3. Cash flows from financing activities:</b>		
Repayment of loan	(10000)	
Repayment of dividend (20,000 – 4,000)	(16000)	
<b>Net cash from financing activities</b>		(26000)
<b>Net Cash Flow from all activities (A + B + C)</b>		Nil
Add: Opening cash balance		30000
Closing cash balance		30000

## 5.5 MEANING OF CAPITAL BUDGETING

Capital budgeting comprises of two words 'Capital' and 'Budgeting'. Capital means the fund or resource available for investing. Budgeting is financial aspect of planning. Thus, capital budgeting is the process by which a company evaluates different investment alternatives to select the best alternative. Simply, capital budgeting is the process by which a company determines whether projects are worth pursuing. These projects can be opening a new branch, purchasing new machinery, replacing and modernizing a process, any R&D project. Capital budgeting is also known as investment appraisal.

Capital budgeting is concerned with making capital expenditure. The expenditure on fixed asset such as land and building, plant and machinery etc., is capital expenditure. Since life of fixed assets is more than one year, capital budgeting is a long-term investment process. Capital budgeting also involves evaluating, selecting, planning, and financing long-term investments. Capital budgeting also includes allocating firm's financial resources among the available investment alternatives.

Let us look how some of the management experts have defined capital budgeting:

"Capital budgeting is long-term planning for making and financing proposed capital outlays."

—Charles T. Homgreen

"Capital budgeting is a kind of thinking that is necessary to design and carry through the systematic programme for investing stockholders' money."

—Joel Dean

"The capital budgeting generally refers to acquiring inputs and long-run returns."

—Richards and Greenlaw

“Capital budgeting is concerned with the allocation of the firm’s scarce financial resources among the available market opportunities. The consideration of investment opportunities involves the comparison of the expected future streams of earnings from a project, with the immediate and subsequent stream of expenditures for it.”

—G. C. Philipattos

From the above definitions, it can be concluded that capital budgeting is an essential process of business.

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## 5.6 OBJECTIVES OF CAPITAL BUDGETING

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Objectives of capital budgeting can be depicted as:

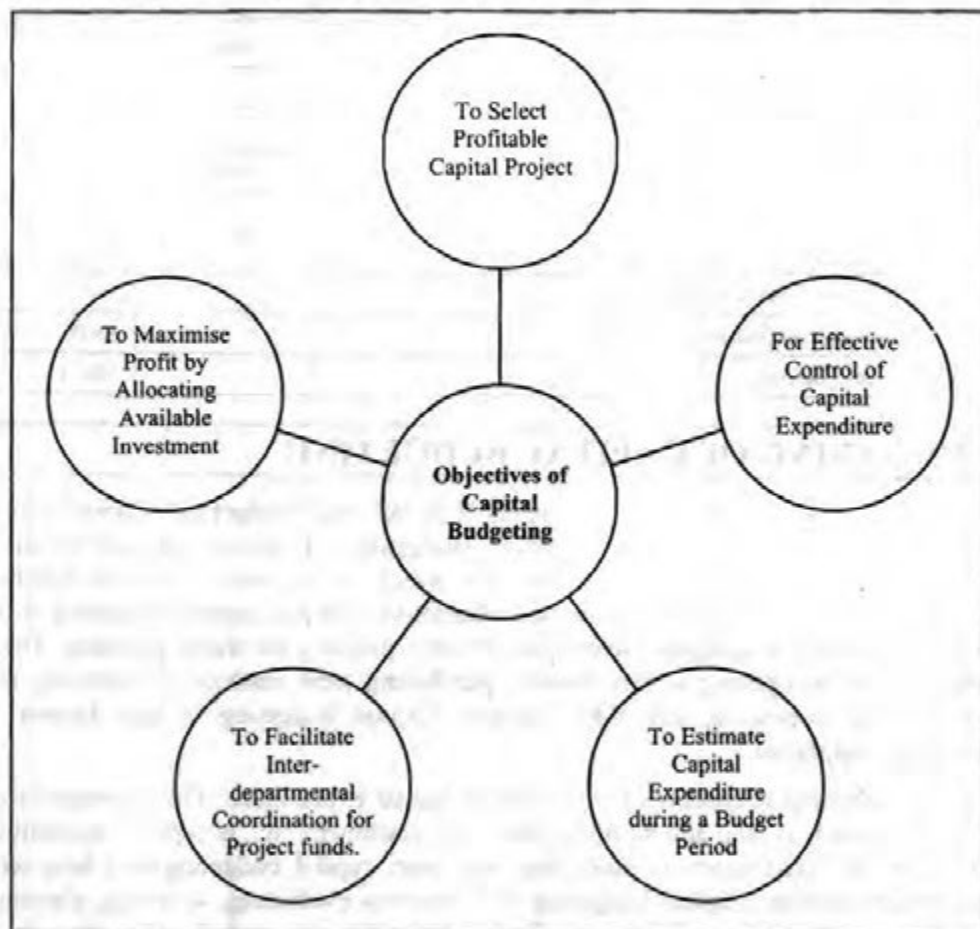


Figure 5.5: Objectives of Capital Budgeting

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## 5.7 FEATURES OF CAPITAL BUDGETING

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Capital budgeting has the following features:

- They provide benefit in future.
- Funds are invested in long-term activities.
- It is a process of exchanging current funds to derive benefits in future.
- It increases efficiency, capacity and span of life.



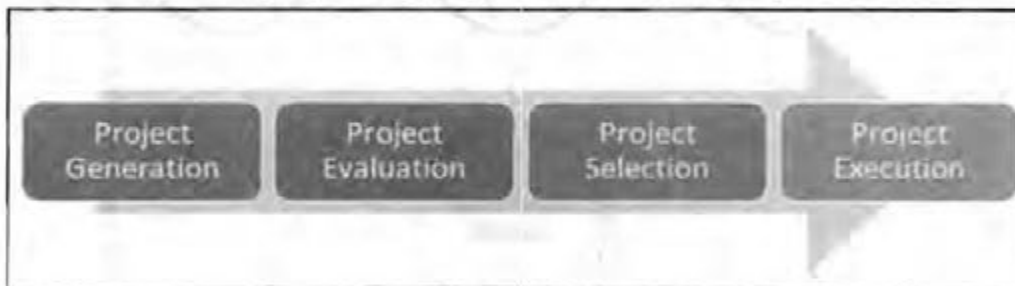
## 5.8 SIGNIFICANCE OF CAPITAL BUDGETING

Capital budgeting is significant due to the following reasons:

- It is helpful for the organisations in the long run and thus impacts organisation's growth rate.
- It involves huge investments and thus businesses have to arrange for it in advance from internal or external sources.
- Capital budgeting decisions are irreversible.
- It assesses future events that are uncertain.
- It helps to select right source of finance at the right time.

## 5.9 PROCESS OF CAPITAL BUDGETING

The process of making capital budgeting decisions is shown in figure below.



**Figure 5.6: Process of Capital Budgeting**

The processes shown in the above figure are briefly explained as follows:

1. **Project Generation:** First, the investment proposal is identified. It can originate at any level within a firm. The proposal can be to add new product to product line, to expand capacity in existing lines or to reduce cost of the output.
2. **Project Evaluation:** At this step, benefits and costs are estimated. Then, an appropriate criterion is finalised to judge the suitability of project.
3. **Project Selection:** Projects are then screened at multiple levels and ultimately the top management selects a proposal.
4. **Project Execution:** Funds are then arranged for the execution of project. A project execution committee is set and capital budget is prepared.

## 5.10 ESTIMATION OF CASH FLOWS

Undertaking a capital budgeting project means change in the firm's overall cash flows today and in the future. To evaluate the investment project, it is necessary to consider the change in firm's cash flows to decide if it adds value to the firm or not. But before this, it is important to know which cash flows are relevant. Cash flows that change the firm's overall future cash flow after undertaking a capital budgeting project are relevant cash flows. Thus, relevant cash flows are incremental cash flow. Any cash flow that is not related to the undertaking of a capital budgeting project is not relevant.

There are various principles on the basis of which projected cash flows are arranged for financing a project. These are:

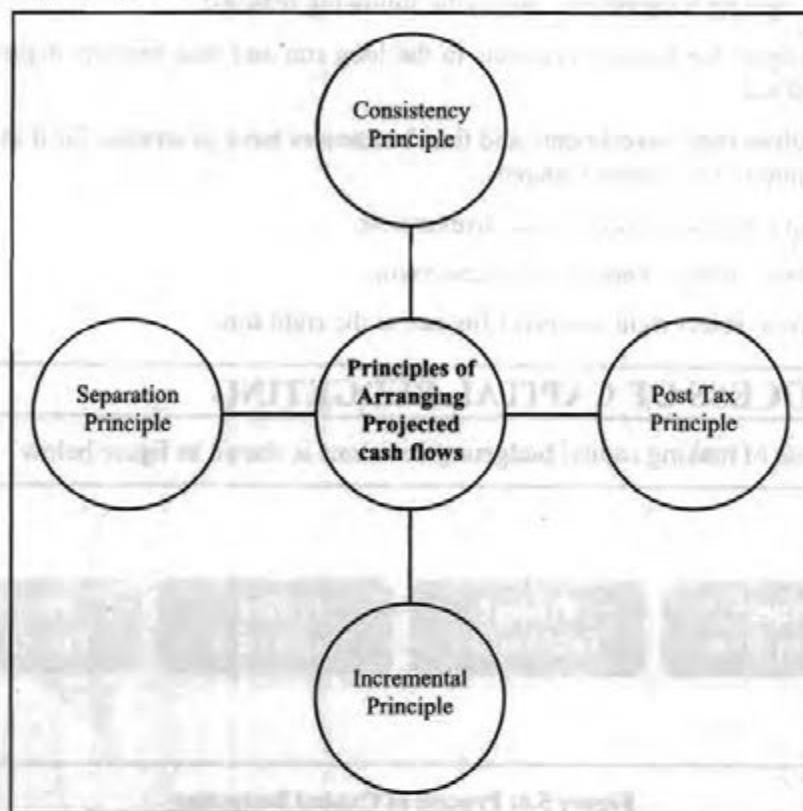


Figure 5.7: Principles of Arranging Projected Cash Flows

#### ***Consistency Principle***

Cash flows should be consistent as to the discount rates and estimating the cash flows. If distorted, then the purpose will be defeated. Investors' and Inflation factors have to be factored in the cash flow.

#### ***Post Tax Principle***

According to post-tax principle, cash flows are measured on after-tax basis. However what tax should be used - company's average tax or the projects marginal tax and how losses should be treated are few issues to be considered. Non-cash charges do affect cash flows.

#### ***Incremental Principle***

According to this principle, cash flows are measured in incremental terms. That is,  
$$\text{Project cash flow for the year } t = \text{cash flow for the firm with the project for year } t - \text{cash flow for the firm without the project for year } t.$$

#### ***Separation Principle***

This principle recognizes the fact that any project cash flow estimation has two sides viz. Investment and Financing and cash flows associated with these sides should be separated.

### 5.10.1 Profit vs. Cash Flow

Cash flow is a better method than accounting profit to measure the economic viability of the project. Thus, it is preferred over accounting profit because of reasons given below:

- Accounting profit includes non-cash expenses and does not give an accurate picture of the investment proposal. Cash flows on the other hand, describe the cash transactions the company will experience once the project is accepted.
- The process of determining net profits using accounting profit is ambiguous. However, cash flow method provides a better picture of the investment proposal.
- Accounting profits are more historical and on accrual basis, whereas cash flow method recognizes the time value of money.

### 5.10.2 Calculation of Cash Flow

For the calculation purposes, there are three types of cash flows in a capital budgeting project:

1. **Initial Investment Outlay:** This is the initial cost required to start the project, buying new equipment, their installation and so on.
2. **Operating cash flow over a project's life:** This is the additional cash flow as the project progresses.
3. **Terminal-year cash flow:** This is the final cash inflows and outflows at the end of the project's life. For example, salvage value of the machine.

Let us now calculate cash flows.

To increase its production capacity, ABC company wants to invest in machine B which costs ₹ 2000, its shipping and installation expenses are ₹ 500 and ₹ 300 respectively. Machine will function for 5 years, after which it will have book value of ₹ 1000 (₹ 2000 - 5 years of ₹ 200 annual depreciation) and a potential market value of ₹ 800.

With respect to cash flows, machine will generate an additional ₹ 1,500 in revenues and costs of ₹ 200. Tax rate is 40%.

#### **Initial Investment Outlay:**

Machine cost + Shipping and installation expenses + Change in net working capital  
= ₹ 2,000 + ₹ 500 + ₹ 300 = ₹ 2,800

#### **Operating Cash Flow:**

$CF_t = (\text{revenues} - \text{costs}) \times (1 - \text{tax rate})$

$CF_1 = (\text{₹ } 1,500 - \text{₹ } 200) \times (1 - 40\%) = \text{₹ } 780$

$CF_2 = (\text{₹ } 1,500 - \text{₹ } 200) \times (1 - 40\%) = \text{₹ } 780$

$CF_3 = (\text{₹ } 1,500 - \text{₹ } 200) \times (1 - 40\%) = \text{₹ } 780$

$CF_4 = (\text{₹ } 1,500 - \text{₹ } 200) \times (1 - 40\%) = \text{₹ } 780$

$CF_5 = (\text{₹ } 1,500 - \text{₹ } 200) \times (1 - 40\%) = \text{₹ } 780$

#### **Terminal Cash Flow:**

Return of net working capital + ₹ 300

Salvage value of the machine + ₹ 800

Tax reduction from loss (salvage < BV) + ₹ 80

Net terminal cash flow ₹ 1,180

Operating CF5+ ₹ 780

Total year-five cash flow ₹ 1,960

#### Check Your Progress

Fill in the blanks:

1. Relevant cash flows are the \_\_\_\_\_ cash flows.
2. Additional cash flow required as the project progresses is known as \_\_\_\_\_.
3. Cash flow statement shows current \_\_\_\_\_ position of the firm.
4. Purchase of investment is a type of \_\_\_\_\_ activity.
5. Issue of share is a type of \_\_\_\_\_ activity.

### 5.11 LET US SUM UP

- Cash flow statement is prepared to provide information about cash receipts and cash payments.
- Businesses generate and consume cash in different ways, therefore, cash flow statement is divided into three sections: cash flows from operations, financing and investing.
- Capital budgeting is firm's decision to invest its current funds in long-term assets to receive benefits in future.
- Capital budgeting decisions are essential as it impacts growth of the business, risky as huge investments are involved, irreversible as it impacts other projects and difficult as it involves uncertainty.

### 5.12 UNIT END ACTIVITY

Study and compare the cash flow statement of any 5 firms for the same financial year.

### 5.13 KEYWORDS

**Matching cost-revenue principle:** The matching principle directs a company to report an expense on its income statement in the same period as the related revenues.

**Bank overdraft:** An overdraft occurs when money is withdrawn from a bank account and the available balance goes below zero.

**Accounting standard:** An accounting standard is a principle that guides and standardizes accounting practices.

### 5.14 QUESTIONS FOR DISCUSSION

1. Explain the meaning of cash flow statement.
2. List the uses of cash flow statement.
3. Prepare cash flow statement.
4. Explain the meaning of capital budgeting.



5. Discuss the objectives of capital budgeting.
6. List the features of capital budgeting.
7. Explain the significance of capital budgeting.
8. Describe the process of capital budgeting.
9. Explain how cash flows are estimated.

#### Check Your Progress: Model Answer

1. Incremental
2. Operating Cash Flow
3. Cash
4. Investing
5. Financing

### 5.15 REFERENCES / SUGGESTED READINGS

**Bhattacharya, H. (2020).** Working capital management: Strategies and techniques (3rd ed.). McGraw-Hill Education.

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## UNIT

# 6

## INVESTMENT EVALUATION TECHNIQUES

### CONTENTS

- 6.0 Aims and Objectives
- 6.1 Introduction
- 6.2 Time Value of Money
- 6.3 Concepts of Time Value of Money
- 6.4 Excel Application of Time Value of Money
- 6.5 Types of Proposals
- 6.6 Discounted Cash Flow Techniques
- 6.7 Non-discounted Cash Flow Techniques
- 6.8 Accepting or Rejecting a Decision
- 6.9 Let Us Sum Up
- 6.10 Unit End Activity
- 6.11 Keywords
- 6.12 Questions for Discussion
- 6.13 References/Suggested Readings

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### 6.0 AIMS AND OBJECTIVES

After studying this lesson, you should be able to:

- Explain the meaning of time value of money
- Discuss the concepts related to time value of money
- Apply Microsoft Excel to the concept of time value of money
- Discuss the types of investment proposals
- Explain the various discounted cash flow techniques
- Describe the various non-discounted cash flow techniques

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### 6.1 INTRODUCTION

Which one will you prefer - ₹ 1000 today or ₹ 1000, 5 years later? Money received sooner rather than later allows one to use the funds for investment or consumption purposes. Thus, it is better to have ₹ 1000 today. This is known as time value of money.

In this lesson, we will look at these two aspects of commercial banks in detail.

## 6.2 TIME VALUE OF MONEY

The time value of money is one of the most important concepts in finance. The concept is based on the notion that money grows with time. That is, money that a business has in its possession today is more valuable than what it will be in future because the money it now has can be invested to earn additional cash and positive returns. For example, a company receives ₹ 1000 today and invests it at 8% per year. The company will have ₹ 1080 after a year. Thus, money received today is more valuable as it can be invested immediately so that it can grow in value. Over the time, money loses value which makes it more desirable today than in future.

Thus, time value of money can be defined as worth of a rupee/dollar received today is different from the worth of a rupee/dollar to be received in future.

Time is an important factor in the concept of time value of money. It provides an opportunity to postpone consumption and earn interest. Importance of time value of money is highlighted in below points:

- It is required for accounting accuracy in transactions such as loan amortization, lease payments and bond interest.
- It is required to design systems that optimize the firm's cash flows.
- It helps in cash collections and disbursements to get the greatest value of money.
- Funding of new programs, products and projects can be justified using time value of money concept.
- Investments in new equipment, in inventory and in production quantities are affected by time-value-of-money techniques.

## 6.3 CONCEPTS OF TIME VALUE OF MONEY

Some important concepts of time value of money are depicted below:

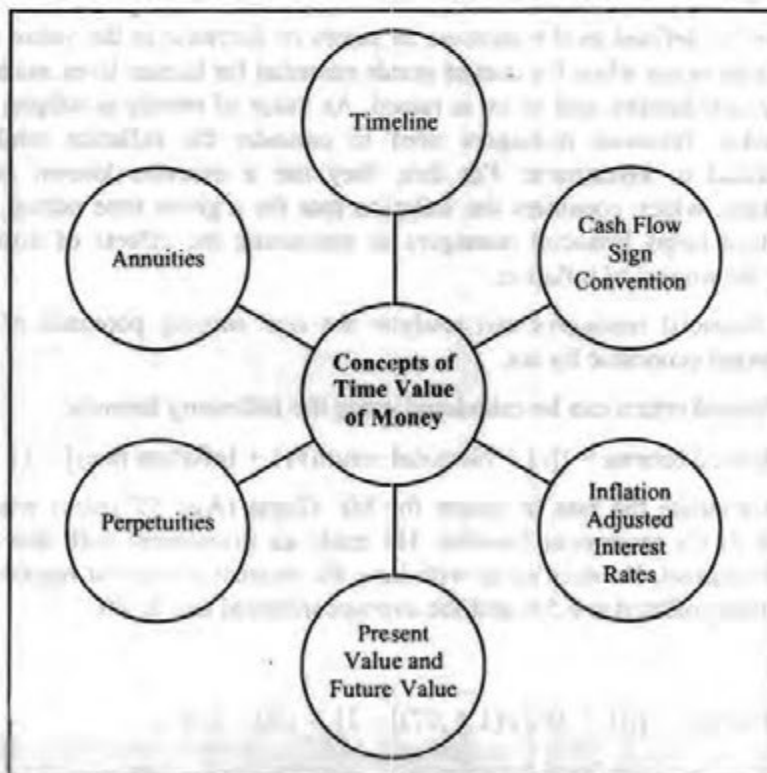


Figure 6.1: Concepts of Time Value of Money

Let us discuss them in detail.

### Timeline

In financial management, timelines are graphical representation of the cash flows in a time value of money problem. Timelines help financial managers to solve various finance related problems by keeping a track on the organisation's cash flows in a given period of time. Below figure shows an example of timeline for an uneven cash flow stream:

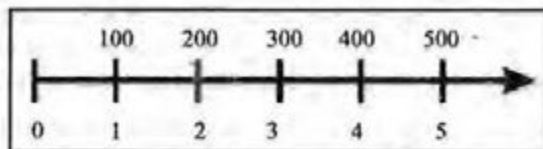


Figure 6.2: Timeline for Uneven Cash Flow Stream

### Cash Flow Sign Convention

Financial managers use cash flow sign conventions in financial calculators and spreadsheet functions. These signs help in ascertaining the direction of cash flows. Following are the signs used:

- + to indicate inflow (profit, revenue, salvage value)
- - to indicate outflow (Investment cost, operating cost, taxes paid)

In case of failure to add the cash flow conventions properly, one may get results showing wrong picture of finance in an organisation. Moreover, it is not necessary that a specific cash flow will be same for everyone. For example, for a borrower, loan payments would be an outflow (-) whereas the same would be an inflow (+) for the lender.

### Inflation Adjusted Interest Rates

Inflation can be defined as the increase in prices or decrease in the value of money. Thus, inflations occur when the cost of goods essential for human lives, such as butter, milk, coffee, oil, houses, and so on is raised. As value of money is subject to change as time passes, financial managers need to consider the inflation while making decision related to investment. For this, they use a measure known as inflation adjusted return, which considers the inflation rate for a given time period. Inflation-adjusted return helps financial managers in estimating the effects of inflation after eliminating the impact of inflation.

Moreover, financial managers can analyze the real earning potential of securities without external economic forces.

Inflation adjusted return can be calculated using the following formula:

$$\text{Inflation adjusted returns} = \{[(1 + \text{Nominal return}) / (1 + \text{Inflation rate})] - 1\} \times 100$$

**Example:** Calculate the rate of return for Mr. Gupta (Age 59 years) who received ₹ 20,00,000 as his retirement benefits. He made an investment with this amount in Bank Fixed Deposit. He decided to withdraw the interest amount at regular intervals. The interest rate offered is 8.5% and the average inflation rate is 7%.

### Solution:

$$\text{Real rate of return} = \{[(1 + .085) / (1 + .07)] - 1\} \times 100 = 1.40\%$$

Present value (PV) is used to ascertain how much an individual is willing to invest to receive a certain amount in the future. For calculation purpose, the value of the cash flow must be discounted. The formula for calculating PV is:

$$PV = FV [1 / (1 + I)^t]$$

Where,

$t$  is time and  $I$  is interest rate.

**Example:** Rain has been assured a sum of ₹ 1400 two years from today and the interest rate is 9%. The year ( $t$ ) is year 2. Calculate the present value of the money.

**Solution:**

$$PV = 1400 [1 / (1 + .09)]^2 = ₹ 1178$$

### Future Value of a Lump Sum

Future Value (FV) of a lump sum refers to the value of an investment after a given period of time. The formula for calculating FV is:

$$FV = PV [(1 + I)^t]$$

$t$  is time and  $I$  is interest rate.

**Example:** Calculate the Future Value of investment of ₹ 1000 for a year with the interest of 10%.

**Solution:**

$$FV = 1000 (1 + 0.1) = ₹ 1100$$

### Annuities

An annuity is a series of equal payments in equal time periods. Generally, the time period is 1 which is why it is called annuity. The present value of an annuity is the present value of equally spaced payments in the future. The formula for calculating PV of annuity is:

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

Here,

$A$  = Present value of annuity

$R$  = Amount of an annuity

$i$  = Rate of interest

$n$  = Number of periods

**Example:** Tom won a lottery of ₹ 10,00,000 to be paid in annual instalments of ₹ 50,000 in 20 years. If rate of interest is 5% compounded annually, how much did he really win?

**Solution:**

$$\begin{aligned} \text{Present value of annuity} &= 50,000 \times (1 - (1 + .05)^{-20}) / .05 \\ &= ₹ 6,23,110.52 \end{aligned}$$

### Future Value of an Annuity

The future value of an annuity is the value of equally spaced payments at some point in the future. The formula for calculating FV of annuity is:

$$\text{FV of annuity} = P \left[ \frac{(1+r)^n - 1}{r} \right]$$

Where,

P = Periodic payment

r = Rate per period

n = Number of periods

**Example:** Kim decided to deposit ₹ 1000 into an account per year for 5 years. If the effective annual rate on the account is 2%, what would be her balance after 5 years?

**Solution:**

$$\begin{aligned} \text{Future value of annuity} &= 1000 \times \{(1 + .02)^5 - 1\} / 0.02 \\ &= ₹ 5204.04. \end{aligned}$$

### Perpetuities

Simply, Perpetuities are an infinite series of payments. Perpetuity is a type of an annuity where constant payment is made for an infinite period of time. It is annuity with no end, therefor also called annuity perpetuity.

Present value of perpetuity is calculated as:

$$\text{Present Value (PV) of Perpetuity} = D/r$$

Where,

D is the fixed periodic payment

r is the interest rate

For example, the present value of perpetuity paying ₹ 1000 at the end of each month at discount rate 0.8% will be:

$$= 1000/0.8\%$$

$$= ₹ 125000$$

## 6.4 EXCEL APPLICATION OF TIME VALUE OF MONEY

Excel is the greatest financial calculator. You can solve various time value money problem using Excel functions. The table below shows the same:

**Table 6.1: Excel Functions**

Purpose	Excel Function
Solve for Number of Periods	NPer (rate, pmt, pv, fv, type)
Solve for periodic interest rate	Rate (nper, pmt, pv, fv, type, guess)
Solve for present value	PV(rate, nper, pmt, fv, type)
Solve for annuity payment	PMT(rate, nper, pv, fv, type)
Solve for future value	FV(rate, nper, pmt, pv, type)



1. Open Excel and choose **Financial** from **Formulas** tab as shown in the figure below.



Figure 6.3: Functions Arguments Box

2. Choose FV and Functions Arguments box will open as shown in the above Figure. Enter the numbers in the field and click ok.

## 6.5 TYPES OF PROPOSALS

There are numerous techniques to evaluate investment proposals and select best alternative. Before understanding these techniques, let us see what kind of proposals firms are available with.

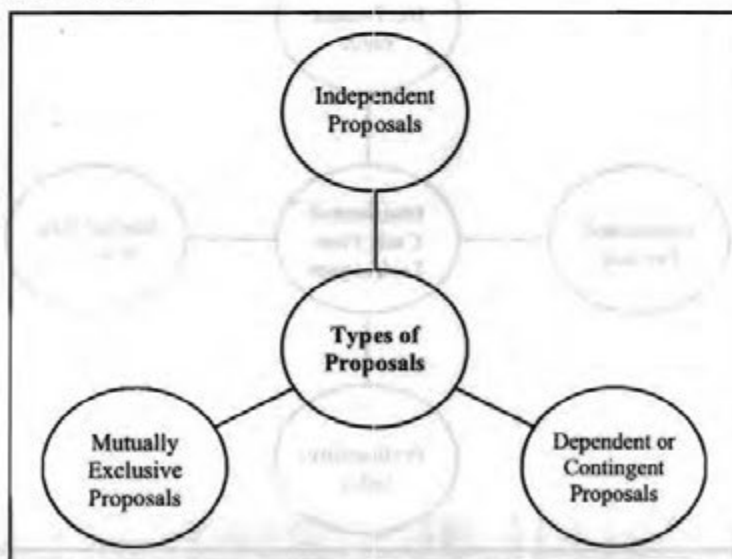


Figure 6.4: Types of Proposals

### ***Independent Proposals***

These are proposals which are economically independent and do not depend upon each other. For example, investment in machinery and automobiles etc. These proposals are accepted or rejected on the basis of minimum return of investment required.

### ***Dependent or Contingent Proposals***

Dependent or contingent proposals are the one when the acceptance of one proposal is dependent upon acceptance of others. For example, constructing a new building for installing new machinery.

### ***Mutually Exclusive Proposals***

Mutually exclusive proposals are the ones where acceptance of one automatically rejects other proposal. It is easier for a firm to take decision on such proposals.

Businesses are available with various methods to evaluate above proposals. These methods should not only be sound but possess below features:

- They should demarcate acceptable and non-acceptable projects clearly.
- They should facilitate ranking of projects according to desirability.
- They should provide a criterion that is applicable to any conceivable project.
- They should be based on the fact that bigger benefits are preferred than small ones and early benefits are chosen above bigger ones.

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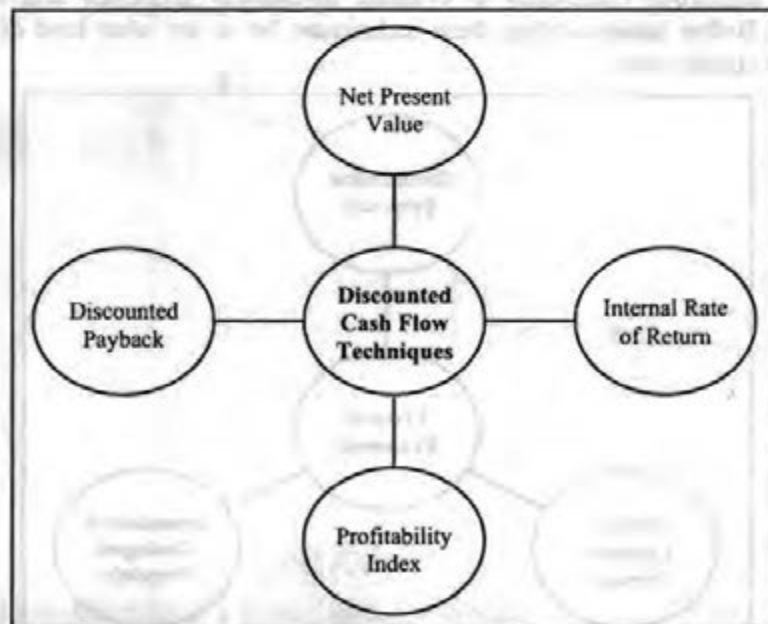
## **6.6 DISCOUNTED CASH FLOW TECHNIQUES**

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Investments are expenditures incurred today in anticipation of future results. Thus, time value of money is important in capital budgeting. Discounted cash flow techniques are based on time value of money which reduces the future values to their present values at a discount rate.

The discounted cash flow technique calculates the cash inflow and outflow through the life of an asset, which are then discounted through a discounting factor. The discounted cash inflows and outflows are then compared.

Below are the types of discounted cash flow techniques:



**Figure 6.5: Discounted Cash Flow Techniques**

### Net Present Value (NPV)

NPV is a modern technique of project evaluation that overcomes all the limitations of traditional methods. It is also known as discounted cash flow method and takes into account the time value of money. NPV is the difference between the present value of cash inflows and the present value of cash outflows. It may be positive, zero or negative, which are explained as follows:

- **Positive NPV:** If the present value of cash inflow is greater than the present value of the cash outflow, NPV is said to be positive.
- **Zero NPV:** If the present value of cash inflow is equal to the present value of cash outflow, NPV is said to be zero.
- **Negative NPV:** If the present value of cash inflow is less than the present value of cash outflow, NPV is said to be negative.

There are two ways to calculate NPV, which are discussed as follows:

When the cash inflows are even:

$$NPV = R \times \frac{1 - (1 + i)^{-n}}{i} - \text{Initial Investment}$$

Where,

**R** is the net cash inflow expected to be received in each period, **i** is the required rate of return per period and **n** is the number of periods during which the project is expected to operate and generate cash inflows.

When the cash inflows are uneven:

$$NPV = \left[ \frac{R_1}{(1 + i)^1} + \frac{R_2}{(1 + i)^2} + \frac{R_3}{(1 + i)^3} + \dots \right] - \text{Initial Investment}$$

Where,

**i** is the target rate of return per period, **R<sub>1</sub>** is the net cash inflow during the first period, **R<sub>2</sub>** is the net cash inflow during the second period and **R<sub>3</sub>** is the net cash inflow during the third period, and so on.

It is easier to calculate NPV in a tabular format.

Let us take some examples.

**Example:** A project requires an initial investment of 50,000 and the cost of capital is 10%. NPV can be calculated as:

Year	Present value factor @ 10%	Cash inflow	Present value
1	0.909	25,000	22,725
2	0.826	15,000	12,390
3	0.751	10,000	7,510
4	0.683	12,000	7,452
5	0.621	12,000	7,452
6	0.564	6,000	3,384
Total present value			53,461
Less: Initial Investment			50,000
NPV			3,461

**Example:** Initial investment of a project is ₹ 2,43,000 and it is expected to generate a cash inflow of ₹ 50,000 each month for 12 months. If the salvage value of the project is zero and target rate of return is 12% per annum NPV can be calculated as:

Initial Investment = ₹ 2,43,000

Net Cash Inflow per Period = ₹ 50,000

Number of Periods = 12

Discount Rate per Period =  $12\% \div 12 = 1\%$

**Net Present Value**

$$= ₹ 50,000 \times (1 - (1 + 1\%)^{-12}) \div 1\% - ₹ 2,43,000$$

$$= ₹ 50,000 \times (1 - 1.01^{-12}) \div 0.01 - ₹ 2,43,000$$

$$\approx ₹ 50,000 \times (1 - 0.887449) \div 0.01 - ₹ 2,43,000$$

$$\approx ₹ 50,000 \times 0.112551 \div 0.01 - ₹ 2,43,000$$

$$\approx ₹ 50,000 \times 11.2551 - ₹ 2,43,000$$

$$\approx ₹ 5,62,754 - ₹ 2,43,000$$

$$\approx ₹ 3,19,754$$

**Example:** A project generates the following cash flows;

Beginning of years:

1 – (₹ 1,00,000) (contractors' fees)

2 – (₹ 2,00,000) (contractors' fees)

3 – (₹ 2,00,000) (contractors' fees)

End of Year 3: ₹ 10,00,000 (sales)

If the risk discount rate of 20% per year, calculate NPV.

**Solution:**

$$r = 0.2$$

$$NPV = -1,00,000 - 2,00,000 (1 + 0.2)^{-1} - 2,00,000 (1 + 0.2)^{-2} + 10,00,000 (1 + 0.2)^{-3}$$

$$= -1,00,000 - 1,66,667 - 1,38,889 + 5,78,704$$

$$= ₹ 1,73,148$$

Below table gives the advantages and disadvantages of NPV:

**Table 6.2: Advantages and Disadvantages of NPV**

Advantages	Disadvantages
It is a better approach as it considers time value of money.	It is complex to calculate.
It gives importance to profitability and risk of the projects.	It is sensitive to fluctuations in future cash flows, salvage value and the cost of capital.
It helps in maximizing the firm's value.	It fails to provide accurate result if the amount of investment of mutually exclusive projects is unequal.
It considers changing discount rate.	It fails to provide accurate result when two projects have different life periods.
It emphasizes on wealth maximisation objective.	

Internal Rate of Return technique was advocated by Joel Dean. This technique determines the magnitude and the timing of cash flows. It is the rate of return at which the net present value of investment is zero, that is, the rate at which the sum of discounted cash inflows is equal to the discounted cash outflows. IRR is also known as rate of return over cost, yield on investment, time adjusted rate of return and marginal efficiency of capital. The steps to calculate IRR are as follows:

- Select two discount rates for the calculation of NPVs.
- Calculate NPVs of the investment using the 2 discount rates.
- Calculate the IRR.

**Example:** Zeba is considering of investing ₹ 2,50,000 for purchasing a new machinery. The cost of capital for the investment is 13%. Cash flow for year 1 is 50,000, year 2 is 1,00,000 and year 3 is 2,00,000. IRR can be calculated as in the following ways:

- We select 2 discount rates for the calculation of NPVs – say 10% and 20%.
- We calculate NPV at these rates as follows:

NPV @10%

Cash Flow	Discount Factor	Present Value
(2,50,000)	1.00	(2,50,000)
50,000	0.909	45,450
1,00,000	0.826	82,600
2,00,000	0.751	1,50,200
NPV <sub>1</sub>		28,250

NPV @20%

Cash Flow	Discount Factor	Present Value
(2,50,000)	1.00	(2,50,000)
50,000	0.833	41,650
1,00,000	0.694	69,400
2,00,000	0.579	1,15,800
NPV <sub>1</sub>		(23,150)

- Next, we calculate the IRR using the following formula:

$$\text{Internal Rate of Return} = R_1 + \{NPV_1 \times (R_2 - R_1) / (NPV_1 - NPV_2)\}$$

Where,

$R_1$  = Lower discount rate

$R_2$  = Higher discount rate

$NPV_1$  = Higher Net Present Value (derived from  $R_1$ )

$NPV_2$  = Lower Net Present Value (derived from  $R_2$ )

In this case,

$$\begin{aligned} \text{IRR} &= 10\% + \{28250 \times (20 - 10) \% / (28250 - (-23150))\} \\ &= 10\% + \{28250 \times (10) \% / (28250 + 23150)\} \end{aligned}$$



$$= 10\% + 5.5\%$$

$$= 15.5\%$$

Let us take another example of IRR.

**Example:** Initial cash outflow is ₹ 2,13,000. The cash inflows during the first, second, third and fourth years are expected to be ₹ 65,200, ₹ 96,000, ₹ 73,100 and ₹ 55,400 respectively. Calculate the IRR.

**Solution:**

Assume that  $r$  is 10%.

NPV at 10% discount rate = ₹ 18,372

Since NPV is greater than zero we have to increase discount rate, thus,

NPV at 13% discount rate = ₹ 4,521

But it is still greater than zero, we have to further increase the discount rate, thus,

NPV at 14% discount rate = ₹ 204

NPV at 15% discount rate = (₹ 3,975)

Since NPV is fairly close to zero at 14% value of  $r$ , therefore

IRR  $\approx$  14%

**Example:** Bob is considering investing ₹ 2,50,000 in a business. The cost of capital for the investment is 13%.

Below cash flows are expected from the investment:

Year	₹
0	(2,50,000)
1	50,000
2	1,00,000
3	2,00,000

Calculate the IRR.

**Solution:**

We can take 10% ( $R_1$ ) and 20% ( $R_2$ ) as our discount rates.

Net Present Value @ 10%

Cash Flow A	Discount Factor B	Present Value A $\times$ B
(2,50,000)	1.000	(2,50,000)
50,000	0.909	45,450
1,00,000	0.826	82,600
2,00,000	0.751	1,50,200
NPV <sub>1</sub>		28,250

Cash Flow A	Discount Factor B	Present Value A × B
(2,50,000)	1.000	(2,50,000)
50,000	0.833	41,650
1,00,000	0.694	69,400
2,00,000	0.579	1,15,800
NPV <sub>2</sub>		-23,150

$$\begin{aligned}
 \text{Internal Rate of Return} &= R_1 \% + \frac{\text{NPV}_1 \times (R_2 - R_1)\%}{(\text{NPV}_1 - \text{NPV}_2)} \\
 &= 10\% + \frac{28,250 \times (20 - 10)\%}{[28,250 - (-23,150)]} \\
 &= 10\% + \frac{28,250 \times 10\%}{28,250 + 23,150} \\
 &= 10\% + 5.5\% \\
 &= 15.5\%
 \end{aligned}$$

Below table shows the advantages and disadvantages of IRR.

**Table 6.3: Advantages and Disadvantages of IRR**

Advantages	Disadvantages
Considers time value of money.	Calculation is tedious and difficult.
Considers cash flows through the life span of project.	It produces multiple rate of return which can be confusing.
Gives emphasis on objective of welfare maximisation of shareholders.	Does not give valid results in case of unequal project span, unequal cash outflows and unequal timing of cash flows.
Consistent with wealth maximisation objective.	Fails to evaluate mutually exclusive projects.

### Profitability Index (PI)

Profitability Index is similar to NPV approach, rather an improved version of NPV. One of the limitations of NPV is that it is unsuitable for evaluating projects with different initial investments. PI method takes this into account and measures the present value of returns per rupee invested.

Mathematically,

PI = Present value of cash inflow/initial cash outlay

Decision Rule:

Accept the project when  $PI > 1$

Reject the project when  $PI < 1$

May or may not accept when  $PI = 1$ , that is, firm is indifferent to the project.

Let's take some examples.

**Example:** A company is undertaking a project at a cost of ₹ 50 million which is expected to generate future net cash flows with a present value of ₹ 65 million. Calculate the profitability index.

**Solution:**

Profitability Index = PV of Future Net Cash Flows/Initial Investment Required

$$\text{Profitability Index} = ₹ 65\text{M}/₹ 50\text{M} \\ = 1.3$$

Net Present Value = PV of Net Future Cash Flows – Initial Investment Required

$$\text{Net Present Value} = ₹ 65\text{M} - ₹ 50\text{M} \\ = ₹ 15\text{M}$$

**Example:** A company invests ₹ 5,000 in a project, which generates the below cash flow in the next 5 years. The firm has a cost of capital of 10%. Column 3 presents the discounted cash flows.

Year	Cash Flow	Discounted Cash Flows
0	-5,000.00	
1	2,000.00	1818.18
2	2,000.00	1652.89
3	2,000.00	1502.63
4	1,000.00	683.01
5	1,000.00	620.92

The total PV of future cash flows = 6277.64

Initial Investment = ₹ 5000

$$\text{PI} = 6277.64/5000 = 1.25$$

Since  $\text{PI} > 1$ , the project can be accepted.

Below are the advantages and disadvantages of profitability index:

**Table 6.4: Advantages and Disadvantages of Profitability Index**

Advantages	Disadvantages
Considers time value of money.	Requires correct estimation of cost of capital for producing correct result.
Considers all cash flows generated by the firm.	It may give ambiguous results in case of mutually exclusive projects.
Consistent with the shareholders' wealth maximization.	Unsuitable when cash outflow occurs beyond the current period.
It is better than NPV in case of capital rationing.	It is based on accurate estimation of cash flows which is difficult.

**Discounted Payback Period**

Discounted payback period is the number of years taken in recovering the investment outlay on the present value basis. Discounted payback period method of investment evaluation is based on the time value of money which discounts the cash flows and then calculates the period. Mathematically,

$$\text{Discounted payback period} = \text{Initial cash outlay} / \text{Discounted annual cash inflows}$$

Let's take some examples now.

**Example:** An initial investment of ₹ 23,24,000 is expected to generate ₹ 6,00,000 per year for 6 years. Calculate the discounted payback period of the investment if the discount rate is 11%.

**Solution:**

Year n	Cash Flow CF	Present Value Factor $PV\ 1 = 1/(1+i)^n$	Discounted Cash Flow $CF \times PV\ 1$	Cumulative Discounted Cash Flow
0	₹ -23,24,000	1.0000	₹ -23,24,000	₹ -23,24,000
1	6,00,000	0.9009	5,40,541	- 17,83,459
2	6,00,000	0.8116	4,86,973	- 12,96,486
3	6,00,000	0.7312	4,38,715	- 8,57,771
4	6,00,000	0.6587	3,95,239	- 4,62,533
5	6,00,000	0.5935	3,56,071	- 1,06,462
6	6,00,000	0.5346	3,20,785	2,14,323

Discounted Payback Period =  $5 + |-1,06,462|/3,20,785$

$\approx 5.32$  years

**Example:** Tom is considering to invest in a business. The business will cost ₹ 1,00,000 to set up and is expected to generate the below yearly net cash flows:

Year	₹
1	(20,000)
2	30,000
3	35,000
4	40,000
5	1,50,000

The cost of capital is 10%. Calculate the discounted payback period.

**Solution:**

Year	Cash Flows	Discount Factor @ 16%	Present Value of Cash Flows	Cumulative Present Value of Cash Flows
	₹		₹	₹
1	(20,000)	0.909	-18,180	-18,180
2	30,000	0.825	24,780	6,600
3	35,000	0.751	26,285	32,885
4	40,000	0.683	27,320	60,205
5	1,50,000	0.621	93,150	1,53,365

**Discounted Payback Period:**

$$= (A-1) + \frac{\text{Cost} - \text{Cumulative Present Value of Cash Flow}^{(A-1)}}{\text{Present Value of Cash Flow}^A}$$

$$= 4 + \frac{1,00,000 - 60,205}{93,150}$$

$$= 4.43 \text{ years or } 4 \text{ years and } 157^* \text{ days}$$

$$* 0.43 \times 365 = 157$$

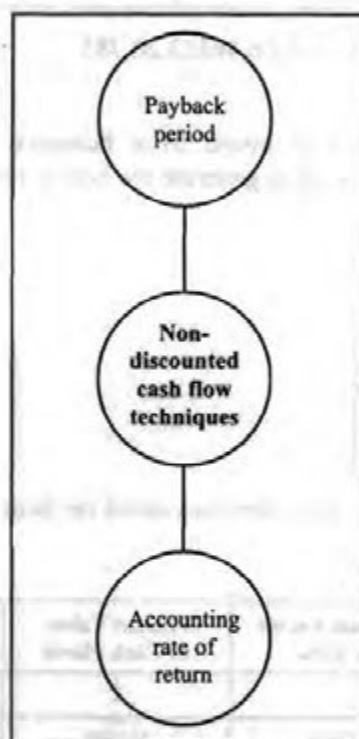
Below are the advantages and disadvantages of discounted payback period:

**Table 6.5: Advantages and Disadvantages of Discounted Payback Period**

Advantages	Disadvantages
Considers time value of money.	Fails to determine if investment will increase with firm's value or not.
Determines actual risk involved in the project.	Becomes complex when there are multiple negative cash flows.

## 6.7 NON-DISCOUNTED CASH FLOW TECHNIQUES

Non-discounted cash flow techniques are traditional methods which does not discount cash flows.



**Figure 6.6: Non-discounted Cash Flow Techniques**

### ***Payback Period***

Payback period is one of the simplest and popular techniques of evaluating investment proposals. Also, known as pay-out period or pay-off period, it refers to number of years required to recover initial investment with the help of stream of annual cash flows generated by the project. Payback period can be calculated in two different situations:

#### ***In the Case of Constant or Equal Annual Cash Inflows***

When the project generates constant cash flow, payback period is calculated as:

Payback period = Cash outlays (initial investment)/Annual cash inflows

**Example:** Payback period for the project which requires initial investment of ₹ 40000 and generates annual cash inflow of ₹ 10000 for 6 years will be:

$$= 40000/10000$$

$$= 4 \text{ years}$$

This means, investment will be recovered fully in 4 years.



### In the Case of Unequal Annual Cash Inflows

When the project generates uneven or unequal cash flow, payback period is calculated with cumulative cash inflow.

For example, payback period for the project which requires initial investment of ₹ 40000 and generates annual inflows of ₹ 16000, ₹ 14000, ₹ 8000 and ₹ 6000 for 4 years respectively, will be:

Year	Annual Cash Inflows	Cumulative Cash Inflows
1	16000	16000
2	14000	30000
3	8000	38000
4	6000	44000

Above table shows that at the end of fourth year, cumulative cash inflows exceed initial investment of ₹ 40000. Thus, payback period is:

$$= 3 \text{ years} + 40000 - 38000 / 6000$$

$$= 3 \text{ years} + 2000 / 6000$$

$$= 33.3 \text{ years}$$

**Example:** Xerox company is planning to purchase machine X. Machine X would cost ₹ 25,000 and would have a useful life of 10 years with zero salvage value. The expected annual cash inflow of the machine is ₹ 10,000.

Annual cash inflow is even in this project; therefore, payback period is:

$$\text{Payback period} = ₹ 25,000 / ₹ 10,000$$

$$= 2.5 \text{ years}$$

**Example:** Due to increased demand, the management of Rani Beverage Company is considering to purchase a new equipment to increase the production and revenues. The useful life of the equipment is 10 years and the company's maximum desired payback period is 4 years. The inflow and outflow of cash associated with the new equipment is given below:

Initial cost of equipment: ₹ 37,500

Annual cash inflows:

Sales: ₹ 75,000

Annual cash Outflows:

Cost of ingredients: ₹ 45,000

Salaries expenses: ₹ 13,500

Maintenance expenses: ₹ 1,500

Non-cash expenses:

Depreciation expense: ₹ 5,000

#### Solution:

**Step 1:** Net annual cash inflow will be calculated first by deducting the total of cash outflow from the total of cash inflow associated with the equipment.

Computation of net annual cash inflow:

$$₹ 75,000 - (₹ 45,000 + ₹ 13,500 + ₹ 1,500)$$

$$= ₹ 15,000$$

**Step 2:** Now, the amount of investment required to purchase the equipment would be divided by the amount of net annual cash inflow (computed in step 1) to find the payback period of the equipment.

$$= ₹ 37,500 / ₹ 15,000$$

$$= 2.5 \text{ years}$$

According to payback method, the equipment should be purchased because the payback period of the equipment is 2.5 years which is shorter than the maximum desired payback period of 4 years.

Below are the advantages and disadvantages of payback period:

**Table 6.6: Advantages and Disadvantages of Payback Period**

Advantages	Disadvantages
Simple to understand and easy to calculate.	Does not measure profitability of the project.
Serve as a guide to investment policy.	Does not value of projects of different economic lives.
Determines solvency and liquidity of the firm.	Does not income beyond payback period.
Measure profitable internal investment opportunities.	Does not give weightage to timings of cash flows.
Helps to rank competitive projects.	Ignores relative profitability of the project.
Enables reduction on cost of capital expenditure.	Ignores cost of capital and interest factors.

### **Accounting Rate of Return (ARR)**

Accounting rate of return or average rate of return measures the profitability of investment proposals by using accounting information. It is the ratio of accounting profit of a project to the investment made in the project. ARR is measured in percentage. ARR of 10% means the investment would generate 10% annual accounting profit over the investment period. ARR can be calculated in the following two ways:

**Where it is mentioned as accounting rate of return:**

$$\text{Accounting rate of return (ARR)} = \text{Average annual EAT} / \text{Original Investment} \times 100$$

$$\text{Original Investment} = \text{Original Investment} + \text{Installation charges} + \text{Transportation charges}$$

**Where it is mentioned as average rate of return:**

$$\text{Average rate of return} = \text{Average annual EAT} / \text{Average Investment} \times 100$$

$$\text{Average Investment} = (\text{Original Investment} - \text{Scrap}) \frac{1}{2} + \text{Scrap value}$$

**Example:** The average income for machine X is ₹ 41,500 and the average investment on it is ₹ 22,500. On the other hand, the average income for machine Y is ₹ 35,000 and the average investment on it is ₹ 22,500. To choose between the two, ARR is calculated as follows:

$$\begin{aligned} \text{For machine X} &= 41,500 / 22,500 \times 100 \\ &= 184\% \end{aligned}$$

$$\begin{aligned} \text{For machine Y} &= 35,000 / 22,500 \times 100 \\ &= 156\% \end{aligned}$$

Since machine X has higher ARR, it is preferred.

**Example:** An initial investment of ₹ 1,30,000 is expected to generate annual cash inflow of ₹ 32,000 for 6 years. Depreciation is allowed on the straight-line basis. It is estimated that the project will generate scrap value of ₹ 10,500 at the end of the 6<sup>th</sup>

year. Calculate its accounting rate of return assuming that there are no other expenses on the project.

**Solution:**

Annual Depreciation = (Initial Investment – Scrap Value) ÷ Useful Life in Years

Annual Depreciation = (₹ 1,30,000 – ₹ 10,500) ÷ 6  
= ₹ 19,917

Average Accounting Income = ₹ 32,000 – ₹ 19,917  
= ₹ 12,083

Accounting Rate of Return = ₹ 12,083 ÷ ₹ 130,000  
= 9.3%

Below table shows the advantages and disadvantages of ARR:

**Table 6.7: Advantages and Disadvantages of ARR**

Advantages	Disadvantages
Easy to calculate and simple to understand.	Ignores the time value of money.
Based on accounting information.	Ignores the cash flow from investment.
Based on accounting profit and hence measures the profitability of investment.	Does not consider terminal value of the project.

## 6.8 ACCEPTING OR REJECTING A DECISION

These evaluation techniques provide accepting or rejecting criteria basis which proposals are accepted or rejected. Each technique has different criteria.

**Payback Period:** Those projects whose payback period are less than cut off period, are accepted. Those projects whose payback period is more than cut off period are rejected. That is, proposal with shortest payback period is selected.

**Net Present Value:** Projects whose present value of cash inflow is greater than or equal to present value of cash outflow are accepted. Projects whose present value of cash inflow is less than present value of cash outflow are rejected.

**Accounting Rate of Return:** Project is accepted if ARR is equal to or greater than the required accounting rate of return. Project is rejected if ARR is less than the required accounting rate of return. In case of mutually exclusive projects, project with highest ARR is accepted.

**Internal Rate of Return:** Project is accepted if internal rate of return is greater than cost of capital. Project is rejected if internal rate of return is less than cost of capital.

### Check Your Progress

Fill in the blanks:

1. Time is an important factor in the concept of time value of money because \_\_\_\_\_.
2. Revenue is represented by \_\_\_\_\_ sign in cash flow convention.
3. Rob invests ₹ 1000 today at 5% interest rate. His amount after 10 years will be \_\_\_\_\_.
4. The present value of perpetuity paying ₹ 10 at the end of each month at discount rate 5% will be \_\_\_\_\_.
5. A project whose cash inflows are more than capital invested for rate of return then net present value will be \_\_\_\_\_.

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## 6.9 LET US SUM UP

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- The concept of time value of money quantifies the value of rupee through time.
- The cash flow sign convention is that money paid out with a minus sign, while money taken in has a plus sign.
- Investment return adjusted for inflation is known as Inflation Adjusted Interest Rates.
- PV and FV vary jointly; when one increases, the other increases, assuming that the interest rate and number of periods remain constant.
- Perpetuities are stream of cash flows that goes on forever.
- Techniques of project evaluation help to select projects that will maximise value of firm through maximisation of profits.

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## 6.10 UNIT END ACTIVITY

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You are the finance manager of PQR Ltd. You have to purchase a machinery for which you have the following details:

The machine costs of ₹ 180000. It will have a life of 3 years, and will be depreciated straight line to zero salvage value. It will result in sales revenue of ₹ 200000 per year and cash operating costs of ₹ 110000 per year. Use of the machine will require an increase in working capital of ₹ 70000 for the 3 years, beginning at year 0. The appropriate discount rate is 10% and the firm's tax rate is 30%.

- (a) Calculate the annual operating cash flows.
- (b) Calculate the relevant terminal cash flows at the end of 3<sup>rd</sup> year.
- (c) What is the NPV for the machine?
- (d) What is your decision in relation to purchase of machinery?

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## 6.11 KEYWORDS

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**Salvage Value:** It is the estimated resale value of an asset at the end of its useful life.

**Time Value of Money:** The concept is based on the notion that money grows with time.

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## 6.12 QUESTIONS FOR DISCUSSION

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1. Explain the meaning of time value of money.
2. Discuss the concepts related to time value of money.
3. Apply Microsoft Excel to the concept of time value of money.
4. Discuss the types of investment proposals.
5. Explain the various discounted cash flow techniques.
6. Discuss the various non-discounted cash flow techniques.



**Check Your Progress: Model Answer**

1. Gives opportunity to postpone consumption
2. +
3. 1629
4. 200
5. Positive

---

**6.13 REFERENCES / SUGGESTED READINGS**

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## UNIT

# 7

## COST OF CAPITAL

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### 7.0 AIMS AND OBJECTIVES

After studying this lesson, you should be able to:

- Outline the meaning and importance of cost of capital
- Identify the methods to determine the cost of debt
- Classify the ways of determining cost of preference capital
- Summarize the methods to determine the cost of equity capital
- Classify the ways to calculate cost of retaining earnings
- Calculate the weighted average cost of capital

## 7.1 INTRODUCTION

Imagine you have an idea of a piece of equipment that will finish tasks faster. But before you invest company's hard-earned money, you have to prove to your leaders that it's worth investing. You will be asked to show that the return on the investment will be better than your company's cost of capital. But before this, you need to understand what cost of capital is.

## 7.2 MEANING OF COST OF CAPITAL

Cost of capital is an important component required for the formation of capital structure (mix of equity and debt in finances) of a company. It is central to the concept of financial management. Two schools of thought have thrown light on the concept of cost of capital. Modern theorists and practitioners argued that the cost of capital is constant and independent of the method and level of financing, while traditionalists argue that, the cost of capital and varying dependent on capital structure.

Cost of capital is simply the cost that a firm must pay to raise funds, or it is the required return necessary to make a capital budgeting project worthwhile. It is the minimum rate of return which a firm expects to earn on its investments so that the market value per share remains unaffected. Cost of capital includes the cost of debt and the cost of equity. The concept of cost of capital can be understood from the following three different viewpoints:

1. **From investor's viewpoint:** For an investor, cost of capital measures the sacrifice made by him or her in capital formation. For example, Evan invested ₹1,00,000 in equity shares of Abbey Company instead of investing in a bank which gives 7% rate of interest. Thus, he or she has sacrificed 7% rate of interest by investing in Abbey Company.
2. **From business point of view:** For a firm, cost of capital is the minimum required rate of return to justify the use of capital. For example, a firm raises ₹50 lacs through 10% debentures. Thus, to justify this capital, the firm must earn 10% interest.
3. **From capital expenditure point:** Cost of capital is the cut-off rate used to value cash flows. For example, a firm has invested ₹ 10 lacs in a project for 5 years. So, cost of capital is required to convert future 5 years' cash flows into present value.

Let us now look at some popular definitions of cost of capital:

"The cost of capital is the minimum required rate of earnings or the cut-off rate of expenditure."

— Solomon Ezra

"The cost of capital represents a cut-off rate for the allocation of capital to investments of projects. It is the rate of return on a project that will leave unchanged the market price of the stock."

— James C. Van Horne

"The rate that must be earned on the net proceeds to provide the cost elements of the burden at the time they are due."

— Hunt, William and Donaldson

"The rate of return the firm requires from investment in order to increase the value of the firm in the market place."

— Hampton, John J

Thus, there are two aspects of cost of capital, which are as follows:

1. **Rates of return:** Cost of capital is not capital. It is the rate of return which a firm must earn on its investments projects.

2. **Minimum rate of return:** It is the minimum rate of return that helps a firm to maintain market value of shares.

It includes the following components:

- The risk less cost of a type of financing ( $r$ )
- Business risk premium ( $b$ )
- Financial risk premium ( $f$ )

Thus, mathematically, the cost of capital can be represented as:

$$K = r + b + f$$

### 7.2.1 Importance of Cost of Capital

The cost of capital is an important part of financial management and it helps in making the important decisions shown in figure below.

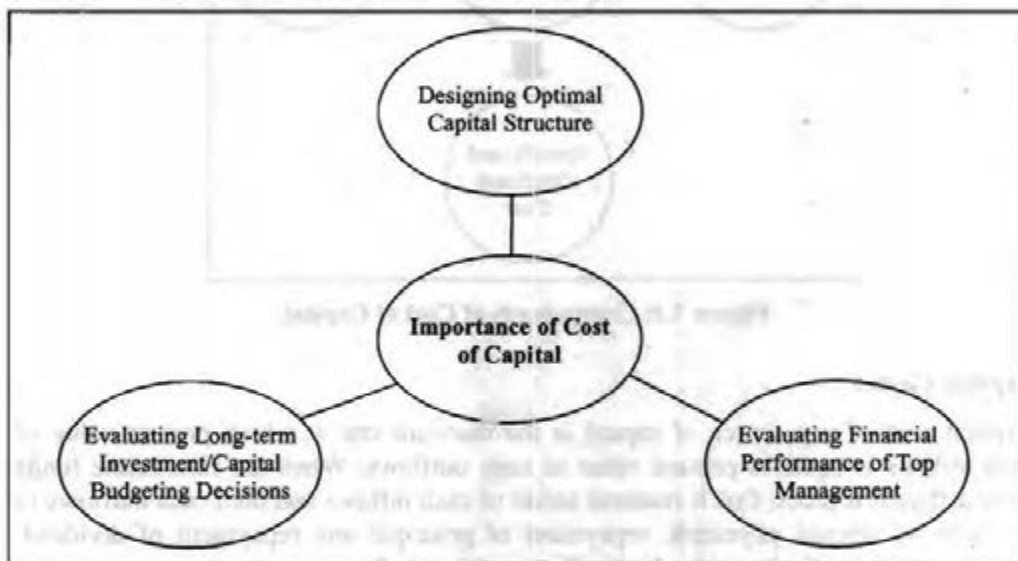


Figure 7.1: Importance of Cost of Capital

### 7.2.2 What Impacts Cost of Capital?

Cost of capital is impacted majorly by:

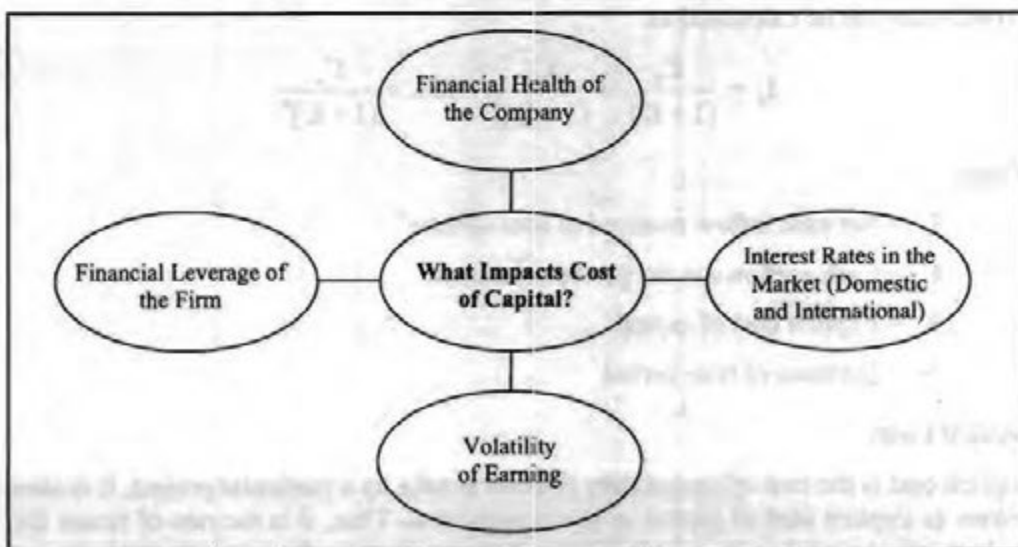


Figure 7.2: What Impacts Cost of Capital?

### 7.2.3 Components of Cost of Capital

Cost of capital consists of following costs:

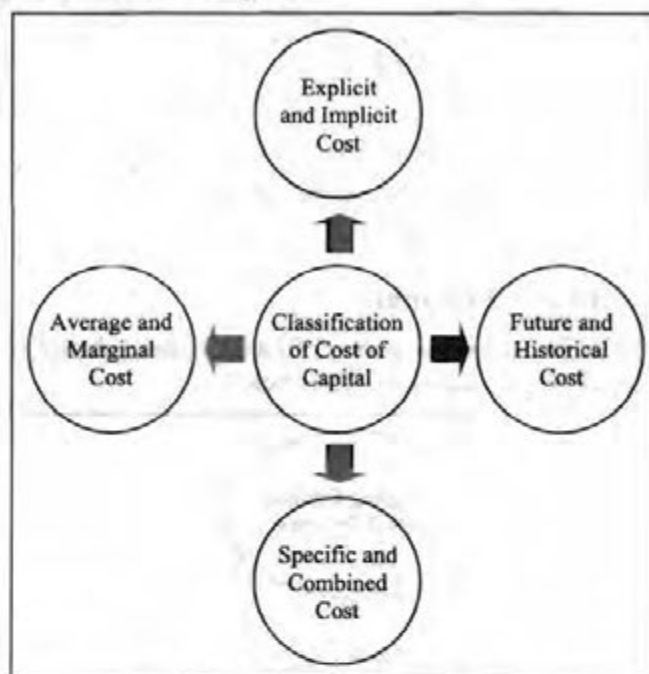


Figure 7.3: Components of Cost of Capital

#### Explicit Costs

Explicit cost of any source of capital is the discount rate at which present value of cash inflows is equal to present value to cash outflows. When the firm raises funds from different sources, first it receives series of cash inflows and then cash outflows in the form of interest payments, repayment of principal and repayment of dividend. Thus, explicit cost is the internal rate of return of cash flows.

For example, a company raises ₹ 2 lacs through debentures of 10% interest, payable after 10 years. Thus, cash inflows will be ₹ 2 lacs and outflows will be ₹ 20000. The explicit cost will be the rate of return that equates initial cash flow of ₹ 2 lacs and ₹ 20000 outflow payable every year for 10 years.

Explicit cost can be calculated as:

$$I_0 = \frac{C_1}{(1+K)^1} + \frac{C_2}{(1+K)^2} + \dots + \frac{C_n}{(1+K)^n}$$

Where,

$I_0$  = Net cash inflow received at zero of time

$C$  = Cash outflows in the period concerned

$K$  = Explicit cost of capital

$N$  = Duration of time period

#### Implicit Costs

Implicit cost is the cost of opportunity forgone to take up a particular project. It is also known as implicit cost of capital or opportunity cost. Thus, it is the rate of return for the best investment opportunity. For example, cost of retained earnings is implicit cost because shareholder has lost the opportunity to invest elsewhere.

**Future Cost**

Future cost is very important to make financial decisions. Future cost is the expected cost to raise funds to finance an investment project.

**Historical Cost**

Historical cost is the cost which has already been incurred in the past while financing for a particular project. Historical cost is useful for projecting the future cost. It is also used to assess and compare actual cost with standard cost to evaluate actual performance.

**Specific Cost**

Specific cost is the cost of particular source of capital. These sources can be equity shares, preference shares, debentures and loans. Thus, specific cost is the component cost of capital such as cost of equity ( $k_e$ ), cost of preference share ( $k_p$ ) and cost of debt ( $k_d$ ).

**Combined Cost**

Combined cost is the cost of various sources of capital. It is composite cost of capital which includes cost of all sources, equity shares, preference shares, debentures, loans.

**Marginal Cost**

Marginal cost is cost of additional funds required by the firm. It is also known as incremental or differential cost. It is additional cost of producing one more unit. Marginal cost is very important in capital budgeting decisions.

**Average Cost**

Average cost is the average of cost of various sources of finance. It is thus the combined cost or weighted average cost of various sources of capital. To calculate average cost, you must consider the percentage of each element in total investment. Then the weights are assigned to each element of capital.

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**7.3 COST OF DEBT**

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A finance manager is available for different sources of finance – equity shares, preference shares and debt. Therefore, he or she calculates the specific cost of each type of source of finance.

Cost of debt or cost of debt financing refers to the cost of debentures. Debenture is a long-term security issued by a company which yields a fixed rate of interest. According to **Weston and Brigham**, cost of debt is the “rate of return that must be earned on debt finance investments in order to keep the earnings unchanged available to equity shareholders.”

Cost of debt financing includes:

- Debt issued at par
- Debt issued at discount or premium
- Cost of redeemable debt

Let us now calculate the cost of debt in the above scenarios.

**Debt Issued at Par**

Cost of debt is simply the rate of return expected by the lenders of the debt. It can be calculated as follows:

$$K_d = (1 - T) R$$



Where,

$K_d$  = Cost of debt

$T$  = Marginal tax rate

$R$  = Debenture interest rate

For example, Alpha company issued 10% debentures and the tax rate of company is 5%. Its cost of debt will be:

$$= (1 - 0.05) 10$$

$$= 9.5\%$$

#### **Debt Issued at Discount or Premium**

When there is a difference between the face value and the book value of debentures, debentures are issued on discount or premium. In this case, the cost of debt is not equal to the coupon rate of interest. Cost of debt is calculated as follows:

$$K_d = C(1 - T)/NP$$

Where,

$K_d$  = Cost of debt

$C$  = Annual interest payments

$T$  = Tax rate

$NP$  = Net proceeds of debentures

For example, a company raises 12% debentures of ₹ 100 each. The tax rate is 50%. Cost of debt will be:

$$K_d = 12(1 - 0.50)/100$$

$$= 6\%$$

Let us take an example which includes debt issued at par, discount and premium. A company raises 15% debentures of ₹ 100 each for ₹ 10,00,000. Tax rate is 35%.

#### **Cost of debt issued at par:**

$$K_d = (1 - T) R$$

$$K_d = (1 - 0.35) 15$$

$$= 9.675\%$$

#### **Cost of debt issued at premium:**

$$K_d = C(1 - T)/NP$$

$$K_d = 15(1 - 0.35)/110$$

$$= 8.91\%$$

#### **Cost of debt issued at discount:**

$$K_d = C(1 - T)/NP$$

$$K_d = 15(1 - 0.35)/90$$

$$= 10.92\%$$

### **7.3.1 Irredeemable Debt**

Debentures which cannot be redeemed during the life time of the company are called irredeemable debentures. Such debentures are only redeemed at the time of dissolution

of the company. Thus, irredeemable debentures do not have any maturity period. The issuing authority pays a specified interest rate periodically but provides no data on redemption date. Irredeemable debentures are also known as perpetual debt or consol.

Cost of irredeemable debentures is calculated as follows:

#### **Issued at Par**

$$K_d = (1 - T) \times I$$

Where,

$K_d$  = Cost of capital

$T$  = Tax rate

$I$  = Annual interest rate

#### **Issued at Premium or Discount**

$$K_d = (1 - T) \times I / \text{Net proceeds}$$

Where,

$K_d$  = Cost of capital

$T$  = Tax rate

$I$  = Annual interest rate

Net proceeds = total amount raised by the company by issuing the debentures.

In case of par – it is equal to par

In case of discount – it is less than par value

In case of premium – it is more than par value

**Example:** X Ltd. issued 10,000, 10% Debentures of ₹ 100 each on 1<sup>st</sup> April. The cost of issue was ₹ 25,000. The Company's Tax Rate is 35%. Calculate the cost of debentures if they were issued (a) at par, (b) at a premium of 10% and (c) at a discount of 10%.

#### **Solution:**

Particulars	Par	Premium	Discount
Gross Proceeds	10,000 × 100 = 10,00,000	10,000 × 110 = 11,00,000	10,000 × 90 = 9,00,000
Less: Cost of Issue	25,000	25,000	25,000
Net Proceeds	9,75,000	10,75,000	8,75,000
Interest at 10%	1,00,000	1,00,000	1,00,000
Less: Tax at 35%	35,000	35,000	35,000
Net Outflow	65,000	65,000	65,000
$K_d$ = Interest (after tax) / Net Proceeds	6.67%	6.05%	7.43%

### **7.3.2 Redeemable Debt**

Redeemable debentures are repayable after a certain period of time, that is, there is a legal obligation to repay the principal amount to debenture holders either at regular intervals or lump sum at the end of maturity period.

Cost of redeemable debentures is calculated as follows:

$$K_d = \sum_{t=1}^n \frac{NI_t}{(1+K_d)^t} + \frac{P_n}{(1+K_d)^n}$$

Where,

$K_d$  = Cost of debentures

$N$  = Maturity period

$NI$  = Net interest (after tax adjustment)

$P_n$  = Principal repayment in the year 'n'

**Example:** Y Ltd. issued 10,000, 10% Debentures of ₹ 100 each, redeemable in 10 years' time at 10% premium. The cost of issue was ₹ 25,000. The Company's Income Tax Rate is 35%. Determine the cost of debentures if they were issued (a) at par (b) at a premium of 10% and (c) at a discount of 10%.

**Solution:**

Particulars	Par	Premium	Discount
1. Gross Proceeds	10,000 × 100 = 10,00,000	10,000 × 110 = 11,00,000	10,000 × 90 = 9,00,000
2. Less: Cost of Issue	25,000	25,000	25,000
3. Net Proceeds	9,75,000	10,75,000	8,75,000
4. Redemption Value (Face Value + 10% premium)	11,00,000	11,00,000	11,00,000
5. Average Liability (RV + NP) ÷ (2 + (4 + 3) ÷ 2)	10,37,500	10,87,500	9,87,500
6. Premium on Redemption = RV - NP	1,25,000	25,000	2,25,000
7. Avg. Premium on Redemption p.a. = (6) ÷ 10 yrs	12,500	2,500	22,500
8. Interest payable at 10% of Face Value	1,00,000	1,00,000	1,00,000
9. After Tax Interest at 65% (Since Tax = 35%)	65,000	65,000	65,000
10. Average Annual Payout = (7 + 9)	77,500	67,500	87,500
11. $K_d$ = Interest (after tax) Avg. Premium on Redemption/Average Liability	7.47%	6.21%	8.86%

## 7.4 COST OF PREFERENCE CAPITAL

Preference shares are issued by a company to raise funds. Preference shareholders enjoy the following two rights over equity shareholders:

1. Preference in payments of dividends
2. Preference in payment of capital at the time of liquidation

Cost of preference share capital is the rate of dividend expected by the investors. However, a company is not legally bound to pay dividends, and if the dividends are paid, they are distributed from distributable profits. This may mean the preference share capital is cost free, but it is not true. Preference share capital is issued at a fixed rate to pay dividends. When the dividends are not paid, the fund-raising capacity of businesses is affected. Thus, businesses must pay dividends regularly, but not when they don't make profits.

Preference shares can be of various types—cumulative and non-cumulative, redeemable and non-redeemable, participating and non-participating and convertible and non-convertible. For calculating the cost of preference share capital, we will consider redeemable and non-redeemable preference shares and the shares issued at par and discount/premium.

Cost of preference shares issued at par is given by:

$$K_p = D/P$$

Where,

$K_p$  = Cost of preference capital

D = Annual preference dividend

P = Proceeds at par value

Cost of preference shares issued at premium or discount is given by:

$$K_p = D/NP$$

Where,

NP = Net proceed

D = Annual preference dividend

Cost of redeemable preference shares is given by:

$$K_r = \frac{D + MV - NP/n}{1/2 (MV + NP)}$$

Where,  $K_p$  = Cost of preference capital

D = Annual preference dividend

MV = Maturity value of preference shares

NP = Net proceeds of preference shares

**Example:** Preferred Ltd. issued 30,000, 15% Preference Shares of ₹ 100 each. The cost of issue was ₹ 30,000. Determine the cost of preference capital of shares issued (a) at par, (b) at a premium of 10% and (c) at a discount of 10%.

**Solution:**

Particulars	Par	Premium	Discount
Gross Proceeds	$30,000 \times 100 = 30,00,000$	$30,000 \times 110 = 33,00,000$	$10,000 \times 90 = 9,00,000$
Less: Cost of Issue	30,000	30,000	30,000
Net Proceeds	29,70,000	32,70,000	26,70,000
Preference Dividend 15%	4,50,000	4,50,000	4,50,000
$K_d$ = Preference Dividend/Net Proceeds	15.15%	13.76%	16.85%

**Example:** Preferential Ltd. issued 30,000, 15% Preference Shares of ₹ 100 each, redeemable at 10% premium after 20 years. Issue Management Expenses were ₹ 30,000. Find out of preference capital if shares are issued (a) at par, (b) at a premium of 10% and (c) at a discount of 10%.

**Solution:**

Particulars	Par	Premium	Discount
1. Gross Proceeds (30,000 Shares × Issue Price)	30,00,000	33,00,000	$10,000 \times 90 = 9,00,000$
2. Less: Cost of Issue	30,000	30,000	30,000
3. Net Proceeds	29,70,000	32,70,000	26,70,000
4. Redemption Value (Face Value + 10% premium)	33,00,000	33,00,000	33,00,000

Contd...

5. Average Liability $(RV + NP) \div (2 = (4 + 3) \div 2)$	31,35,000	32,85,000	29,85,000
6. Premium on Redemption = $RV - NP$	3,30,000	30,000	6,30,000
7. Avg. Premium on Redemption p.a. $\div 20$ yrs	16,500	1,500	31,500
8. Dividend at 15% of Face Value	4,50,000	4,50,000	4,50,000
9. Average Annual Payout = $(7 + 8)$	4,66,500	4,51,500	4,81,500
10. $K_p = 9:5$	14.88%	13.74%	16.13%

## 7.5 COST OF EQUITY CAPITAL

Cost of equity share capital is the rate of return expected by equity shareholders. Equity shareholders expect some dividends from the company while making investment. This becomes cost of equity. Thus, the cost of equity share capital is the minimum rate of return, an equity shareholder expects for his or her part of investment in a project so that the market prices of the shares remain unchanged.

Cost equity capital is divided into the two categories shown in figure below:

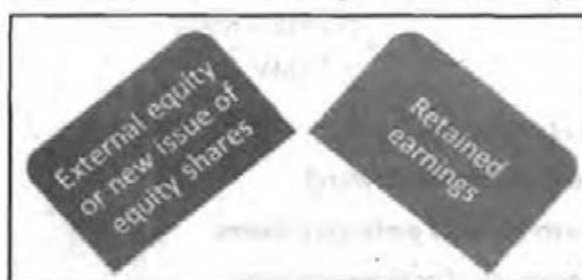


Figure 7.4: Types of Cost of Equity Capital

The cost of new issue of equity shares is calculated using the approaches shown in figure below:

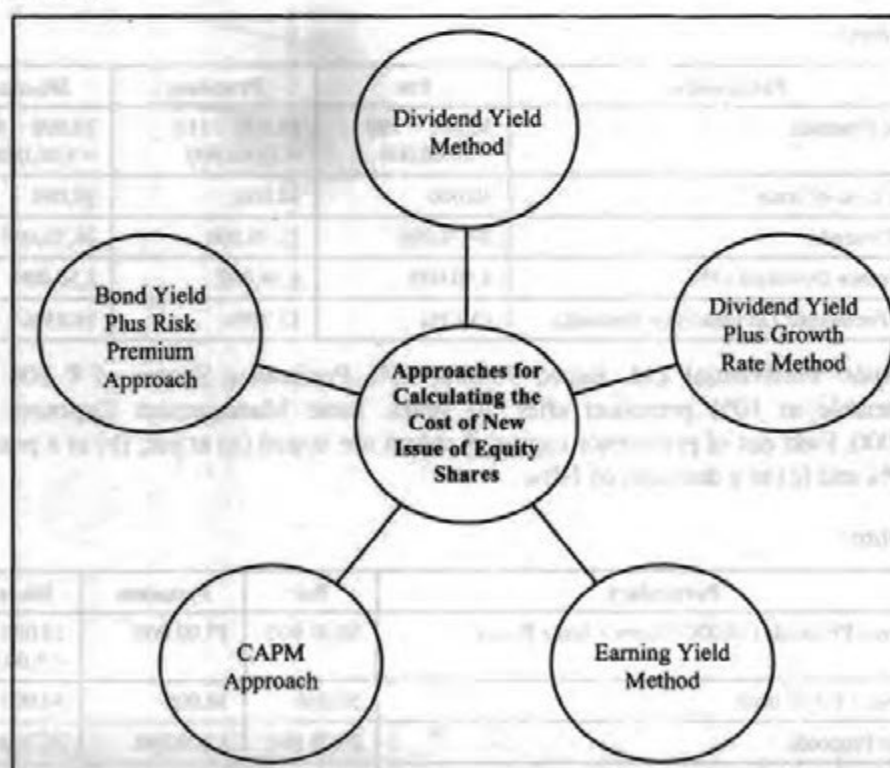


Figure 7.5 : Approaches for Calculating the Cost of New Issue of Equity Shares



**Dividend Yield Method**

This approach recognizes the importance of dividends and is suitable when a company has stable earnings and stable dividend policy over a period of time.

It calculates the rate of return which will maintain the present market price of the equity shares. It is calculated as follows:

$$K_e = D/NP \text{ (for new equity shares)}$$

or

$$K_e = D/MP \text{ (for existing shares)}$$

Where,

$K_e$  = Cost of equity

D = Expected dividend per share

NP = Net proceeds per share

MP = Market price per share

This approach, however, does not take into account the retained earnings on the market price of the equity shares.

**Example:** Dividend-Payers Ltd. has a stable income and stable dividend policy. The average annual dividend payout is ₹ 27 per share (Face Value = ₹ 100).

Find:

1. Cost of Equity Capital if Market Price in Year 1 is ₹ 150.
2. Expected Market Price in Year 2 if cost of equity is expected to rise to 20%.
3. Dividend Payout in Year 2 if the Company were to have an expected market price of ₹ 160 per share, at the existing cost of equity.

**Solution:**

$$K_e = \text{Dividend per Share/Market Price per Share}$$

$$= 27/150$$

$$= 18\%$$

$$K_e = \text{Dividend per Share/Market Price per Share}$$

$$= 27/MPS$$

$$\text{On substitution, MPS} = ₹ 27 \div 20\%$$

$$= ₹ 135$$

$$\text{Thus, } K_e = 20\%$$

$$K_e = \text{Dividend per Share/Market Price per Share}$$

$$= DPS/160$$

$$\text{On substitution, DPS} = ₹ 160 \times 18\%$$

$$= ₹ 28.80$$

$$\text{Thus, } K_e = 18\%$$

**Dividend Yield Plus Growth Rate Method**

This method takes into account the expected dividend rate plus the rate of growth in dividend. It is suitable when the dividends grow at a constant rate.

Cost of equity is calculated as follows:

$$K_e = D_1 / NP + g \text{ (for new equity issue)}$$

Where,

$D_1$  = Expected dividend per share at the end of the year [ $D_1 = D_0 (1 + g)$ ]

NP = Net proceeds per share

$g$  = Growth in dividend

For existing share is calculated as:

$$D_1 / MP + g$$

where MP is the market price per share.

**Example:** Optimistic Ltd. has an EPS of ₹ 90 per Share. Its Dividend Payout Ratio is 40%. Its Earnings and Dividends are expected to grow at 5% per annum. Find out the cost of Equity Capital if its Market Price is ₹ 360 per share. Futuristic Ltd. pays a Dividend of ₹ 2 per share. Its shares are quoted at ₹ 40 presently and investors expect a growth rate of 10% per annum. Calculate— (i) Cost of Equity Capital (ii) Expected Market Price per share if anticipated growth rate is 11%. (iii) Market price if dividend is ₹ 2, cost of capital is 16% and growth rate is 10%.

**Solution:**

Optimistic Ltd.

$K_e = \text{Dividend per Share/Market Price per Share} + g$

$$= (90 \times 40\% / 360) + 5\%$$

$$= .1 + .05$$

$$= 15\%$$

Futuristic Ltd.

$K_e = \text{Dividend per Share/Market Price per Share} + g$

$$= (2/40) + 10\%$$

$$= 5\% + 10\%$$

$$= 15\%$$

$K_e = \text{Dividend per Share/Market Price per Share} + g$

It is given that  $K_e = 15\% = 2/MPS + 11\%$

On transposing,  $2/MPS = 15\% - 11\%$

So,  $MPS = ₹ 2 \div 4\% = ₹ 50 \text{ per Share}$

$K_e = \text{Dividend per Share/Market Price per Share} + g$

It is given that  $K_e = 16\% = 2/MPS + 10\%$

On transposing,  $2/MPS = 16\% - 10\%$

So,  $MPS = ₹ 2 \div 6\% = ₹ 33 \text{ per Share}$

### Earning Yield Method

According to this approach, the cost of equity is the rate of return that capitalises on a stream of future earnings to evaluate the shareholdings.

It is calculated as follows:

- $K_e = \text{Earnings per share/Net proceeds} = \text{EPS} / \text{NP}$  (For new share)
- $K_e = \text{EPS/MP}$  (For existing shares)

**Example:** B Ltd has a uniform income that accrues in a four-year business cycle. It has an average EPS of ₹ 25 (per share of ₹ 100) over its business cycle.

Find:

1. Cost of Equity Capital if Market Price in Year 1 is ₹ 150.
2. Expected Market Price in Year 2 if cost of Equity is expected to rise to 18%.
3. EPS in Year 2 if the Company were to have an expected Market Price of ₹ 160 per share, at the existing cost Equity.

**Solution:**

$$\begin{aligned} K_e &= \text{Earnings per Share/Market Price per Share} \\ &= 25/150 \\ &= 16.67\% \end{aligned}$$

$$\begin{aligned} K_e &= \text{Earnings per Share/Market Price per Share} \\ &= 25/\text{MPS} \end{aligned}$$

$$\begin{aligned} \text{On substitution, MPS} &= ₹ 25 \div 18\% \\ &= ₹ 138.89 \end{aligned}$$

$$\text{Thus, } K_e = 18\%$$

$$\begin{aligned} K_e &= \text{Earnings per Share/Market Price per Share} \\ &= \text{DPS}/160 \end{aligned}$$

$$\begin{aligned} \text{On substitution, DPS} &= ₹ 160 \times 16.67\% \\ &= 26.67\% \end{aligned}$$

$$\text{Thus, } K_e = 16.67\%$$

### **CAPM Approach**

CAPM model was developed by William F. Sharpe. This is another approach which can be used to calculate cost of equity. CAPM or capital asset pricing model establishes relationship between required rate of return and market risk of the firm. Mathematically,

$$R_e = r_f + \beta(r_m - r_f)$$

Where,

- $R_e$  — Required return on equity
- $R_f$  — Risk-free rate
- $R_m$  — Market return
- $\beta$  — Stock beta
- $(r_m - r_f)$  — Equity risk premium

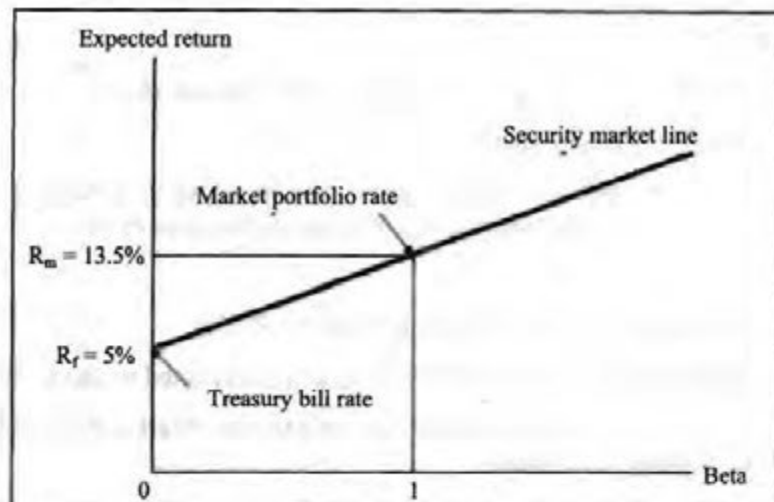


Figure 7.6: CAPM Approach

CAPM model is based on the following assumptions:

- All Investors think in terms of a single holding period.
- All investors have identical expectations.
- Investors can borrow or lend unlimited amounts at the risk-free rate.
- All assets are perfectly divisible.
- There are no taxes and no transactions costs.
- All investors are price takers i.e., investors' buying and selling won't influence stock prices.
- Quantities of all assets are given and fixed.

#### *Advantages of the CAPM Approach*

- The model is simple to understand and use.
- The model does not depend on dividends or growth rate so it can be applied to companies that do not currently pay dividends or are not expected to experience a constant rate of growth in dividends.

#### *Disadvantages of the CAPM Approach*

- CAPM does not offer any guidance on the appropriate choice for the risk-free rate. Risk-free rate may vary widely depending on the Treasury security chosen.
- Estimates of beta can vary widely depending upon the market index and time period chosen.
- Estimates of market risk premium will also vary depending on the time period and security chosen.

#### *Bond Yield Plus Risk Premium Approach*

This is another method used to calculate cost of equity. This method estimates risk premium above the bond interest rate. It provides a judgemental estimate of premium. It is calculated as:

$$K_s = \text{Bond yield} + \text{Risk premium}$$

Where,

$$K_s = \text{Cost of capital}$$

Bond yield = Rate of return for risk free assets

Risk premium = Mark-up interest rate

## 7.6 COST OF RETAINING EARNINGS

Out of the total earnings, firms distribute few as dividends and retain few profits. Retained earnings are thus profits that are not distributed. Retained earnings carry no cost as no dividends are paid out of them. However, this is not true. Retained earnings have the opportunity cost of investing somewhere else. Cost of retained earnings is calculated as:

$$K_r = K_e = D/NP + g$$

## 7.7 CALCULATING WEIGHTED AVERAGE COST OF CAPITAL

Weighted Average Cost of Capital (WACC), also known as composite cost, is the average cost of employing various sources of finance. WACC lies between least and most expensive funds. WACC is calculated to facilitate profit and wealth maximisation of equity shareholders in projects where earnings are more than the overall cost of capital.

The steps for calculating WACC are as follows:

**Step 1:** Determine the types of funds to be raised and their share in total capitalisation.

**Step 2:** Calculate the cost of specific source of funds.

**Step 3:** Assign weights to the specific cost. There are two methods by which weights are assigned:

- **Book value:** Weight is equal to the book value of a source of fund divided by the book value of the total funds. The values are available from the balance sheet. Through this method, calculation is simple and the values are readily available. However, it also suffers from a few limitations. The book values and the present economic values of sources of funds are not related.
- **Market value:** Weight is equal to the market value of a source of fund divided by the market value of the total funds. This method considers prevailing market prices and is consistent with maximising shareholder value goal and is thus more useful. However, the market values are subject to frequent fluctuations.

**Step 4:** Multiply the cost of each source by the assigned weights.

**Step 5:** Divide the total weighted cost by the total weights to get the overall cost of capital.

Thus, WACC is:

$$K_w = \text{summation } Kw / \text{summation } w$$

**Example:** A firm has the following capital structure:

Source of Funds	₹	Tax Rate %
Debt	30,00,000	4
Preference shares	10,00,000	8.5
Equity shares	20,00,000	11.5
Retained earnings	40,00,000	10



WACC will be calculated as:

Source of funds	Weights	Specific cost %	Weighted cost
Debt	0.3	0.04	0.12
Preference shares	0.1	0.08	0.008
Equity shares	0.2	0.11	0.022
Retained earnings	0.4	0.1	0.040
	1.00		0.082

$$\begin{aligned} \text{WACC} &= 0.082 \times 100 \\ &= 8.2\% \end{aligned}$$

**Example:** The Capital Structure of All-Good Ltd. is — Equity Capital ₹ 5 Lakhs; Reserves and Surplus ₹ 2 Lakhs and Debentures ₹ 3 Lakhs. The Cost of Capital before Tax is— (a) Equity – 18% and (b) Debentures – 10%. You are required to compute the Weighted Cost of Capital, assuming a tax rate of 35%.

**Solution:**

Component	Amount	%	Individual Cost in %	WACC
Debentures	3,00,000	30%	$K_d = \text{Interest} \times (100\% - \text{Tax Rate})$ $= 10\% \times (100\% - 35\%) = 6.5\%$	1.95
Equity	5,00,000	50%	$K_e = 18\%$	9.00%
Reserves	2,00,000	20%	$K_r = K_e = 18\%$	3.60%
			$K_o$	14.55%

**Example:** From the information given below, calculate WACC.

- Tax rate of 35%.
- Debt to Total Funds: 2:5
- Preference Capital to Equity Capital: 1:1
- Preference Dividend Rate: 15%
- Interest on Debentures: ₹ 20000 for half-year
- EBIT at 30% of Capital Employed: ₹ 3 Lakhs
- EBIT at 30% of Capital Employed: ₹ 3 Lakhs

**Solution:**

EBIT at 30% of Capital Employed = ₹ 3 Lakhs

$$\begin{aligned} \text{Capital Employed} &= ₹ 3 \text{ Lakhs} / 30\% \\ &= ₹ 10,00,000 \end{aligned}$$

$$\begin{aligned} \text{Debt to Total Funds} &= 2:5. \text{ Hence, Debt} = 2/5^{\text{th}} \text{ of } ₹ 10,00,000 \\ &= ₹ 4,00,000 \end{aligned}$$

$$\begin{aligned} \text{Shareholders' Funds} &= \text{balance } 3/5^{\text{th}} \text{ of } ₹ 10,00,000 \\ &= ₹ 6,00,000 \end{aligned}$$

Preference to Equity Capital = 1:1

The total of both = ₹ 6,00,000

So, Preference Capital = Equity Capital = 1/2 of ₹ 6,00,000  
= ₹ 3,00,000 each.

Interest on Debt = ₹ 20,000 × 2  
= ₹ 40,000.

Hence Interest Rate = ₹ 40,000/₹ 4,00,000 = 10%

WACC is now calculated as:

Component	Amount	%	Individual Cost in %	WACC
Debt	4,00,000	40%	$K_d = \text{Interest} \times (100\% - \text{Tax Rate})$ $= 10\% \times (100\% - 35\%) = 6.5\%$	2.60%
Preference	3,00,000	30%	$K_p = 15\%$	4.50%
Equity	3,00,000	30%	$K_e = 24\%$	7.20%
			$k_o$	14.30%

### 7.7.1 Factors Affecting WACC

WACC is affected by a number of factors which are broadly classified as controllable and uncontrollable. They are explained as follows:

Table 7.1: Controllable and Uncontrollable Factors

Controllable Factors	Uncontrollable Factors
<b>Capital structure:</b> If the firm changes the composition of components on capital structure, it changes the WACC.	<b>Tax rates:</b> Tax rates are considered while calculating debt. If the tax rate changes, a firm cannot control it.
<b>Dividend policy:</b> Sometimes companies prefer raising equity capital through retained earnings to issuing new shares. Retained earnings are not used to distribute dividends and issue of new shares is expensive. When the retained earnings are used to raise funds, investors expect return and thus WACC is affected.	<b>Level of interest rates:</b> The cost of debt increases with increase in interest rate which impacts WACC. But this is not controlled by the firm.
<b>Investment policy:</b> When a firm changes its investment policy, WACC changes. For example, instead of investing newly raised money in the same type of asset and at the same level of risk, firm invests in diversified business.	<b>Market risk premium:</b> Firm does not have any control on this factor which adversely impacts WACC.

### 7.7.2 Considerations in Calculating WACC

Below are important considerations while calculating WACC:

- WACC must consist of a weighted-average of the marginal costs of all sources of capital.
- WACC must be calculated after corporate taxes.
- WACC must use nominal rates of return built up from real rates and expected inflation.
- WACC must be adjusted for the systematic risk borne by each provider of capital.
- Long-term WACCs should incorporate assumptions regarding long-term debt rates, not just current debt rates.

### 7.7.3 Adjusting WACC for Risk

Different projects have different risks. WACC reflects the risk of an average project undertaken by the firm. Therefore, project's WACC should be adjusted for appropriate risk and capital structure.

Risk adjusted WACC is based on the principle that if business risk of new project is different from business risk of existing ones, shareholders will expect different return to adjust for this new level of risk.

Below are the steps to calculate risk adjusted WACC:

1. Find the equity beta which matches with the project from a similar company.
2. Adjust the available equity beta to convert it to an asset beta.
3. Re-adjust the asset beta to reflect the project gearing levels.
4. Use beta to find  $K_e$  using CAPM.
5. Use this  $K_e$  to find the WACC.
6. Evaluate the project by calculating a NPV.

#### Check Your Progress

Fill in the blanks:

1. Cost of capital is the \_\_\_\_\_ required rate of return expected by investors.
2. Cost of capital =  $r + \text{_____} + f$ .
3. A company issues 10000, 10% preference shares of ₹ 100 each. The cost of preference shares issued at par if cost of issue is ₹ 2 per share will be \_\_\_\_\_.
4. Current earnings of firm are ₹ 1000000 and company issues 100000 equity shares. Net proceeds are ₹ 90 per share. Cost of equity will be \_\_\_\_\_.
5. WACC includes \_\_\_\_\_.

### 7.8 LET US SUM UP

- Cost of capital is the cornerstone in the theory of financial management.
- Cost of capital is the weight average cost of combination of sources of finance used by a firm.
- Cost of capital is required to design optimal capital structure, evaluate investments, and for financial performance appraisal.
- Financial manager calculates cost of each type of sources of funds.

### 7.9 UNIT END ACTIVITY

Select a company of your choice and study its capital structure and cost of capital. Based on the study, prepare a capital structure of a hypothetical company. Also, mention the way through which the hypothetical company can maximise its profit.

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## 7.10 KEYWORDS

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**Risk premium:** A risk premium is the return in excess of the risk-free rate of return an investment is expected to yield.

**Explicit Costs:** Explicit cost of any source of capital is the discount rate at which present value of cash inflow is equal to present value to cash outflows.

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## 7.11 QUESTIONS FOR DISCUSSION

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1. Explain the cost of capital.
2. Describe the cost of debt.
3. Identify the ways of determining cost of preference capital.
4. Explain the methods to determine the cost of equity capital.
5. How to calculate cost of retaining earnings?
6. Describe how weighted average cost of capital is determined.

### Check Your Progress: Model Answer

1. Minimum
2. b (business risk premium)
3. 10.21%
4. 11.1%
5. Cost of equity, cost of preference shares and cost of debt

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## 7.12 REFERENCES / SUGGESTED READINGS

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## **BLOCK IV**



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## UNIT

# 8

## DIVIDEND POLICIES

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- 8.0 Aims and Objectives
- 8.1 Introduction
- 8.2 Meaning of Dividend
- 8.3 Meaning of Dividend Policy
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- 8.16 Unit End Activity
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### 8.0 AIMS AND OBJECTIVES

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After studying this lesson, you should be able to:

- Explain the meaning of dividend
- Describe the meaning of dividend policy
- Discuss the types of dividend
- Examine the dividend payment procedures
- Highlight the importance of dividend policy
- Discuss the types of dividend policy

- Describe the factors affecting dividend decisions
- Explain the different dividend policy theories
- Describe the different dividend models
- List the steps to be followed in setting dividends
- Describe the measures of dividend policy

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## 8.1 INTRODUCTION

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It is highly debatable if dividend policy and capital structure are two sides of the same coin. Both financial policy choices are driven by same factors to allocate control between managers and investors. At one end there is a highly-levered firm with little equity which gives control in the hands of investors and at the other end there is an all-equity firm that pays no dividends and gives control to the manager. Between these two ends firms keep on playing with different debt-equity ratios and different dividend pay-out ratios.

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## 8.2 MEANING OF DIVIDEND

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According to the Institute of Chartered Accountants of India, dividend is “a distribution to shareholders out of profits or reserves available for this purpose.”

As per section 2(22) of the Income Tax Act, 1961, dividend defined as, “Any distribution of accumulated profits whether capitalized or not, if such distribution entails a release of assets or part thereof.”

Thus, dividend is the return that a shareholder gets from the company, out of its profits, on his shareholdings.

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## 8.3 MEANING OF DIVIDEND POLICY

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As prescribed by the Memorandum and Articles of Association of a company, “Dividend may be defined as divisible profit which is distributed amongst the members of a company in proportion to their shares in such a manner.” Thus, dividends are part of profits distributed by company to its shareholders.

Dividend policy is a set of guideline that directs companies to decide the quantum of profits to be distributed by way of dividend to Shareholders. Also, known as pay-out policy, it not only decides amount of dividends but also the timing of payments. It is an explicit or implicit decision taken by company's board of directors. Management considers various factors while formulating dividend policy of the company such as position of firm and economic environment. We will discuss about these later.

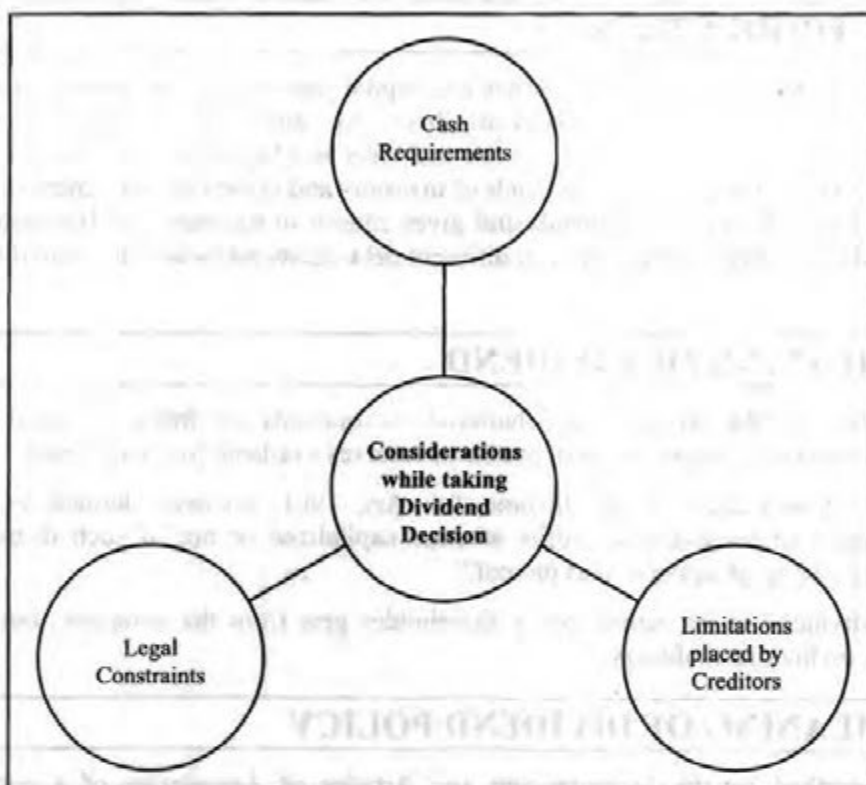
Dividend policy is the most important financing decision taken by a company because it affects not only the growth rate of the company but also its credit standing, share prices and eventually its overall value. Erroneous dividend policy disturbs capital structure of the firm and hampers its progress, ultimately leading to decline in value of the company. Thus, management should be very careful and prudent in framing the policy.

Strict dividend policy retains big share of earnings and thus large resources would be available to the company for its growth and expansion. This will improve earning position of the company and eventually, value of shares will increase leading to capital gain.

Dividend policies thus involve decisions, whether:

- To retain earnings for investment.
- To distribute earnings in the form of dividend among shareholders.
- To retain some earning and to distribute remaining earnings to shareholders.

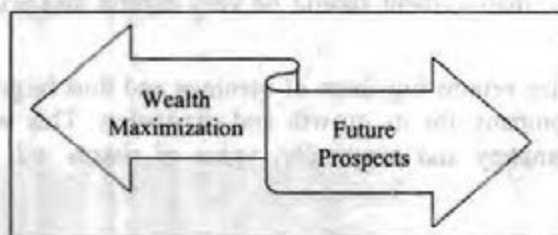
While taking a dividend decision, management also has to analyze below problems:



**Figure 8.1: Considerations while Taking Dividend Decision**

- **Cash Requirements:** A company which is small in nature or is in its gestation period and trying to expand may suffer from inefficiency due to insufficient cash. This acts as a restraint for the firm to pay out dividends.
- **Limitations placed by Creditors:** Firms may require funds on long-term loans to fulfil long term obligations. They can reach creditors for this who may place limitations such as firm will not pay dividends to its shareholders till its debt equity ratio depicts 2:1.
- **Legal Constraints:** The payment of dividends is subject to government policy and tax laws. Therefore, legal constraints should be carefully analysed before paying out dividend.

The main objectives of dividend policy are as follows:



**Figure 8.2: Objectives of Dividend Policy**

**Wealth Maximization:** Few experts opine that dividend policy affects value of the firm. Therefore, the dividend policy should be framed considering wealth maximization objective.

**Future Prospects:** Dividend policy means cash outflows and decrease in availability of cash for financing of profitable projects. Therefore, the dividend policy should be such that future projects are financed through retained earnings.

## 8.4 FORMS OF DIVIDEND

The dividend is a way through which companies communicate the financial health and the shareholder value. When companies distribute earnings, it reflects their positive future and a strong performance. There are various forms of dividend:

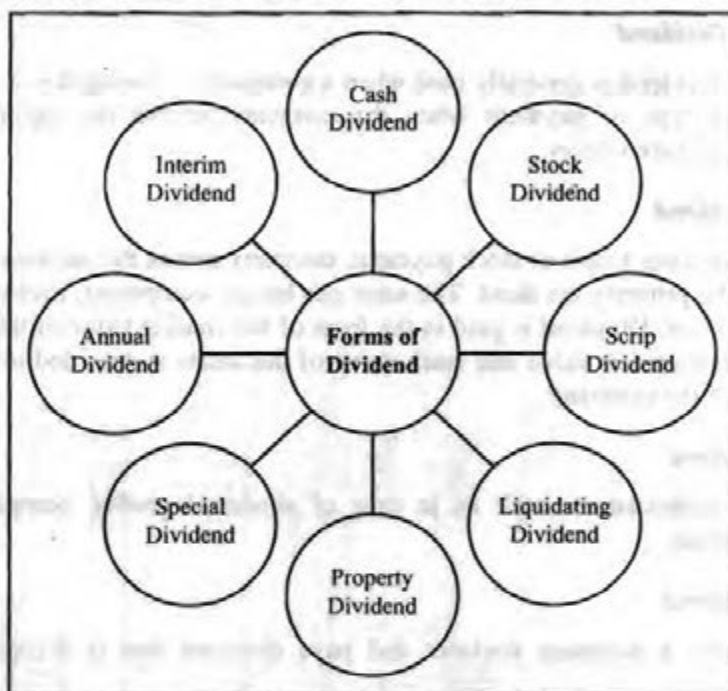


Figure 8.3: Forms of Dividend Policy

### Cash Dividend

A cash dividend is the most common type of the dividend that pays the shareholders in cash per share but only when company has positive retained earnings and enough cash for paying dividends. On the date of declaration, the board of directors announces the dividend payment. On the date of record, dividends are assigned to the shareholders. The dividends are issued on the date of payment.

For example, on 1<sup>st</sup> April, a company declares a cash dividend of ₹ 0.50 per share on the company's 20,00,000 outstanding shares to be paid on 1<sup>st</sup> July. 1<sup>st</sup> April will be date of declaration and 1<sup>st</sup> July will be date of payment. Dividends payable will be 1000000.

### Stock Dividend

In this type of dividend, the company issues its common stock to the common shareholders without any consideration. They are also known as bonus shares are issued when company has low operating cash but want to keep the investors happy.

If the company issues less than 25 per cent of the outstanding shares, the dividend is considered as stock dividend. If the company issues more than 25 per cent of the outstanding shares, the dividend is considered as stock split.

For example, a person possesses 10 shares of a company and the company declares bonus share issue of 1 for every 2 shares. The person will get 5 additional shares in his account. For the company, number of shares and issued capital will increase by 50%.

### ***Scrip Dividend***

Scrip dividend is a promissory note issued by the company to shareholders when they do not have sufficient funds to pay dividends. This type of dividend may or may not include the interest.

### ***Liquidating Dividend***

This type of dividend is generally paid when a company is closing down. Liquidating dividend is a type of payment when the company returns the capital originally contributed by shareholders.

### ***Property Dividend***

Rather than making a cash or stock payment, company makes the payment in the form of assets in the property dividend. The asset can be any equipment, inventory, vehicle or any other asset. Dividend is paid in the form of fair market value of the assets. The variance of fair market value and book value of the assets is recorded to find out the gain or loss of the company.

### ***Special Dividend***

In special circumstances, such as in case of abnormal profits, company declares special dividends.

### ***Annual Dividend***

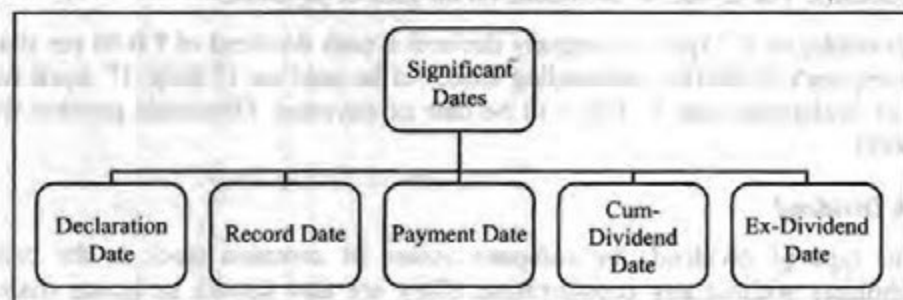
When annually a company declares and pays dividend that is defined as annual dividend.

### ***Interim Dividend***

During the year any time company declares a dividend, it is defined as interim dividend.

## **8.5 DIVIDEND PAYMENT PROCEDURES**

Significant dates related to dividend payment are:



**Figure 8.4: Dividend Payment Dates**

- **Declaration Date:** This is the day on which the board of directors declares a payment of dividend.



- **Date of Record:** This is the day on which all persons whose names are recorded as stockholders will receive the dividend.
- **Payment Date:** The dividend checks are mailed to shareholders of record.
- **Cum Dividend Date:** This is the last day on which the buyer who buys the stock is entitled to get the dividend.
- **Ex-Dividend Date:** Shares become ex-dividend on the date seller is entitled to keep the dividend. This is the first date on which the buyer who buys the stock is not entitled to dividend.

## 8.6 IMPORTANCE OF DIVIDEND POLICY

Dividend decision is significant for a firm because:

- It influences the value of the firm.
- It helps to strike balance between long-term financing decision and the wealth maximization.
- Amount of dividend paid impacts market price.
- It helps maintain balance between growth of the company and the distribution to the shareholders.
- If the firm chooses to retain earnings, it can affect growth, expansion and modernization of the firm.

Thus, dividend decision is crucial for management as it considerably impacts financial structure, flow of funds, corporate liquidity, stock prices, growth of the company and investor's satisfaction.

## 8.7 TYPES OF DIVIDEND POLICY

Depending on the amount and the frequency of the dividend payouts, there are two types of dividend policies:

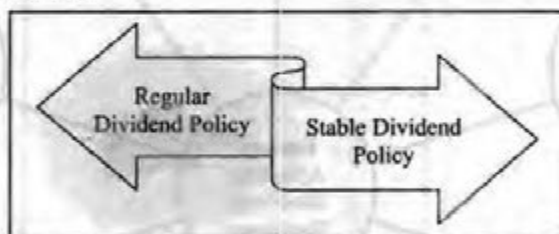


Figure 8.5: Types of Dividend Policies

1. **Regular Dividend Policy:** Retired people, widows prefer regular dividend policy. When dividend is paid at the usual rate it is known as regular dividend policy. These types of policies have many advantages as given below:
  - (a) It establishes a profitable record of the company.
  - (b) Shareholders feel more confident.
  - (c) It facilitates long-term financing.
  - (d) It stabilises the market value of shares.
2. **Stable Dividend Policy:** Under stable dividend policy, dividends are paid consistently. That is, there is no fluctuation in rate of dividend payment.

A stable dividend policy is of three types:

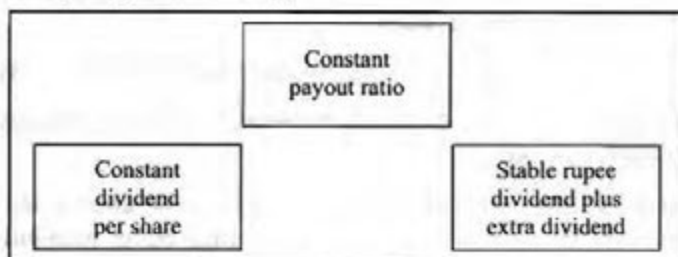


Figure 8.6: Types of Stable Dividend Policies

- (a) *Constant dividend per share*: Under this policy, companies pay fixed dividend per share irrespective of the level of earnings.
- (b) *Constant payout ratio*: Under this policy, companies distribute fixed percentage of net earnings as dividends every year.
- (c) *Stable rupee dividend plus extra dividend*: Under this policy, companies pay constant low dividend per share plus an extra dividend in the years of high profits.

## 8.8 FACTORS AFFECTING DIVIDEND DECISIONS

There are several factors which can influence the dividend policy of a company. Some of these factors are shown in figure 8.7.

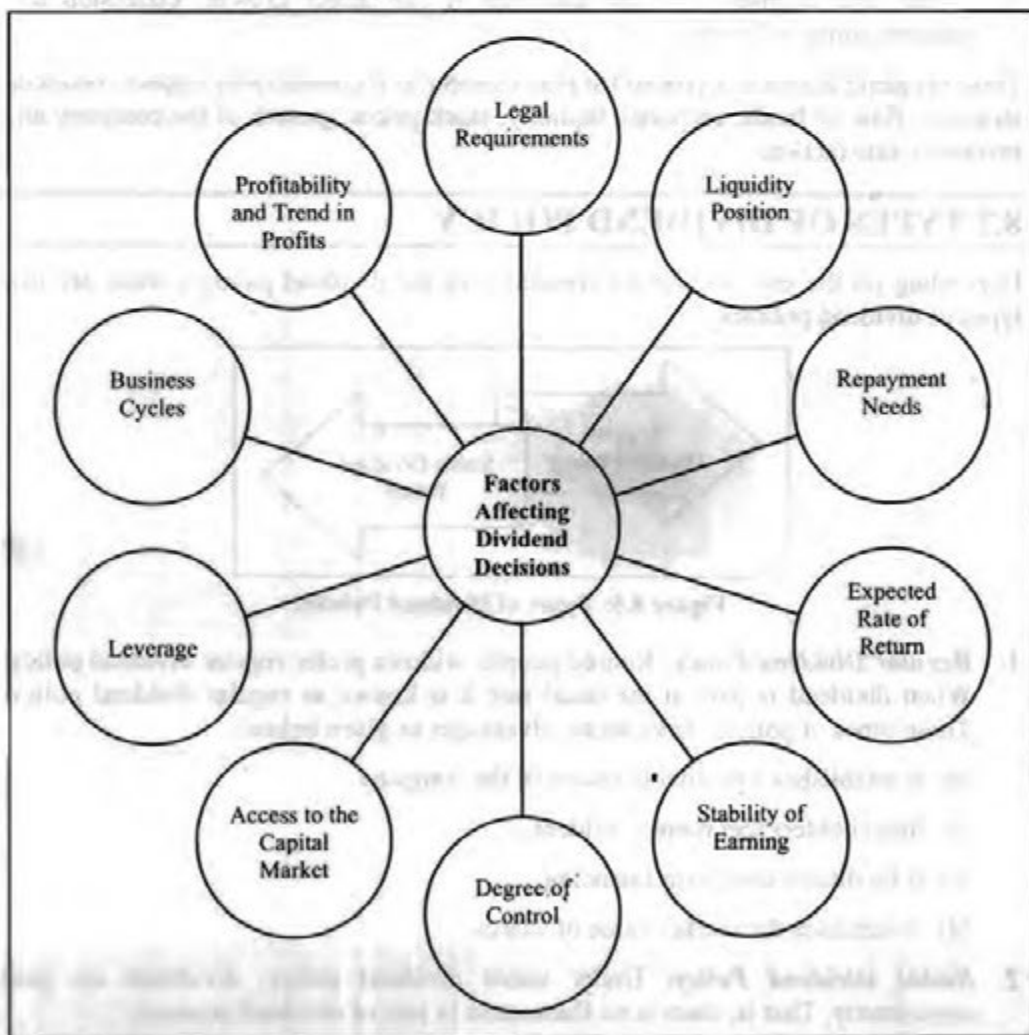


Figure 8.7: Factors Affecting Dividend Policy

Let us discuss these factors.

### ***Legal Requirements***

Companies are not legally bounded to distribute dividends. However, law imposes certain conditions on the way dividends should be distributed. Companies can pay dividend, if capital is not reduced after paying them.

### ***Liquidity Position***

Liquidity is directly related to dividend policy. If the company has enough cash, it can pay higher dividends. However, a company with less liquidity will adopt a conservative approach of dividend payment.

### ***Repayment Needs***

A company may raise funds through debt financing to meet its investment needs. Higher the amount company needs to repay, lower will be the dividend payment.

### ***Expected Rate of Return***

If a company expects higher rate of return on the new investment, it will prefer to retain the earnings for reinvestment rather than distributing it as dividends.

### ***Stability of Earning***

Companies having relatively stable earnings may adopt a consistent dividend policy as compared to the companies where earnings are uncertain and uneven. They will be conservative in paying dividends.

### ***Degree of Control***

Raising funds from external sources will dilute the degree of control of the existing shareholders. Therefore, conservative dividend policy should be devised so that control of existing shareholders is not affected.

### ***Access to the Capital Market***

If a company has an easy access to the capital markets to raise additional financing, it will pay high dividends as it does not require more retained earnings.

### ***Leverage***

A company having more leverage in their financial structure will go for a low dividend pay-out. On the other hand, a company utilising their retained earnings will prefer to give high dividends to its shareholders.

### ***Business Cycles***

A company operating in boom period will save more for downfall. Such reserves will help a company declare high dividends even during depression, to retain and attract more shareholders.

### ***Profitability and Trend in Profits***

A high profitable company or a company which has been profitable over the years pays higher dividends as compared to a company with less profit. A less profitable company will adopt conservative dividend policy.

## 8.9 DIVIDEND POLICY THEORIES

The various dividend policy theories are mentioned below:

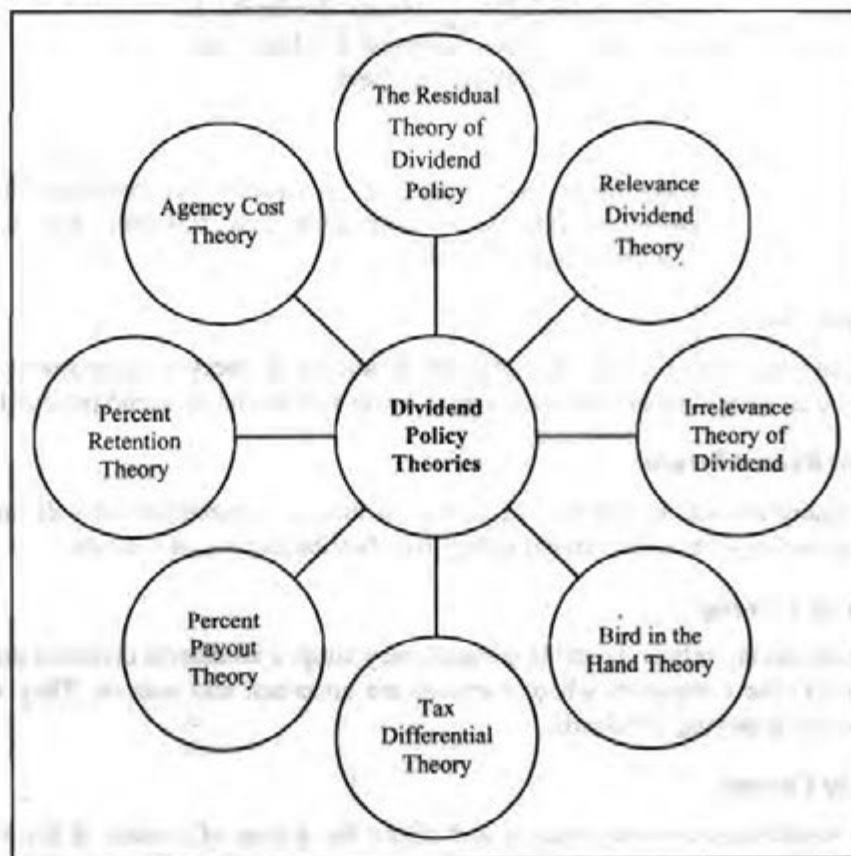


Figure 8.8: Dividend Policy Theories

### ***The Residual Theory of Dividend Policy***

The residual theory of dividend policy holds that the firm will only pay dividend from residual earnings, that is dividends should be paid only if funds remain after the optimum level of capital expenditures is incurred i.e., all suitable investment opportunities have been financed. With a residual dividend policy, the primary focus of the firm is on investments and hence dividend policy is a passive decision variable. The value of a firm is a direct function of its investment decisions thus making dividend policy irrelevant.

### ***Relevance Dividend Theory***

According to the relevance dividend theory, there is direct relationship between dividend decision and the value of the firm. That is, the dividend decision of the firm affects the market value of the firm. This notion was supported by two professors – James E. Walter and Myron Gordon.

### ***Irrelevance Theory of Dividend***

Irrelevance theory of dividend was propagated by Modigliani-Miller. According to him, dividend decision does not affect the wealth of shareholders and therefore is irrelevant. According to this theory, there is no relationship between dividend rate and market value of the shares. Instead, value of the firm depends upon the earnings power from investment policy. Thus, dividend decision is irrelevant factor in determining market value of the firm.

The theory assumes that:

- Investors have rational information, transaction cost is zero, securities are divisible and no investor can influence the market price of the share. Thus, capital markets are perfect.
- There is no difference between tax rates on dividends and capital gains.
- The firm has a fixed investment policy and risk of the firm remains same even if retained earnings are reinvested.
- Floatation cost does not exist.

***Bird in the Hand Theory (John Lintner 1962 and Myron Gordon, 1963)***

According to John Lintner 1962 and Myron Gordon, "the essence of this theory is not stockholders are risk averse and prefer current dividends due to their lower level of risk as compared to future dividends. Dividend payments reduce investor uncertainty and thereby increase stock value. This theory is based on the logic that 'what is available at present is preferable to what may be available in the future'. Investors would prefer to have a sure dividend now rather than a promised dividend in the future (even if the promised dividend is larger). Hence dividend policy is relevant and does affect the share price of a firm."

***Tax Differential Theory (B. Graham and D.L. Dodd)***

This theory simply concludes that since dividends are taxed at higher rates than capital gains, investors require higher rates of return as dividend yields increase. This theory suggests that a low dividend payout ratio will maximize firm value.

***Percent Payout Theory (Rubner 1966)***

Rubner (1966) argued that shareholders prefer dividends and directors and managers requiring additional finance would have to convince the investors that proposed new investments would increase their wealth. However, to increase their job security and status in the eyes of the shareholders companies can adopt 100 per cent payout. However, this policy is not followed in practice.

***Percent Retention Theory (Clarkson and Eliot 1969)***

Clarkson and Eliot (1969) argued that given taxation and transaction costs dividends are a luxury that is not afforded by shareholders as well as by companies and hence a firm can follow a policy of 100 per cent retention. Firms can thus avail of new investment opportunities that would be beneficial to shareholders too.

***Agency Cost Theory (Jenson)***

Since Jenson and Meckling (1976), many studies have provided arguments that link agency costs with the other financial activities of a firm. It has been argued that firm's payout dividends in order to reduce agency costs. Dividend payout keeps firms in the capital market, where monitoring of managers is available at lower cost. If a firm has free cash flows, it is better off sharing them with stockholders as dividend payout in order to reduce the possibility of these funds being wasted on unprofitable (negative net present value) projects. This modern view of dividend policy emphasizes the valuable role of dividend policy in helping to resolve agency problem and thus in enhancing shareholder value.



## 8.10 DIVIDEND MODELS

The various models that support the above theories are:

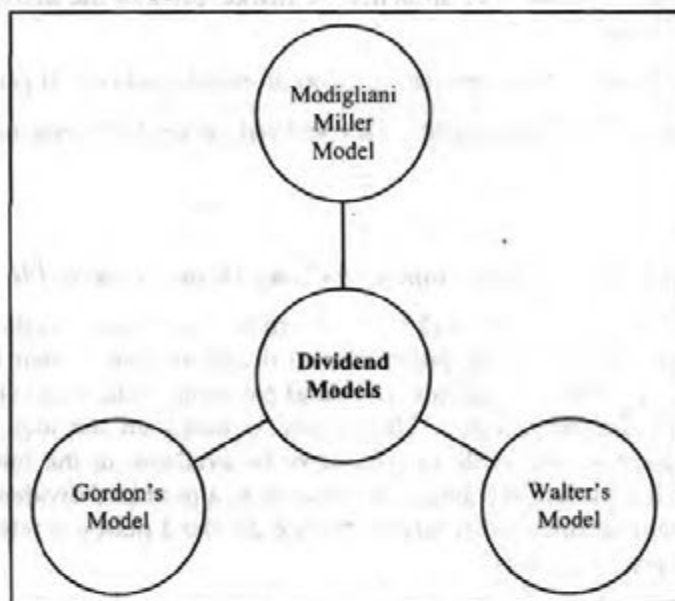


Figure 8.9: Dividend Policy Models

### **Modigliani Miller Model**

According to the M-M approach, market value of the share can be calculated by:

**Calculating the prevailing market price of share:**

$$P_0 = D_1 + P_1/(1 + K_e)$$

Where,

$P_0$  = Prevailing market price of share

$D_1$  = Dividend to be received at the end of period one

$P_1$  = Market price of share at the end of period one

$K_e$  = Cost of equity capital

**Computing the value of  $P_1$  using below formula:**

$$P_1 = P_0(1 + K_e) - D_1$$

MM also provided formula to calculate the number of new shares issued:

$$\text{New shares to be issued} = (I - (E - nD_1))/P_1$$

Where,

$P_1$  = Price of new share

$I$  = Amount of investment required

$E$  = Total earnings

$nD_1$  = Total dividend paid during that period

Now, value of the firm can be calculated as:

$$nP_0 = (n + m)P_1 - (I - E)/1 + K_e$$

$n$  = number of shares outstanding at the beginning of the period

M-M approach is criticised on the following grounds:

- It ignores taxes.
- It ignores risk and uncertainty associated with business.
- It does not take into account flotation and transaction cost.
- Investors do not always behave rationally.
- Its applicability is questioned in case of diversification.

### **Walter's Model**

This model is given by James E Walter. It shows how dividends can be used to maximise the wealth position of shareholders. According to Walter's model, optimum dividend policy of the firm will be determined by the relationship between the return on a firm's investment or its internal rate of return ( $r$ ) and its cost of capital ( $k$ ) or required rate of return. Implications of these are:

If $r > k$	Firm should retain the earnings and shareholders can earn a higher return by investing elsewhere.
If $r < k$	Firm should distribute the earnings to shareholders. Such a firm is called a growth firm. In such firms, dividend pay-out ratio is zero, i.e., the firm should plough back its earnings within the firm.

In Walter's model, relationship between dividend and share can be shown as:

$$V_e = \frac{D + \frac{R_a}{R_c}(E - D)}{R_c}$$

Where,

$V_e$  = Market value of the ordinary shares of the company

$R_a$  = Rate company earns on retained profits

$R_c$  = Cost of capital

$E$  = Earnings per share

$D$  = Dividend per share

### **Gordon's Model**

According to Gordon's model, dividend policy does affect the value of the firm. Under Gordon's model, even in uncertainty investors prefer a firm which pays dividend rather than a firm which does not pay dividend. The value of the share of the firm paying dividends would, therefore, be higher than a firm which retains dividends because retention is risky.

In Gordon's model, relationship between dividend and share price can be shown as:

$$V_E = \left[ \frac{d_0(1+g)}{k_c - g} \right]$$

Where,

$V_E$  = Market price per share

$d_0$  = Current year dividend

$g$  = Constant annual growth rate of dividends

$k_c$  = Cost of capital

The models, provided by Walter and Gordon lead to the following implications:

- If  $r > k$  Price per share increases as dividend payout ratio decreases.
- If  $r = k$  Price per share remains unchanged with changes in dividend payout ratio.
- If  $r < k$  Price per share increases as dividend payout ratio increases.

This further implies that:

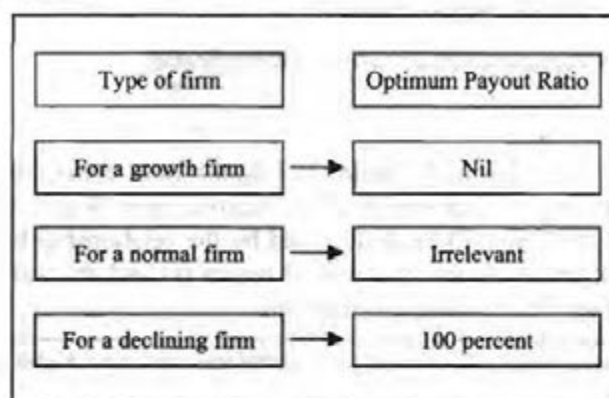


Figure 8.10: Optimum Payout Ratio

## 8.11 STABLE DIVIDEND POLICY: A POLICY OF DIVIDEND SMOOTHING

Lintner (1956) had observed that managers tend to value stable dividend policies and corporations tend to smooth dividends relative to earnings. That is, dividends are increased gradually and rarely cut, resulting in a much lower variability of dividends as compared to the variability in earnings.

Most companies adopt a basic policy of maintaining its internal reserves to ensure stable income far into the future, while at the same time seek to distribute a sufficient amount of earnings to shareholders in accordance with business results. With a decrease in EPS, DPS decreases and with increase in earnings the dividend per share increases. However, increase in dividends is lagging behind increase in earnings in order to 'smoothen' or 'stabilize' dividend payments over the time.

Firm may adopt any of the following stable dividend policies:

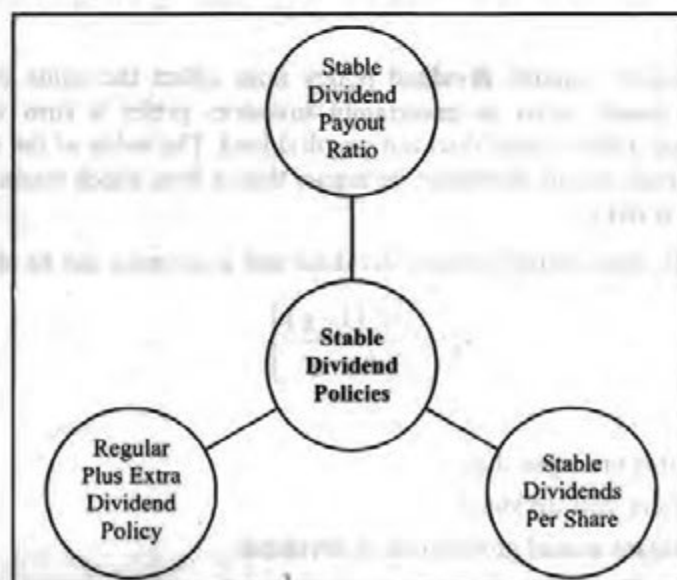


Figure 8.11: Stable Dividend Policies

### Stable Dividend Payout Ratio

As per this policy the percentage of dividends paid out of earnings remains constant.

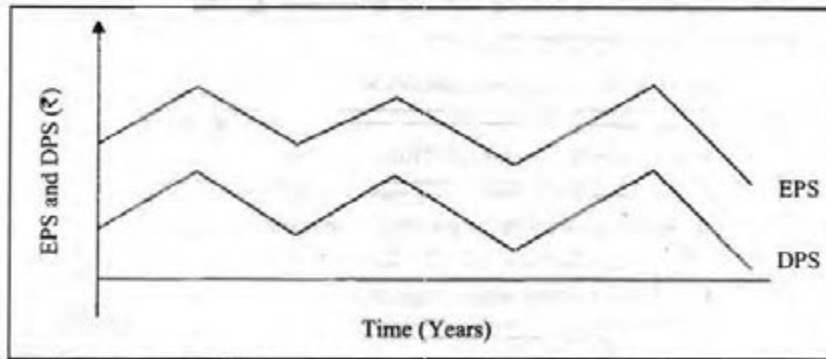


Figure 8.12: Stable Payout Ratio Policy

### Stable Dividends Per Share

According to this policy, the firm pays a certain fixed amount of dividend per share every year. Annual dividend per share is increased only when the company reaches a new level of earnings and expects to maintain it.

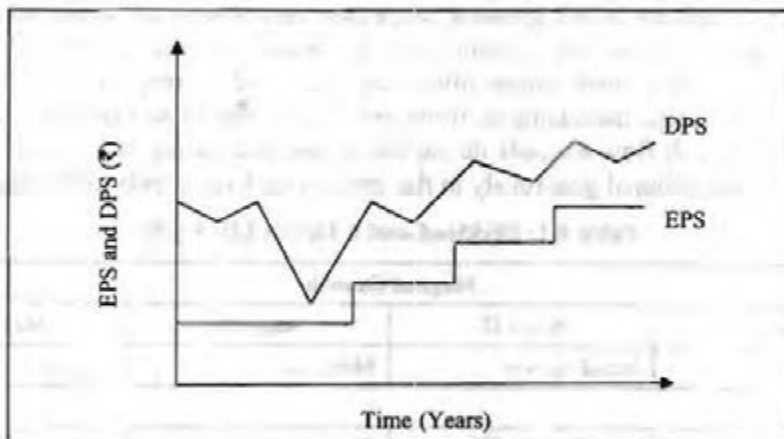


Figure 8.13: Stable Dividend Per Share Policy

### A Regular Plus Extra Dividend Policy

According to this policy a certain fixed percentage or a minimum amount of dividend is paid every year, which is referred to as regular dividend. The firm pays 'additional' or 'extra' dividend if earnings are higher than normal in any year.

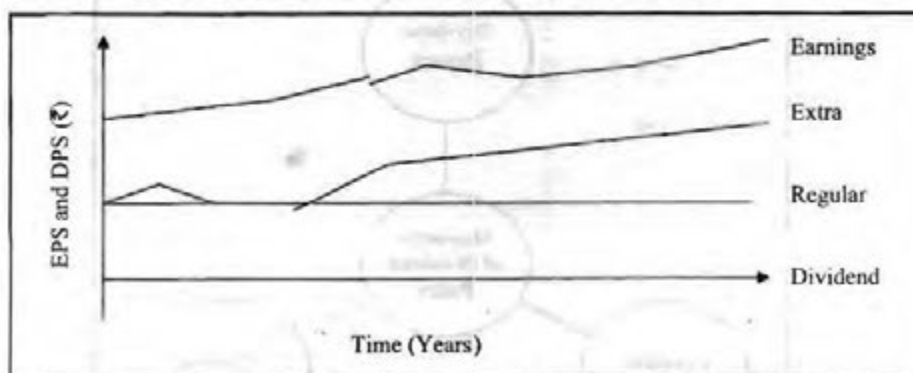


Figure 8.14: Regular and Extra Dividend Policy

## 8.12 STEPS TO BE FOLLOWED IN SETTING DIVIDENDS

The steps to be followed by a firm in setting dividends are depicted below:

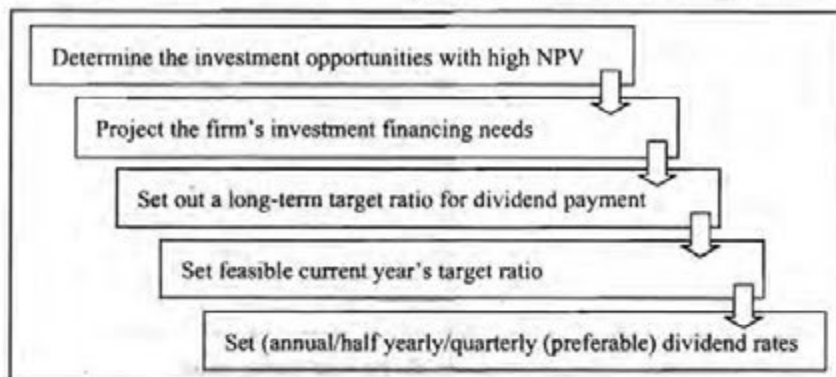


Figure 8.15: Steps to be Followed in Setting Dividends

## 8.13 DIVIDEND AND A FIRM'S LIFE CYCLE

The payout policy of firms undergoes systematic changes over their life cycle. New firms or firms that are in the growing stage pay very low or no dividends as during this initial growth period firms retain funds to finance investment. Mature firms that are no longer in a growth phase often pay high and increasing dividends. Thus, dividend payout keeps increasing as firms grow more mature and finally a stage arises where a firm's cash flow exceeds its capital needs, and during this liquidation stage, excess cash is distributed generously in the form of cash dividends to the shareholders.

Table 8.1: Dividend and a Firm's Life Cycle

Stage of Growth			
Stage I	Stage II	Stage III	Stage IV
Introduction	Rapid Growth	Maturity	Decline
Dividend Policy			
No Dividend	Low Dividend Payout Policy	Growing or Increasing Payout Policy	Generous Dividend Payout Policy

## 8.14 MEASURES OF DIVIDEND POLICY

The various measures of dividend policy are as follows:

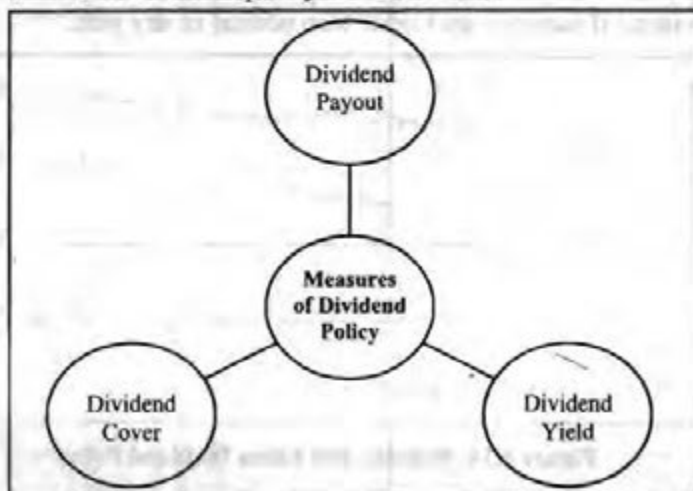


Figure 8.16: Measures of Dividend Policy



### Dividend Payout

This measures the percentage of earnings that the company pays in dividends. The Dividend payout ratio of a firm indicates the percentage of earnings that is distributed to the owners in the form of cash; calculated by dividing the firm's cash dividend per share by its earnings per share.

$\text{Dividend Payout} = \text{Dividends per share} / \text{Earnings per share}$

### Dividend Yield

It measures the return that an investor can make from dividends alone.

$\text{Dividend Yield} = \text{Dividends} / \text{Stock Price}$

### Dividend Cover

It indicates the vulnerability or margin of safety, of dividend payments to drop-in earnings. The dividend cover ratio is used to assess a company's ability to pay dividends to its ordinary shareholders from its distributable earnings.

$\text{Dividend Cover} = \text{Earnings per share} / \text{Dividends per share}$

#### Check Your Progress

Fill in the blanks:

1. Level of dividend paid by company is set by \_\_\_\_\_.
2. In Walter model formula D stands for \_\_\_\_\_.
3. In Gordon's model formula  $V_e$  stands for \_\_\_\_\_.
4. According to the Modigliani and Miller Approach, dividend decision is irrelevant as the \_\_\_\_\_.
5. In MM's formula to calculate the number of new shares issued, E represents \_\_\_\_\_.

## 8.15 LET US SUM UP

- Dividend decision reflects the firm's balance between its growth and the distribution to shareholders.
- Higher the dividend, higher will be the market price of shares which will eventually maximise shareholder's wealth.
- Dividend policy is the set of guidelines a company uses to decide how much of its earnings it will pay to shareholders.
- The main consideration in determining the dividend policy is the objective of maximization of wealth of shareholders.
- There are two schools of thought which determine the relationship between Dividend and market price of shares. According to Relevance of dividend, dividend has an impact on the value of the firm whereas as per Irrelevance of dividend, amount of dividend paid has no effect on the valuation of firm.

## 8.16 UNIT END ACTIVITY

Prepare a report on the usage of relevance dividend theory in real life.

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## 8.17 KEYWORDS

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**Debt Equity Ratio:** It is financial ratio that indicates the relative proportion of shareholders' equity and debt used to finance a company's assets.

**Dividend:** Dividend is the return that a shareholder gets from the company, out of its profits, on his shareholdings.

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## 8.18 QUESTIONS FOR DISCUSSION

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1. Explain the meaning of dividend.
2. Describe the meaning of dividend policy.
3. Discuss the types of dividends.
4. Examine the dividend payment procedures.
5. Highlight the importance of dividend policy.
6. Discuss the types of dividend policy.
7. Explain the factors affecting dividend decisions.
8. Discuss the different dividend policy theories.
9. Explain the different dividend models.
10. List the steps to be followed in setting dividends.
11. Describe the measures of dividend policy.

### Check Your Progress: Model Answer

1. Management
2. Dividend per share
3. Market price per share
4. Value of the firm depends on the earning power of its investments
5. Total earnings

---

## 8.19 REFERENCES / SUGGESTED READINGS

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## UNIT

# 9

## MANAGEMENT OF WORKING CAPITAL

### CONTENTS

- 9.0 Aims and Objectives
- 9.1 Introduction
- 9.2 Meaning of Working Capital
- 9.3 Importance of Working Capital
- 9.4 Types of Working Capital
- 9.5 Determinants of Working Capital
- 9.6 Inadequate Working Capital and Excess of Working
- 9.7 Working Capital Management
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- 9.8 Operating Cycle
- 9.9 Forecasting Working Capital Requirement
- 9.10 Financing of Working Capital
  - 9.10.1 Factors Influencing WC Estimation
  - 9.10.2 Problems Faced During Estimation
- 9.11 Let Us Sum Up
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- 9.15 References/Suggested Readings

### 9.0 AIMS AND OBJECTIVES

After studying this lesson, you should be able to:

- Explain the meaning of working capital
- Discuss the importance of working capital
- Describe the types of working capital
- Discuss the determinants of working capital
- Explain the concept of inadequate and excess working capital
- Define working capital management
- Explain the principles of working capital management
- Describe the concept of operating cycle



- Explain the methods of forecasting working capital requirement
- Describe the factors influencing WC estimation
- List the problems faced during estimation

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## 9.1 INTRODUCTION

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Working capital means the amount of funds required for meeting day-to-day operations of a business. Working capital plays a vital role in business. It is not only required for carrying out operations efficiently and smoothly but also determines liquidity and solvency of the business. Lack of sufficient working capital not only stops production but also hampers business' profitability and impact payment of current obligations.

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## 9.2 MEANING OF WORKING CAPITAL

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Working capital is the amount of funds required for operating expenses of the business. That is, amount required for day-to-day business.

Working capital includes all the assets and liabilities which can be converted into cash within a year. Simply, working capital means operating capital. For example, cash, short term debt, investments. Working capital is excess of current assets over current liabilities. That is,

Working Capital (WC) = Current Assets (CA) – Current Liabilities (CL)

Working capital is defined by various authors as:

“Working capital refers to a firm's investment in short-term assets, such as cash amounts receivables, inventories etc.”

–Weston & Brigham

“Working capital means current assets.”

–Mead, Baker and Malott

“The sum of the current assets is the working capital of the business.”

– J.S. Mill

“The portion of a firm's current assets which are financed from long-term funds.”

–L.J. Guthmann

The nature of working capital is discussed below:

- It is required to purchase raw materials, pay wages and expenses.
- It can change its type to keep the business going.
- It enhances liquidity, solvency, creditworthiness and reputation of the organisation.
- On the basis of working capital, organisations can avail the cash discount facilities offered by suppliers.
- It improves the morale of business executives and increases their efficiency.
- It helps to expand business programmes.

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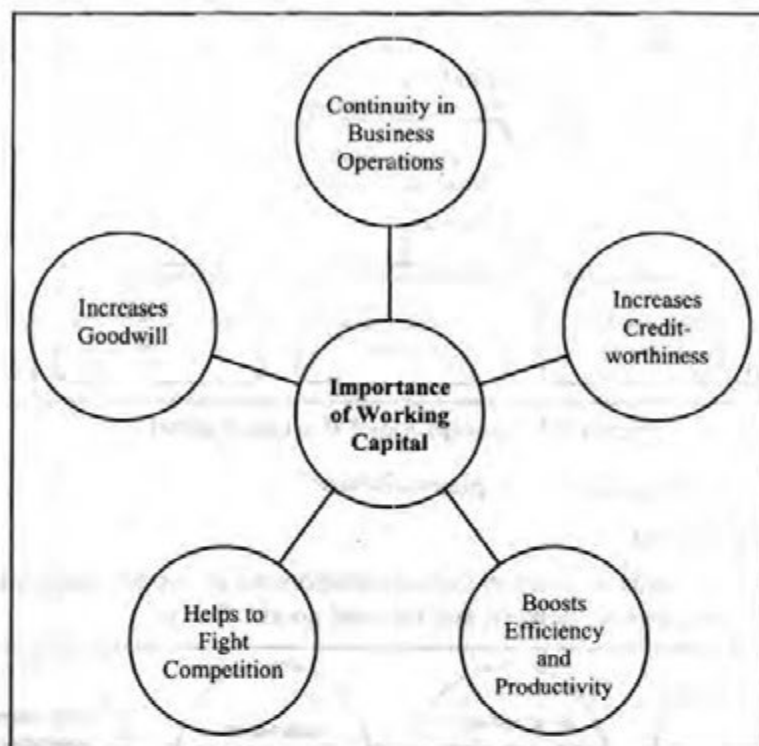
## 9.3 IMPORTANCE OF WORKING CAPITAL

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Working capital is the life-blood of an enterprise and therefore needs to be maintained at an adequate level. Both excessive and inadequate working capitals are harmful for a business. For instance, if the current assets are inadequate to meet the current

liabilities, it will have negative impact on liquidity position of the business. Thus, the management of working capital is very important.

The following points discuss the importance of working capital:



**Figure 9.1: Importance of Working Capital**

- **Continuity in Business Operations:** Every firm needs working capital to keep business moving. It is required for day-to-day activities such as purchasing raw materials, paying workers and paying recurring expenses like electricity and power bills and rent etc. Effective working capital management helps a business to continue.
- **Increases Creditworthiness:** If a company has adequate working capital, it can pay its creditors on time and thus the business can enjoy positive reputation in the credit market. Positive reputation will help business get raw materials on credit and also get loans and advances from the banks and dealers. Thus, effective working capital management increases a company's creditworthiness.
- **Boosts Efficiency and Productivity:** The company that is free from working capital problems provides better working conditions and welfare facilities to its workers. It has sufficient funds to maintain its machinery and equipment, and arrange for training and development of its workers. This boosts the efficiency and productivity of the company.
- **Helps to Fight Competition:** Organisations with adequate cash can compete with its competitors. They can use money on advertising and for promoting sales. Moreover, they can also give longer credit terms to the customers.
- **Increases Goodwill:** A company with effective working capital management timely pay wages and salaries to the employees and the suppliers. Thus, the company earns a good reputation in the labour and capital markets. This increases the goodwill of the business.



## 9.4 TYPES OF WORKING CAPITAL

Working capital can be classified on the basis of:

- Concept
- Time

On the basis of concept, working capital can be further classified as:

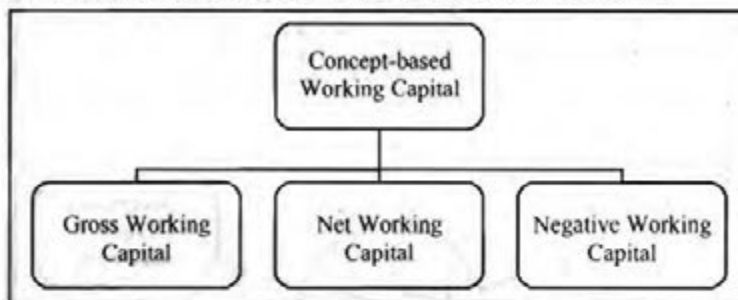


Figure 9.2: Concept-based Working Capital

Concept-based working capital is explained below:

### *Gross Working Capital*

It is the amount of funds invested in various components of current assets such as raw materials, work in progress, debtors, and finished goods. That is:

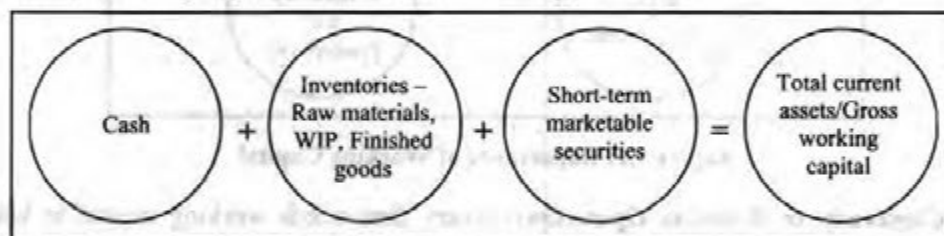


Figure 9.3: Gross Working Capital

### *Net Working Capital*

Excess of current assets over current liabilities is net working capital.

### *Negative Working Capital*

It is opposite of net working capital. Negative working capital is excess of current liabilities over current assets.

On the basis of time, working capital can be further classified as:

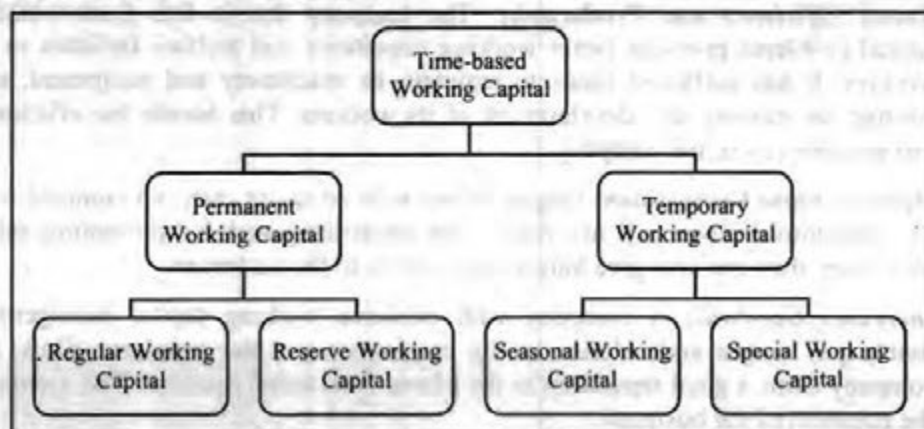


Figure 9.4: Time-based Working Capital

Time-based working capital is explained below:

**Permanent Working Capital:** Minimum amount of funds required to carry out minimum level of business activities is known as permanent working capital or fixed working capital. It is the current assets required on continuous basis. Permanent working capital is further classified as:

- **Regular Working Capital:** It is the minimum amount of capital required to maintain the circulation of capital in business. That is, from cash to inventories to receivables to cash again.
- **Reserve Working Capital:** It is same as special working capital.

**Temporary Working Capital:** Amount of funds which keep on fluctuating between different times on the basis of business activities is known as temporary working capital. That is, it is the extra current assets required during the operating year. For example, added inventory, extra cash. Temporary working capital is further classified as:

- **Seasonal Working Capital:** Capital required to meet seasonal demand of an organisation is known as seasonal working capital. For example, manufacturers of refrigerators may need extra funds to keep stock before sales.
- **Special Working Capital:** Special or specific working capital is required to unforeseen contingencies such as flood, war.

## 9.5 DETERMINANTS OF WORKING CAPITAL

Some of the determinants of working capital are:

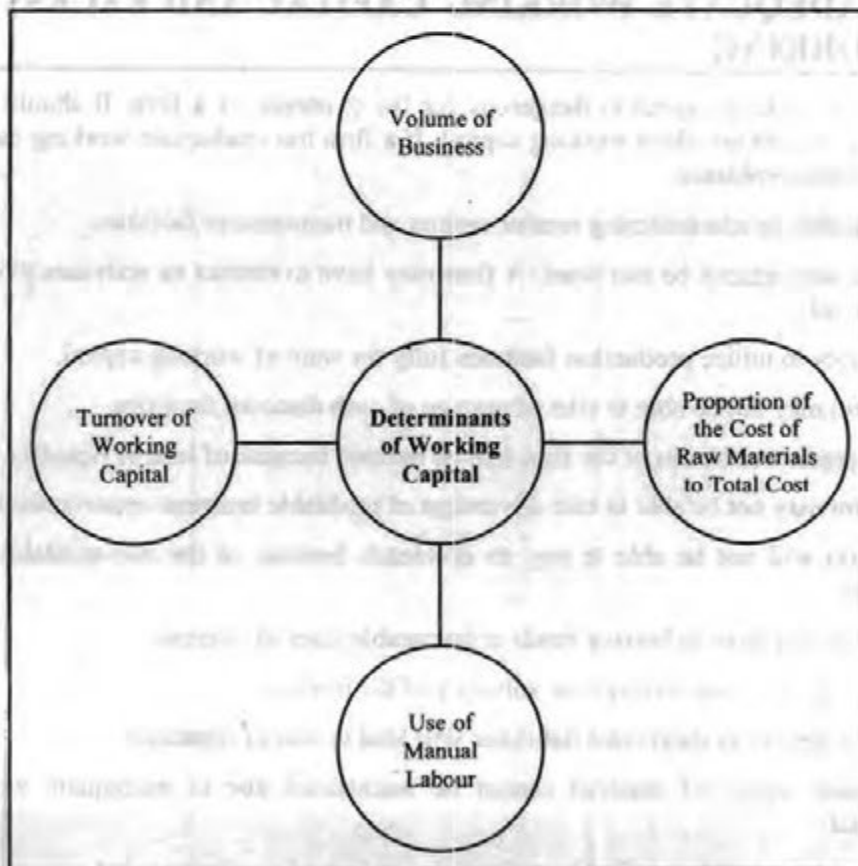


Figure 9.5: Determinants of Working Capital

### ***Volume of Business***

Big companies need higher working capital for investment and other purposes as compared to small companies.

### ***Proportion of the Cost of Raw Materials to Total Cost***

If the cost of raw material forms a very large proportion to total cost, more working capital will be required.

### ***Use of Manual Labour***

Labour intensive industries require more working capital than machine-intensive industries.

### ***Turnover of Working Capital***

Turnover means speed with which working capital is recovered after sale. Companies whose sales are irregular have to keep large sum of money invested in stocks. Thus, companies such as jewellers need large working capital till their stock is exhausted.

In addition to above, few other factors which affect working capital are:

- Degree of co-ordination between production and distribution policies.
- Specialization in the field of distribution.
- Developments of means of transportation and communications.
- The hazards and contingencies inherent in the type of business.

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## **9.6 INADEQUATE WORKING CAPITAL AND EXCESS OF WORKING**

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Inadequate working capital is dangerous for the existence of a firm. It should have neither redundant nor short working capital. If a firm has inadequate working capital, it faces below problems:

- Difficulty in administering routine repairs and maintenance facilities.
- Cash sales cannot be increased. A firm may have to restrict its activities to credit sales only.
- Inability to utilize production facilities fully for want of working capital.
- A firm may not be able to take advantage of cash discount facilities.
- The credit worthiness of the firm will be harmed because of lack of liquidity.
- A firm may not be able to take advantage of profitable business opportunities.
- A firm will not be able to pay its dividends because of the non-availability of funds.
- A firm may have to borrow funds at favourable rates of interest.
- Low liquidity may damage the solvency of the business.
- Late payment in short-term liabilities will lead to loss of reputation.
- Regular supply of material cannot be maintained due to inadequate working capital.
- It cannot undertake profitable projects due to lack of working capital.
- Difficulty in paying day to day expenses of firm's operations.

Excess working capital in the form of cash and marketable securities is as unfavourable as inadequate working capital because the huge amount of funds is not being used productively.

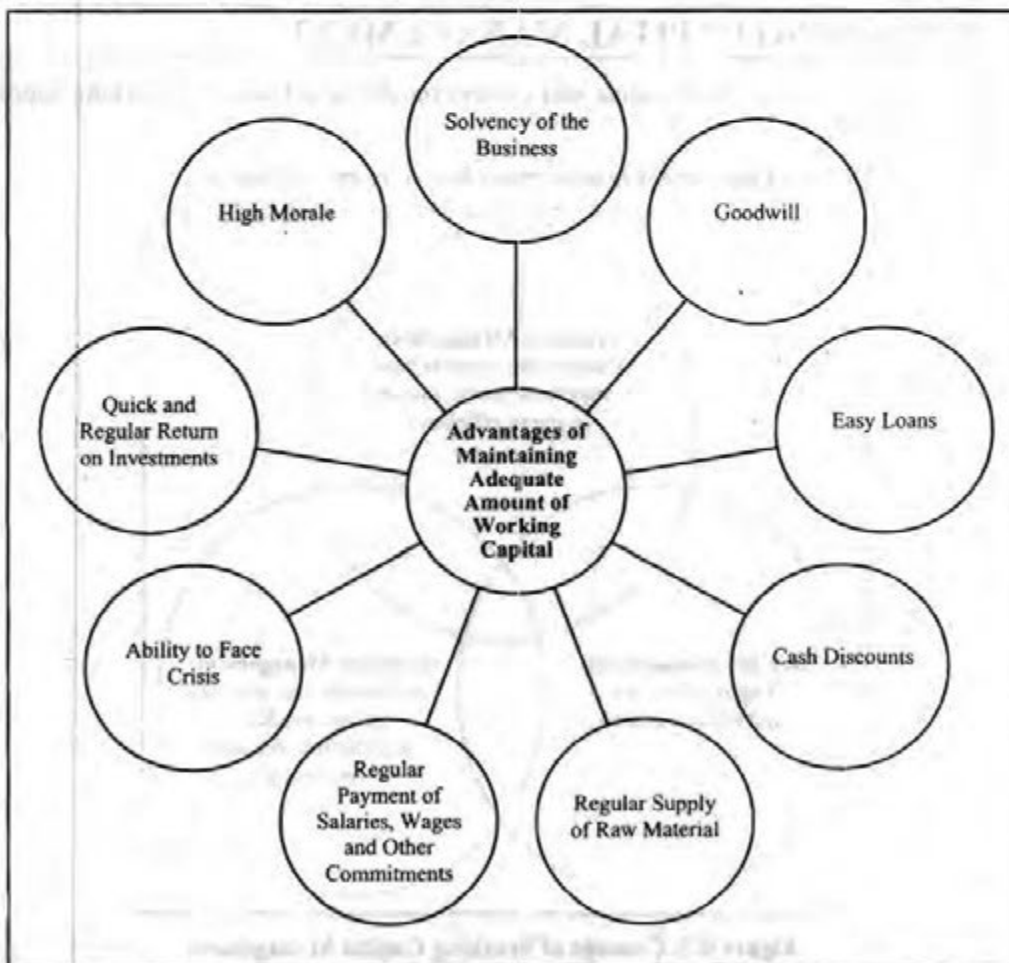
A business enterprise has excess working capital due to below reasons:

- Excess inventory
- Over investment in receivables
- Over investment in marketable securities
- Excess of liquid funds

Excessive working capital creates the following problems for a firm:

- A firm may enjoy high liquidity and at the same time, suffer from low profitability.
- A firm may be tempted to over trade and loss heavily.
- A firm may keep very big inventories and tie its funds unnecessarily.
- There may be an imbalance between liquidity and profitability.
- High liquidity may induce a company to undertake greater production, which may not have a matching demand.
- A firm may invest heavily in its fixed equipment that may not be justified by actual sales or production.

Thus, there should be proper management of working capital. Neither it should be inadequate nor should it be excess. The main advantages of maintaining adequate amount of working capital are as follows:



**Figure 9.6: Advantages of Maintaining Adequate Amount of Working Capital**

- **Solvency of the Business:** Adequate working capital helps to maintain solvency of business by providing uninterrupted flow of production.
- **Goodwill:** Adequate working capital lets a business firm to make immediate and regular payments and thus creates and maintains goodwill.
- **Easy Loans:** A firm with adequate working capital and high solvency can arrange loans from banks and others on easy and favourable terms.
- **Cash Discounts:** Adequate working capital helps a firm avail cash discounts on purchases.
- **Regular Supply of Raw Material:** Adequate working capital ensures regular supply of raw materials and continuous production.
- **Regular Payment of Salaries, Wages and Other Day to Day Commitments:** A firm with adequate working capital can make regular payment of salaries, wages and other day to day commitments which raises morale of its employees, increases their efficiency, reduces costs and wastages.
- **Ability to Face Crisis:** Adequate working capital helps a firm to face business crisis.
- **Quick and Regular Return on Investments:** Adequate working capital helps a business to pay quick and regular dividends to investors.
- **High Morale:** Adequacy of working capital creates an environment of security, confidence, high morale and creates overall efficiency in a business.

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## 9.7 WORKING CAPITAL MANAGEMENT

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The management of current assets and current liabilities is known as working capital management.

The concept of working capital management basically encompasses:

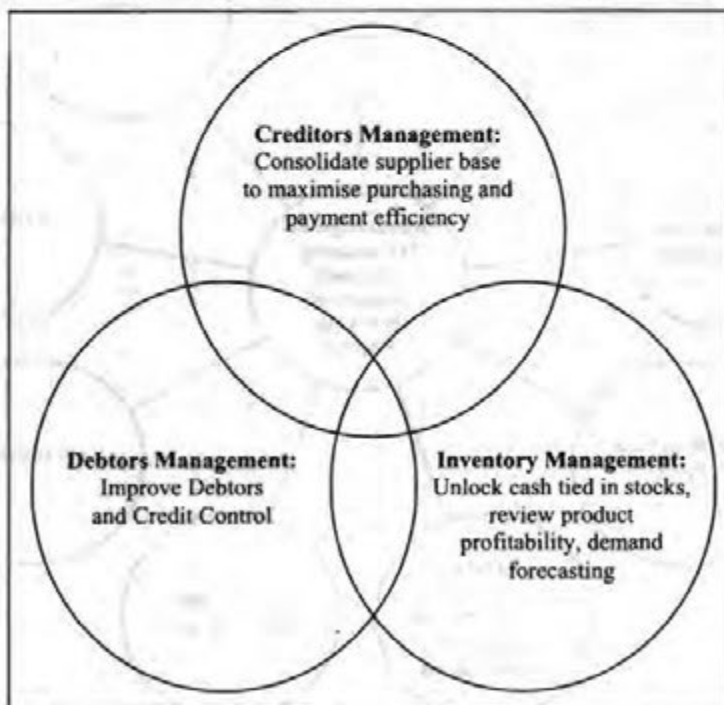


Figure 9.7: Concept of Working Capital Management



Working capital management involves administering different components of the working capital, as shown in figure given below:

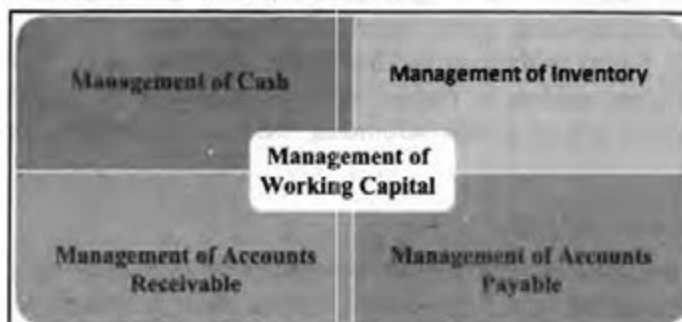


Figure 9.8: Working Capital Management

### 9.7.1 Principles of Working Capital Management

The principles of working capital management are explained below:

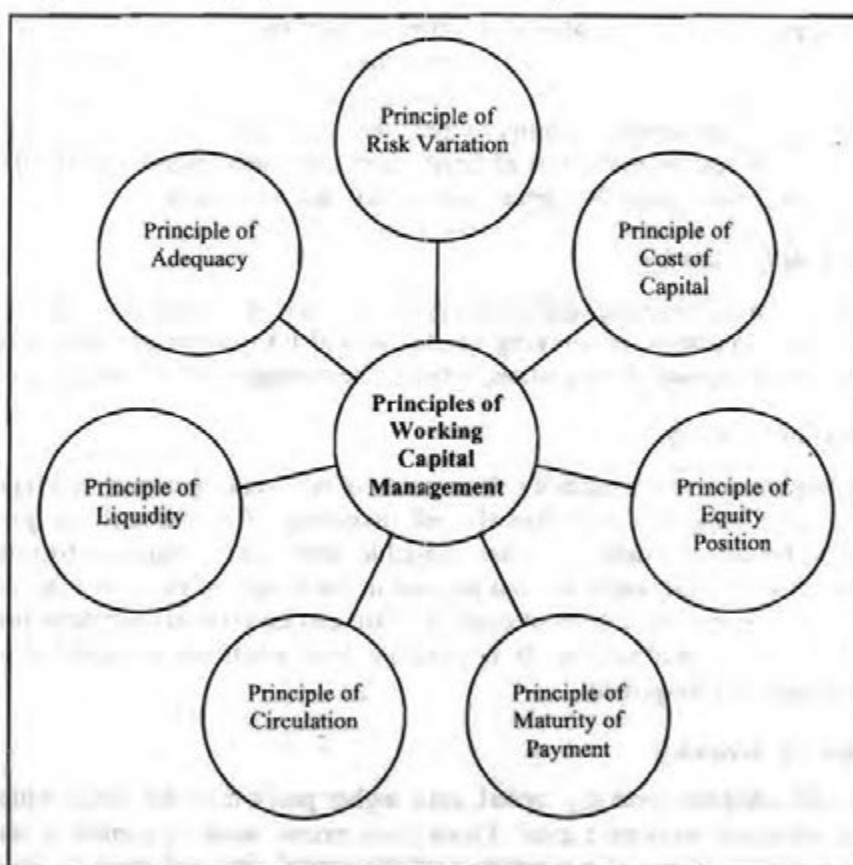


Figure 9.9: Principles of Working Capital Management

#### ***Principle of Risk Variation***

Risk means inability of a firm to maintain sufficient working capital to pay for its obligation. This principle assumes that there is a relation between the degree of risk that a firm assumes and the rate of return. That is, the more risk assumed, the greater is the opportunity for gain or loss. When the level of working capital related to sales decreases, the degree of risk increases. When the degree of risk increases, the opportunity of gain or loss also increases. Thus, if the level of working capital goes up, the amount of risk goes up and vice versa.

### ***Principle of Cost of Capital***

The sources of working capital have different cost with changing degree of risk involved. A sound working capital management should try to balance cost and risk. Lower the risk, higher is the cost and higher the risk lower is the cost. This principle states that different sources of finance have different cost of capital. Since, cost of capital is inversely related to risk, additional risk capital leads to decrease in the cost of capital.

### ***Principle of Equity Position***

According to this principle every rupee invested in the current assets should contribute to the net worth of the firm. The level of current assets is measured with the help of below ratios:

- Current assets as a percentage of total sales
- Current assets as a percentage of total assets

### ***Principle of Maturity of Payment***

The principle deals with the ability of a firm to meet the current liabilities. According to this principle, a firm attempts to pay matured liabilities from internal funds. Generally, shorter the maturity schedule of current liabilities in relation to expected each inflow, the greater the inability to meet the obligations in time. The greater is the disparities between the maturities of firm's short-term debt investment and its flow of internally generated funds then greater is the risk, and vice versa.

### ***Principle of Circulation***

In management of working capital, the cycle of working capital should be minimum. That is, the circulation of working capital should take minimum time period. The shorter the time period of circulation, better is the management of working capital.

### ***Principle of Liquidity***

While determining firm's liquidity, the amount of net working capital and liquid funds plays a more important role than that of inventory. If assets such as government securities, bonds, and debentures are available, they can be liquidated to meet cash requirements. If these assets are not present in the business, the firm will need cash. Similarly, when there is excess of cash, the firm can invest it in short term investment and maximize its profitability. It is possible only when the liquidity is higher in working capital management.

### ***Principle of Adequacy***

Firms with adequate working capital, earn higher profit than the firms, which fail to manage adequate working capital. Firms have excess working capital or inadequate working capital. In case of inadequate working capital, firm will meet its obligation to pay by borrowing at a higher rate of interest and the higher rate interest decreases the profitability of an enterprise. On the other hand, if there is excess working capital, the profitability of the business will be less than that of proper management of working capital. Thus, business should have adequate working capital to obtain the higher rate of return on capital employed.

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## **9.8 OPERATING CYCLE**

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While running businesses, money is blocked in current assets. It is released from one form of asset and takes another form. This process continues and rotates in a cyclical order. Thus, working capital is also known as circulating capital or revolving capital.

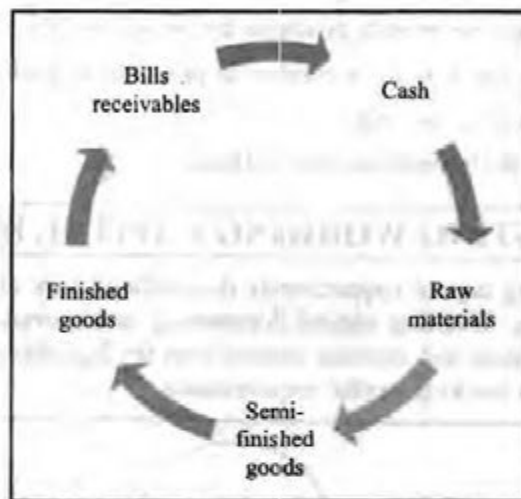
For example, at a particular period of time, funds may be blocked in raw materials, then converted into semi-finished products, then into finished products and then to cash when the finished goods are sold. This cash is reinvested in current assets. Thus, the money keeps on revolving from cash to current assets and back again to cash. Time taken to rotate the cycle once is known as the working capital cycle or the operating cycle.

The American Institute of Certified Public Accountants defined the operating cycle as: "the average time intervening between the acquisition of material or services entering the process and the final cash realisation."

Thus, operating cycle involves the following three phases:

1. Acquisition of resources such as raw material, labour, power and fuel.
2. Conversion of raw material into work-in-progress into finished goods.
3. Sale of the product on cash or credit.

Below figure shows operating cycle:



**Figure 9.10: Operating Cycle**

Thus, an operating cycle is the number of days between purchase of inventory and its translation into cash. It can be calculated as follows:

Operating Cycle = Days' Sales of Inventory + Days Sales Outstanding

Or

Operating Cycle =  $365/\text{Purchased} \times \text{Average Inventories}$  +  $365/\text{Credit sales} \times \text{Average Accounts Receivable}$

Or

The duration of the operating cycle is equal to the sum of the duration of each of these stages less the credit period allowed by the suppliers of the firm. In symbols,

$$O = R + W + F + D - C$$

Where,

O = Duration of operating cycle

R = Raw material storage period

W = Work-in-process period

F = Finished goods storage period

$D$  = Debtors collection period and

$C$  = Creditors payment period

The components of the operating cycle may be calculated as follows:

$R$  = Average of raw material and stores/Average raw material and stores consumption per day

$W$  = Average work-in-process inventory/Average cost of production per day

$F$  = Average finished goods inventory/Average cost of goods sold per day per day

$D$  = Average book debts/Average credit sales per day

$C$  = Average trade creditors/Average credit purchase per day

It is extremely important for a business organisation to calculate operating cycle as it measures the operating efficiency and working capital management of a business. A short operating cycle is preferred as it shows that the business' cash is blocked up for a shorter period. However, not all businesses have short operating cycle. Firms may have longer operating cycle because:

- Raw materials are not readily available due to which they are stocked in stores.
- Product is such that it passes a number of processes/departments to get finished.
- Product may be slow moving.
- Inefficiency of the business in debt collection.

## 9.9 FORECASTING WORKING CAPITAL REQUIREMENT

Forecasting working capital requirements is a difficult task as it involves estimating total current assets. Working capital forecasting is important to measure the cash position of the business and exercise control over the liquidity position. There are four methods to forecast working capital requirements.

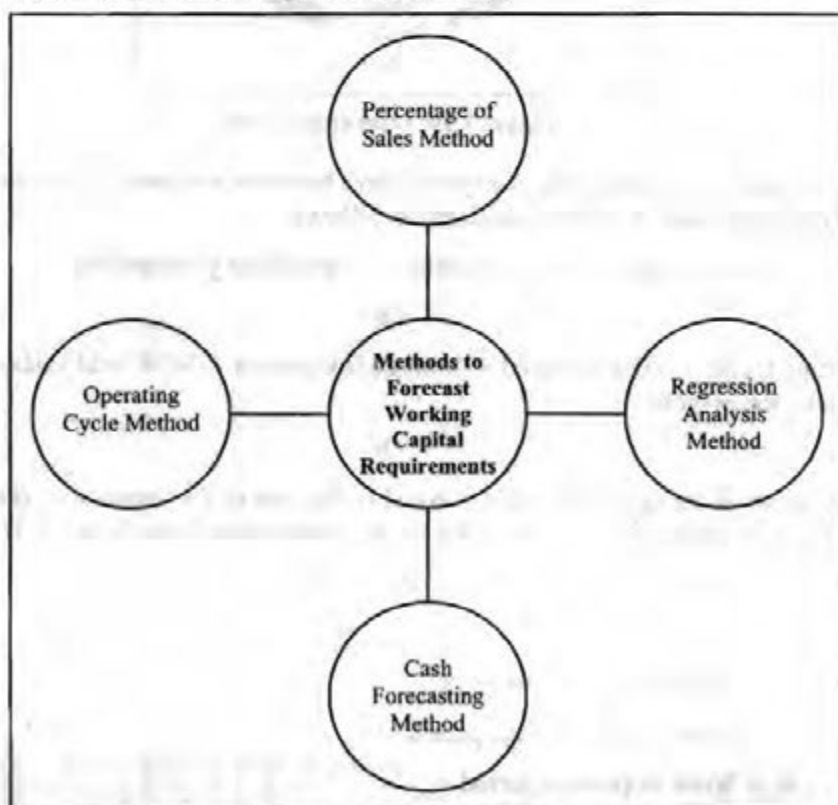


Figure 9.11: Methods to Forecast Working Capital Requirements

### **Percentage of Sales Method**

This method establishes relationship between sales and working capital. The method puts emphasis that, working capital is directly related to its sales value. If the relationship is stable over a period of time, it is used as a base to determine working capital over the forecasted sales. A per cent is fixed for this.

For example, sales in 2016 was ₹ 30,00,000 and working capital required was ₹ 6,00,000. Working capital requirement can be estimated for 2017 on the basis of estimated sales of ₹ 40,00,000. Thus, working capital required will be 20% of ₹ 40,00,000, that is ₹ 8,00,000.

Thus, the relationship can be expressed in three ways:

1. as number of days of sales
2. as turnover
3. as percentage of sales

This method is only suitable in short period of time as relationship does not vary in short time. Also, this method is not suitable for public companies.

### **Regression Analysis Method**

Regression analysis is the statistical technique to estimate or predict unknown value of a dependent variable from the known value of an independent variable. This method measures average relationship between sales and working capital. This relationship can be expressed as:

$$Y = a + bx$$

Where,

Y = Working capital (dependent variable)

a = Intercept of the least square

b = Slope of the regression line

x = Sales (independent variable)

This method is suitable for long term forecasting.

### **Cash Forecasting Method**

This method considers total cash receipts and disbursements for a particular period of time. Cash receipts include all sources from where cash will be received such as cash sales, cash collected from debtors, bills receivables. Cash disbursements includes all the channels where payments are made such as cash purchases, payment to sundry creditors, repayment of loan, wages, salaries, bonus. This way this method determines a consolidated cash position of business.

Both cash receipts and payments are recorded and results are interpreted. The excess of receipts over payments shows surplus of cash and the excess of payments over receipts means deficit of cash.

### **Operating Cycle Method**

We have already understood what an operating cycle is. Let us straight way see how to forecast working capital using this method. Below formula can be used for this:

$$T = (r - c) + w + f + b$$



Where,

- T = The total period of the operating cycle in number of days.
- r = Number of days' raw material is held in raw materials inventory.
- c = Number of days of purchases in trade creditors.
- w = Number of days of production held in work in progress.
- f = Number of days of cost of sales held in finished goods inventory.
- b = Number of days of sales in book debts.

These terms are further calculated as:

- r = (Average inventory of raw materials and stores/Average per day consumption of raw materials and stores)
- c = (Average Trade Creditors/Average Credit Purchase per day)
- w = (Average work in progress/Average cost of production per day)
- f = (Average inventory of finished goods/Average cost of sales per day)
- b = (Average book debts/Average sales per day)

## 9.10 FINANCING OF WORKING CAPITAL

Working capital can be estimated with the help of the following two methods:

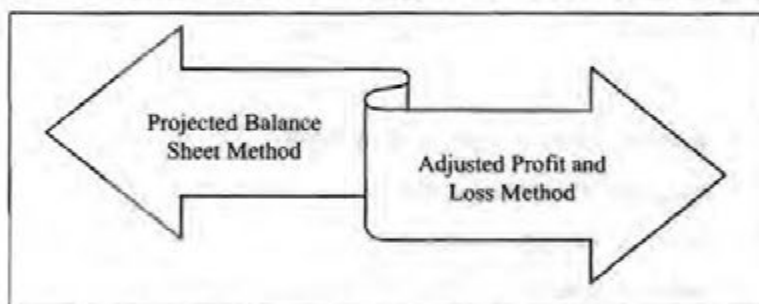


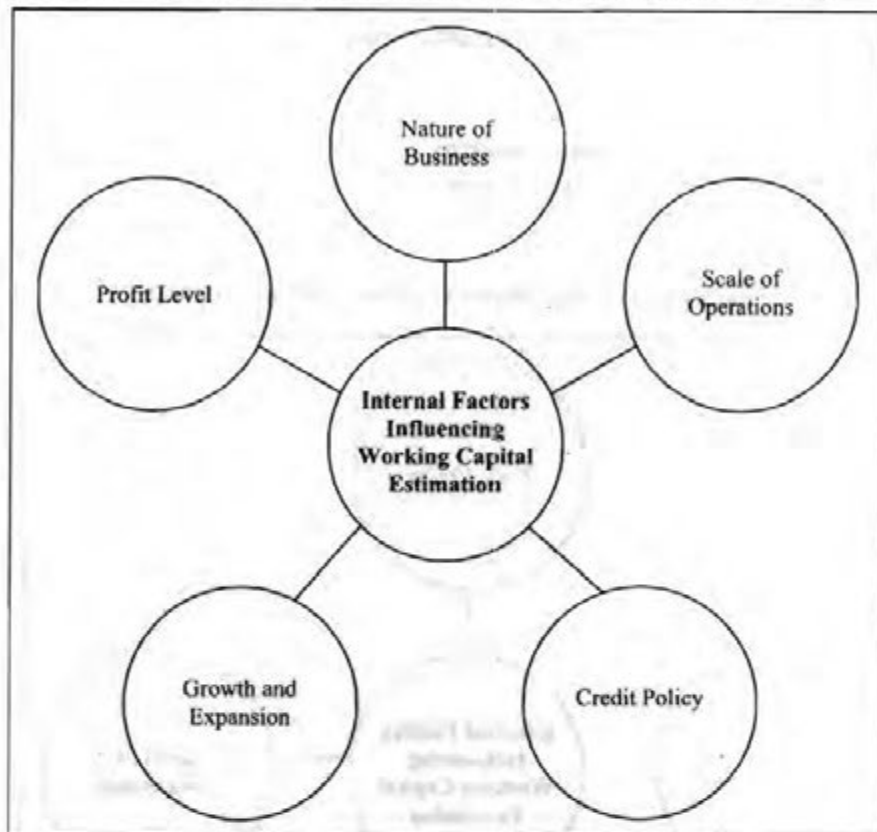
Figure 9.12: Methods of Estimating Working Capital

1. **Projected Balance Sheet Method:** Under this method, a projected balance sheet is prepared basis forecasted assets and liabilities using any method described above. Excess of estimated total current assets over estimated current liabilities is used to determine working capital. This method is used for closing balance of cash and bank to derive working capital.
2. **Adjusted Profit and Loss Method:** In this method, the opening balance of cash and bank is used to derive working capital. Under this method, items like depreciation, goodwill written off, reduction in closing stock, decrease in sundry debtors and bills receivable are added with opening cash and bank balances. Items like accrued rent, dividend, increase in closing stock, increase in sundry debtors, increase in bills receivables and bills payable are deducted from the opening cash and bank balances. The net amount will be the required working capital.

### 9.10.1 Factors Influencing WC Estimation

Factors influencing working capital estimation can be divided into internal and external factors.

Internal factors influencing working capital estimation are explained below:



**Figure 9.13: Internal Factors Influencing Working Capital Estimation**

#### *Nature of Business*

Working capital decision is related to the nature of business. Manufacturing business which takes lot of time to convert raw material into finished goods requires more working capital as they have capital invested in raw material, semi-finished goods and the storing of the finished goods for a long time. Trading business requires very less working capital as they sell goods immediately after purchasing. In case of service businesses, such as electricity, water supply, requires almost nil working capital as they deal in cash basis. A distributing firm requires more working capital.

#### *Scale of Operations*

There is a direct relation between the working capital need and the scale of operations. More working capital is required in big organisations where period of manufacture is large, while less working capital is required in small organisations. For example, a bottling company manufacturing lakh of bottles a week requires more working capital as compared to Bakery Company.

#### *Credit Policy*

Businesses which sell goods on cash payment basis need less working capital as compared to those firms who provide credit facilities to the customers. They need more working capital. Likewise, if raw material is available on credit, less working capital is required and if raw material is available in cash then large amount of working capital will be required.

### *Growth and Expansion*

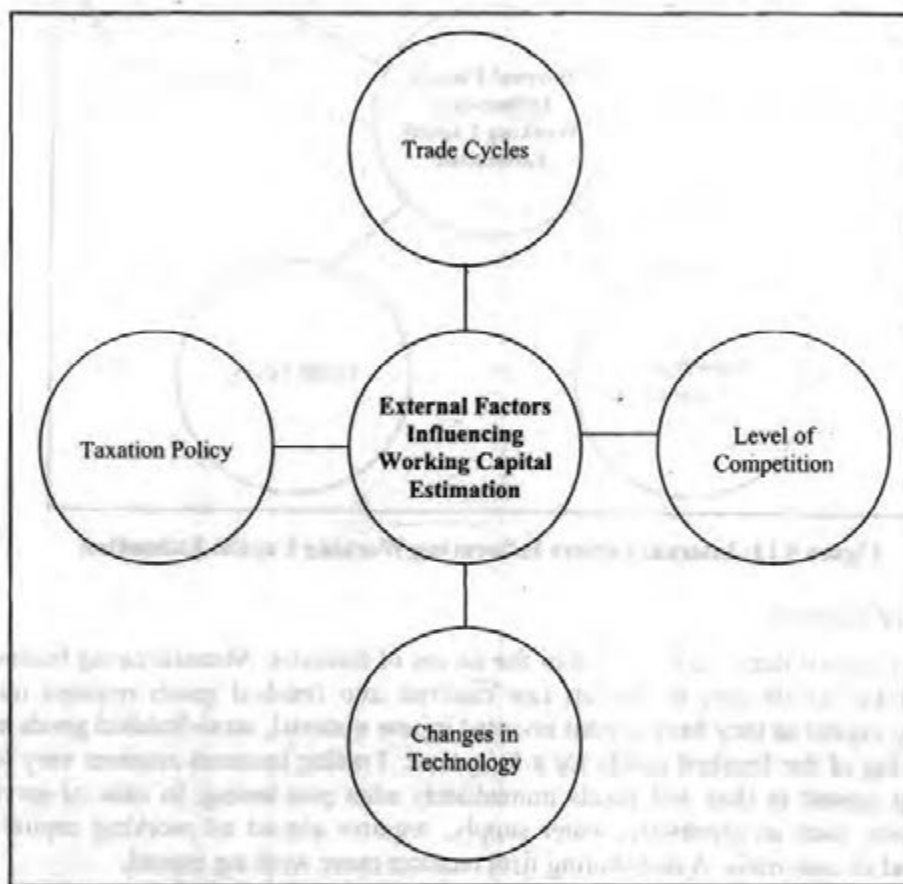
Business engaged in growth and expansion activities, naturally requires more working capital as compared to business with less growth prospects.

### *Profit Level*

Retained earnings are used to finance working capital requirements. High-profit level will bring day-to-day cash to conduct various business activities.

### *External Factors*

External factors influencing working capital estimation are given below:



**Figure 9.14: External Factors Influencing Working Capital Estimation**

### *Trade Cycles*

Business fluctuations are known as trade cycle such as boom, recession, depression and recovery. The need for the working capital changes in each stage a business is in boom phase, the demand of a product and sales is high and there is growth and prosperity in business. Thus, more working capital is required. While in depression phase, the demand falls and so does the sales. Therefore, less working capital is required.

### *Level of Competition*

To face high competition, businesses need more stock for quick delivery, thus high level of competition needs more working capital.

If a company wishes to install new machine which utilises less expensive raw material, inventory needs will be reduced and will so does the working capital needs.

#### Taxation Policy

If the government imposes heavy tax burdens on business firms, they will have less profit for distribution and retention and therefore, it has to increase its working capital needs.

### 9.10.2 Problems Faced During Estimation

Some of the problems faced during estimation of working capital are:

- Determination of optimum level of current assets so to maximise shareholders value.
- Amount of current assets and fixed assets to support particular level of output.
- Determination of risk-return trade off to ensure profitability and solvency.

#### Check Your Progress

Fill in the blanks:

1. Operating cycle = Inventory turnover in days +/- \_\_\_\_\_.
2. If inventory period is 15 days and accounts receivable period is 30 days, what is operating cycle.
3. Excess of current liabilities over current assets is known as \_\_\_\_\_.
4. Additional working capital required for launching extensive marketing campaign is known as \_\_\_\_\_.
5. Under adjusted profit and loss method, \_\_\_\_\_ is added to opening cash and bank balance to find working capital.

### 9.11 LET US SUM UP

- Every activity of a company affects its working capital requirements. However, the magnitude of influence may be different.
- There is an invisible time lap between the sale of good and receipt of cash. This is known as operating cycle.
- Working capital can be classified on the basis of concept and time.
- Working capital can be estimated with the help of Projected Balance Sheet Method and Adjusted Profit and Loss Method.

### 9.12 UNIT END ACTIVITY

Divide the class into two and discuss how the problems faced during estimation can be solved.

### 9.13 KEYWORDS

**Marketable Securities:** They are any unrestricted financial instrument that can be bought or sold on a public stock exchange or a public bond exchange.



**Working Capital:** It is the amount of funds required for operating expenses of the business. That is amount required for day-to-day business.

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## 9.14 QUESTIONS FOR DISCUSSION

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1. Explain the meaning of working capital.
2. Discuss the importance of working capital.
3. Describe the types of working capital.
4. Discuss the determinants of working capital.
5. Explain the concept of inadequate and excess working capital.
6. Define working capital management.
7. Explain the principles of working capital management.
8. Describe the concept of operating cycle.
9. Explain the methods of forecasting working capital requirement.
10. Describe the factors influencing WC estimation.
11. List the problems faced during estimation.

### Check Your Progress: Model Answer

1. + receivable turnover in days
2. 15 days
3. Negative working capital
4. Special working capital
5. Depreciation

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## 9.15 REFERENCES / SUGGESTED READINGS

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## UNIT

# 10

## CASH MANAGEMENT, RECEIVABLES MANAGEMENT, AND INVENTORY MANAGEMENT

### CONTENTS

- 10.0 Aims and Objectives
- 10.1 Introduction
- 10.2 Cash Management
  - 10.2.1 Motives for Holding Cash
  - 10.2.2 General Principles of Cash Management
  - 10.2.3 Optimal Cash Balance
  - 10.2.4 Models of Cash Management
- 10.3 Receivables Management
- 10.4 Evaluation of Credit Policy
  - 10.4.1 Credit Standard
  - 10.4.2 Credit Period
  - 10.4.3 Cash Discount
  - 10.4.4 Collection Effort
- 10.5 Inventory Management
  - 10.5.1 Nature of Inventories
  - 10.5.2 Reasons for Holding Inventories
  - 10.5.3 Risk and Costs of Holding Inventors
  - 10.5.4 Inventory Management Techniques
- 10.6 Let Us Sum Up
- 10.7 Unit End Activity
- 10.8 Keywords
- 10.9 Questions for Discussion
- 10.10 References/Suggested Readings

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### 10.0 AIMS AND OBJECTIVES

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After studying this lesson, you should be able to:

- Explain the meaning of cash management
- Describe the motives of holding cash
- Explain the concept of optimal cash balance

- Discuss the different models of cash management
- Elaborate the receivables management
- Explain how evaluation of credit policy is performed
- Discuss the meaning of inventory management
- Describe the different types of inventories
- Explain the reasons for holding inventories
- Describe the techniques of inventory management

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## 10.1 INTRODUCTION

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Cash management, receivable management and inventory management are all interrelated to each other. Cash is the common denominator to which all current assets are reduced including receivables and inventories which are converted into cash.

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## 10.2 CASH MANAGEMENT

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Although cash comprises of only 1-3% of total current assets, but its management is very important. Simply, cash management means management of cash so that business objectives can be achieved. Cash management includes:

- Recognising the issue related to cash and finding appropriate solutions to resolve such problems.
- Determining optimum amount of cash required in the business.
- Keeping the cash balance at optimum level.
- Investing surplus cash in profitable manner.
- Collection of cash receivables and efficient disbursement of cash.
- Minimizing unproductive cash balances.

All the above activities of cash management are done to fulfil below objectives of cash management:

- To satisfy day-to-day business cash requirements.
- To make scheduled major payments.
- To face unexpected cash shortage.
- To grab profitable long-term investment opportunities.
- To meet requirements of bank.
- To minimize the operating cost of cash management.
- To build reservoir for net cash inflow.

All the above objectives of cash management depend upon the efficient and effective functioning of cash management.

Cash management functions fall under below five heads:

Cash Planning	{	Cash planning is a technique of planning for and controlling of cash. A good cash planning aims at providing cash for regular, irregular and abnormal requirements.
Managing Cash Flows	{	It means managing the flow of cash coming inside the business and cash moving out of the business.
Controlling the Cash Flows	{	Cash controlling is important as it increases the availability of usable cash from within the enterprise.
Optimizing the Cash Level	{	It is important to keep optimum level of cash to meet the necessary requirements and to settle the obligations well in time.
Investing Idle Cash	{	A firm is required to hold ideal or surplus cash for meeting working needs facing contingencies and to maintain as well as develop goodwill of bankers.

Figure 10.1: Cash Management Functions

### 10.2.1 Motives for Holding Cash

Keynes postulated three motives for holding cash:

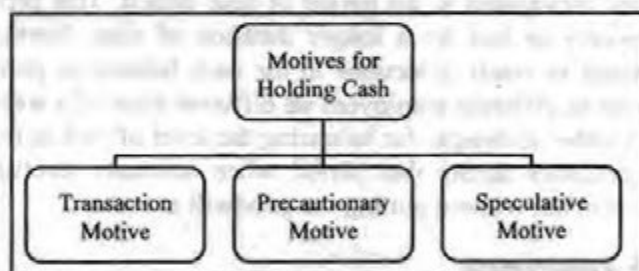


Figure 10.2: Motives for Holding Cash

Let's discuss these motives in detail:

#### **Transaction Motive**

Transactive motive refers to holding cash to meet day to day transactions of business. The firms need to hold cash for activities such as purchasing raw materials, paying salaries, dividend, income tax, various other operating expenses. However, there is counter and regular inflow of cash into the business by way of sales revenue, interest on loan, return on investments. If these cash receipts and cash payments perfectly synchronize with each other, there is no need for holding cash for transaction motive. But in reality, cash inflows and outflows do not match. When payments exceed the receipts, there is a need to hold certain level of cash to meet expenses.

#### **Precautionary Motive**

Precautionary motive refers to holding cash to meet unforeseen, unpredicted or unexpected contingencies. A firm may face emergencies such as strikes and lock-outs, fall in market demand, increase in cost of raw materials and so on. Such a motive acts as a finance reserve to meet sudden cash requirements. There are two factors which influence the precautionary cash balance – degree of predictability and availability of short-term credit. If there is high degree of predictability, there is no need for the firm

to maintain huge cash balance. Similarly, if the firm is capable enough to borrow cash from short-term creditors, small cash balance would be sufficient.

#### ***Speculative Motive***

Speculative motive refers to holding cash to take advantage of unexpected opportunities that do not happen to exist in the normal course of business. Speculative Motive requires businesses to reserve reasonable cash to exploit profitable opportunities such as bargain purchases, attractive interest rates, favourable exchange rate fluctuations, bulk purchase of raw materials at discounted prices and so on.

***Another motive was added later known as Compensation Motive.***

#### ***Compensation Motive***

Compensation motive refers to holding cash to enter into loan agreement with the bank. Bank provides varied services to customers and for some services it charges commission or fee. While for some services they charge indirect compensation by asking customers to maintain minimum cash balance to earn a return equal to cost of services provided by it. Such balances are called compensating balances.

### **10.2.2 General Principles of Cash Management**

Harry Gross has provided general principles of cash management that are required to add efficiency to cash management. These principles are explained below:

#### ***Determinable Variations of Cash Needs***

A reasonable portion of funds, in the form of cash is required to be kept aside to overcome the period anticipated as the period of cash deficit. This period may either be short and temporary or last for a longer duration of time. Normal and regular payment of cash leads to small reductions in the cash balance at periodic intervals. Making this payment to different employees on different days of a week can equalize these reductions. Another technique for balancing the level of cash is to schedule cash disbursements to creditors during that period when accounts receivables collected amounts to a large sum but without putting the goodwill at stake.

#### ***Contingency Cash Requirement***

There may arise certain instances, which fall beyond the forecast of the management. These constitute unforeseen calamities, which are too difficult to be provided in the normal course of the business. Such contingencies always demand for special cash requirements that was not estimated and provided for in the cash budget. Rejections of wholesale product, large amount of bad debts, strikes, lockouts etc., are a few among these contingencies. Only a prior experience and investigation of other similar companies prove helpful as a customary practice. A practical procedure is to protect the business from such calamities like bad-debt losses, fire etc., by way of insurance coverage.

#### ***Availability of External Cash***

Another factor that is of great importance to the cash management is the availability of funds from outside sources. These resources aid in providing credit facility to the firm, which materialized the firm's objectives of holding minimum cash balance. As such if a firm succeeds in acquiring sufficient funds from external sources like banks or private financiers, shareholders, government agencies etc., the need for maintaining cash reserves diminishes.

#### ***Maximizing Cash Receipts***

Every financial manager aims at making the best possible use of cash receipts. Again, cash receipts if tackled prudently results in minimizing cash requirements of a



concern. For this purpose, the comparative cost of granting cash discount to customer and the policy of charging interest expense for borrowing must be evaluated on continuous basis to determine the futility of either of the alternative or both of them during that particular period for maximizing cash receipts. Yet, the under mentioned techniques proved helpful in this context:

1. **Concentration Banking:** Under this system, a company establishes banking centers for collection of cash in different areas. Thereby, the company instructs its customers of adjoining areas to send their payments to those centres. The collection amount is then deposited with the local bank by these centers as early as possible. Whereby, the collected funds are transferred to the company's central bank accounts operated by the head office.
2. **Local Box System:** Under this system, a company rents out the local post offices boxes of different cities and the customers are asked to forward their remittances to it. These remittances are picked by the authorized lock bank from these boxes to be transferred to the company's central bank operated by the head office.
3. **Reviewing Credit Procedures:** It aids in determining the impact of slow payers and bad debtors on cash. The accounts of slow paying customers should be reviewed to determine the volume of cash tied up. Besides this, evaluation of credit policy must also be conducted for introducing essential amendments. As a matter of fact, too strict a credit policy involves rejections of sales, thus, curtailing the cash inflow. On the other hand, too lenient, a credit policy would increase the number of slow payments and bad debts again decreasing the cash inflows.
4. **Minimizing Credit Period:** Shortening the terms allowed to the customers would definitely accelerate the cash inflow side-by-side revising the discount offered would prevent the customers from using the credit for financing their own operations profitably.
5. **Others:** Introducing various procedures for special handling of large to very large remittances or foreign remittances such as, personal pick up of large sum of cash using airmail, special delivery and similar techniques to accelerate such collections.

#### ***Minimizing Cash Disbursements***

The motive of minimizing cash payments is the ultimate benefit derived from maximizing cash receipts. Cash disbursement can be brought under control by preventing fraudulent practices, serving time draft to creditors of large sum, making staggered payments to creditors and for payrolls etc.

#### ***Maximizing Cash Utilization***

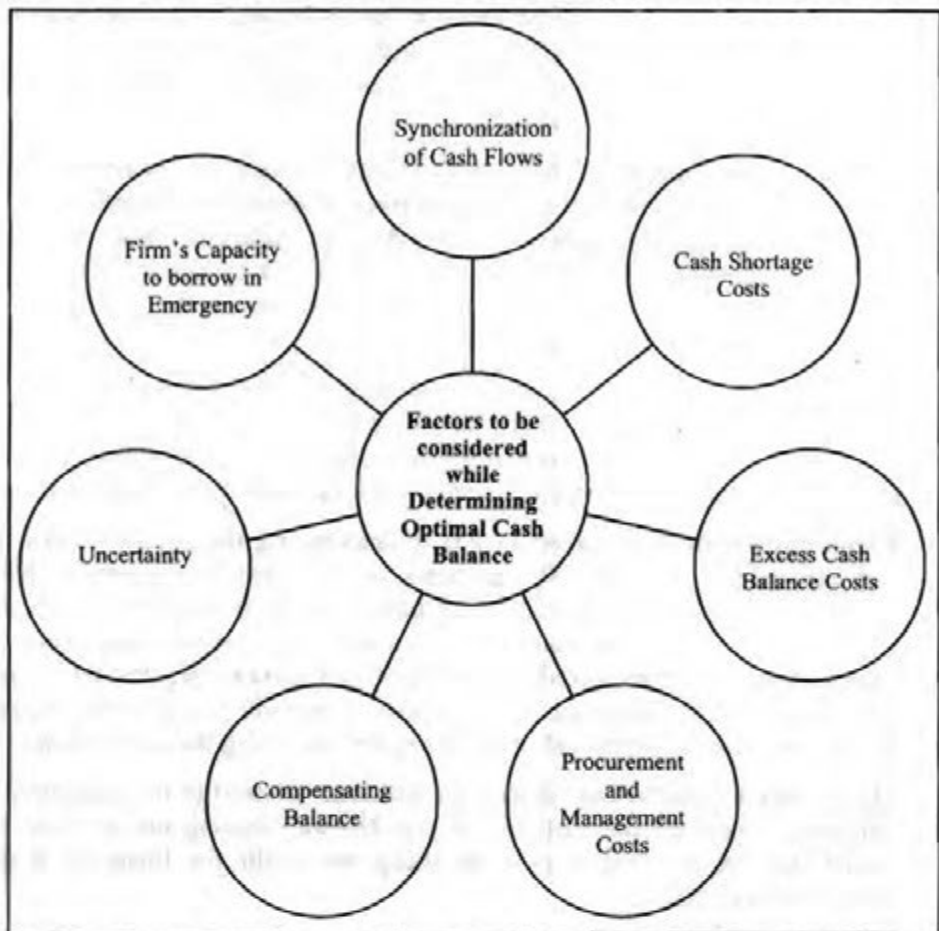
Although a surplus of cash is a luxury, yet money is costly. Moreover, proper and optimum utilization of cash always makes way for achievement of the motive of maximizing cash receipts and minimizing cash payments. At times, a concern finds itself with funds in excess of its requirement, which lay idle without bringing any return to it. At the same time, the concern finds it unwise to dispose it, as the concern shall soon need it. In such conditions, efforts should be made in investing these funds in some interest-bearing securities.

### **10.2.3 Optimal Cash Balance**

One of the important objectives of cash management is to maintain an optimum level of cash balance. Optimal cash balance means having enough cash to make payments when needed and for unexpected requirements. That is, at optimal cash balance, cost of excess cash matches with danger of cash deficiency.



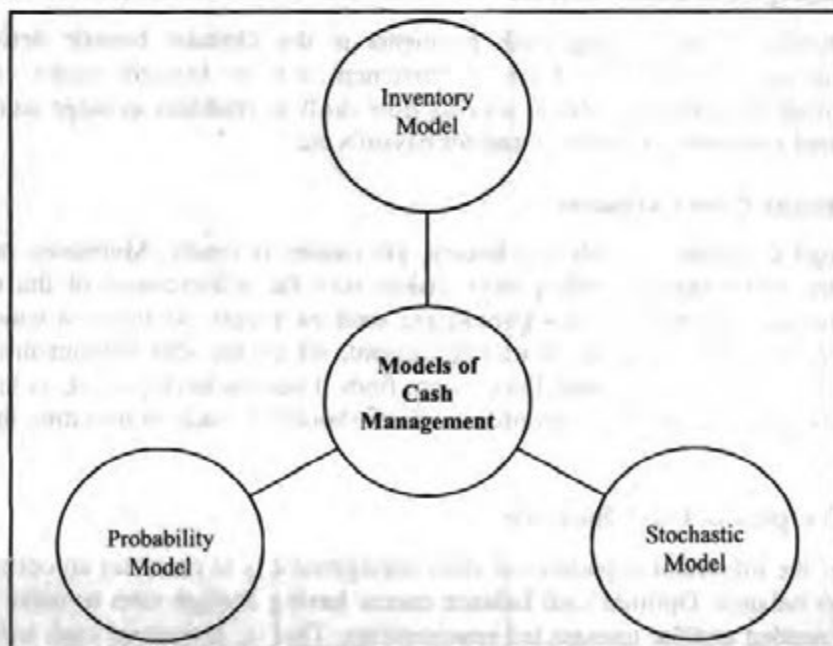
Some of the factors to be considered while determining optimal cash balance are:



**Figure 10.3: Factors to be Considered while Determining Optimal Cash Balance**

#### 10.2.4 Models of Cash Management

Cash management models determine the level of cash balance in the firm. There are three cash management models:



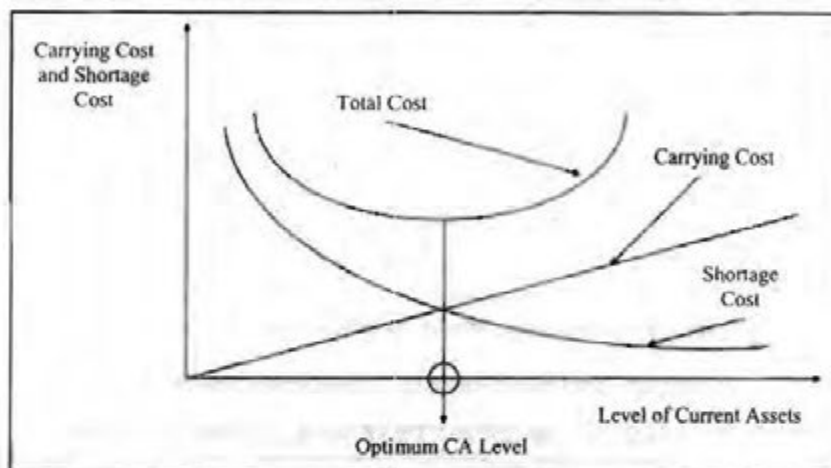
**Figure 10.4: Models of Cash Management**

### Inventory Model

The popular economic-order quantity (EOQ) formula of inventory management is used to determine the optimal level of cash balance in the firm. William Baumol applied this inventory model in cash management.

According to the EOQ model, optimum cash balance is that level of cash where sum of inventory carrying costs and the fixed costs associated with transferring marketable securities is minimum.

Below figure shows inventory model application to cash management.



**Figure 10.5: Inventory Model Application to Cash Management**

Mathematically, optimal level of cash is determined as:

$$Q = \sqrt{\frac{2CB}{K}}$$

Where,

Q = Optimum size of cash inventory

C = Average fixed cash for securing cash from market

B = Total amount of transaction demand for cash over the period of time involved

K = Cost of carrying the inventory of cash

Below are the advantages and disadvantages of inventory model:

**Table 10.1: Advantages and Disadvantages of Inventory Model**

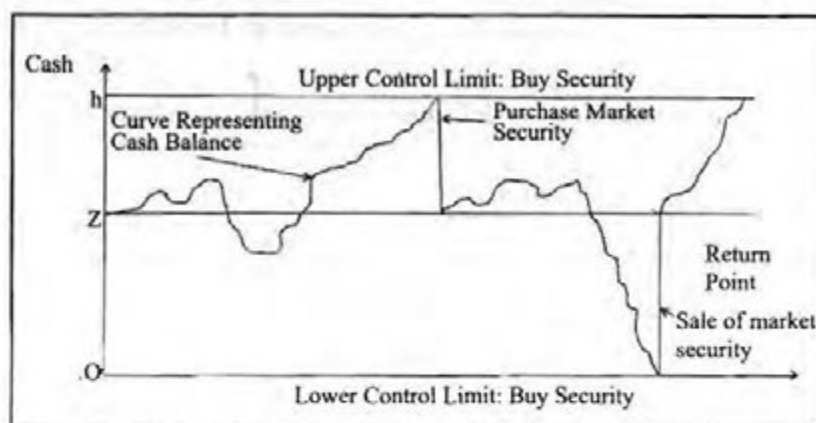
Advantages	Disadvantages
It helps finance manager to minimize costs of carrying and maintaining cash.	It is difficult to determine fixed cost associated with replenishing cash under this model.
The model shows the idle cash balance which can be employed in securities.	Model assumes a constant rate of inflow and outflow per period. However, in reality cash flows are stochastic in nature.
It alerts the firm well in advance as when to sell securities to obtain cash.	

### Stochastic Model

This model assumes that cash balances change randomly over a period of time with respect to size and direction. According to the model, there are two control limits – upper limit and lower limit.

- When the cash reaches upper limit, cash can be transferred to investment by buying securities
- When the cash reaches lower limit, part of securities in investment should be liquidated to get cash balance at normal point.

This is depicted in below image:



**Figure 10.6: Stochastic Model Application to Cash Management**

Below are the advantage and disadvantage of Stochastic model:

**Table 10.2: Advantage and Disadvantage of Stochastic Model**

Advantage	Disadvantage
It is suitable in extreme uncertain situation where inventory model fails.	The model is subject to subjectivity while estimating transfer costs, holding costs, number of transfers, expected average cash balance.

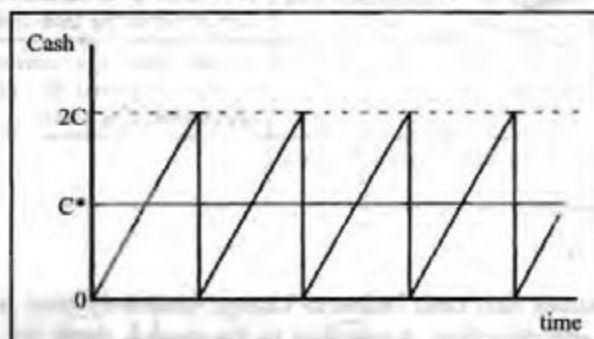
### **Probability Model**

This model of cash management was given by William Bernek. According to Bernek, cash flows are neither completely predictable nor stochastic, rather they are predictable within a range. In this model, finance manager estimates probabilistic outcomes for net cash flows on the basis of his prior knowledge and experience. Optimum level of cash balance at the beginning of the planning period is determined using probability distribution of net cash flows, cost of cash shortages, opportunity cost of holding cash balance and the transaction cost.

Mathematically,

Expected closing cash balance being less than optimum = Marginal net return per rupee of investment in securities/marginal cost of being short of cash per rupee

Cash balance behaviour under this model can be depicted as:



**Figure 10.7: Probability Model Application to Cash Management**

### 10.3 RECEIVABLES MANAGEMENT

It is not always possible for a business to sell goods on cash only. Businesses also go for credit sales to expand their sale volume. Receivables arise from credit sales. It is the amount owed to the firm due to credit sales in normal course of business. They are the claims of the firm against the customers. Thus, receivables form an important part of firm's current assets.

According to Hampton, "Receivables are asset accounts representing amount owed to the firm as a result of the sale of goods or services in the ordinary course of business". Thus, receivables are an asset and represent claims of the firms against its customers.

According to Robert N. Anthony, "Account receivables are amounts owed to the business enterprise, usually by its customers. Sometimes it is broken down into trade accounts receivables; in the former refers to amount owned by employees and others".

Receivables management is the steps and procedures required to weigh the cost and benefits attached with credit policies. Receivables management is also called accounts receivables management, trade receivables management, or customer receivables management.

Below are the objectives of receivables management:

- To maximise the return on investment in receivables
- To maximise the sales to the extent the risk involved remains within the acceptable limit
- To maintain up-to-date record
- For accurate billing
- To establish the credit policies

Benefits of receivables management are:

- Growth in sales
- Increase in profits
- Capability to face competition
- Helps to increase customer satisfaction
- Control of sales processes

### 10.4 EVALUATION OF CREDIT POLICY

Efficient receivables management begins with formulation of credit policy. A credit policy is based on four variables – credit standards, credit period, cash discount and collection effort. After formulating the credit policy, it is executed. Evaluation of credit worthiness of customer is important here. For evaluating the credit worthiness, three factors are considered:

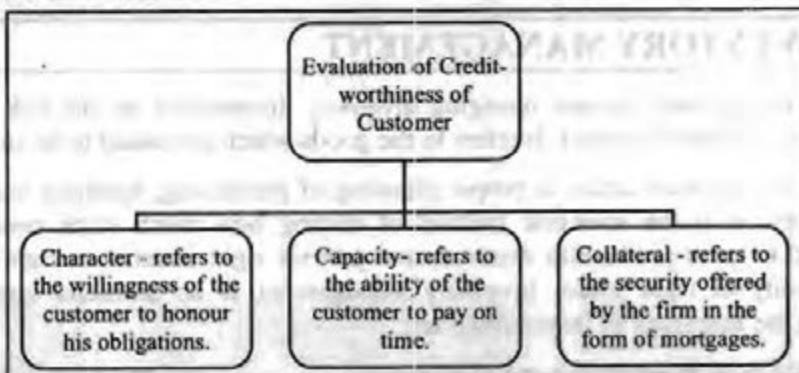


Figure 10.8: Evaluation of Creditworthiness of Customer

### 10.4.1 Credit Standard

A business has wide choices between two extreme types of credit standards. Company may decide not to grant credit at all to customers or it can decide to grant credit to all customers with respect to setting its credit standards. They are also available with two options as given below:

1. **Liberal credit standards:** These are for customers whose creditworthiness are not known or are doubtful. This type of policy is used to push sales by attracting more customers. However, these types of standards involve larger investment in receivables, higher cost of collection.
2. **Stiff credit standards:** These are for customers whose creditworthiness is tested and known. These credit standards reduce sales, reduce chances of bad debt loss, decrease the investment in receivables, and have lower collection cost.

### 10.4.2 Credit Period

Time given to the customers to pay for their purchases is known as credit period. This varies from 15 days to 60 days. When a firm does not grant any credit, the credit period is zero, for instance, if a firm allows 45 days of credit, with no discount to induce early payments, its credit terms are stated as "net 45".

Long credit period pushes up the sales and attracts more customers to purchase more. However, it requires large investment in receivables and has high chances of bad debt loss. Short credit period, on the other hand, lowers the sales, decreases investment in receivables, and reduces the incidence of bad debt loss.

### 10.4.3 Cash Discount

Businesses offer cash discounts to customers to induce them to make prompt payments. Percentage of discount and the time period for which it can be availed is specified in the credit terms. For example, credit term of 3/7, net 45 means that a discount of 3% is offered if the payment is made by the seventh day; otherwise the full payment is due by the forty-fifth day.

Liberalised cash discount policy means higher discount percentage and longer discount period which increases sales, reduces the average collection period and increases the cost of discount.

### 10.4.4 Collection Effort

Collection effort includes monitoring the state of receivables, dispatching the letters to customers, telegraphic and telephonic advice to customers and legal procedure against overdue accounts. Company has various options to collect its dues – post-dated cheques, bank drafts, bills of exchange, and pay orders.

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## 10.5 INVENTORY MANAGEMENT

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Inventory management means managing inventory. Inventories are the link between production and sale of product. It refers to the goods which are meant to be sold.

Inventory management refers to proper planning of purchasing, handling and storing of inventory. It is the scientific method of finding how much stock needs to be maintained to meet production demands and provide right material at right time, in right quantity at right place. Inventory management is an umbrella term which designates the aggregate of items which are:

- Held for sales in normal course of business.



- In the process of production for sale.
- Currently produced in production of good and services available for sale.

There are two main objectives of inventory management:

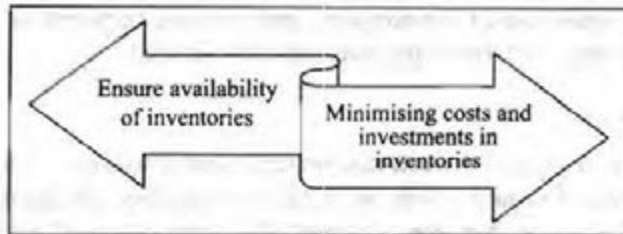


Figure 10.9: Evaluation of Creditworthiness of Customer

1. **Ensure Availability of Inventories:** The primary objective of inventory management is to ensure regular availability of inventories as per the requirement. It is important to maintain inventory in right quantity because both shortage and surplus of inventories is very costly for the business. In case of shortage of inventories, manufacturing process can come to halt resulting in less or no production which can lead to less sales, less revenue and less profit. Surplus inventories mean stock lying idle implying cash blocked in inventories. Had it been the money blocked in inventories invested somewhere else in business, it would have earned some return to the organization.
2. **Minimising Costs and Investments in Inventories:** By ensuring required volume of inventory in firm, it is possible to minimise both cost and volume of investment in inventory. This way, cash is not held in the idle inventories and can be invested elsewhere in the business to earn return. Also, it will reduce carrying cost thereby increasing profits.

### 10.5.1 Nature of Inventories

As mentioned above, inventories are goods held in businesses for sale in future point of time. Inventories are goods having economic value and are packed, processed and transformed for future consumption and sale. Inventories can take various forms:

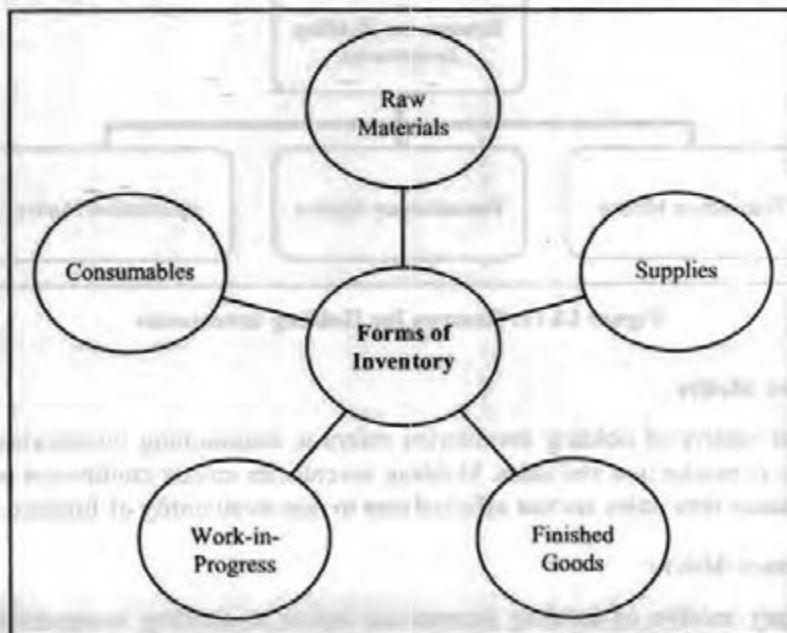


Figure 10.10: Forms of Inventory

### **Raw Materials**

Raw materials are basic inputs that are converted into finished products through manufacturing process. These goods are purchased and stored for future production. These goods are not yet committed to production at all. The quantity of raw material required depends upon rate of consumption and the time required for replenishing the supplies. For example, fuel, bolts and nuts are raw materials.

### **Work-in-Progress**

They are the stage of goods between raw material and finished goods. Therefore these are also called semi-finished goods or semi-manufactured products. Raw materials that enter the production but are not converted into finished goods are work-in-progress goods. The quantity of WIP goods required depends upon the time taken in the manufacturing process.

### **Consumables**

These goods are required to smooth the production process. These goods act as a catalyst in production process.

### **Finished Goods**

These are the complete goods which are available for sale to consumers. The stock of finished goods provide buffer between production and sale.

### **Supplies**

Goods which are not directly committed to production, but are necessary for production and do not involve any significant investment are called supplies. For example—office and plant cleaning material.

## **10.5.2 Reasons for Holding Inventories**

Although it is expensive to hold inventories, still businesses hold inventories because of below reasons:



**Figure 10.11: Reasons for Holding Inventories**

### **Transaction Motive**

Transaction motive of holding inventories refers to maintaining inventories to avoid bottlenecks in production and sales. Holding inventories ensure continuous production and at the same time sales are not affected due to non-availability of finished goods.

### **Precautionary Motive**

Precautionary motive of holding inventories refers to holding inventories to meet unpredicted business changes. For example, there may be a sudden and unexpected change in demand and supplies of materials.

### ***Speculative Motive***

Speculative motive of holding inventories refers to holding inventories to take the advantages of price fluctuations or quantity discounts. For example, if the prices of raw materials rise sharply, the business would prefer to hold inventories.

## **10.5.3 Risk and Costs of Holding Inventors**

The various costs and risks involved in holding inventories are given below:

### ***Capital Costs***

Maintaining inventories means blocking firm's financial resources. Thus, firm has to arrange for additional funds to meet the cost of inventories. This is known as capital cost. These additional funds can be arranged from own resources or from outsiders.

### ***Cost of Ordering***

The costs of ordering include the cost of acquisition of inventories. It is the cost of preparation and execution of an order, including cost of paper work and communicating with supplier. The total annual cost of ordering is equal to cost per order multiplied by the number of order placed in a year.

### ***Cost of Stock-outs***

A stock out is a situation when the firm does not have inventory in store but there is demand from the customers or the production department. Cost of stock out means firm faces a situation of lost sales or back orders.

### ***Storage and Handling Costs***

Holding inventories includes storage as well as handling of materials costs. The storage costs include the rental of the godown, insurance charge etc.

### ***Risk of Price Decline***

There is always a risk of reduction in the prices of inventories by the suppliers in holding inventories. This may be due to increased market supplies, competition or general depression in the market.

### ***Risk of Obsolescence***

The inventories may become obsolete due to improved technology, changes in requirements, change in customer's tastes etc.

### ***Risk Deterioration in Quality***

The quality of the materials may also deteriorate while the inventories are kept in stores.

### 10.5.4 Inventory Management Techniques

An effective inventory management requires an effective inventory control mechanism. Various inventory management techniques are available to help in efficient inventory management. They are as follows:

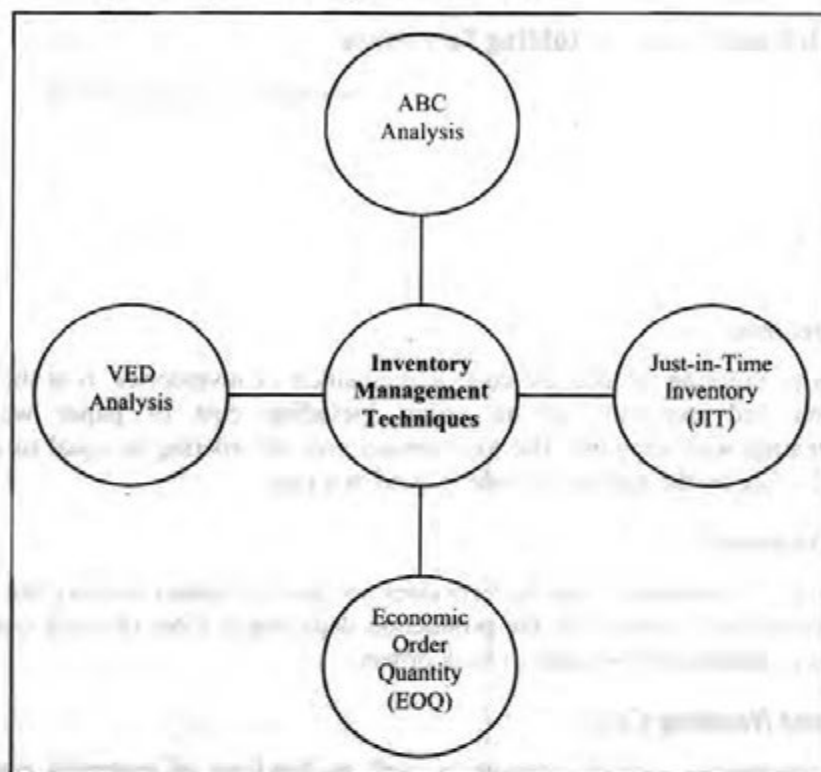


Figure 10.12: Inventory Management Techniques

#### *ABC Analysis*

ABC stands for Always Better Control technique. In this inventory management technique, inventories are classified into three categories – A, B and C.

1. **A category inventory:** It consists of high-priced inventory which are less in number but are expensive.
2. **B category inventory:** It consists of relatively lesser-expensive inventory with moderate in number.
3. **C category inventory:** It consists of high number of inventory items which require lesser investments.

#### *Just-in-Time Inventory (JIT)*

Under JIT technique, business holds only that much inventory as required during the production process. That is, businesses do not hold excessive inventory and thereby saves storage cost and insurance. The business orders next stock only when old stock is close to replenishment. JIT is a risky technique of inventory management because any delay in ordering new stock can lead to stock out situation.

#### *Economic Order Quantity (EOQ)*

EOQ technique puts emphasis on two important questions - how much quantity of inventory should the company order at any point of time and when should they place the order. EOQ is that quantity of stock which is purchased at minimum costs. It is the point at which inventory carrying cost and ordering cost are equal.

- Carrying cost is the cost of holding inventory. It includes cost of capital invested in inventories, cost of storage, insurance cost, cost of spoilage in handling of materials.
- Ordering cost is the cost of purchasing materials. It includes inspection costs of incoming materials, cost of stationery, typing, postage, telephone charges, expenses incurred on transportation of goods purchased.

EOQ is calculated as:

$$EOQ = \sqrt{\frac{2 \times D \times S}{H}}$$

Where,

D = Annual Demand

S = Cost Per Order

H = Holding Cost = I × C

I = Inventory Carrying Cost

C = Cost Per Unit

### VED Analysis

This technique of inventory management is used for spare parts. According to this technique, spare parts are classified as Vital (V), Essential (E) and Desirable (D).

- Vital spares are a necessary for smooth running of the business and must be stored adequately. The non-availability of vital spares is an issue for the business.
- Essential spares are also necessary but they are required in less number.
- Desirable spares may be avoided at times.

### Check Your Progress

Fill in the blanks:

1. \_\_\_\_\_ motive refers to holding cash to meet day to day transactions of business.
2. \_\_\_\_\_ model assumes that cash balances change randomly over a period of time with respect to size and direction.
3. \_\_\_\_\_ model assumes that cash flows are predictable within a range.
4. Inventory term comprises of \_\_\_\_\_.
5. In VED analysis, E stands for \_\_\_\_\_.

## 10.6 LET US SUM UP

- Cash management means managing cash and keep it flowing in right direction.
- Receivable management refers to the sum of all monies owed to the firm by customers arising from sale of goods in the normal course of business.
- Inventory refers to raw material, work in progress and finished goods. Inventory management refers to management of level of these components.



- Two most important techniques of inventory management are ABC Analysis and Economic Order Quantity (EOQ).

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## 10.7 UNIT END ACTIVITY

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Identify how the inventory management of a retail store takes place. Also, determine the problems retailer faced while managing their inventories. Prepare a report on the same.

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## 10.8 KEYWORDS

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**Lockouts:** It means temporary shutdown of the factory by the employer, but not winding up of the factory.

**Transaction Motive:** It refers to holding cash to most day to day transactions of business.

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## 10.9 QUESTIONS FOR DISCUSSION

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1. Explain the meaning of cash management.
2. Elaborate the motives of holding cash.
3. Explain the concept of optimal cash balance.
4. Discuss the different models of cash management.
5. Elaborate the receivables management.
6. Explain how evaluation of credit policy is performed.
7. Discuss the meaning of inventory management.
8. Describe the different types of inventories.
9. Explain the reasons for holding inventories.
10. Describe the techniques of inventory management.

### Check Your Progress: Model Answer

1. Transaction
2. Stochastic
3. Probability
4. Raw material + Work-in-progress + Finished goods + Spare parts
5. Essential

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## 10.10 REFERENCES / SUGGESTED READINGS

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