



VELS



INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)
(Deemed to be University Estd. u/s 3 of the UGC Act, 1956)
PALLAVARAM - CHENNAI

DCMBA-22

Financial Management



MBA
ODL MODE
(Semester Pattern)

School of Management Studies and Commerce

Centre for Distance and Online Education

Vels Institute of Science, Technology and Advanced Studies (VISTAS)

Pallavaram, Chennai - 600117

**Vels Institute of Science, Technology
and Advanced Studies**

Centre for Distance and Online Education

Master of Business Administration (MBA)
ODL Mode
(Semester Pattern)

DCMBA-22: Financial Management
(4 Credits)

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FOREWORD



Dr. Ishari K Ganesh
Chancellor

Vels Institute of Science, Technology and Advanced Studies (VISTAS), deemed to be a University, was established in 2008 under section 3 of the Act of 1956 of the University Grants Commission, Government of India, New Delhi.

VISTAS has blossomed into a multi-disciplinary Institute offering more than 100 UG & PG Programmes, besides Doctoral Programmes, through 18 Schools and 46 Departments. All the Programmes have the approval of the relevant Statutory Regulating Authorities such as UGC, UGC-DEB, AICTE, PCI, BCI, NCTE and DGS.

The deemed to be University aims to provide innovative syllabi and industry-oriented courses, and hence, the revision of curricula is a continuous and ongoing process. The revision is initiated by the faculty depending on the requirement and approved by the Board of Studies of the concerned Department/School. The courses are under Choice Based Credit Systems that enable students to get adequate freedom in choosing subjects.

I am pleased to inform you that VISTAS has been rendering its services to society to democratize the opportunities of higher education for those who are in need through Open and Distance Learning (ODL) mode.

VISTAS ODL Programmes offered have been approved by the University Grants Commission (UGC) – Distance Education Bureau (DEB), New Delhi.

The curriculum and syllabi have been approved by the Board of Studies, Academic Council, and the Executive Committee of the VISTAS, and they are designed to help provide employment opportunities to the students.

The ODL Programme MBA study material have been prepared in the Self Instructional Mode (SIM) format as per the UGC-DEB (ODL & OL) Regulations 2020. It is highly helpful to the students, faculties and other professionals. It gives me immense pleasure to bring out the ODL programme with a noble cause of enriching learners' knowledge. I extend my congratulations and appreciation to the Programme Coordinator and the entire team for bringing up the ODL Programme in an elegant manner.

At this juncture, I am glad to announce that the syllabus of this ODL Programme has been made available on our website, www.vistas.ac.in, for the benefit of the student fraternity and other knowledge seekers. I wish that this Self Learning Materials (SLM) would be a nice treatise to the academic community and everyone.

CHANCELLOR

FOREWORD



Dr.S.Sriman Narayanan
Vice-Chancellor

My Dear Students!

Open and Distance Learning (ODL) of VISTAS gives you the flexibility to acquire a University degree without the need to visit the campus often. VISTAS-CDOE involves the creation of an educational experience of qualitative value for the learner that is best suited to the needs outside the classroom. My wholehearted congratulations and delightful greetings to all those who have availed themselves of the wonderful leveraged opportunity of pursuing higher education through this Open and Distance Learning Programme.

Across the world, pursuing higher education through Open and Distance Learning Systems is on the rise. In India, distance education constitutes a considerable portion of the total enrollment in higher education, and innovative approaches and programmes are needed to improve it further, comparable to Western countries where close to 50% of students are enrolled in higher education through ODL systems.

Recent advancements in information and communications technologies, as well as digital teaching and e-learning, provide an opportunity for non-traditional learners who are at a disadvantage in the conventional system due to age, occupation, and social background to upgrade their skills.

VISTAS has a noble intent to take higher education closer to the oppressed, underprivileged women and the rural folk to whom higher education has remained a dream for a long time.

I assure you all that the Vels Institute of Science, Technology and Advanced Studies would extend all possible support to every registered student of this deemed to be university to pursue her/his education without any constraints. We will facilitate an excellent ambience for your pleasant learning and satisfy your learning needs through our professionally designed curriculum, providing Open Educational Resources, continuous mentoring and assessments by faculty members through interactive counselling sessions.

This University brings to reality the dreams of the great poet of modern times, Mahakavi Bharathi, who envisioned that all our citizens be offered education so that the globe grows and advances forever.

I hope that you achieve all your dreams, aspirations, and goals by associating yourself with our ODL System for never-ending continuous learning.

With warm regards,

VICE-CHANCELLOR

Course Introduction

This Course **DCMBA-22: Financial Management** can provide you with the comprehensive understanding of sound financial management that is necessary for running a company. The most effective ways to make, keep, and spend money in a business setting can all be covered in standard coursework. The emphasis of this programme will probably be on regulation, taxation, reporting, and operation and control mechanisms

Block-1: Financial Management – Meaning and Scope

This Block covers the organizational structure of the finance section as well as the significance of financial management. There is a thorough discussion of the different financial projection techniques. The definition, goals, and application of financial management are addressed. The different financial management decision-making areas and the responsibilities of the finance manager will be covered.

Block-2: Capital Budgeting Decisions - This Block discusses in depth the various methods for evaluating capital budgets. To ascertain whether a capital expenditure is economically feasible, a number of capital budgeting analysis techniques can be used. There are several of them, including the Payback Period, Discounted Payment Period, Net Present Value, Profitability Index, Internal Rate of Return, and Internal Rate of Return.

Block-3: Source of Finance, Cost of Capital and Leverage - An overview of the different sources of funding for both starting and operating a business is given in this Block. Additionally, it discusses the benefits and drawbacks of different sources while highlighting the elements that influence the decision of what source of business financing is most appropriate. It is crucial for anyone looking to launch a company to be aware of the various funding options available. In order to select the best source, it is crucial to understand the respective merits and shortcomings of various sources

.Block-4: Dividend Decisions and Financing Decisions - This Block includes an introduction to leverage as well as discussions of the different kinds of leverage as well as the definition and types of dividends. The numerous variables that affect dividend policy are also explained, along with its goals and practical implications. There is an explanation of the different dividend policy types and dividend types. This chapter also covers ideas such as bonus shares, stock splits, and share buybacks as well as dividend-related issues the different dividend models and strategies are also discussed.

Block-5: Liquidity Decisions –The goals, significance, and makeup of capital structures are covered in this Block. This course covers the capital structure framework's characteristics, presumptions, patterns, and determinants. Additionally described along with the theories of capital structure are the indifference point and capital gearing. This Course has been divided into 15-Units.

DCMBA-22: Financial Management

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Block-1: Introduction

Block-1: Financial Management – Meaning and Scope has been divided in to three Units.

Unit-1: Nature of Financial Management deals with **Meaning** of Financial Management, Objectives of Financial Management, Scope of Financial Management, Decision Areas of Financial Management, Functions of Finance Manager, and Organization of the Finance Function, Importance of Financial Management and Financial Forecasting.

Unit-2: Financial System explains about the Introduction to Indian Financial System, Components of Financial System, Financial Institutions and Financial Intermediaries, Classification of Financial Markets, and Financial Services and Economic Development.

Unit-3: Time Value of Money and Financial Planning discuss with **Introduction**, Present Value of Money, and Future Value of Money, Reasons for Time Value of Money, Features of Financial Planning, Objectives of Financial Planning, Importance of Financial Planning and Types of Capitalization.

In all the units of Block -1 **Financial Management – Meaning and Scope**, the Check your progress, Glossary, Answers to Check your progress and Suggested Reading has been provided and the Learners are expected to attempt all the Check your progress as part of study.

Nature of Financial Management

STRUCTURE

Overview

Objectives

1.1. Meaning of Financial Management

1.2. Objectives of Financial Management

1.3. Scope of Financial Management

1.4. Decision Areas of Financial Management

1.5. Functions of Finance Manager

1.6. Organization of the Finance Function

1.7. Importance of Financial Management

1.8. Financial Forecasting

Let Us Sum Up

Check Your Progress

Glossary

Answers to Check Your Progress

Suggested Readings

Overview

In this Unit, the meaning, objectives, and scope of financial management is discussed. The various decision areas of financial management and functions of finance manager will be discussed. Organization structure of finance department as well as importance of financial management is covered in this Unit. The various financial forecasting methods are discussed in detail.

Objectives

After studying this unit, you should be able to:

- Able to understand the fundamental so finance
- Know the functions and objectives of an organisation
- Understand financial hierarchy of an organisation

1.1. Meaning of Financial Management

Financial management is mainly concerned with the managerial process of planning and controlling the financial resources of an organization. Traditionally financial management is considered as collection of funds for the business. But the modern perspective, it is not only collection of funds but it is mainly focused on proper utilization of funds raised. In present scenario it is concerned about analysis and interpretation of data for taking various managerial decisions.

According to Massie” Financial management is the operational activity of a business that is responsible for obtaining and effectively utilizing the funds necessary for efficient operations.”- In other words financial management refers to the activities, “related with the forecasting, raising, monitoring and managing of funds used in the business.” It is also related with the obtaining and deployment of funds in the appropriate manner.

The various functions of financial management are

- Fundraising
- Working capital management
- Capital budgeting,
- Capital structure of an organization.

It also comprises of monitoring and safeguarding the financial assets of an organization apart from it also defines the future tactics associated with development, expansion, joint venture, and mergers and acquisitions.

1.2. Objectives of Financial Management

The main objectives of financial management are Profit maximization and Wealth maximization

There can be some more objectives of financial management are given below

- a. To guarantee regular and adequate supply of funds.
- b. To make sure sufficient returns.
- c. To confirm optimal funds deployment.
- d. To ensures protection on investment.
- e. To design an effective capital structure and soon.

Profit Maximization:

The main Objective of financial management of a company is to earn profit. The profit of an organization is computed as follow as

$$\text{Profit} = \text{Total revenue (sales)} - \text{Total cost}$$

It is a universally accepted that a business firm aims at earning profits. More than that, the amount of profit earned by the company is regarded as a vital measure of its success. One of the assumptions of economic theory is the firm always aims at maximizing profits. But this assumption does not always hold true because, in practice, firms objective is not always try to maximize profits and their main focus is shareholders wealth maximization

Hence, it's clear that profit maximization also cannot be the only objective of a company. It is a narrow objective. If profit is alone given more importance due to following reasons. The term profit is vague and it involves much more inconsistency. Profit maximization might lead to inequality of income and wealth.

- **It is vague and non operational.** Does it mean short term or long term profits? Does it refer to profit before or after tax? Total profit or profit per share? Does it mean total operating profit or profit occurring to shareholders?
- **It ignores timing of returns.** It does not make distinction between returns received in different time periods, gives no consideration to time value of money and value benefits received to-day and benefits received after a period as the same.
- **It ignores risk.** The streams of benefits may possess different degree of certainty. Two firms may have same total expected earnings of one firm fluctuate considerably as compared to others, it will be more risky. Possibly, owners of the firm would prefer smaller but surer profits to a potentially larger but less certain stream of benefits.
- **Conflict between Short Run and Long Run Profits.** Profit in the short run may be quite different from the profit in the long run. For instance, enterprise continues to operate a machine without proper maintenance, it may it may increase its profit in the short run by lowering maintenance expenditure. But the enterprise will have to pay a heavy price in future when the machine will become a junk because of neglect and lack of proper maintenance

Wealth Maximization

It is generally accepted that the objective of a firm is to maximize value or wealth. The Value of a firm is expressed by the market price of the company's common stock. The market price of a firm's stock characterized the important in tuition of all market participants as to what the value of the particular firm is. It takes in to account present and prospective future earnings per share, the timing and risk of these earning, the dividend policy of the firm and many other factors that bear upon the market price of the stock. Market price acts as the performance index or report card of the firm's progress. Prices in the share markets are largely affected by many factors like general economic outlook, outlook of particular company, technical factors and even mass psychology.

It is important to understand and take a decision as to how the maximization of shareholders wealth to be measured. When business managers try to maximize the wealth of their firm, they are actually trying to increase the company's stock price. As the stock price increases, the value of the firm increases, as well as the shareholders' wealth.

Shareholders' Wealth Maximization (SWM) represents

Net present value = Present value of benefits- Present value of cost

The financial decision which has a positive Net present value results wealth for shareholders and, therefore, it is advocated. A financial decision resulting in negative Net present value should be rejected since it would damage shareholders' wealth. Between mutually exclusive projects the one with the highest Net present value should be adopted.

Two important issues are related to the share price maximization

- **Economic Value Added**
- **Focus on Stake Holders Economic Value Added (EVA)**

The Economic Value Added (EVA) is a measure of surplus value created on an investment.

EVA can be measured as

Net Operating Profit after Taxes (NOPAT)- cost of capital
--

(OR)

EVA = (Return on Capital – Cost of Capital) (Capital Invested in Project)
--

EVA is a measure of rupee surplus value, not the percentage difference in returns.

- It is closest in both theory and construct to then represent value of a project in capital budgeting, as opposed to the IRR

Focus on Stakeholder

Stakeholder refers to any party that has directly or indirectly share or an interest in an organization. Stakeholders of a company include stockholders, directors, management bondholders, customers, suppliers, government, employees, and the community .The intrinsic or extrinsic worth of a business measured by a combination of financial success, usefulness to society, and satisfaction of employees.

Example so commons take holders and their interest

1. Owners private/shareholders	- Profit, Performance, Direction
2. Government	- Taxation, VAT, Legislation
3. Senior Management staff	- Performance, Targets
4. Non - Managerial staff	- Rates of pay, Job security
5. Trade Unions	- Working conditions, Minimum wage
6. Customers	- Value, Quality, Customer Care
7. Creditors	- Credit score, new contracts, Liquidity
8. Local Community	- Jobs, Involvement, Environmental issues,

Other measures of share holder value (market capitalization of a company)

- **Added Value**
- **Market value added**
- **Total Shareholder Return Added value**

It is used as a measure of shareholder value. Added Value can also be defined as the difference between a particular product's final selling price and the direct and indirect input used in making that particular product.

The difference is profit for the firm and its shareholders after all the costs and taxes owed by the business have been paid for that financial year. Value

added or any related measure may help investors decide if this business that is worthwhile investing on or that there are other and better opportunities (fixed deposits, debentures)

Added Value can be calculated using the following formula:

$$\text{Added Value} = \text{Sales (Purchases + Labor Costs + Capital Costs)}$$

Market Value Added (MVA)

It is the difference between the current market value of a firm and the capital contributed by investors. If MVA is positive, the firm has added value. If it is negative, the firm has destroyed value. The amount of value added needs to be greater than the firm's investors could have achieved in vesting in the market port folio, adjusted for the leverage (beta coefficient-) of the firm relative to the market.

The formula for Market value added (MVA)

MVA = Market Value of Shares – Book Value of Share holders' Equity

MVA is the present value of a series of Economic value added values. MVA is economically equivalent to the traditional NPV measure of worth for evaluating an after-tax cash flow profile of a project if the cost of capital is used for discounting

Beta co efficient

It is a measure of volatility of a stock or portfolio in relation to the rest of the market. An asset with a beta of 0 means that its price is not at all correlated with the market; that asset is independent. A positive beta means that the asset generally follows the market. A negative beta shows that the asset inversely follows the market the asset generally decreases in value if the market goes up...

Total Share holder Return (TSR)

The total returns that an investor receives for one or more securities held. In the case of stock, this

includes capital gains from increases in stock price as well as dividends issued

$$\text{TSR} = (\text{Price end} - \text{Price begin} + \text{Dividends}) / \text{Price begin}$$

1. The total return of a stock to an investor (capital gain plus dividends).
2. The internal rate of return of all cash flows to an investor during the holding period of an investment

Profit maximization versus wealth maximization:

Profit maximization does not take the concepts of risk and reward into account as shareholder maximization does. The goal of profit maximization is, at best, a short-term goal of financial management. The objective of profit maximization measures the performance of a firm by looking at its total profit. It does not consider the risk which the firm may undertake in maximization of the profits. The profit maximization, as an objective does not consider the effect of earnings per share, dividends paid or any other return to shareholders on the wealth of the shareholders.

On the other hand, the objective of maximization of shareholders wealth considers all future cash flows, dividends, earnings per share, risk of a decision etc. so the objective of maximization of the share holder's wealth is operational and objective in its approach.

A firm that wishes to maximize the profits may opt to pay no dividend and to reinvest there tained earnings, whereas a firm that wishes to maximize the shareholders wealth may pay regular dividends.

The shareholders would certainly prefer an increase in wealth against the generation of increasing flow of profits to the firm. Moreover, the market price of a share, theoretically speaking, explicitly reflect the shareholders expected return, considers the long term prospects of the firm, reflects the differences in timing of the returns, considers risk and recognizes the importance of distribution of returns.

There fore, the maximization of shareholders wealth as reflected in the market price of a share is viewed as a proper goal of financial management. **The profit maximization can be considered as a part of the wealth maximization strategy**, but should never be permitted to over shadow the latter. Throughout the life of the firm the objective of maximization of shareholders wealth has been taken as the primary goal of financial decisions making.

1.3. Scope of Financial Management

The scope of finance function is very extensive. While accounting is concerned with the routine type of work, it is related to financial planning, policy formulation and control. According to Earnest W. Walker the financial function has always been important in business management. The financial organization depends upon the nature of the organization – whether it is a proprietary origination, a partnership firm or corporate body. The importance of the finance function depends on the nature and size of a business firm. The role of different finance officers must be lucidly defined to evade conflicts and the overlapping of responsibilities.

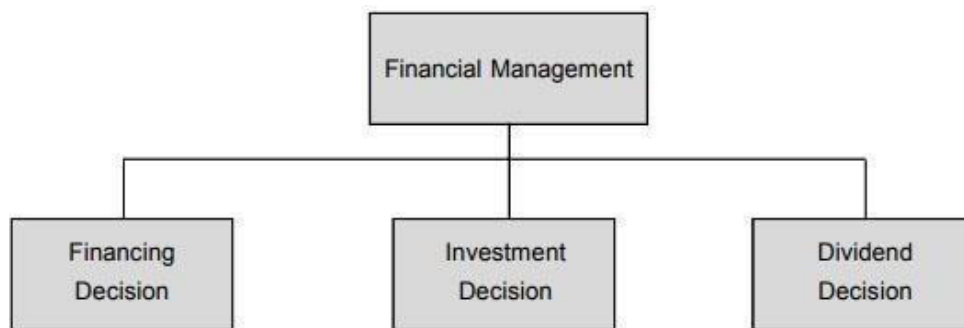


Fig. 1 - The scope of Financial Management

The operational function so finance include:

- Financial planning
- Deciding the capital structure
- Selection of source of finance
- Selection of pattern of investment

Financing a business involves multiple short-term and long-term decisions which by itself widen the scope of financial management. Short-term financial decisions primarily relate today-to-day capital needs of the business firm or managing working capital.

1.4. Decision areas of financial management

The important decisions of the financial manager are discussed below

1. Financing Decisions:

Financing decisions of the firm deals with the financing mix or the financial

structure of an organization. Financing a company requires important decisions related to methods and sources of finance, relative proportion and choice between alternative sources, time of floatation of securities, etc. The Investment needs of an organization can be met by various sources of funds. It is the job of the finance manager to formulate the optimum c finance structure for an organization which involves minimum cost for raising the funds and maximizes the long-term market prices of the company's shares.

Similarly, strike a balance between debt and equity has to be maintained while financing so that an adequate return on equity is earned with minimum risk. Both the returns and risk of equity capital is affected by the use of debt financing or financial leverage.

In order to maximize the per equity share value of a company's capital, the financial manager is dependable to take the best possible decisions related to the methods of issuing securities and the time to raise funds for the company.

2. Investment Decision:

A forthcoming investment to be made by any firm must be appraised in terms of risk involved, cost of capital involved and returns expected from it. Hence, the two major components of investment decision are capital budgeting and liquidity. Capital budgeting, in simple terms explained as the one associated to capital deployment and guarantee of funds in fixed assets which would yield earnings in future.

It also takes into account the decisions related to replacement and renovation of old assets. One of the major responsibilities of a finance manager is to strike a balance between fixed and current assets so as to maximize the profitability along with maintaining the desired degree of liquidity for the unit.

3. Dividend Decision:

There has to be a suitable, well thought dividend policy for a firm in case it wants to maximize on its wealth. One of the major decisions while formulating an appropriate dividend policy is to choose between the two alternatives – one, distribute all the profits among shareholders or else to retain a part of profits and distribute the rest as dividends.

The finance manager is also anticipated to study several opportunities available for investing in order to have additional growth and expansion while deciding upon the dividend payout ratio. The dividend pay out ratio is the proportion of net profits to be paid out to share holders as profits. Besides this,

other concerns that are borne in mind of a finance manager are dividend stability; forms of dividends i.e., cash dividends or stock dividends, etc.

4. Working Capital Decisions:

These decisions relate to working capital needs of the firm i.e. current assets and current liabilities of the unit. Working capital refers to difference between current assets and current liabilities. While current assets comprises of cash, receivables, inventory, short-term securities, etc.; current liabilities consist of creditors, bills payable, outstanding expenses, bank overdrafts, etc. The current assets and liabilities also refer to all those assets and liabilities which have their maturity period of within an accounting year or repayable within a year.

1.5. Functions of Finance Manager

The Financial managers commonly administer the financial strength of an organization the important role is to support, its persistent sustainability and safeguards of firm's assets. They also perform significant functions, such as monitoring cash flow, determining profitability, handling expenses and creating accurate financial information.

Estimation of Fund requirements:

A finance manager has to make estimation with regards to capital requirements of the company. This will depend upon expected costs and profits of future programmes and policies of the concern. Estimation have to be made in an adequate manner which increases earning capacity of enterprise.

Determination of capital Mix

This involves short- term and long- term debt equity analysis. This will depend upon the proportion of equity capital a company is possessing and additional funds which have to be raised from outside parties.

Optimal of sources of funds:

For additional funds to be procured, a company has many choices like issue of shares and debentures b. Loans to be taken from banks and financial institutions. Public deposits to be drawn like in form of bonds. Choice of factor will depend on relative merits and demerits of each source and period of financing.

Investment of funds:

The finance manager has to decide to allocate funds into profitable ventures so that there is safety on investment and regular returns is possible.

Disposal of surplus:

The netprofits decision shave to be made by the finance manager. This can be done intwoways:

- a) Dividend declaration – Itcom prise of identifying the rate of dividends and other benefits like bonus.
- b) Retainedearnings – The volume has tobe decided which will depend upon Expansion, innovational, diversification plans of the company.

Management of cash: Finance manager has to make decisions with regards to cash Management. Cash is required for many purposes like payment of wages and salaries, payment of electricity and water bills, payment to creditors, meeting current liabilities, Maintenance of enough stock, purchase of raw materials, etc.

Financial controls: The finance manager has notonly toplan, procureandutilizethefundsbut he also has to exercise control over finances. This can be done through many techniques like ratio analysis, financial forecasting, cost and profit control, etc.

The other important Role of a Financial Manager

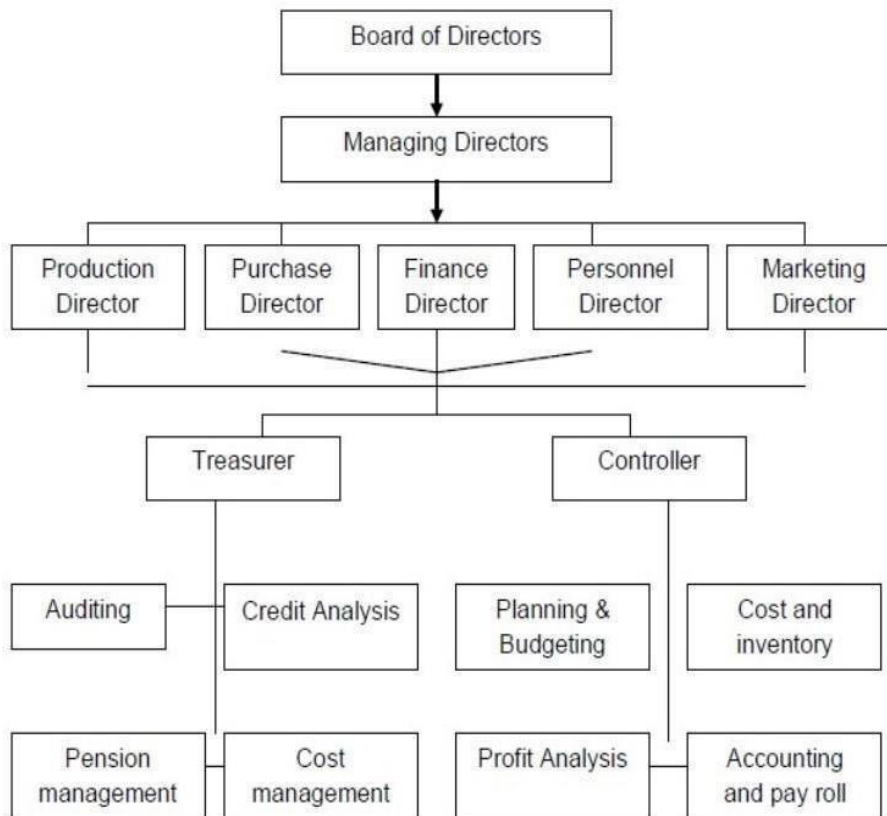
Financial activities of a firm is one of the most important and complex activities of a firm. Therefore, inorder to take care of the seactivities a financial manager performs all the requisite financial activities. A financial manager is a person who takes care of all the important financial functions of an organization. The person in charge should maintain a farsightedness in order to ensure that the funds are utilized in the most efficient manner. His actions directly affect the Profitability, growth and goodwill of the firm.

1.6. Organisation of the Finance Function

Currently, finance function has gained the status of a science and an art. Finance function reachingsignificance in the overall functions of an organization. The crucial responsibility of discharging the finance function lies with the top management. Though, organization of finance function differs from firm to firm subject to their own requirements. In several organizationsone can note diverse layers between the finance executives such as Assistant Manager (Finance), Deputy Manager (Finance) and

General Manager (Finance). The designations given to the executives are different. The general organization of finance function are described below

Organization of Finance Function



1.7. Importance of Financial Management

Currently there is essential to provide significance of financial management in modern business to realize objective related to finance of a firm. Finance is essentially that depth outof organization association financial management is important for various reasons.

- Helps organizations in financial planning and acquisition of funds;
- Aids organizations to effectively utilize and allocate the funds received or acquired;
- Support so rganisations in making critical financial decisions;
- Helps in improving the profitability of organisations;
- Increases the over all value of organisations;
- Provides economic stability.

1.8. Financial Forecasting

Financial forecasting refers to the process of estimating or predicting how a firm will achieve in the future. Forecasting is determining what is going to happen in the future by analyzing what happened in the past and what is happening now. It's a planning tool that helps businesses adapt to uncertainty based on predicted demand for goods or services.

Financial forecasting is a financial plan that estimates the projected income and projected expenses of a business, and a concrete financial forecast comprises of both macro economic factors and conditions that are particular to the business. A detailed forecast comprises of not limited to shortites pecially focus on long-term outlooks on conditions that could impact revenues and contingencies for expenditures not currently viewed as necessary.

Need for Financial Forecasting

- Serve as the foundation for budgeting decisions;
- Indicate investors and creditors that organization have a plan and is prepared for unanticipated events that may influence revenues and budgets;
- Offer aindicator for those making material financial decisions;
- Guaranteethatan organization is prepared for the best- and worst-casescenarios;
- Create controls and raiseawareness of a broad range of internal and external variables that can have short- and long-term impacts;
- Assist business leaders from being blindsided by events that could affectper formance;
- Formulate businesses for increases in demand for their goods and / or services

Let us Sum up

In this unit you have learned about the following:

The Financial Management concerned with planning, directing, monitoring, organizing, and controlling of the monetary resources of an organization in an efficient manner. The main objectives of financial management are maximization of profit and maximization of shareholders wealth. The major areas of financial management decisions are financing, Investment, Dividend

and working capital

Check Your Progress

1. Objective of Financial Management is:
 - a. Profit Maximization
 - b. Wealth Maximization
 - c. Assets Maximization
 - d. Sales Maximization
2. Maximization of Share holders Wealth is Reflected in:
 - a. Sales Maximization
 - b. Number of Shareholders
 - c. Market Price of Equity Shares
 - d. None of the above
3. The objective of wealth maximization takes into consideration:
 - a. Risk related to uncertainty of returns.
 - b. Timing of expected returns
 - c. Amount of returns expected.
 - d. All of the above
4. Finance Function Involves:
 - a. Procurement of finance only
 - b. Expenditure of funds only
 - c. Safeguarding of funds only
 - d. Procurement and effective utilization of funds
5. Process of Financial Planning ends with:
 - a. Preparation of Projected Statements
 - b. Preparation of Actual Statements
 - c. Comparison of Actual with Projected
 - d. Ordering the employees that projected figures come true.

Glossary

Financial Management: It is concerned with obtaining and utilization of funds effectively to minimize cost and maximize profit and shareholders wealth

Profit Maximization: It is a traditional approach It is focus on decreasing there venue over cost

Wealth Maximization: It is a modern approach. It is focused on increase the value of the Market price of the stock of the company which has impact on share holders wealth

Answers to Check Your Progress

1. b. Wealthmaximization-
2. b. NumberofShareholders
3. d. Allofthe above
4. d. Procurementandeffectiveutilizationoffunds
5. c. ComparisonofActualwith Projected

Suggested Readings

1. Chandra, Prasanna, (2011), Financial Management: Theory and Practice. New Delhi: (8th Edition), Tata McGraw Hill Publishing Co. Ltd.,
2. Pandey I.M (2021), Financial Management. New Delhi: (12th Edition), VikasPublishing House Pvt. Ltd.,

Unit-2

Financial System

STRUCTURE

Overview

Objectives

2.1. Introduction to Indian Financial System

2.2. Components of Financial System

2.3. Financial Institutions & Financial Intermediaries

2.4. Classification of Financial Markets

2.5. Financial Services & Economic Development

Let Us Sum Up

CheckYourProgress Glossary

Answers to Check Your Progress

Suggested Readings

Overview

In this Unit the meaning, objectives and components of financial system is discussed. The complete details about financial institutions and financial intermediaries are covered. The classification of financial market and financial services are discussed in details.

Objectives

After studying this unit, you should be able to:

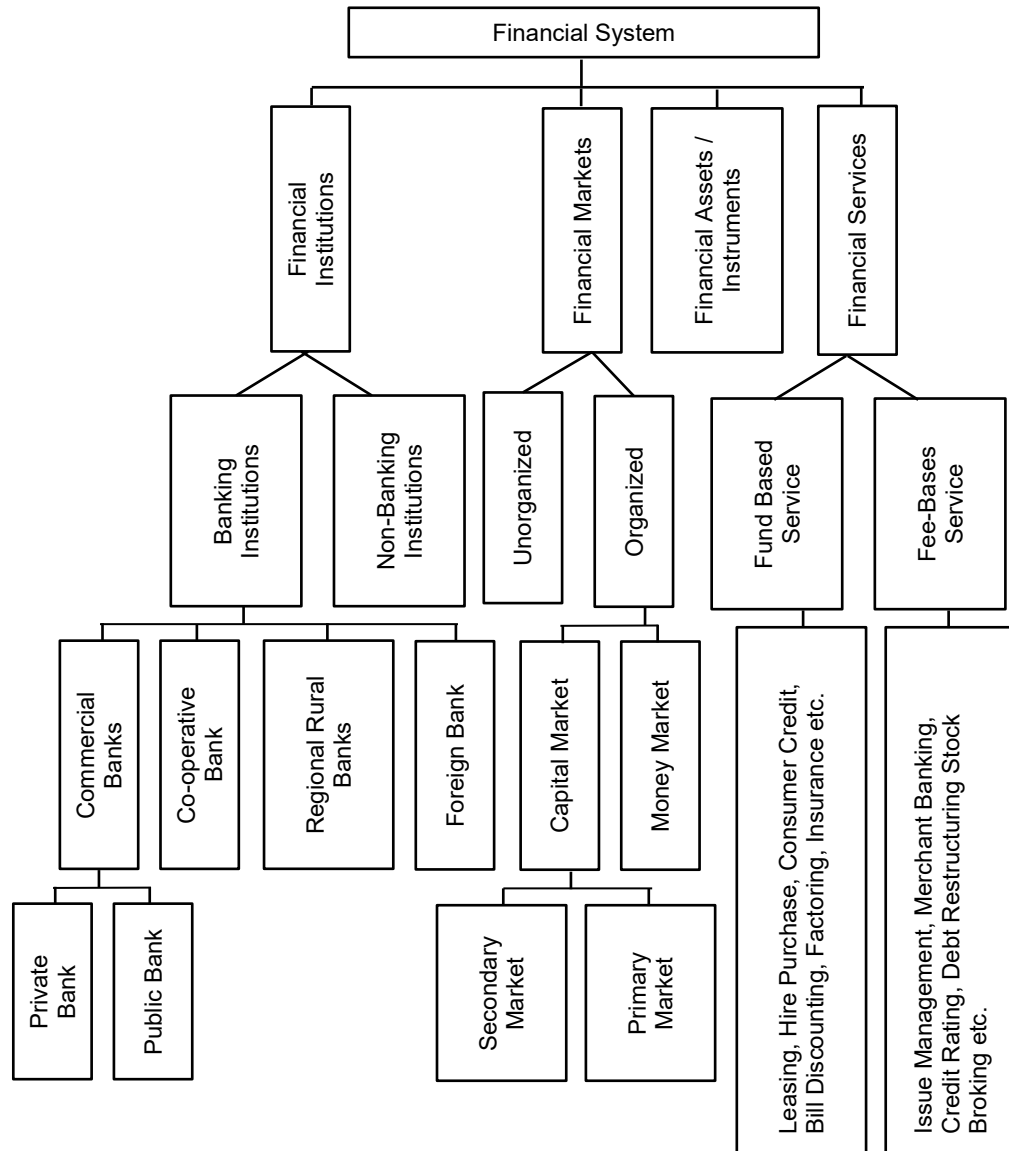
- Examinethefeatures of the Indian Financial System.
- Determinethe Components of the Indian Financial System.
- Understand the meaning, objectives, functions and Characteristics of Financial Services.

2.1. Introduction to Indian Financial System

The Indian Financial System is one of the most important aspects of the economic development of our country.

By definition, this system manages the flow of funds between the people (household savings) of the country and the ones who may invest it wisely (investors/ businessmen) for the betterment of both the parties.

Figure 1.1 displays the structure of Financial System in India.



The features of the Indian Financial system are as follows:

- It plays a vital role in the economic development of the country as it encourages both savings and investment
- It helps in mobilizing and allocating one's savings
- It facilitates the expansion of financial institutions and markets
- Plays a keyrole in capital formation
- It helps forms a link between the investor and the one saving
- It is also concerned with the Provision of funds

Indian Financial System

Source: Bhole, L.M., Financial Institutions and Markets: Structure, Growth and Innovations, Tata McGraw-Hill Publishing Company Ltd., NewDelhi

Significance of Indian Financial System

- The financial system plays a critical role in the economy. It enables the financial intermediation process which facilitates the flow of funds between savers and borrowers, thus ensuring that financial resources are allocated efficiently towards promoting economic growth and development.
- Financial stability describes the condition where the financial intermediation process functions smoothly and there is confidence in the operation of key financial institutions and markets within the economy.
- Financial instability and its effects on the economy can be very costly due to its contagion or spill over effects to other parts of the economy. Indeed, it may lead to a financial crisis with adverse consequences for the economy. Hence, it is fundamental to have a sound, stable and healthy financial system to support the efficient allocation of resources and distribution of risks across the economy.
- One of the main objectives of central banks is to promote and maintain monetary and financial stability as it contributes to a healthy economy and sustainable growth. Bank Negara Malaysia discharges the responsibility for promoting a sound and efficient Malaysian financial system by preserving the soundness of financial institutions and the robustness of the financial infrastructure to withstand adverse economic cycles and shocks, thereby preventing inordinate disruptions to the intermediation process and maintaining confidence in the financial system. This is primarily achieved through the regulation and supervision of the licensed financial institutions, by ensuring the continued reliability of major payment and settlement systems, and actively contributing to the development of efficient financial markets.
- The Bank also remains vigilant to new emerging trends and challenges to the Malaysian financial system which could undermine financial stability by devoting significant resources towards instituting robust surveillance processes which aim to identify vulnerabilities and support preemptive actions to prevent systemic disturbances.

2.2. Components of Financial System

There are four main components of the Indian Financial system. Let's discuss each component of the system in detail.

Financial Institutions

The Financial Institutions act as a mediator between the investor and the



borrower. The investor's savings are mobilized either directly or indirectly via the Financial Markets.

The main functions of the Financial Institutions are as follows:

- A short-term liability can be converted into a long-term investment
- It helps in conversion of a risky investment into a risk-free investment
- Also acts as a medium of convenience denomination, which means, it can match a small deposit with large loans and a large deposit with small loans

The best example of a Financial Institution is the Bank. People with surplus amounts of money make savings in their accounts and people in dire need of money take loans. The bank acts as an intermediate between the two. The Components of Indian Financial System has been displayed in Figure

Figure Components of Indian Financial System Source: Peter Johnson (2022)

The financial institutions can further be divided into two types:

- Banking Institutions or Depository Institutions
- Non-Banking Institutions or Non-Depository Institutions

Banking Institutions or Depository Institutions - This includes banks and other credit unions which collect money from the public against interest provided on the deposits made and lend that money to the ones in need.

Types of Banking or Depository Institutions:

Commercial Banks: Commercial banks are for-profit organizations and

generally owned by private investors. The range of services offered by commercial banks depends on the size of the banks. For example, the services offered by the smaller banks are limited to consumer banking, small mortgages and loans, simple deposits, banking for small-business, and other services. The market range is also limited in the case of smaller banks.

- **Credit Unions:** Credit unions are financial cooperatives implying that these depository institutions are owned by members of a particular group. The profits earned are either paid to the members as dividends or reinvested into the organization. The members of the credit unions are the ones that own accounts in the institution; hence, the depositors are also partial owners and receive dividends.
- **Savings Institutions:** The banks serving a local community and loan institutions are called savings institutions. The local residents deposit money in the banks, and their money is offered back in the form of mortgages, consumer loans, credit cards, and loans for small businesses. Savings institutions can sometimes be set up as corporations or as financial cooperatives allowing the depositors to get an ownership share in the organization.

Functions of Depository Institutions

- **Serves as a link between Public Companies and Investors:** A depository functions as a connecting link between the public companies that issue financial securities, and the investors or shareholders. The securities are issued by agents associated with depositories, who are known as depository participants. The agents are responsible for transferring the securities from the depositories to the investors. A depository participant can be a bank, an institution, or a brokerage.
- **Eliminates risk related to owning physical financial securities:** A depository allows traders and investors to hold securities in dematerialized form; thus, eliminating the risk related to holding physical financial securities. The buyers and sellers now do not need to check whether the securities have been transferred successfully without any loss or the fit. The depository system reduces such risks by allowing the securities to be held and transferred in electronic form.
- **Allows the provision of loans of mortgages to interested parties:** A depository holds the securities of customers and gives

them back when the customers want. The customers receive interest on the deposits, while the depository earns even more interest by lending the deposits to other people or businesses in the form of loans or mortgages.

- **Reduced paper work and accelerates the process soft transferring securities:** When a trade occurs, a depository transfers the ownership of securities from the account of one investor to another. It helps in reducing the paperwork associated with the finalization of a trade and accelerates the process of transfer of securities.
- **Non-Banking Institutions or Non-Depository Institutions-** Insurance, mutual funds and brokerage companies fall under this category. They cannot ask for monetary deposits but sell financial products to their customers.

Types of Non- Banking Institutions:

- **Mutual Funds:** A mutual fund is a company that pools money from many investors and invests the money in securities such as stocks, bonds, and short-term debt. The combined holdings of the mutual fund are known as its portfolio. Investors buy shares in mutual funds. Each share represents an investor's part ownership in the fund and the income it generates.
- **Insurance Companies:** Insurance is a contract, represented by a policy, in which an individual or entity receives financial protection or reimbursement against losses from an insurance company. The company pools clients' risks to make payments more affordable for the insured.

Functions of Non-Banking Institutions:

- **Retail Financing:** Entities that offer short-term funds for loans against gold, shares, property, majorly for consumption purposes.
- **Infrastructural Funding:** This is the most significant section where foremost Non- Banking Financial Companies deal in. A lot part of this segment alone makes up a significant portion of funds lent amongst the different segments. This mainstream comprises Railways or Metros, Real Estate, Ports, Flyovers, Airports, etc.
- **Hire Purchase Services:** It's away through which the seller provides the products or goods to the buyer without transferring the goods' ownership. The payment of the goods is made in instalments. Once the buyer pays all the instalments of the goods

or products, the ownership of the good is automatically transferred to the buyer.

- **Trade Finance:** Entities dealing in distributor or dealer finance so that they can for vendor finance, working capital requirements, & other business loans.
- **Asset Management Companies:** Asset Management Companies (AMCs) are those companies that include fund managers (who invest inequity shares to gain good gains) who invest the fund spooled by small investors & actively manage it.
- **Venture Capital Services:** The entities that invest in small businesses are at their starting stage, but their accomplishment rate is high and is capable enough for adequate return in the coming time.
- **Leasing Services:** The entities that deal in leasing or for a good understanding of this word we can recognize it in such a way that the way we rent a property or flat for living similarly these entities offer the property to small businesses or sometimes even larger ones who cannot afford it for whatsoever reason. The only difference between leasing & renting is that leasing contract sare made for a fixed period of time.

Financial Assets

The products which are traded in the Financial Markets are called the Financial Assets. Based on the different requirements and needs of the credit seeker, the securities in the market also differ from each other. Some important Financial Assets have been discussed briefly below:

- **Call Money** – When a loan is granted for one day and is repaid on the second day, it is called call money. No collateral securities are required for this kind of transaction.
- **Notice Money**- When a loan is granted for more than a day and for less than 14 days, it is called notice money. No collateral securities are required for this kind of transaction.
- **Term Money** - When the maturity period of a deposit is beyond 14 days, it is called term money.
- **Treasury Bills** - Also known as T-Bills, these are Government bonds or debt securities with maturity of less than a year. Buying a T-Bill mean slending money to the Government.
- **Certificate of Deposits**- It is a dematerialized form (Electronically

generated) for funds deposited in the bank for a specific period of time.

- **Commercial Paper**- It is an unsecured short-term debt instrument issued by corporations.

Financial Services

Services provided by Asset Management and Liability Management Companies. They help to get the required funds and also make sure that they are efficiently invested.

The financial services in India include:

- **Banking Services**-Any small or big service provided by banks like granting loan, depositing money, issuing debit/credit cards, opening accounts, etc.
- **Insurance Services**-Services like issuing of insurance, selling policies, insurance undertaking and broker ages, etc. are all a part of the Insurance services.
- **Investment Services** - It mostly includes asset management
- **Foreign Exchange Services** - Exchange of currency, foreign exchange, etc. area part of the foreign exchange services

The main aim of the financial services is to assist a person with selling, borrowing or purchasing securities, allowing payments and settlements and lending and investing.

Financial Market

The market place where buyers and sellers interact with each other and participate in trading of money, bonds, shares and other assets is called a financial market.

The financial market can be further divided into four types:

Capital Market - Designed to finance long-term investment, the Capital market deals with transactions which are taking place in the market for over a year.

The capital market can further be divided into three types:

- Corporate Securities Market
- Government Securities Market
- Long Term Loan Market
- **Money Market** - Mostly dominated by Government, Banks and other Large Institutions, the type of market is authorized for small

term investments only. It is a wholesale debt market which works on low-risk and highly liquid instruments.

The money market can further be divided into two types:

- Organized Money Market
- Unorganized Money Market
- **Foreign exchange Market** - One of the most developed markets across the world, the foreign exchange market, deals with the requirements related to multi-currency. The transfer of funds in this market takes place based on the foreign currency rate.
- **Credit Market** - A market where short-term and long-term loans are granted to individuals or Organizations by various banks and Financial & Non-Financial Institutions is called Credit Market.

2.2. Financial institutions & Financial Intermediaries



There are about six different types of financial institutions as shown in figure 2.1

Investment Banks

An investment bank is a financial services company that acts as an intermediary in large and complex financial transactions. An investment bank is usually involved when a startup company prepares for its launch of an initial public offering (IPO) and when a corporation merges with a competitor. It also has a role as a broker or financial adviser for large institutional clients such as pension funds.

Commercial Banks

A commercial bank is a kind of financial institution that carries all the

operations related to deposit and withdrawal of money for the general public, providing loans for investment, and other such activities. These banks are profit-making institutions and do business only to make a profit.

Internet Banks

An internet bank also known as a virtual bank, or a web bank that lacks any physical branch locations and exists only on the internet. By eliminating the overhead costs associated with bank branches, internet banks consistently offer interest rates, including money market yields, that are higher than the national average.

Retail Banking

Retail banking, also known as consumer banking or personal banking, is banking that provides financial services to individual consumers rather than businesses. Retail banking is a way for individual consumers to manage their money, have access to credit, and deposit their money in a secure manner. Services offered by retail banks include checking and savings accounts, mortgages, personal loans, credit cards, and certificates of deposit (CDs).

Insurance Companies

Insurance is a contract, represented by a policy, in which an individual or entity receives financial protection or reimbursement against losses from an insurance company. The company pools clients' risks to make payments more affordable for the insured.

Mortgage Companies

A mortgage company is a specialized financial firm engaged in the business of originating and/or funding mortgages for residential or commercial property. A mortgage company is often just the originator of a loan; it markets itself to potential borrowers and seeks funding from one of several client financial institutions that provide the capital for the mortgage itself.

Advantages of Financial Institutions

As these institutions carry out a systematic investigation before conceding support to an apprehension, a relationship with them helps to increase the creditworthiness of a company. Besides providing funds, many of these institutions endow with financial, administrative, and industrial guidance and consultancy to business firms. Assistance is obtainable when recourse to usual sources is impossible or unbeneficial. Financial institutions provide long-term finance, which is not provided by commercial banks. The rate of interest and repayment measures is convenient and

economical. Facilities for repayment in simple installments are made obtainable to the deserving concerns.

For long-term business fund requirements, financial institutions are preferable as they provide long-term finance, which is not provided by commercial banks. Modernization and development plans can be financed without much strain on the financial organization of the company. Besides providing funds, many of these institutions provide financial, managerial, and technical advice and consultancy to business firms. Obtaining a loan from financial institutions increases the good will of the borrowing company in the capital market. Consequently, such a company can raise funds easily from other sources as well.

As repayment of loans can be made in easy installments, it does not prove to be much of a burden on the business. Loans and guarantees in foreign currency and deferred payment facilities are obtainable for the import of required technology and equipment. The funds are made available even during periods of depression when other sources of finance are not available. Along with finance, a company can obtain specialist guidance and direction for the successful planning and management of projects.

Disadvantages of Financial Institutions

As financial institutions come under government criteria, they follow rigid rules for granting loans. Too many formalities make the procedure time-consuming. Many deserving concerns may fail to get assistance for want of security and other conditions laid down by these institutions. Financial institutions may have their nominees on the Board of Directors of the borrowing company thereby restricting the powers of the company. Sometimes, these institutions place restrictions on the autonomy of management. They lay down a convertibility clause in loan agreements. In some cases, they insist on the appointment of their nominees to the Board of Directors of the borrowing company.

Financial institutions follow rigid criteria for grant of loans. Too many formalities make the procedure time consuming and expensive; certain restrictions such as restriction on dividend payment are imposed on the powers of the borrowing company by the financial institutions; financial institutions may have their nominees on the Board of Directors of the borrowing company thereby restricting the powers of the company. Many deserving concerns may fail to get assistance for want of security and other conditions laid down by these institutions.

Introduction to financial intermediaries

A financial intermediary is an institution or a person that acts as a

link between two parties of a financial transaction. The parties could be a bank, a mutual fund, etc., where typically one party is the lender and the other, the borrower. There are various types of financial intermediaries, such as banks, credit unions, insurance companies, mutual fund companies, stock exchanges, building societies, etc. Banks provide well-known financial services to invest and borrow funds seamlessly.

Depositors invest funds at an interest rate lower than the borrowing rate. The bank earns its income on the difference between these rates. A non-banking finance company (NBFC) also provides loans, but at a much higher rate as compared to banks. Mutual fund companies collate various funds and provide investment options to investors on the basis of their budget and risk appetite.

These funds consist of shares, bonds, and other investment options. Stock exchanges facilitate the trading of stocks and other trading activities. A commission or brokerage is charged on each transaction done through mutual fund companies and stock exchanges. In the case of credit unions and building societies, these entities are formed to provide financial assistance to its members.



Insurance companies provide insurance options to individuals and companies against risk and uncertainty, such as death, health, fire, business loss, etc. Investment banks assist mergers and acquisitions, IPOs, and provide other such services.

Figure Financial Intermediary Source: Benton

(1976) Benefit so Financial Intermediaries

**Various benefits attained by the investors through financial in
termediaries areas follows**

- **Greater Liquidity:** By growing economies of scale, costs are kept lower for start- up businesses or borrowers. Operational costs, paperwork, and credit analysis are all handled at scale.

- **Convenience:** Funds are spread across a diverse range of investment types. A diversified portfolio spreads out the risk of capital loss.
- **Safe Investments:** Inter mediaries also reduce the risk of fraudulent behavior as they have additional security measures in place.
- **Financial Specialist:** Rather than spending time on research, investors are connected with borrowers via a third party who does all the work.
- **Greater liquidity:** Financial intermediaries have the assets in place to allow for greater asset liquidity. Borrowers can withdraw funds as needed.

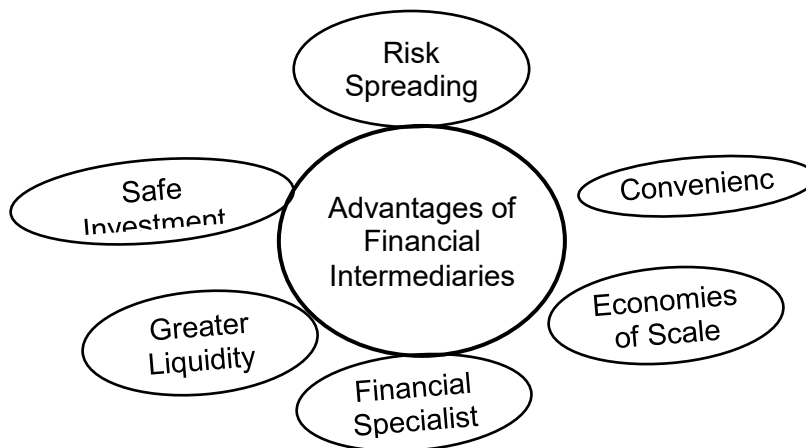


Figure 2.4 Benefits of Financial Intermediaries

Source: Pranchi (2019)

Types of financial Inter mediaries

There are several financial intermediaries formed to serve the different aims and objectives of the customers or members or lenders and borrowers as shown in Figure.

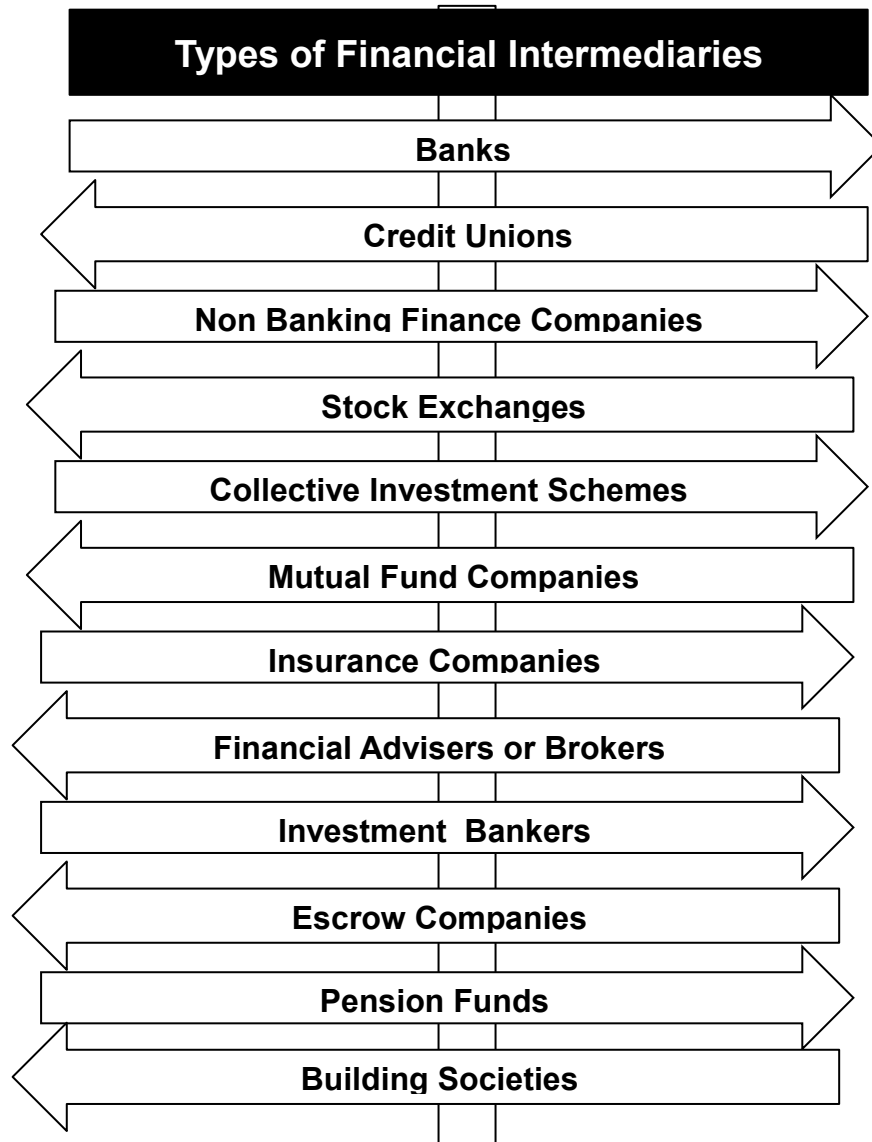


Figure: Types of Financial Intermediaries Source: Pranchi (2019)

Banks: The central and commercial banks are the most well-known financial intermediaries simplifying the lending and borrowing process, along with providing various other services to its customers on a large scale.

Credit Unions: These are the cooperative financial units which facilitate lending and borrowing of funds to provide financial assistance to its members.

Non-Banking Finance Companies: A NBFC is a financial company engaged in activities such as advancing loans to its clients at a very high rate of interest.

Stock Exchanges: The stock exchange facilitates the trading of

securities and stocks, and in every trading activity, it charges the brokerage from each party which is its profit.

Mutual Fund Companies: The mutual fund organizations club the amount collected from various investors. These investors have identical investment objectives and risk-taking ability. The funds are then collectively invested in the securities, bonds, and other investment options, to ensure a capital gain in the long run.

Insurance Companies: These companies provide insurance policies to the individuals and business entities to secure them against accident, death, risk, uncertainties and default. For this purpose, they accept deposits in the form of premium, which is pooled into profitable investments to gain returns. The insured person can claim the money in case of any mishap as per the agreement.

Financial Advisers or Brokers: The investment brokers also collect the funds from various investors to invest it in the securities, bonds, equities, etc. The financial advisers even provide guidance and expert opinions to the investors.

Investment Bankers: The banks specialize in services like initial public offerings (IPO), other equity offerings, providing for mergers and acquisitions, institutional client's broker services, underwriting debts, etc. As a result of constant mediation, between the investor or public and the companies issuing securities.

Escrow Companies: It is a third party acting as an intermediary and responsible for getting all the conditions fulfilled at the time of loan provided by one party to the other for the real estate mortgage.

Pension Funds: The government entities initiate a pension fund. A certain amount is deducted from the salary of the employees each month. This collected sum is then invested in different schemes to gain profits. The investor's fund is returned with interest after their retirement.

Building Societies: These financial intermediaries are similar to the credit unions, owned and facilitating mortgage loans and demand deposits to its members.

Collective Investment Schemes: Under this scheme, the various investors with common investment objective come together to pool their funds and collectively invest this amount in to a profitable investment option. Later they distribute the interest among themselves as per the agreement.

2.3. Classification of Financial Markets

Financial market is a word that describes a marketplace where bonds, equity, securities, currencies are traded. Few financial markets do a security business of trillions of dollars daily, and some are small-scale with less activity. These are markets where businesses grow their cash, companies decrease risks, and investors make more cash.

Meaning of Financial Markets

A Financial Market is referred to space, where selling and buying of financial assets and securities take place. It allocates limited resources in the nation's economy. It serves as an agent between the investors and collector by mobilizing capital between them.

In a financial market, the stock market allows investors to purchase and trade publicly companies share. The issue of new stocks are first offered in the primary stock market, and stock securities trading happens in the secondary market.

Types of Financial Markets

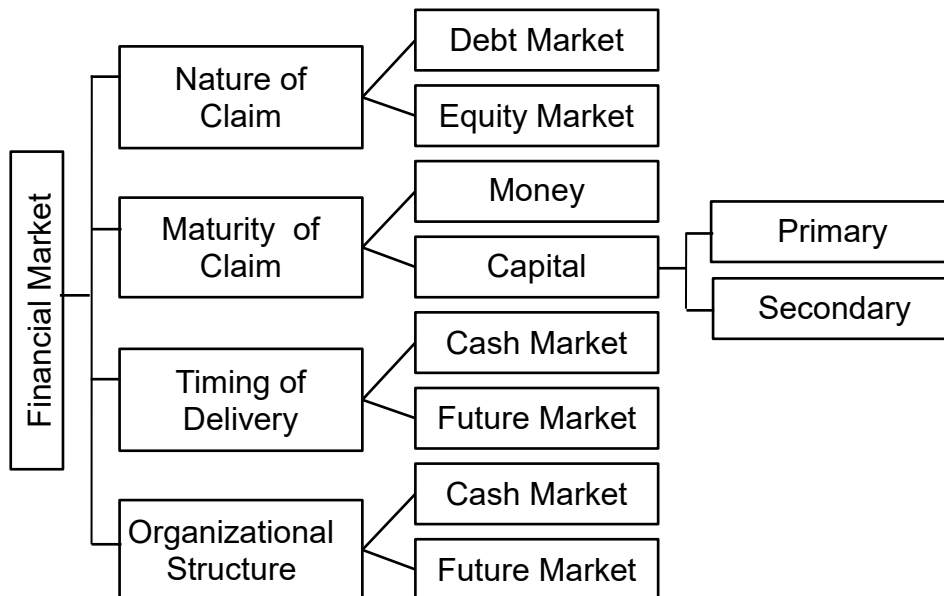
Over the Counter (OTC) Market – They manage public stock exchange, which is not listed on the NASDAQ, American Stock Exchange, and New York Stock Exchange. The OTC market dealing with companies are usually small companies that can be traded in cheap and has less regulation.

Bond Market – A financial market is a place where investors loan money on bond as security for a set if time at a predefined rate of interest. Bonds are issued by corporations, states, municipalities, and federal governments across the world.

Money Markets – They trade high liquid and short maturities, and lending of securities that matures in less than a year.

Derivatives Market – They trades securities that determine its value from its primary asset. The derivative contract value is regulated by the market price of the primary item — the derivatives market securities, including futures, options, contracts -for- difference, forward contracts, and swaps.

Forex Market – It is a financial market where investors trade in currencies. In the entire world, the most liquid financial market.



Classification of Financial Market

The financial market can be classified into three different forms.

By Nature of Claim

- Debt Market—It is a market where fixed bond and debentures or bonds are exchanged between investors.
- Equity Market—It is a place for investors to deal with equity.

By Maturity of Claim

- Money Market – It deals with monetary assets and short-term funds such as a certificate of deposits, treasury bills and commercial paper, etc. which mature within twelve months.
- Capital Market—It trades medium-and long-term financial assets.

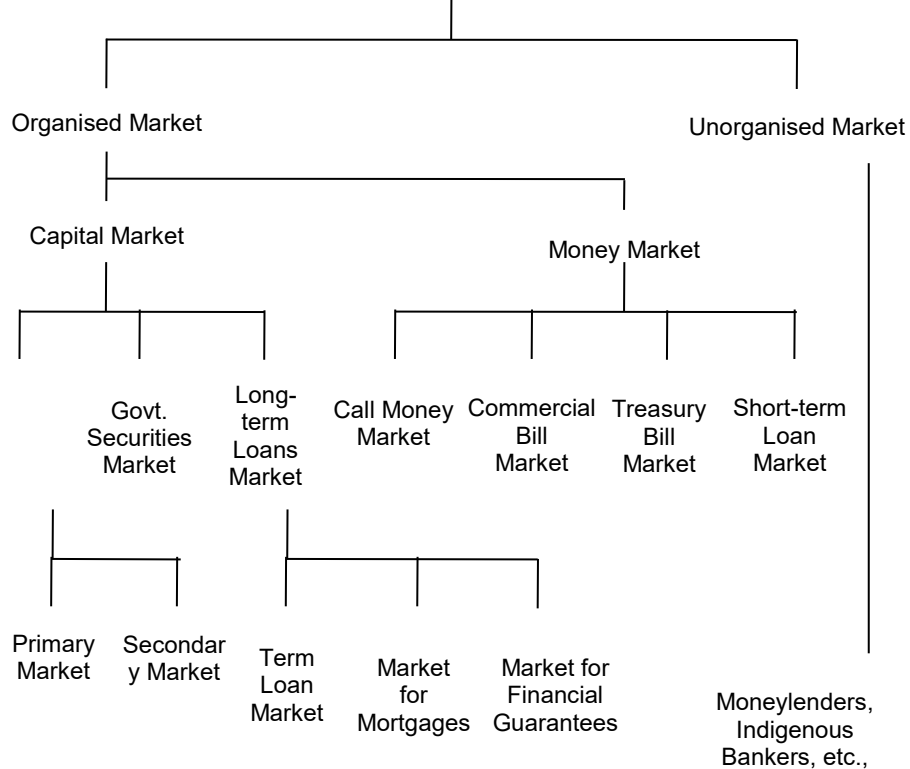
By Timing of Delivery

- Cash Market—It is a market place where trade is completed in real-time.
- Futures Market – In the future market the delivery or compensation of products are taken in the future specified date.

By Organizational Structure

- Exchange-Traded Market—It has a centralized system with a patterned procedure.
- Over-the-Counter Market—It has a decentralized organization with customized procedures.

CLASSIFICATION OF FINANCIAL MARKETS



2.4. Financial Services and Economic Development

The economic development of any country depends upon the existence of a well-organized financial system. It is the financial system which supplies the necessary financial inputs for the production of goods and services which in turn promote the wellbeing and standard of living of the people of a country. Thus, the financial system is a broader term which brings under its fold the financial markets and the financial institutions which support the system. The major assets traded in the financial system are money and monetary assets. The responsibility of the financial system is to mobilize the savings in the form of money and monetary assets and invest them to productive ventures. An efficient functioning of the financial system facilitates the free flow of funds to more productive activities and thus promotes investment. Thus, the financial system provides the intermediation between savers and investors and promotes faster economic development.

Financial services are fundamental to economic growth and development. Banking, savings and investment, insurance, and debt and equity financing help private citizens save money, guard against uncertainty, and build credit, while enabling businesses to start up, expand, increase efficiency, and compete in local and international markets. For the poor,

these services reduce vulnerability and enable people to manage the assets available to them in ways that generate income and options ultimately creating paths out of poverty. The financial services sector is the largest in the world in terms of earnings, comprised of a wide range of businesses including merchant banks, credit card companies, stock brokerages, and insurance companies, among others.

It focuses primarily on large domestic and multinational commercial banks. These large firms have the expertise, reputation, and geographic reach to have significant direct impact and through engagement and example, to change the way entire markets operate. They are using increasingly deliberate strategies to expand economic opportunity through business models that serve poor individuals and SMEs as clients. They are also developing initiatives to build human and institutional capacity and using their experience and influence to shape policy frameworks in the regions in which they work. To explain the role of financial services in development of economy, we must understand that this sector leads, manages and controls the flow of money in an economy as listed below:

Business Growth: Financial services help in the development of businesses by giving them the required financial assistance, guaranteeing losses, etc. The loans issued by companies are used for buying fixed assets and/or investing in other fundraising sources.

Capital Growth: Both working and fixed capital growth are led by financial services system in an economy by promoting the issue of debentures, shares, short-term loans, etc.

Promoting Entrepreneurship: Financial services are also available for entrepreneurs looking for funding and investors for their business. Banks do not easily give loans to new entrepreneurs, but other players in the market specialize in this field. Angel investors, Venture capitals, loan services, counselling services, etc. assist play a key role in the growth of entrepreneurship in India.

Infrastructure Development: Investment in infrastructure companies will promote more involvement of private sector companies in this sector.

Healthy Competition: A vast and expanded financial service sector and market gives the choice of investing their money in the investors' hands. Better the services, more the customers for a service and the company. This ensures competition among the firms which benefits the investors—the public and businesses of a country.

Easy Trading: Availability of choices to investors and the public ensures trade without barriers, mediation by trusted banks and companies. It also

helps in the development of domestic and foreign trade of goods and services.

Promotion of Savings: The financial service industry mobilises the savings of the people by providing transformation services. It provides liability, asset and size transformation service by providing huge loan from small deposits collected from a large number of people. In this way financial service industry promotes savings.

Job Creation: Another way the financial service sector plays an important role is in job creation. This sector needs different kinds of the work force based on their skills - management, accounting, law, IT, and more. This sector indeed needs skilled personnel. A study of India's top 250 companies revealed that almost 28% of total jobs are in the financial services sector. This is important for both the workers and the community as it leads to more understanding of how the financial market works among the common people.

Balance in the economy: Finally, the financial services system helps in diversification of capital market and removes its monopoly from the government and central authorities. It encourages more investment from private companies and an overall, innovative, facilitative growth of the market.

Letus Sumup

A financial institution (FI) is a company engaged in the business of dealing with financial and monetary transactions such as deposits, loans, investments, and currency exchange. Financial institutions encompass a broad range of business operations within the financial services sector including banks, trust companies, insurance companies, brokerage firms, and investment dealers. Financial intermediary is the organization which acts as a link between the investor and the borrower, to meet the financial objectives of both the parties. These can be seen as business entities which accept deposits from the depositors or investors (lenders) by allowing them low interest on their sum. Further, these organizations, lend this amount to the individuals and firms (borrowers) at a comparatively high rate of interest to make their margin

Check Your Progress

1. ____ is also called zero coupon bond.
 - a. Trade bills
 - b. Call money

- c. Treasury bills
 - d. Commercial papers
2. Which of the following are the instruments of money market?
 - a. Call money
 - b. Certificate of deposits
 - c. Trade bills
 - d. All of the above
 3. The short-term financial instruments traded in money market is commonly called _____
 - a. Call money
 - b. Certificate of deposits
 - c. Trade bills
 - d. Commercial Paper
 4. Which of the following statements is true with regard to financial markets _____
 - a. They link the households which save funds and business firms which invest these funds.
 - b. They work as an intermediary between the savers and the investors by mobilising funds between them.
 - c. They allocate funds available for investment into the most productive investment opportunity
 - d. All of the above
 5. The allocated function is performed by
 - a. Financial market
 - b. Capital market
 - c. Money market
 - d. All of the above

Glossary

Financial Institutions: A financial institution is a company in the business of dealing with financial and monetary transactions such as deposits, loans, investments and currency exchange.

Commercialbank: A commercial bank is a type of financial institution that accepts deposits, offers checking account services, makes business, personal, and mortgage loans, and offers basic financial products like certificates of deposit (CDs) and savings Accounts to individuals and small businesses.

Answers to Check Your Progress

1. c. Treasury bill
 2. a. Call money
 3. d. Commercial paper
 4. d. All of the above
 5. d. All of the above
-

Suggested Reading

1. Chandra, Prasanna, (2011), Financial Management: Theory and Practice. New Delhi: (8th Edition), Tata McGraw Hill Publishing Co. Ltd.
2. P.V.Kulkarni, B.G. Sathya Prasad (1999), Financial Management, (9th revised edition), Himalaya Publishing House.

Unit-3

Time Value of Money and Financial Planning

STRUCTURE

Learning

Objectives

3.1. Introduction

3.2. Present Value of Money

3.3. Future Value of Money

3.4. Reasons for Time Value of Money

3.5. Features of Financial Planning

3.6. Objectives of Financial Planning

3.7. Importance of Financial Planning

3.8. Types of Capitalization

Let Us Sum Up

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Answers to Check Your Progress

Suggested Readings

Overview

This Unit will help you understand the sense of time value of money and significance of present value and future value while taking investment decisions. This Unit will also introduce the basic concept of security and valuation.

Objectives

After studying this unit you should be able to:

- Comprehend the application of Time value of the money
- Understand the present and future value calculation and its effect on personal savings
- Understand the calculation of investment and Prepare financial planning

3.1. Introduction

The time value of money serves as the foundation for all other notions in finance. Time Value of Money (TVM) is an important concept in financial management. It can be used to compare investment alternatives and to solve problems involving loans, mortgages, leases, savings, and annuities.

TVM is based on the concept that a dollar/Rupee that you have today is worth more than the promise or expectation that you will receive a dollar/Rupee in the future. Money that you hold today is worth more because you can invest it and earn interest. Time value of money results from the concept of interest. This overview covers an introduction to

- Simple interest
- Compound interest
- Intra-year compounding
- Annuities due
- Perpetuities

Simple interest. Simple interest is calculated only on the beginning principal. For instance, if someone were to receive 5% interest on a beginning value of \$100, the first year they would get:

$.05 \times \$100 = \5 interest. If they continued to receive 5% interest on the original \$100 amount, over five years the growth in their investment would look like this:

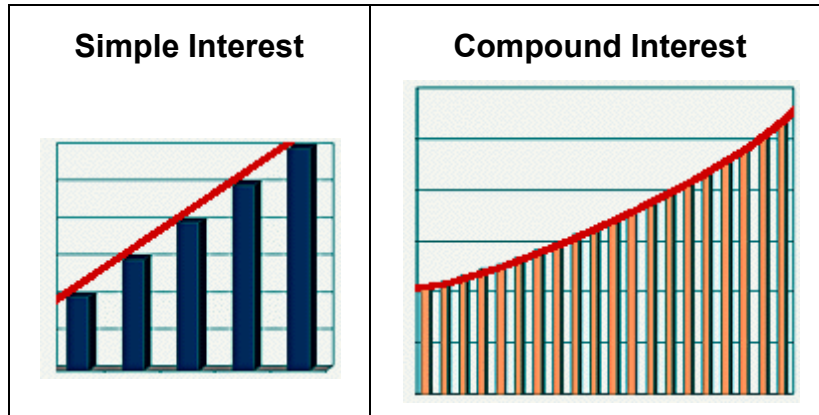
Year 1: 5% of \$100 = \$5 + \$100 = \$105
Year 2: 5% of \$100 = \$5 + \$105 = \$110
Year 3: 5% of \$100 = \$5 + \$110 = \$115
Year 4: 5% of \$100 = \$5 + \$115 = \$120
Year 5: 5% of \$100 = \$5 + \$120 = \$125

Compound Interest: It's good to receive compound interest, but not so good to pay compound interest. With compound interest, interest is calculated not only on the beginning interest, but on any interest accumulated in the meantime. If this were to continue for 5 years, the growth in the investment would look like this:

Year 1: 5% of \$100.00 = \$5.00 + \$100.00 = \$105.00
Year 2: 5% of \$105.00 = \$5.25 + \$105.00 = \$110.25
Year 3: 5% of \$110.25 = \$5.51 + \$110.25 = \$115.76
Year 4: 5% of \$115.76 = \$5.79 + \$115.76 = \$121.55

Year 5: 5% of \$121.55 = \$6.08+\$121.55 = \$127.63

Note that in comparing growth graphs of simple and compound interest, investments with simple interest grow in a linear fashion and compound interest results in geometric growth. So, with compound interest, the further in time and investment is held the more dramatic the growth becomes.



Time Value Principle

Cash flow at different points in time cannot be compared and aggregated. All cash flows have to be brought to the same point in time before comparisons and aggregations can be made. The concept that a dollar in hand today will be worth more than a dollar in the future. The time value of money is typically thought of in terms of the amount of interest that could have been earned had money been invested in an interest-bearing account instead of not investing it.

Why the time value of money changes over time?

The old saying "A bird in the hand is worth two in the bush" In monetary terms, it means that cash today is worth more than cash in the future. But the value of money decreases progressively over time

There are three reasons why a cash flow in the future is worth less than a similar cash flow today.

- **Inflation**
- **Risk**
- **Preference for liquidity**

Inflation: When there is monetary inflation, the value of currency decreases over time. The greater the inflation, the greater the difference in value between a cash flow today and the same cash flow in the future. In other words, the purchasing power of a dollar today is higher than it will be tomorrow, because rising prices will diminish the value of that dollar therefore it is possible to buy more goods with one dollar a year from now than two years from now, and so on.

Risk: Any uncertainty (risk) associated with the cash flow in the future reduces the value of the cash flow. Because future is uncertain Risk increase with time Most people wish to avoid risk, so they value cash more than promise of cash in the future A promised cash flow might not be delivered for a number of reasons: the promisor might default on the payment, the promisee might not be around to receive payment; or some other contingency might intervene to prevent the promised payment or to reduce it.

Preference for Liquidity: Individuals prefer present consumption to future consumption. People would have to be offered more in the future to give up present consumption. When lenders or investors give up cash for very risky future returns, they require high premiums, or returns on their invested cash to compensate for liquidity conversely, when they invest in low - risk assets, the premium they expect in return are relatively low.

What determines the shape of the term (interest) structure?

Nominal or Market interest rate: Real interest rate + Expected rate of inflation + risk premium to compensate for uncertainty

Real interest rate: Compensation investors demand for forgoing the use of their money, after adjustment for inflation.

Inflation premium:

Portion of nominal interest rate that represents compensation for expected future inflation.

Interest rate risk premium

Interest rate risk premium to compensate for uncertainty. The compensation investors demand for bearing interest rate risk.

3.2. Present value of money

Today's value of a payment or a stream of payment amount due and payable at some specified future date, discounted by a compound interest rate or

discount rate .The process of discounting future cash flows converts them into cash flows in present value terms. Present value of future returns are adjusted for risk .The present value of a rupee that will be received in the future will be less than the value of a rupee in hand today it is simply the reciprocal of compound interest. **Present Value** (PV) of an amount that will be received in the future. It is common practice to translate future cash flow into their present value. The process of determining present value of a future payment or receipts or a series of future payment or receipts is called discounting. The compound interest rate used for discounting cash flow is also called discount rate.

Capitalization rate or Discountrate

Rate of interest or discount rate used to convert a series of future payments into a single present value.

Risk level follows a simple rule:

Higher risk means a high discount (capitalization), rate and low risk means a low discount rate

Evaluating Discount Rate

- Between two future incomes, the one that will take longer to reach maturity should have a higher discount rate
- The lower the perceived risk, the lower the discount rate should be
- If general interest rates in the market rise, the discount rate should increase also
- As risk declines, the present value of future income will increase
- When the discount rate declines, the present value increases
- When the discount rate increases, the present value decreases

To calculate present value a discount rate must be determined that takes in to consideration how much risk is associated with each project or investment.

The process by which future cash flows are adjusted to reflect these factors is called discounting, and the magnitude of these factors is reflected in the discount rate. The discount rate incorporates all of the above-mentioned factors.

Present value of single cash flow

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

(OR)

$$PV = FV_n \times PVIF_{(k,n)}$$

Present value of UN even multiple cash flows

$$PV_n = FV_1 \times PVIF(k, n_1) + FV_2 \times PVIF(k, n_2) + FV_3 \times PVIF(k, n_3) + \dots + FV_n \times PVIF(k, n_n)$$

Present value of an annuity

The present value of an annuity 'A' receivable at the end of every year for a period of any ears at a rate of interest 'k' is as follows:

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

$(1+K)^n$ This can be written as

$$PVA_n = \frac{AX [(1+K)^n - 1]}{K(1+K)^n}$$

$(1+K)^n - 1$ is called $A_x PVIFA (K, n)$

3.3. Future Value of Money

Future value

Future value determines the amount that a sum of money invested today will grow to in a given period of time. The process of finding a future value is called "compounding". The value of an initial investment after a specified period of time at a stated rate of interest. The amount to which an investment will grow at a future time if it earns a specified interest that is compounded annually. The process of calculating future values is called *compounding*. The process of compounding converts present cash flows into future cash flows.

Future value of a single flow (lump sum)

If the future value over long maturity period of say 20 years or 30 years, the formula for calculating the future value of a single cash flow is as follows:

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

FV_n = Future value of the initial flow 'n' years hence PV = Initial cash flow

K = Annual rate of interest n = Life of investment

Another method

$(1+K)^n$ = Represents the future value of an initial investment of Re1 invested to day at the end of n years at a rate of interest k (future value interest factor or FVIF (k,n))

$$FV_n = PV \times FVIF(k,n)$$

Increased frequency of compound

If a cash flow is compounded more frequently than annually, then Intra year compounding is being used. To adjust for Intra year compounding, an interest rate per compounding period must be found as well as the total number of compounding periods. The interest rate per compounding period is found by taking the annual rate and dividing it by the number of times per year the cash flows are compounded. The total number of compounding periods is found by multiplying the number of years by the number of times per year cash flows are compounded.

$$FV_n = PV (1+K/m)^{n \times m}$$

FV_n = Future value of the initial flow 'n' years hence PV = cash flow today

K = Nominal interest rate P.A

m = No. of times compounding is done during a year

n = No. of yrs for which compounding is done OR

Future value of multiple cash flows

$$FV_n = PV_1 \times FVIF(k,n_1) + PV_2 \times FVIF(k,n_2) + PV_3 \times FVIF(k,n_3) + \dots + PV_n \times FVIF(k,n_n)$$

Annuity

An annuity is a cash flow stream in which the cash flows are all equal and occur at regular intervals. Note that annuities can be a fixed amount, an amount that grows at a constant rate overtime, Or an amount that grows at various rates of growth overtime. An annuity is an equal, annual series of cash flows. Annuities may be equal annual deposits, equal annual withdrawals, equal annual payments, or equal annual receipts. Note that the cash flows occur at the end of the year. This makes the cash flow an ordinary annuity or deferred annuity. If the cash flows were at the beginning of the year, the annuity is known as an annuity due.

Future value of an annuity

The future value of an annuity (FVA for a period of n year satarate of interest 'k' is as follows:

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

$$\text{This can be written as } FVA_n = \frac{A [(1+K_n)^1]}{K}$$

FV(A), the value of the annuity at time = n (OR) Accumulation at the end of n years A, the value of the individual payments in each compounding period K, the interest rate that would becom pounded for each period of time (expressed in decimals) n, the number of payment periods

An other method

$$\frac{[(1 + K_n)^1]}{K} = \text{Future value interest factor for annuity}$$

FVIFA = Represents the accumulation of Re 1 invested or paid at the end of every year for period of n years at the rate of interest k

$$FVA_n = PV \times FVIFA(k, n)$$

3.4. Reasons for time value of money

A rupee received today is worth morethan a rupee received tomorrow. This is because a rupee received today canbe invested to earn interest. The amount of interest earned depends on the rate of return that can be earned on the investment. Time value of money quantifies the value of a rupee through time. Time Value of Money, or TVM, is a concept that is used in all aspects of finance including:

- Bond valuation
- Stock valuation
- Accept/reject decisions for project management
- Financialanalys is of firms

Importance of Time Value of Money

The Consideration of time is important and its adjustment in financial decision making is also equally important and inevitable. Most financial decisions, such as the procurement of funds, purchase of assets, maintenance of liquidity and distribution of profits etc., affect the firm's cash flows / movement of cash in and out of the organization in different time periods.

Cash flows occurring in different time periods are not comparable, but they should be properly measure able. Hence, it is required to adjust the cash flows for their differences in timing and risk. The value of cash flows to acommon time point should be calculated. To maximize the owner's equity, it's extremely vital to consider the timing and risk of cash flows. The choice of the risk adjusted discount rate (interest rate) is important for calculating the present value of cashflows.

For instance, if the time preference rate is 10 percent, it implies that an investor can accept receiving Rs. 1000 if he is offered Rs. 1100 after one year. Rs. 1100 is the future value of Rs. 1000 today at 10% interest rate. Thus, the individual is indifferent between Rs. 1000 and Rs. 1100 a year from now as he/she considers these two amounts equivalent in value. You can also say that Rs. 1000 today is the present value of Rs. 1100 after a year at 10% interest rate.

Time value adjustment is important for both short-term and long-term decisions. If the amounts involved are very large, time value adjustment even for a short period will have significant implications.

However, other things being same, adjustment of time is relatively more important for financial decisions with long range implications than with short range implications. Present value of sums far in the future will be less than the present value of sums in the near future.

The concept to f time value of money is of immen seuse in all financial decisions.

- To compare the investment alternatives to judge the feasibility of proposals.
- In choosing the best investment proposals to accept or to reject the proposal for investment.
- In determining the interest rates, thereby solving the problems involving loans, mortgages, leases, savings and annuities.
- To find the feasible time period to getback the original investment or to earn the expected rate of return.
- Helps in wage and price fixation.

Reasons for Time Preference of Money / Reasons for Time Value of Money

There are three primary reasons for the time value of money-re investment opportunities; uncertainty and risk; preference for current consumption. The following are the list of the most common areas in which people use net present value calculations to help them make financial decisions.

- Mortgage payments
- Student loans
- Savings for college
- Home, auto, or other major purchases
- Credit cards
- Money management
- Retirement planning
- Investments

Financial planning (both business and personal)

Future value of an annuity

Where, $FVA_n (1+r)^n - 1 =$ Future value of an annuity which has duration of n years

A = Constant periodic flow

r = Interest rate per period

n = Duration of the annuity

Mr. A is required to pay five equal annual payments of Rs. 10,000 each in his deposit account that pays 10% interest per year. Find out the future value of annuity at the end of four

$$FVA_n = A (1+r)^n - 1/r$$

$$FVA_n = 10,000 (1.10)^4 - 1/10.$$

$$FVA_n = 10,000 [4.641] = 46,410.$$

Years.

Future Value of Multiple Flows:

Suppose the investment is Rs. 1,000 now (beginning of year 1), Rs. 2,000 at the beginning of year 2 and Rs.3,000 at the beginning of year 3, how much will these flows accumulate at the end of year 3 at a rate of interest of 12 percent per annum?

Solution:

To determine the accumulated sum at the end of year, add the future compounded values of Rs.1, 000, Rs. 2,000 and Rs. 3,000 respectively:

$$\begin{aligned} & \text{FV (12, 3) (Rs. 1,000) + FV (12, 2) (Rs. 2,000) + FV (12,1) (Rs. 3,000)} \\ & = \text{Rs. 1,000 x FVF (12, 3) + 2,000 x FVF (12, 2) + 3,000 x FVF (12, 1)} \\ & = \text{Rs. [(1,000 x 1.405) + (2,000 x 1.254) + (3,000 x 1.120)] = Rs. 7,273} \end{aligned}$$

The present value is calculated by discounting technique by applying the following equation:

$$\text{PV} = \text{FV} / (1 + R)^n$$

The discounting technique to find out the PV can be explained in terms of:

i) Present Value of a Future Sum:

The present value of a future sum will be worth less than the future sum because one forgoes the opportunity to invest and thus forgoes the opportunity to earn interest during that period. In order to find out the PV of future money, this opportunity cost of the money is to be deducted from the future money.

The present value of a single cash flow can be computed with the help of following formula:

$$\text{PV} = \text{FV}_n / (1+r)^n$$

Where, FV_n = Future value n years hence

r = Rate of interest per annum

N = No. of years for which discounting is done

Illustration:

Find out the present value of Rs.3, 000 received after 10 years hence, if the discount rate is 10%.

Solution:

$$\text{PV} = \text{FV}_n / (1+r)^n$$

$R = 10\%$, $n = 10$ years

$$\text{PV} = 3,000 / (1+10)^{10}$$

$$\text{PV} = 3,000 / (.386) = \text{Rs. 1,158}$$

Illustration:

Mr. A makes a deposit of Rs. 5000 in a bank which pays 10% interest compounded annually. You are required to find out the amount to be received after 5 years.

$$PV = FV/(1+r)^n$$

$$FV = PV \times (1+r)^n$$

$$= 5000 \times (1+.10)^5$$

$$= 5000 \times 3.791$$

$$= 18, 955$$

Solution:**PV of a Series of Equal Future Cash Flows or Annuity:**

A decision taken today may result in a series of future cash flows of the same amount over a period of number of years.

For example, a service agency offers the following options for a 3-year contract:

- a. Pay only Rs.2,500 now and no more payment during next 3 years, or
- b. Pay Rs.900 each at the end of first year, second year and third year from now. A client having a rate of interest at 10% p.a. can choose an option on the basis of the present values of both options as follows:

Option I:

The payment of Rs.2, 500 now is already in terms of the present value and therefore does not require any adjustment.

Option II:

The customer has to pay an annuity of Rs.900 for 3 years.

Year	Amount	PFF @ 10%	P.V.
1	900	.909	818
2	900	.826	744
3	900	.751	676
			2238

In order to find out the PV of a series of payments, the PVs of different

amounts accruing at different times are to be calculated and then added. For the above example, the total PV is Rs.2,238/-. In this case, the client should select option B, as he is paying a lower amount of Rs.2,238/- in real terms as against Rs. 2,500 payable in option A.

The present value of an annuity may be expressed as follows:

$$PVA_n = A [(1+r)^n - 1/r(1+r)^n]$$

Where, PVA_n = Present value of annuity which has duration of n years.

A = Constant periodic flow

R = Discount rate

Illustration:

Find out the present value of a 5 years annuity of Rs.50,000/- discounted at 8%.

Solution:

$$r = 8\%$$

$$n = 5 \text{ years}$$

$$PV = \text{Rs. } 50,000/-$$

$$PV = \text{Amount of annuity} \times PV(r, n)$$

$$PVA_n = A [(1+r)^n - 1 / r (1+r)^n]$$

$$= 50,000 (1.08)^5 - 1/0.08(1.08)^5$$

$$= \text{Rs. } 50,000 [3.993]$$

$$= \text{Rs. } 1, 99,650/-$$

3.5. Features of Financial Planning

Financial planning has been defined as “the advance programming of all plans of financial management and the integration and coordination of these plans with the operating plans of the enterprise.” There is hardly any aspect of a business which does not have both financial requirements and financial consequences. Financial planning deals with both sources and uses of funds. There must be someone in the enterprise that pulls together, reviews, analyses, interprets and plans these requirements and consequences. The person who does all this is one who is the chief executive officer in charge of

finance of the enterprise; nomatter by what ever name or designation he is called.

Financial planning includes the following:

- Determination of the financial resources required to meet the operating programme of the company. To work out as to how much of these requirements are to be met by generating funds internally by the company and how much is to be obtained from outside the company.
- To develop the best possible plans for obtaining the funds needed from the external sources.
- To establish and maintain a system of financial controls for governing the allocation and the use of funds.
- To formulate a programme for the provision of the most effective relationships between product-cost-profit.
- To analyze the financial results of all operations.
- To report the seanalyzed facts to the top managemen to the enterprise.
- To make recommendations relating to future operations.

3.6. Objectives of Financial Planning

The objectives of Financial Planning are discussed below:

- **Determining capital requirements-** This will depend upon factors like cost of current and fixed assets, promotional expenses and long-range planning. Capital requirements have to be looked with both aspects: short- term and long- term requirements.
- **Determining capital structure-** The capital structure is the composition of capital, i.e., the relative kind and proportion of capital required in the business. This includes decisions of debt - equity ratio, both short-term and long- term.

Framing financial policies with regards tocash control, lending, borrowings, etc.

A finance manager ensures that the scarce financial resources are maximally utilized in the best possible manner at least cost in order to get maximum returns on investment.

Definition of Financial Planning

Financial Planning is process of framing objectives, policies, procedures, programmes, and budgets regarding the financial activities of a concern. It is the process of framing financial policies in relation to procurement, investment, and administration of funds of an enterprise.

3.7. Importance of Financial Planning

Generally, the need for and importance of financial planning are due to following factors:

- Successful promotion of business,
- Success of entire firm,
- Economy and coordination in operations,
- Conservation of Capital,
- Expansion and development of business,
- Changes in price level and adequate liquidity in the business.

The importance of Financial Planning is listed below-

- Adequate fund share to be ensured.
- Financial Planning help in ensuring areas on able balance between outflow and inflow of funds so that stability is maintained.
- Financial Planning ensures that the suppliers of funds are easily investing in companies which exercise financial planning.
- Financial Planning helps in making growth and expansion programmes which helps in long- run survival of the company.
- Financial Planning reduces uncertainties with regards to changing market trends which can be faced easily through enough funds.
- Financial Planning helps in reducing the uncertainties which can be a hindrance to growth of the company. This helps in ensuring stability and profitability in concern.
- It may be inferred from the above discussion that financial planning is an indispensable tool for the success of various plans right from promotion to expansion and development programmes as well as for economical operations of various activities of the business entity.

3.9. Types of Capitalization

Capitalization may be classified into the following three important types based on its nature:

- Over Capitalization
- Under Capitalization

Over Capitalization

Over capitalization refers to the company which possesses an excess of capital in relation to its activity level and requirements. In simple means, over capitalization is more capital than actually required and the funds are not properly used.

According to Bonneville, Dewey and Kelly, over capitalization means, "When a business is unable to earn fair rate on its outstanding securities".

Example

A company is earning a sum of Rs. 50,000 and the rate of return expected is 10%. This company will be said to be properly capitalized. Suppose the capital investment of the company is Rs. 60,000, it will be over capitalization to the extent of Rs. 1,00,000. The new rate of earning would be:

$$50,000/60,000 \times 100 = 8.33\%$$

When the company has over capitalization, the rate of earnings will be reduced from 10% to 8.33%.

Causes of Over Capitalization

Over capitalization arise due to the following important causes:

- Over issue of capital by the company.
- Borrowing large amount of capital at a higher rate of interest.
- Providing inadequate depreciation to the fixed assets.
- Excessive payment for acquisition of goodwill.
- High rate of taxation.
- Under estimation of capitalization rate.

Effects of Over Capitalization

Over Capitalization leads to the following important effects:

- Reduce the rate of earning capacity of the shares.
- Difficulties in obtaining necessary capital to the business concern.

- It leads to fall in the market price of the shares.
- It creates problems on re-organization.
- It leads to under utilization of available resources.

Remedies for Over Capitalization

Over capitalization can be reduced with the help of effective management and systematic design of the capital structure.

The following are the major steps to reduce over capitalization.

- Efficient management can reduce over capitalization.
- Redemption of preference share capital which consists of high rate of dividend.
- Reorganization of equity share capital.
- Reduction of debt capital.

Under Capitalization

Under capitalization is the opposite concept of over capitalization and it will occur when the company's actual capitalization is lower than the capitalization as warranted by its earning capacity. Under capitalization is not the so-called inadequate capital.

Under capitalization can be defined by Gerstenberg, "a corporation may be under capitalized when the rate of profit is exceptionally high in the same industry".

Hoagland defined under capitalization as "an excess of True assets value over the aggregate of stocks and bonds outstanding".

Causes of Under Capitalization

Under capitalization arises due to the following important causes:

- Under estimation of capital requirements.
- Under estimation of initial and future earnings.
- Maintaining high standards of efficiency.
- Conservative dividend policy.
- Desire of control and trading on equity.

Effects of under Capitalization

Under Capitalization leads certain effects in the company and its shareholders.

- It leads to manipulate the market value of shares It increases the market ability of the shares.
- It may lead to more government control and higher taxation.
- Consumers feel that they are exploited by the company.
- It leads to high competition.

Remedies of Under Capitalization

- Under Capitalization may be correcte by taking the following remedial measures:
- Under capitalization can be compensated with the help of
- Fresh issue of shares.
- Increasing the parvalue of share may help to reduce under capitalization.
- Under capitalization may be corrected by the issue of bonus shares to the existing shareholders.
- Reducing the dividend pershare by way of splitting up ofshares.

Let Us Sum Up

Time value is an important concept to understand the present and future value of an investment.It is very important aspect of financial planning. The value of money keeps on changes due to inflation.Itis mainly used for asset valuation, funding, and wealth creation.Itis used broadly to make personal and business finance judgments.

Check Your Progress

1. Time value of money in dicates that
 - a. A unit of money obtained today is worth more than a unit of money obtained in future
 - b. A unit of money obtained today Is worth less than a unit of money obtained in future
 - c. There is no difference in the value of money obtained today and tomorrow
 - d. None of the above

2. Time value of money supports the comparison of cash flows recorded at different time period by
 - a. Discounting all cash flows to a common point of time
 - b. Compounding all cash flows to a common point of time
 - c. Using either a or b
 - d. None of the above.
3. Relationship between annual nominal rate of interest and annual effective rate of interest,if frequency of compounding is greater than one:
 - a. Effectiverate>Nominal rate
 - b. Effectiverate<Nominal rate
 - c. Effectiverate=Nominal rate
 - d. None of the above
4. Present value tables for annuity cannot best raight away applied to varied stream of cash flows.
 - a.True
 - b.False
5. Heterogeneous cash flows can be made comparable by
 - a. Discountingtechnique
 - b. Compoundingtechnique
 - c. Either a or b
 - d. None of the above

GLOSSAR

Time value of money (TVM):. The money in the present is worth more than the same sum of money to be received in the future because money value changes over the time because of inflation. It can help investors to understand which avenue of investment may be best based on interest, inflation, risk and return.

PresentValue: present value is the amount you must invest in order to realize the future value.

Future value: It is the amount that will accrue over time when that sum is invested.

Capitalization rate or

Discount rate: Rate of interest or discount rate used to convert a series of future payments into a single present value

Answers to Check Your Progress

1. a. A unit of money obtained today is worth more than a unit of money obtained in future.
2. c. Using either a or b
3. a. Effective rate > Nominal rate
4. a. True
5. c. Either a or b

Suggested Reading

1. Chandra, Prasanna, (2011), Financial Management: Theory and Practice. New Delhi: (8th Edition), Tata McGraw Hill Publishing Co. Ltd.,
2. Pandey I.M (2021), Financial Management. New Delhi: (12th Edition), Vikas Publishing House Pvt. Ltd.,

Block-2: Introduction

Block-2: Capital Budgeting Decisions has been divided in to three Units.

Unit-4: Capital Budgeting - Introduction of Capital Budgeting, Need and importance of capital budgeting, Phases in capital budgeting, Types of investment decisions, Characteristics of capital budgeting and Capital rationing.

Unit-5: General Methods in Capital Budgeting – Introduction, Methods of capital budgeting evaluation–payback period, accounting rate of return, Netpresent value, Internal rate of return and Profitability index.

Unit-6: Risk Analysis in Capital Budgeting- Introduction, Risk adjusted discount rate, Probability technique, Sensitivity analysis, Certainty equivalent approach and Standard deviation and coefficient of variation

In all the units of Block -2 **Capital Budgeting Decisions**, the Check your progress, Glossary, Answers to Check your progress and Suggested Reading has been provided and the Learners are expected to attempt all the Check your progress as part of study.

Unit-4

Capital Budgeting

STRUCTURE

Overview

Objectives

4.1. Introduction of Capital Budgeting

4.2. Need and importance of capital budgeting

4.3. Phases in capital budgeting

4.4. Types of investment decisions

4.5. Characteristics of capital budgeting

4.6. Capital rationing

Let Us Sum Up

Check Your Progress Glossary

Answers to Check Your Progress

Suggested Readings

Overview

Capital budgeting is very obviously a vital activity in business. Vast sums of money can be easily wasted if the investment turns out to be wrong or un-economic. This subject matter is difficult to grasp by nature of the topic covered and also because of the mathematical content involved. However, it seeks to build on the concept of the future value of money which may be spent now.

Objectives

After learning this unit, you should be able to:

- Examine the importance of capital budgeting
- Determine the types of investment decisions.
- Understand the meaning, objectives, and Characteristics of capital budgeting

4.1. Introduction of Capital Budgeting

Definition: Capital budgeting is the method of determining and estimating the potential of long - term investment options involving enormous capital expenditure. It is all about the company's strategic decision making, which acts as a milestone in the business **For Example;** Let us now consider capital budgeting for buying a new printing machine by a publishing house. The machine is worth \$15000 and will generate a return of \$3000 annually. Thus, the payback period of the machine is five years. The expected annual rise in inflation is 10%.

Let us calculate the real investment value after the first year:

$$\text{Real value of profit} = (\text{Investment} + \text{Profit after first year}) - \frac{\text{Investment} + \text{Profit after first year}}{1.1}$$

$$\text{Real value of profit} = (15000 + 3000) - \frac{15000+3000}{1.1}$$

$$\text{Real value of profit} = \$1636$$

We can say that the company's actual profit after a year is estimated at \$1636 instead of \$3000.

Capital budget involves the planning to acquire worthwhile projects, together with the timings of the estimated cost and cash flow of each project. Such projects require large sum of funds and have long-term implications for the firm. Capital budgets are difficult to prepare because estimates of the cash flows over a long period have to be made which involve a great degree of uncertainty.

The term capital budget can be applied to budgets that lay down the estimates in respect of the capital resources of the firm. The operating budget helps to prepare the estimated income statement. The capital budgets facilitate in the task of compiling of a projected balance sheet. The capital budgets can be prepared for long-term as well as for the short-term capital. The capital budgets specify the capital intentions of the management and as such often reflect the management policy in respect of investment, expansion, growth, contraction, production and profits.

Capital budgeting includes both raising of long-term funds as well as their utilization. It may be defined as, "The firm's formal process for acquisition and investment of capital." It involves firm's decision to invest its current funds for addition, deposition, modification and replacement of long-term or fixed assets. Capital budgeting is a many-sided activity. It includes searching for new and more profitable investment proposals, investigating engineering and

marketing considerations to predict the consequences of accepting the investment and making economic analysis to determine the profit potential of each investment proposal. Its basic features can be summarized as under:

- I. It has the potentiality of making large anticipated profits.
- II. It involves a high degree of risk.
- III. It involves a relatively long-time period between the initial outlay and the anticipated return.

4.2. Need and Importance of Capital Budgeting

Long-term Implications of Capital Budgeting

A capital budgeting decision has its effect over a long-time span and inevitably affects the company's future costs structure and growth. A wrong decision can prove disastrous for the long-term survival of firm. On the other hand, lack of investment in asset would influence the competitive position of the firm. So the capital budgeting decisions determine the future destiny of the company.

Involvement of large amount of funds in Capital Budgeting

Capital budgeting decisions need substantial amount of capital outlay. This underlines the need for thoughtful, wise and correct decisions as an incorrect decision would not only result in losses but also prevent the firm from earning profit from other investments which could not be undertaken.

Irreversible decisions in Capital Budgeting

Capital budgeting decisions in most of the cases are irreversible because it is difficult to find a market for such assets. The only way out will be scrap the capital assets so acquired and incur heavy losses.

Risk and uncertainty in Capital budgeting

Capital budgeting decision is surrounded by great number of uncertainties. Investment is present and investment is future. The future is uncertain and full of risks. Longer the period of project, greater may be the risk and uncertainty. The estimates about cost, revenues and profits may not come true.

Difficult to make decision in Capital budgeting

Capital budgeting decision making is a difficult and complicated exercise for the management. These decisions require an overall assessment of future

events which are uncertain. It is really a marathon job to estimate the future benefits and cost correctly in quantitative terms subject to the uncertainties caused by economic-political social and technological factors.

Large and Heavy Investment

The proper planning of investments is necessary since all the proposals are requiring large and heavy investment. Most of the companies' are taking decisions with great care because of finance as key factor.

Permanent Commitments of Funds

The investment made in the project results in the permanent commitment of funds. The greater risk is also involved because of permanent commitment of funds.

Long term Effect on Profitability

Capital expenditures have great impact on business profitability in the long run. If the expenditures are incurred only after preparing capital budget properly, there is a possibility of increasing profitability of the firm.

Complicacies of Investment Decisions

Generally, the long term investment proposals have more complicated in nature. Moreover, purchase of fixed assets is a continuous process. Hence, the management should understand the complexities connected with each projects.

Maximize the worth of Equity Shareholders

The value of equity shareholders is increased by the acquisition of fixed assets through capital budgeting. A proper capital budget results in the optimum investment instead of over investment and under investment in fixed assets. The management chooses only most profitable capital project which can have much value. In this way, the capital budgeting maximize the worth of equity shareholders.

Difficulties of Investment Decisions

The long-term investments are difficult to be taken because decision extends several years beyond the current account period, uncertainties of future and higher degree of risk.

National Importance

The selection of any project results in the employment opportunity, economic

growth and increase per capital income. These are the ordinary positive impact of any project selection made by any company.

4.3. Phases in Capital Budgeting

To Identify Investment Opportunities

The first step is to explore the available investment opportunities. Next, the organization's capital budgeting committee is required to identify the expected sales shortly. After that, they recognize the investment opportunities keeping in mind the sales target set up by them. There are points which need to be taken care of before starting the search for the best investment opportunities. It includes regularly monitoring the external environment to get an idea about the new investment opportunities. Then, define the corporate strategy based on the organization's SWOT analysis, i.e., analysis of its strength, weakness, opportunity, and threat, and seeking suggestions from its employees by discussing the strategies and objectives with them.

Example:

Identification of the underlying trends of the market, which can be based on the most reliable information before selecting a specific investment. For instance, before choosing the investment to be made in the company involved in the gold mining, firstly, the underlying commodity's future direction needs to be determined; whether the analysts believe that there are more chances of price getting declined or the chances of price rise is much higher than its declination.

Gathering of the Investment Proposals

After identifying the investment opportunities, the second process in capital budgeting is to collect investment proposals. Before reaching the committee of the capital budgeting process, these proposals are seen by various authorized persons in the organization to check whether the bids given are according to the requirements. Then the classification of the investment is done based on the different categories such as expansion, replacement, welfare investment, etc. This classification into the various types is done to make the decision-making process more comfortable and facilitate budgeting and control.

Example:

There all estate company identified two lands where they could build their project. Out of the two lands, one land is to be finalized. So, one will submit

the proposals from all the departments. Then, various authorized persons will see the same in the organization to check whether the bids are multiple requirements. Also, the same will then be classified for a better decision-making process.

Decision Making Process in Capital Budgeting

Decision-making is the third step. In the stage of decision making, the executives will have to decide which investment needs to be made from the investment opportunities available, keeping in mind the sanctioning power open to them.

Example:

For instance, the managers at the lower level of management, like work managers, plant super intendants, etc., may have the power to sanction the investment upto the limit of \$10,000 beyond the permission of the board of directors or senior management required. If the investment limit extends, the lower management must involve the top management to approve the investment proposal.

Capital Budget Preparations and Appropriations

After the decision-making step, the next step is to classify the investment outlays into the higher value and the smaller value investment.

Example:

When the value of an investment is lower and is approved by the lower management level, then for getting speedy actions, they are generally covered with blanket appropriations. But, if the investment outlay is of higher value, it will be a part of the capital budget after taking the necessary approvals. The motive behind these appropriations is to analyze the investment performance during its implementation.

Implementation

Completing all above steps, the investment proposal under consideration is implemented, i.e., put into a concrete project. Several challenges can be faced by the management personnel while executing tasks as they can be time-consuming. For the implementation at a reasonable cost and expeditiously, the following things could be helpful: –

Formulation of the project adequately: Inadequate formulation is main reasons for the project's delay. So, all the necessary details should be taken

by the concerned person in advance, and proper analysis should be done well in advance to avoid any delay in the implementation of the project.

Use of responsibility accounting principle: For the expeditious execution of the various tasks and the cost control, one should assign specific responsibilities to the project managers, i.e., the timely completion of the project within the specified cost limits.

Net work technique use: Several network techniques like the Critical Path Method (CPM) and Program Evaluation and Review Technique (PERT) are available for project planning and control, which will help monitor the projects properly and efficiently.

Example:

For prompt processing, the capital budgeting committee must ensure that management has adequately done the homework on the preliminary studies and the concise formulation of the project before its implementation. After that, the project is implemented efficiently.

Review of Performance

Review of performance is the last step in capital budgeting. First, the management must compare the actual results with the projected results. The correct time to make this comparison is when the operations get stabilized.

4.4. Types of Investment Decisions

Definition: The **Investment Decision** relates to the decision made by the investors or the top-level management with respect to the amount of funds to be deployed in the investment opportunities. Simply, selecting the type of assets in which the funds will be invested by the firm is termed as the investment decision. These assets fall into two categories: Long Term Assets and Short-Term Assets.

The decision of investing funds in the long term assets is known as **Capital Budgeting**. Thus, Capital Budgeting is the process of selecting the asset or an investment proposal that will yield returns over a long period.

The first step involved in Capital Budgeting is to select the asset, whether existing or new on the basis of benefits that will be derived from it in the future. The next step is to analyse the proposal's uncertainty and risk involved in it. Since the benefits are to be accrued in the future, the uncertainty is high with respect to its returns. Finally, the minimum rate of return is to be set against

which the performance of the long-term project can be evaluated.

The investment made in the current assets or short-term assets is termed as Working Capital Management. The working capital management deals with the management of current assets that are highly liquid in nature. The investment decision in short-term assets is crucial for an organization as a short-term survival is necessary for the long-term success. Through working capital management, a firm tries to maintain a trade-off between the profitability and the liquidity. In case a firm has an inadequate working capital i.e., less funds invested in the short-term assets, then the firm may not be able to pay off its current liabilities and may result in bankruptcy. Or in case the firm has more current assets than required, it can have an adverse effect on the profitability of the firm. Thus, a firm must have an optimum working capital that is necessary for the smooth functioning of its day-to-day operations.

Kinds of Capital Budgeting Proposals

- Replacement
- Expansion
- Modernisation of Investment Expenditures
- Strategic Investment Proposals
- Diversification
- Research & Development

4.5. Characteristics of Capital Budgeting

Capital Budgeting is a process of evaluating long-term business decisions that need large amounts of capital. It is a way to find a better deal for the growth of the business. Capital budgeting is often related to important capital decisions that impact the bottom-line of a company. It has certain characteristic features. Here are the features one by one.

Large Investments

Capital budgeting is related to investments of large funds. It is often used to find projects that need large investments. Managers of a company identify the need for a capital budget where large sums of money are required. In capital budgeting decisions, managers analyze different opportunities and find the solution with optimum care.

Irreversible Decisions

The decisions taken in capital budgeting are irreversible in nature. Therefore, making the right choices and analysing the basics is of optimum importance in capital budgeting.

Since the decisions cannot be taken back, managers need to be sure which option will offer the maximum returns. Once applied, the decisions can either make a good profit or large losses. So, taking capital budgeting decisions is key to the existence of a company.

High Risk

Capital budgeting decisions often carry a high amount of risk. As large amounts of money are invested for a future outcome that is uncertain, it is of a high-risk nature. The large funds required in capital budgeting act like debt for the companies and if the process goes wrong this may even lead to bankruptcy of companies.

Long-term Impact on Profitability

Capital budgeting decisions are long-term in nature. They make a long-term impact on profitability. In capital budgeting, the funds are invested in projects that offer the best returns. As the process of getting returns is long, the decisions usually take a long-term profitability point of view.

Impact on Cost Structure

The decisions of capital budgeting directly impact the cost structure of the company. As large funds are involved in the process, capital budgeting relies on the cost structure of the company. Moreover, as decisions regarding rent, insurance, and production have to be measured, capital budgeting measures directly impact the cost structure of the company.

Difficult Decisions

The decisions taken in capital budgeting are difficult because they are about the future which is uncertain. Managers need to look at many factors before making capital budgeting decisions.

However, regardless of the amount of research, there is no guarantee that capital budgeting decisions will yield the desired results. That is why, the decisions of capital budgeting are difficult in nature.

Impact on Competitive Strength

The decisions taken in capital budgeting directly impact the strengths and weaknesses of a company. While a good decision can lead to spectacular profitability, a bad decision can be fatal for the company. That is why capital budgeting decisions are competitive in nature

4.6. Capital Rationing

Capital rationing is a strategy used by companies or investors to limit the number of projects they take on at a time. If there is a pool of available investments that are all expected to be profitable, capital rationing helps the investor or business owner choose the most profitable ones to pursue. Companies that employ a capital rationing strategy typically produce a relatively higher return on investment (ROI). This is simply because the company invests its resources where it identifies the highest profit potential.

Capital Rationing Example

Capital rationing is about putting restrictions on investments and projects taken on by a business. To illustrate this better, let's consider the following example: VV Construction is looking at 5 projects to invest in,

Project	Investment Capital	Net Present Value (NPV)
1	\$2 billion	\$2 billion
2	\$4 billion	\$4 billion
3	\$5 billion	\$3 billion
4	\$4 billion	\$2 billion
5	\$6 billion	\$5 billion

To determine which project offers the greatest potential profitability, we compute each project using the following formula:

Profitability = NPV / Investment Capital

Project	NPV / Investment Capital	Profitability
1	\$2 billion / \$2 billion	1
2	\$4 billion / \$4 billion	1
3	\$3 billion / \$5 billion	0.6
4	\$2 billion / \$4 billion	0.5
5	\$5 billion / \$6 billion	.83

Created on the table above, we can achieve that project 1 and 2 offer the highest possible profit. Therefore, VV Construction will possibly invest in those two projects

Let Us Sum Up

The capital budgets specify the capital intentions of the management and as such often reflect the management policy in respect of investment, expansion, growth, contraction, production and profits. Capital budgeting includes both raising of long term funds as well as their utilization.

It may be defined as, "The firm's formal process for acquisition and investment of capital." It involves firm's decision to invest its current funds for addition, deposition, modification and replacement of long-term or fixed assets. Capital expenditure budget considers proposed Capital out lays and their financing.

A careful and serious planning is required on the part of top management while taking decisions on capital expenditure, because the returns from such expenditure are not immediate but extend over a period of time in future. It calls for a great deal of fore sightedness. Heavy investments are involved in capital expenditure and as such wrongful decision would entail a fatal blow to the business

Check Your Progress

1. Capital planning is the interaction–
 - a. Embraced to investigate how to make accessible extramoney to the business.
 - b. By which the firm chooses how much cash flow to putre sources in to business
 - c. By which the firm concludes whichlong-haulventures to make.
 - d. This helps make an ace financial plan for the association.
2. The word budget has been derived from:
 - a. Greek
 - b. Latin
 - c. French
 - d. Germany

3. Capital Budgeting is a part of:
 - a. Investment Decision
 - b. Working Capital Management
 - c. Marketing Management
 - d. Capital Structure
4. Capital Budgeting Decisions are:
 - a. Reversible
 - b. Irreversible
 - c. Unimportant
 - d. All of the above
5. Capital budgeting is the process–
 - a. Which help to make master budget of the organization.
 - b. By which the firm decide show much capital to invest in business
 - c. By which the firm decides which long-term investments to make.
 - d. Under taken to analyze how make available various finance to the business.

Glossary

- Capital Budgeting:** Capital budgeting is the method of determining and estimating the Potential of long-term investment options involving enormous capital expenditure. It is all about the company's strategic decision making, which acts as a milestone in the business.
- Investment Decisions:** Investment decision relates to the determination of the firm's total assets, the composition of these assets, and the firm's business risk complexities reported by investors. This is the most important financial decision.
- Capital Rationing:** Capital rationing is a strategy used by companies or investors to limit the number of projects they take on at a time. If there is a pool of available investments that are all expected to be profitable, capital rationing helps the investor or business owner choose the most profitable ones to pursue.

Answer to Check Your Progress

1. c. By which the firm concludes which long-haul ventures to make.
2. c. French
3. a. Investment Decision
4. b. Irreversible
5. c. By which the firm decides which long-term investments to make.

Suggested Reading

1. D.ChandraBose (2010), Fundamentals of Financial Management, (2nd Edition), PHI learning India PVT Ltd., www.phindia.com.
2. Eugene F.Brigham|Michael C.Ehrhardt (2017), Financial Management Text and cases, (15th Edition) , Cengage learning.

Unit-5

General Methods in Capital Budgeting

STRUCTURE

Overview

Objectives

5.1. Introduction

5.2 .Methods of capital budgeting evaluation–payback period

5.3. Accounting rate of return

5.4. Netpresent value

5.5. Internal rate of return

5.6. Profitability index

Let Us Sum Up

CheckYourProgress

Glossary

Answers to Check Your Progress

Suggested Readings

Overview

In this Unit complete details of methods of capital budgeting evaluation are discussed. There are several capital budgeting analysis methods that can be used to determine the economic feasibility of a capital investment. They include the Payback Period, Discounted Payment Period, Net Present Value, Profitability Index, Interna lRate of Return, and Internal Rate of Return.

Objectives

After studying this unit, you should be able to:

- Examine The Methods Of Capital Budgeting
- Determine theTypes of payback period
- Understand the advantage disadvantage of NPV,IRR and PI

5.1. Introduction

The capital budgeting decisions are crucial& critical business decisions hence utmost care must be taken while taking such decisions. These Decisions are significant due to the following reasons:

They have long term implications for the firm. They have decisive influence on the rate and direction of the growth of the firm in future. A wrong decision may prove fatal to the long term survival of the firm.

1. They involve large amount of funds.
2. They are irreversible decisions.
3. Once the decisions are taken they cannot be changed or corrected later on. Because once the big assets are purchased it is difficult to resell those after the mistake in purchasing is realized.
4. They are among the most difficult decisions to make because they are based on assessment of future events which are uncertain

In most business firms there are more proposals for projects than the firm is able and willing to finance. Some of these proposals are good while others are poor. In view of the utmost importance of the capital budgeting decision, a sound appraisal should be undertaken to measure the economic worth of each of these proposals. A screening process has to be devised for finding out the real content of such proposals. Following are the important methods or technique of capital budgeting

5.2. Methods of Capital Budgeting Evaluation – Payback Period

Pay back method, also known as pay-out /or pay-off period method, is a simple technique for taking capital budgeting decision. Under this method the investment decision is based on pay- back period. The payback period is the period with in which the investment in capital asset will be recovered out of annual savings arising out of investment decision? For example, if a machine is acquired for Rs.1,50,000/- and it fetches Rs.30,000/- as income in the first year, Rs.60,000/- in the second year and Rs.60,000/- in the third year. The total cost of machine will be recovered fully within 3 years hence the payback period is 3 years, me payback period is calculated by following formula Pay-back period= $\frac{\text{Net Investment}}{\text{Net Cash Inflow Per Annum}}$ (Note: Net Cash Inflow refers to earning from investment before charging interest and depreciation but after charging taxes) All alternative investment proposals are ranked according to the payback period.

Advantages

1. It is easy to understand and simple to operate.
2. It is suitable if the firm facing shortage of funds because it gives

importance to investments which do speedy recovery of funds.

3. It is suitable if there is a fear of project being obsolete in short period of time.
4. It is suitable for industries where rapid technological changes take place.
5. It is suitable for evaluating the projects where the returns (or savings) beyond three or four years are uncertain hence cannot be considered in making decision.

Disadvantages

1. This method gives undue emphasis on fast recovery of invested fund ignoring the profitability of investments. It ignores the income from investment beyond payback period hence it may lead to wrong decisions.
2. It ignores the 'interest factor' which is very important factor in making investment decisions.
3. It causes management to overlook many profitable investment opportunities because they are slow starters and only gather momentum after few years of operation
4. It gives importance to return of cash rather than return of profits on investment.
5. It does not make correct appraisal of investments because it does not consider the full economic life of the project but only its early years. Inspire of all these limitations, this method is popularly used in industries where technological changes are frequent, future is uncertain and risk of obsolescence is more, necessitating the prompt pay back of investment in projects.

5.2. Accounting Rate of Return

The Accounting Rate of Return (ARR) is a formula that reflects the percentage rate of return expected on an investment or asset, compared to the initial investment's cost. The ARR formula divides an asset's average revenue by the company's initial investment to derive the ratio or return that one may expect over the life time of an asset or project. ARR does not consider the time value of money or cashflows, which can be an integral part of maintaining a business. The accounting rate of return is a capital budgeting

metric that's useful if you want to calculate an investment's profitability quickly. Businesses use ARR primarily to compare multiple projects to determine the expected rate of return of each project, or to help decide on an investment or an acquisition. ARR factors in any possible annual expenses, including depreciation, associated with the project. Depreciation is a helpful accounting convention where by the cost of a fixed asset is spread out, or expensed, annually during the useful life of the asset. This lets the company earn a profit from the asset right away, even in its first year of service.

The Formula for ARR

$$\text{ARR} = \frac{\text{Average Annual Profit}}{\text{Initial Investment}}$$

The formula for the accounting rate of return is as follows:

How to Calculate the Accounting Rate of Return (ARR)

Calculate the annual net profit from the investment, which could include revenue minus any annual costs or expenses of implementing the project or investment. If the investment is a fixed asset such as property, plant, and equipment (PP&E), subtract any depreciation expense from the annual revenue to achieve the annual net profit. Divide the annual net profit by the initial cost of the asset or investment. The result of the calculation will yield a decimal. Multiply the result by 100 to show the percentage return as a whole number.

5.4. Net Present Value

The net present value (NPV) is the current monetary value of a series of cash flows. As a result, all future cash flows are discounted using a predetermined rate of interest or discount rate. The Net Present Value (NPV) is one of the Discounting Cash Flows (DCF) methodologies. The net present value is often used in the context of a cost-benefit analysis where it is a common indicator for the profitability of project or investment alternatives: A positive NPV suggests that the investment is profitable, i.e. the return exceeds the predefined discount rate). The NPV is negative if expenses are higher or occur earlier than the returns. Thus, the investment does not yield a net present value of 0 indicates that the investment earns a return that equals the discount rate.

The Net Present Value (NPV) Formula

The formula for the calculation of the net present value is

$$NPV = \sum_{t=0}^N \frac{NCF_t}{(1+i)^t} [+ RV]$$

Where:

NPV=Net Present Value

NCF= Net Cash Flow of a period i=Discount Rate or Interest Rate RV = Residual Value

N= Total Number of Periods

t= Period in which the Cash Flows occur

Components and Assumptions of the NPV Computation

- The formula consists of three different fundamental elements:
- The assumed cash flow of a period (for each period),
- The present discount rate or interest rate (for each period),
- The residual value at the end of the projection (optional).

The NPV calculation takes the point in time into account at which cash flows occur. With a positive discount rate (which is by far the most common use), earlier cash flows impact the NPV more than those of later periods. This can lead to a negative NPV even if the simple non-discounted sum of cash flows is positive or 0.

Cash Flows

Cash Flows used for NPV computations are usually stemming from a business projection for an investment or a project opportunity. If you assess the value of a contract or a financial instrument with agreed upon payments, you will probably use those amounts though.

For instance, if you are planning a project with a one-year implementation time and 5 years use of the created result, your projected cash flows will be the estimated project cost in period 0 and 1 (initial investment) and the expected benefits and running cost as of period 1. Note that the scheduling of activities and, subsequently, cash flows will have an impact on the overall NPV (source). For the calculation of the NPV, a net cash flow estimation is basically sufficient. It does not change the result whether you discount net cashflows or whether you discount gross inflows and outflows and offset the present values of both series. However, if you intend to calculate the benefit-

cost ratio in addition to the NPV, you will want to maintain a granular estimate of gross in- and out flows in your projection.

Discount Rate /Interest Rate

In the basic version of the NPV computation – which is usually applied for rough projections in early stages of a project – the discount rate remains constant for all periods and for all kinds of cash flows. It often represents the organization's target return on investments or Weighted Average Cost of Capital (WACC). In some areas, such as financial markets, the discount rates may vary among the different periods. They can, for instance, represent a market interest rate curve or swap rate curve. Those rates will then be used to price instruments and transactions. In some cases, it may also be sensible to use different discount rates for different types of cash flows, e.g. distinguished into risk-free in- and outflows and those subject to higher risk.

An example of a very accurate yet rather complex approach is the project option valuation with net present value and decision tree analysis (read more on Science Direct). While there are good reasons to do this in certain cases, complex calculation may often be over-engineered for small and mid-size projects, in particular in early stages. For such projects, interest rate changes or splits are often deemed less material compared to other assumptions and insecurities of a forecast.

Residual value

When you are projecting cash flows for a long-time horizon, you will likely reach a point on the time line where it is not reasonable to continue the detailed benefit and cost forecasting, e.g., when estimates lack accuracy or would require huge efforts. This is where the residual value becomes relevant (source). The residual value represents the remaining value of an asset, a project result or an intangible good at the end of the time horizon of a projection. In a construction project, for instance, a project controller might decide to determine detailed cash flows (or benefits and costs) for the years 1 to 10 of a projection. Subsequently, he would add a residual value to the projection in order to account for cash flows occurring in the years 11 and later or for the expected market value of the asset at the end of year 10.

Infinite Series of Cash Flows/Perpetuity

This method is sensible for investments and assets that provide returns for an infinite time. Examples are certain types of assets with an infinite lifecycle, e.g. some financial instruments, (historic) buildings (arguable, but there are

indeed historic buildings that last edforcenturies) or farmland. Their returns are reflected in a residual value that equals the present value of the perpetuity discounted to the last year of the forecast's time horizon. It is calculated as follows:

Residual Value=Net Present Value=perpetuity / interestrate

The calculation of this value requires 2 assumptions: the constant perpetuity and the interest rate.The perpetuity reflects the constant net cash flow that is expected to occur after the detailed forecasting period.

The interest rate can be the discount rate of the NPV calculation, sometimes increased by an add-onto take the insecurity of long-term planning into account. If cash flows are expected to increase overtime, e.g. in case of real estate investments, that growth rate is subtracted from the discount rate used for this calculation. Most types of assets have a limited lifecycle though. The other approaches to determine their residua lvalue are therefore more accurate. However, the present value of a perpetuity is sometimes also used for those types of investment as a proxy, usually involving a high interest rate (i.e. a lower present value) to account for the inaccuracy of the calculation.

Expected Market Value/Salvage Value as Residual Value

If it is intended to sell an asset at a future point in time, it is reasonable to include the fore casted market value in the NPV calculation. The future market value or salvage value needs to be estimated for this purpose. Possible techniques include but are not limited to the extrapolation of past market value developments, the use of certain depreciation rules/curvesor the expected future book value. In project management, this residual value type is used, for instance, if a projection covers the entire lifetime of a product. A market value can be reasonable in cases where a project result is subject to a license requirement that allows for a usage shorter than the lifecycle of the assets purchased or created.

Project Residual Value of 0

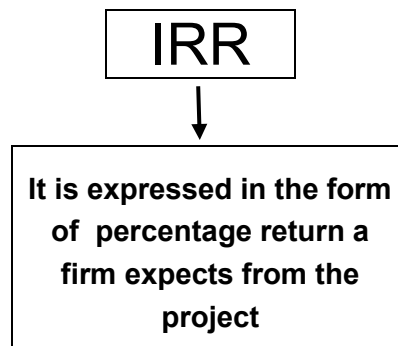
A residual value of 0 is typically assumed if the projection horizon ends at the end of – or even beyond –the expected lifecycle of an assetor product. This may be applicable to fast-changing types of assets, e.g. software and electronic devices. A residual value of 0 can also be a reasonable or conservative assumption if the future values or cash flows are highly uncertain or subject to a high degree of ambiguity. Negative Residual Value due to Disposal Cost. Some types of assets will cause disposal costs when

they are used up. These costs are also part of the cost-benefit assessment of such investments. Examples could be projects and investments that involve toxic material or constructions and structures that need to be removed eventually.

However, it is arguable whether these costs are classified as a negative residual value or a negative cash flow/cost in the detailed forecast. As either understanding leads mathematically to the same result, we will skip further elaboration on that discussion. One way or the other, it is just important not to forget the disposal cost when projecting cash flows.

5.5. Internal Rate of Return

Internal Rate of Return (IRR) is the discount rate at which a project's returns become equal to its initial investment. In other words, it attains a break-even point where the total cash inflows completely meet the total cash outflow. The internal rate of return is commonly used to compare and select the best project. The project with an IRR above the minimum acceptable return (hurdle rate) is selected. The IRR is more helpful in comparative analysis than in isolation as one single value.



Source-Internal Rate of Return (IRR) (wallstreetmojo.com)

The internal rate of return (IRR) determines the worthiness of any project. In addition, the IRR determines the efficiency of a project in generating profits. Therefore, companies use themetric to plan before investing in any project. The hurdle rate or required rate of return is a minimum return expected by an organization on its investment. Any project with an internal rate of return exceeding the hurdle rate is considered profitable.

The internal Rate of Return is much more helpful when it is used to carry out a comparative analysis. When IRR is used in isolation as one single value, it

is less effective. It is often used to rank multiple prospective investment options that a firm is planning to undertake.

The higher a project's IRR, the more desirable it is. That project becomes potentially the best available investment option. The actual internal rate of return obtained may vary from the theoretical value calculated. None the less, the highest value will surely provide the best growth rate among all. The IRR of any project is calculated by keeping the following three assumptions in mind: The investments made will be held until maturity.

The intermediate cashflows will be reinvested.

Internal Rate of Return Examples

Consider the following example to better understand the application of the internal rate of returns (IRR). The DEF Group wants to diversify its business and plan to take up a new project that requires an initial investment of \$400000. They will pay it off in 4 years. It will generate \$40000 in the first year, \$80000 in the second year, \$160000 in the third year, and \$259600 in the fourth year. Find out the feasibility of this investment project if the discount rate is 8%.

$$n = 4$$

$$t = 0, 1, 2, 3, 4 \quad CF_0 = -\$400000 \quad CF_1 = \$40000 \quad CF_2 = \$80000 \quad CF_3 = \$160000 \quad CF_4 = \$259600$$

$$\text{Discount Rate} = 8\%$$

Solution:

If the project's internal rate of return is 8%, then the NPV is:

$$NPV = \sum_{t=1}^n \left[\frac{CF_t}{(1 + IRR)^t} \right] + CF_0 = \frac{CF_1}{(1 + IRR)^1} + \frac{CF_2}{(1 + IRR)^2} + \dots + \frac{CF_n}{(1 + IRR)^n} + CF_0$$

$$NPV = \frac{40000}{(1 + 0.08)^1} + \frac{80000}{(1 + 0.08)^2} + \frac{160000}{(1 + 0.08)^3} + \frac{259600}{(1 + 0.08)^4} + (-400000)$$

$$NPV = 37037.04 + 68,587.11 + 1,27,013.16 + 1,90,813.75 - 400000$$

$$NPV = \$23,451.06$$

Let us assume that the internal rate of return is 10% and that the NPV = 0.

$$NPV = \frac{40000}{(1 + 0.1)^1} + \frac{80000}{(1 + 0.1)^2} + \frac{160000}{(1 + 0.1)^3} + \frac{259600}{(1 + 0.1)^4} + (-400000)$$

$$NPV = 36363.64 + 66115.70 + 120210.37 + 1,77,310.29 - 400000$$

NPV = 0

Thus, if the IRR is 10%, the project -even point. This project generates a positive NPV, and the discount rate is lower than the IRR. In other words, the IRR is more than the projects required rate of return; there fore, it is a profitable investment. It is important to note that the value of CF0 is always negative as it is the cash outflow.

5.6. Probitability Index

The Profitability Index (PI) measures the ratio between the present value of future cash flows and thei nitial investment. The index is a useful tool for ranking nvestment projects and showing the value created per unit of investment. The Profitability Index is also known as the Profit Investment Ratio (PIR) or the Value Investment Ratio (VIR).

Profitability Index Formula

$$\text{Profitability Index} = \frac{\text{Present Value of Future Cash Flows}}{\text{Initial investment}}$$

Profitability Index =	(NetPresent Value + Initial Investment)
	Initial investment

Source-

<https://corporatefinanceinstitute.com/resources/knowledge/accounting/profitability-index/>

Therefore: If the PI is greater than

1. The project generates value and the company may want to proceed with the project.If the PI is less than
2. The project destroys value and the company should not proceed with the project.If the PI is equal to
3. The project breaks even and the company is in different between proceeding and not proceeding with the project.
4. The higher the profitability index, the more attractive, the investment.
Company

A considering two projects:

Project A requires an initial investment of \$1,500,000 to yield estimated annual cashflows of:

\$1,50,000 in Year 1

\$3,00,000 in Year 2

\$500,000 inYear 3

\$200,000 inYear 4

\$600,000 inYear 5

\$500,000 inYear 6

\$100,000 inYear 7

Project A (Discount Rate: 10%)	
Time	Cash Flow
Year 0	- \$1,500,000.00
Year 1	\$150,000.00
Year 2	\$300,000.00
Year 3	\$500,000.00
Year 4	\$200,000.00
Year 5	\$600,000.00
Year 6	\$500,000.00
Year 7	\$100,000.00

Source-

<https://corporatefinanceinstitute.com/resources/knowledge/accounting/profitability-index/>

The appropriated is count rate or this projectis 10%.

Project B requires an initial investmen to \$3,000,000 to yield estimated annual cashflows of:

\$1, 00,000 inYear 1

\$5, 00,000 inYear 2

\$1, 00,000 inYear3

\$1,500,000 inYear4

\$2, 00,000 inYear 5

\$5, 00,000 inYear 6

\$1,000,000 inYear7

Project A (Discount Rate: 10%)	
Time	Cash Flow
Year 0	- \$3,000,000.00
Year 1	\$100,000.00
Year 2	\$500,000.00
Year 3	\$1,000,000.00
Year 4	\$1,500,000.00
Year 5	\$200,000.00
Year 6	\$500,000.00
Year 7	\$1,000,000.00

Source-

<https://corporatefinanceinstitute.com/resources/knowledge/accounting/profitability-index/>

The appropriate discount rate for this project is 13%.

Company A is only able to undertake one project. Using the profitability index method, which project should the company undertake?

Using the PI formula, Company A should do Project A. Project A creates value—Every\$1 invested in the project generates \$.0684 in additional value.

DiscountingtheCashFlowsofProject, A:

$$\$150,000 / (1.10) = \$136,363.64$$

$$\$300,000 / (1.10)^2 = \$247,933.88$$

$$\$500,000 / (1.10)^3 = \$375,657.40$$

$$\$200,000 / (1.10)^4 = \$136,602.69$$

$$\$600,000 / (1.10)^5 = \$372,552.79$$

$$\$500,000 / (1.10)^6 = \$282,236.97$$

$$\$100,000 / (1.10)^7 = \$51,315.81$$

Presentvalueoffuturecashflows:

$$\$136,363.64 + \$247,933.88 + \$375,657.40 + \$136,602.69 + \$372,552.79 + \$282,236.97 + \$51,315.81 = \$1,602,663.18$$

Profitability index of Project A: $\$1,602,663.18 / \$1,500,000 = \$1.0684$.

Project A creates value.

Discounting the Cash Flows of Project B:

$$\$100,000 / (1.13) = \$88,495.58$$

$$\$500,000 / (1.13)^2 = \$391,573.34$$

$$\$1,000,000 / (1.13)^3 = \$693,050.16$$

$$\$1,500,000 / (1.13)^4 = \$919,978.09$$

$$\$200,000 / (1.13)^5 = \$108,551.99$$

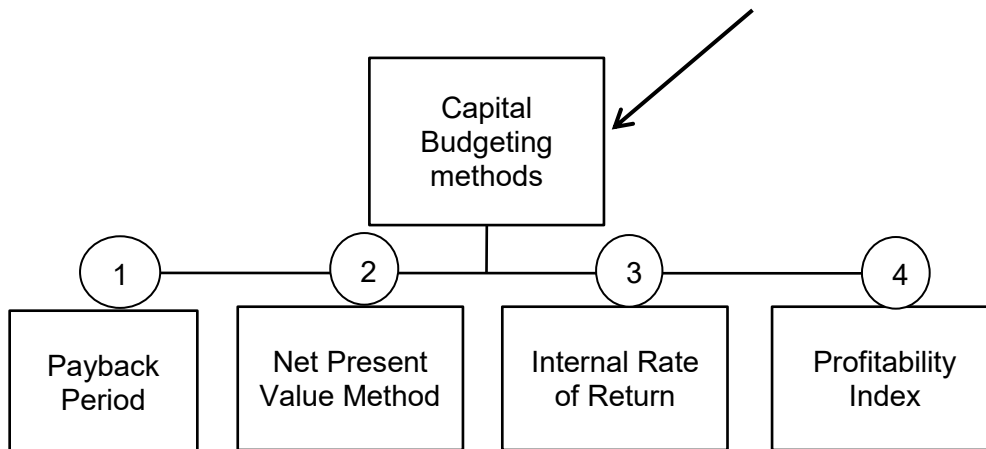
$$\$500,000 / (1.13)^6 = \$240,159.26$$

$$\$1,000,000 / (1.13)^7 = \$425,060.64$$

Present value of future cashflows:

$$\$88,495.58 + \$391,573.34 + \$693,050.16 + \$919,978.09 + \$108,551.99 + \$240,159.26 + \$425,060.64 = \$2,866,869.07$$

Profitability index of Project B : $\$2,866,869.07 / \$3,000,000 = \$0.96$. Project B destroys value.



Source-<https://www.wallstreetmojo.com/capital-budgeting-methods/>

Letus Sumup

Capital budgeting methods are used to aid the decision-making process in Capital Budgeting. They can be used as non-discounted cash flow methods, including the Payback period, etc., and the discounted cash flow methods, including the Present Net Value, profitability index, and Internal Rate of Return. Top Capital budgeting methods include Payback Period, NPV, Internal Rate of Return Method and Profitability Index.

Check Your Progress

1. The Internal Rate of Return (IRR) standard for project acknowledgment, under hypothetically boundless assets, is: Acknowledge all under takings which have–
 - a. IRR equivalent to the expense of capital
 - b. IRR more note worthy than the expense of capital
 - c. IRR is not exactly the expense of capital
 - d. None of the above mentioned
2. Which of the accompanying addresses how much time it takes for a capital budgeting undertaking to recuperate its underlying expense?
 - a. Maturity period
 - b. Payback period
 - c. Redemption period
 - d. Investment period
3. While working under a solitary period capital-proportioning limitation, you may initially need to have a go at choosing projects by dropping request of their uest to allow your self the best opportunity to choose the blend o undertakings that adds most to the firm's worth.
 - a. Payback Period (PBP)
 - b. Profitability Index (PI)
 - c. Net Present Value (NPV)
 - d. InternalRateof Return
4. Which of the company in gad dresses and how much time it takes for a capital budgeting venture to recuperate its underlying expense?
 - a. Redemption period
 - b. Maturity period
 - c. Investment period
 - d. Payback period

5. The values of the future net in comes discounted by the cost of capital are called–
- a. Averagecapital cost
 - b. Discounted capital cost
 - c. Net capital cost
 - d. Net present values

Glossary

Payback period: The term payback period refers to the amount of time it takes to recover the cost of an investment.

Net present value: Net present value (NPV) is the difference between the present value of cashinflows and the present value of cash outflows over a period of time. NPV is used in capital budgeting and investment planning to analyse the profitability of a projected investment or project. NPV is the result of calculations used to find today's value of a future stream of payments.

Internal Rate of Return: The internal rate of return (IRR) is a metric used in financial analysis to estimate the profitability of potential investments. IRR is a discount rate that makes the net present value (NPV) of all cash flows equal to zero in a discounted cash flow analysis. IRR calculations reply on the same formula as NPV does.Keep in mind that IRR is not the actual dollar value of the project. It is the annual return that makes the NPV equal to zero.

Answers To Check You Rprogres

1. b. IRR more note worthy than the expenses of capital.
2. b. Payback period
3. b. Profitability Index
4. d. Payback period
5. d. Net present values

Suggested Reading

1. Chandra, Prasanna, (2011), Financial Management: Theory and Practice. New Delhi: (8th Edition), Tata McGraw Hill Publishing Co. Ltd.,
2. D. Chandra Bose (2010), Fundamentals of Financial Management, (2ndEdition), PHI learning India PVT Ltd., www.phindia.com.

Unit-6

Risk Analysis in Capital Budgeting

STRUCTURE

Overview

Learning Objectives

6.1. Introduction

6.2. Risk adjusted discount rate

6.3. Sensitivity analysis

6.4. Certainty equivalent approach

6.5. Standard deviation and coefficient of variation

Let Us Sum Up

Check Your Progress Glossary

Model Questions

Answers to Check Your Progress

Suggested Readings

Overview

While discussing the capital budgeting techniques in unit 5, we have assumed that the investment proposals do not involve any risk and cash flows of the project are known with certainty. This assumption was taken to simplify the understanding of the capital budgeting techniques. However, in practice, this assumption is not correct. In fact, investment projects are exposed to various degrees of risk. There can be three types of decision making:

- I. Decision making under certainty: When cashflows are certain
- II. Decision making involving risk: When cash flows involve risk and probability. This unit will help you to understand the risk adjusted discount rate and sensitivity analysis

Objectives

After studying this unit, you should be able to:

- Understand the importance of Risk analysis?
- Explain the Risk analysis technique?
- Describe the decision tree and simulation method?

6.1. Introduction

Capital budgeting is a process of identifying, analysing and selecting investment to determine a firm's expenditures on assets whose cashflows are expected to extend beyond one year. It's an important process because capital expenditures require large investment but limited by the availability of funds (Capital Rationing), greatly influences a firm's ability to achieve its financial objectives, and can become as a tool of control. Uncertainties can exist when the outcome of an event is not known for certain, and when dealing with assets whose cash flows are expected to extend beyond one year, certainly, there's element of risk in that situation. The evaluation of risk therefore depends, on decision maker ability to identify and understand the nature of uncertainty surrounding the key variables and on the other, having the tools and methodology to process its risk implications. Various rules of thumb are often used to make this risk adjustment, one of them is using a simulation method

6.2. Risk Adjusted Discount Rate

Risk-Adjusted Discount Rate (RADR) is sum total of two components. And these components are the risk-free rate and the risk premium. This rate comes in handy when an expert or investor needs to calculate/ascertain the present value of a risky investment. So, we can say that RADR is there turn that an investor expects from taking a higher risk. Everyone is aware that the future is uncertain, which is true with investments or projects. There are several risks in the case of a long-term investment. These risks are primarily related to future market conditions, inflation, credit risk, political risk, etc. And, if the project is in another country, then there is a currency risk as well. There could be regulatory risks as well if there are chances of the project facing potential law suits. Thus, it is very important that the decision on whether or not to invest in a project takes into account thoroughly all these risks. And for that purpose, the use of RADR is an easy and simple way to account for all these risks.

Formula for Risk Adjusted Discount Rate

Simply stated RADR calculation formula is the summation of—Prevailing Risk-free rate

Plus Risk premium for the kind of risk proposed/expected.

The formula for risk premium (under CAPM) is – (Market rate of return *Less*

Risk-free rate) * beta of the project.

An example will help us to understand the RADR concept better. Suppose Company A is considering a project that requires an initial cash outflow of \$80,000. This project will result in a cash inflow of \$100,000 in three years. A similar project is offering a return of 5%. So, Company A will use the same rate to discount the cash flow. On this basis, the PV of the cash flow is \$86,384. Since PV is more than the initial investment, So Company A should accept the project. However, this project is in another country. So Company A wants to include currency risk in the discount rate as well. Thus, Company A determines a risk-adjusted discount rate of 8% (5%, the return available on another project, or the Risk-Free Rate plus 3% on account of currency risk). On this basis, the PV of the cash inflow is \$79,383. After considering the currency risk, the PV of cash inflow is less than the initial cash outflow. This makes the project unacceptable.

RADR is the combination of risk – free rate and the risk premium Why use Risk premium	
Why Use Risk Adjusted Discount Rate	
To overcome risk of future market conditions, inflation, credit risk, political risk, foreign currency risk and more.	
Advantages of RADR	Disadvantages of RADR
<ul style="list-style-type: none"> • Simple & easy approach • Appealing to risk averse investor. • Helps to reduce uncertainty. • Brings out risk level in an investment. 	<ul style="list-style-type: none"> • Getting an accurate risk premium is a challenging task. • The final NPV may be inaccurate. • It is assumed that investors are risk averse.
Formula For Risk Adjusted Discount Rate	
A simple formula to calculate the RADR is = Risk free rate + Risk premium.	
The formula for risk premium (Under CAPM) is = (Market rate of return – risk free rate)* β of the project	

Source-<https://efinancemanagement.com/investment-decisions/risk-adjusted-discount-rate>

6.3. Sensitivity Analysis

Sensitivity analysis determines how different values of an independent variable affect a particular dependent variable under a given set of assumptions. In other words, sensitivity analyses study how various sources of uncertainty in a mathematical model contribute to the model's overall uncertainty. This technique is used within specific boundaries that depend on one or more input variables. Sensitivity analysis is used in the business world and in the field of economics. It is commonly used by financial analysts and economists and is also known as a what-if analysis. Sensitivity analysis is a financial model that determines how target variables are affected based on changes in other variables known as input variables. This model is also referred to as what-if or simulation analysis. It is a way to predict the outcome of a decision given a certain range of variables. By creating a given set of variables, an analyst can determine how changes in one variable affect the outcome.

Example of Sensitivity Analysis

Assume Sue is a sales manager who wants to understand the impact of customer traffic on total sales. She determines that sales are a function of price and transaction volume. The price of a widget is \$1,000, and Sue sold 100 last year for total sales of \$100,000. Sue also determines that a 10% increase in customer traffic increases transaction volume by 5%. This allows her to build a financial model and sensitivity analysis around this equation based on what-if statements. It can tell her what happens to sales if customer traffic increases by 10%, 50%, or 100%. Based on 100 transactions today, a 10%, 50%, or 100% increase in customer traffic equates to an increase in transactions by 5%, 25%, or 50% respectively. The sensitivity analysis demonstrates that sales are highly sensitive to changes in customer traffic.

Sensitivity vs. Scenario Analysis In finance, a sensitivity analysis is created to understand the impact an arrangement of variables has on a given outcome. It is important to note that a sensitivity analysis is not the same as a scenario analysis. As an example, assume an equity analyst wants to do a sensitivity analysis and a scenario analysis around the impact of earnings per share (EPS) on a company's relative valuation by using the price-to-earnings (P/E) multiple. The sensitivity analysis is based on the variables that affect valuation, which a financial model can depict using the variables' price and

EPS. The sensitivity analysis is o lates these variables and then records the range of possible outcomes. On the other hand, for a scenario analysis, the analyst determines a certain scenario such as a stock market crash or change in industry regulation. He then changes the variables within the model to align with that scenario. Put together, the analyst has a comprehensive picture. He now knows the full range of outcomes, given all extremes, and has an understanding of what the outcomes would be, given a specific set of variables defined by real-life scenarios.

Benefits and Limitations of Sensitivity Analysis

Conducting sensitivity analysis provides a number of benefits for decision-makers. First, it acts as an in-depth study of all the variables. Because it's more in-depth, the predictions may be far more reliable. Secondly, it allows decision-makers to identify where they can make improvements in the future. Finally, it allows for the ability to make sound decisions about companies, the economy, or their investments. But there are some disadvantages to using a model such as this. The outcomes are all based on assumptions because the variables are all based on historical data. This means it isn't exactly accurate, so there may be room for error when applying the analysis to future predictions.

6.4. Certainty Equivalent Approach

Certainty Equivalent Approach (CEA), in the capital budgeting context, deals with risk factors involved where risky future cash flows are expressed in terms of the certain cash flows investors will accept today. Certainty Equivalent is essential for evaluating risk. It is evident that investors expect there turn on the irinvestment equivalent to the risk she/he takes, which means, higher the risk, equivalent is the expected return on that investment. Uncertain cash flows are converted into certain cash flows by multiplying it with probability of occurrence i.e. certainty coefficient. Certainty coefficient lies between 0 and 1.

Illustrationl

The following table presents 5 years cash inflows. The certainty co-efficient for the cash flows are also given which presents the probability of the occurrence of cash flows.

Year	CashInflows	Certainty Coefficient
1	Rs.100,000	0.9
2	Rs.250,000	0.7
3	Rs.90,000	0.5
4	Rs.120,000	0.6
5	Rs.50,000	0.2

The Initial cost of investment is Rs.300,000 And the discount rate is 9% annually. With the help of a certainty equivalent method, find out the NPV and analyse it.

Solution

Net Present Value (NPV)= Present Values of all the cash in flows-Initial cost of investment. Now, for the calculation of present value of the cash inflows considered;

Rs.100,000	0.9	Rs.90,000	Rs.82568.81
Rs.250,000	0.7	Rs.175,000	Rs.147,293.99
Rs.90,000	0.5	Rs.45,000	Rs.34,748.26
Rs.120,000	0.6	Rs.72,000	Rs.51,006.61
Rs.50,000	0.2	Rs.10,000	Rs.6,499.31
Total	–	–	Rs.322,116.98

Net Present Value: Present Value of Cash Inflows–Initial cost of Investment
Here,

$$\text{NPV} = \text{Rs.}322,116.98 - \text{Rs.}300,000$$

$$= \text{Rs.}22,116.98$$

Here, NPV is positive which means the project is viable in terms of cashflow. Therefore, project is accepted

6.5. Standard Deviation and Co efficient of Variation

The **standard deviation** of a data set is away to measure how far the average values from the mean.

To find the standard deviation of a given sample, we can use the following formula:

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n-1}}$$

Where:

Σ : A symbol that means "sum"

x_i : The value of the i th observation in the sample **\bar{x}** : The mean of the sample

n : The sample size

The higher the value for the standard deviation, the more spread out the values are in a sample. However, it's hard to say if a given value for a standard deviation is "high" or "low" because it depends on the type of data we're working with. For example, a standard deviation of 500 may be considered low if we're talking about annual income of residents in a city. Conversely, a standard deviation of 50 may be considered high if we're talking about exam scores of students on a certain test. One way to understand whether or not a certain value for the standard deviation is high or low is to find the **co efficient of variation**, which is calculated as:

$CV = s/x$ where:

S : The sample standard deviation **x** : The sample mean

In simple terms, the co-efficient of variation is the ratio between the standard deviation and the mean. The higher the co-efficient of variation, the higher the standard deviation of a sample relative to the mean.

Example: Calculating the Standard Deviation & Co-efficient of Variation

Suppose we have the following data set:

Dataset: 1,4,8,11,13,17,19,19,20,23,24,24,25,28,29,31,32

Using a calculator, we can find the following metrics for this data set: Sample mean (\bar{x}): 19.29

Sample standard deviation (s): 9.25

We can then use the values to calculate the co-efficient of variation:

$$CV = s / \bar{x}$$

$$CV=9.25/19.29$$

$$CV=0.48$$

The standard deviation tells us that the typical value in this data set lies 9.25 units away from the mean. The co-efficient of variation then tells us that the standard deviation is about half the size of the sample mean.

Standard Deviation vs. Co-efficient of Variation:When to Use Each

The standard deviation is most commonly used when we want to know the spread of values in a single data set. However, the co-efficient of variation is more commonly used when we want to compare the variation between two data sets. For example, in finance the co-efficient of variation is used to compare the mean expected return of an investment relative to the expected standard deviation of the investment.

For example, suppose an investor is considering investing in the following two mutual funds: Mutual Fund A: mean = 9%, standard deviation = 12.4%

Mutual Fund B: mean=5%, standard deviation= 8.2%

The investor can calculate the co-efficient of variation for each fund: CV for Mutual Fund A = $12.4\% / 9\% = 1.38$

CV for Mutual Fund B = $8.2\% / 5\% = 1.64$

Since Mutual Fund A has a lower co-efficient of variation, it offers a better mean return relative to the standard deviation. Here's a brief summary of the main points in this article: Both the standard deviation and the co-efficient of variation measure the spread of values in a data set.

- The standard deviation measures how far the average value lies from the mean.
- The co-efficient of variation measures the ratio of the standard deviation to the mean.
- The standard deviation is used more often when we want to measure the spread of values in a single data set.
- The co-efficient of variation is used more often when we want to compare the variation between two different data sets.

Let Us Sum Up

Capital budgeting is a process of identifying, analyzing and selecting investment to determine a firm's expenditures on assets whose cash flows

are expected to extend beyond one year. It's an important process because capital expenditures require large investment but limited by the availability of funds (Capital Rationing), greatly influences a firm's ability to achieve its financial objectives, and can become as a tool of control.

Uncertainties can exist when the outcome of an event is not known for certain, and when dealing with assets whose cash flows are expected to extend beyond one year, certainly, there's element of risk in that situation.

The evaluation of risk therefore depends, on decision maker ability to identify and understand the nature of uncertainty surrounding the key variables and on the other, having the tools and methodology to process its risk implications

Check Your Progress

1. Risk arises from various sources such as
 - a. Market Risk
 - b. Competition Risk
 - c. International Risk
 - d. All of the above
2. Expected cashflows are calculated as
 - a. Sum of likely cashflow of the project
 - b. Sum of likely cashflow of project multiplied by probability of cashflow
 - c. Sum of likely cashflow of project divided by probability of cashflow
 - d. None of the above
3. Certainty Equivalent
 - a. Is a guaranteed return from an Investment after adjusting for risk
 - b. Is the return that is expected over the life time of a project
 - c. Is equivalent to Net Present Value
 - d. Is an important component in Decision Tree Analysis
4. Calculation of Co-efficient of Variance depends on
 - a. Standard Deviation
 - b. Expected Return
 - c. Expected cash flow
 - d. All of the above

5. Scenario Analysis is considered under scenarios such as:
- Worst Case Scenario
 - Base Case Scenario
 - Best Case Scenario
 - All of the above

Glossary

Risk- Adjusted Discount

Rate (RADR): Risk-Adjusted Discount Rate (RADR) is sum total of two components. And these components are the risk-free rate and the risk premium. This rate comes in handy when an expert or investor needs to calculate / ascertain the present value of a risky investment. So, we can say that RADR is the return that an investor expects for taking a higher risk.

Standard deviation: The standard deviation measures how far the average value lies from the mean.

Coefficient of variation: The co-efficient of variation measures the ratio of the standard deviation to the mean.

Answers to Check Your Progress

- d. All of the above
- b. Sum of likely cashflow of project multiplied by probability of cash flow
- d. Is an important component in Decision Tree Analysis
- b. Expected Return
- d. All off the above

Suggeste Ttreading

- B realey R.A and Myers S.C (1988).Principles of Corporate Finance, NewYork: (13th Edition), McGraw Hill Book Company
- Chandra,Prasanna,(2011), Financial Management: Theory and Practice.NewDelhi: (8th Edition), Tata McGraw Hill Publishing Co. Ltd.,.

Block-3: Introduction

Block-3: Source of Finance, Cost of Capital and Leverage has been divided in to three Units.

Unit-7 : Sources of Finance deals with Sources of Finance, According to Time period, According to Ownership and control, According to Source of Generation, Equity Share or Ordinary Share, Preference Share & Retained Earnings, Debentures, Loans from financial institutions and Lease financing and Venture capital.

Unit-8: Cost of Capital explains about Introduction, Significance or Importance of Cost of Capital, Factors determining the Cost of capital, Different components of Cost of Capital, Measurement of Cost of Capital– Cost of Debt, Cost of Preference Share, Cost of Equity, Cost of Retained Earnings and Weighted Average Cost of Capital.

Unit-9: Leverage presents about the Leverage Introduction, Types of Leverage, Difference between Operating and Financial Leverage *and* Impact of Leverage.

In all the units of Block -3 **Source of Finance, Cost of Capital and Leverage**, the Check your progress, Glossary, Answers to Check your progress and Suggested Reading has been provided and the Learners are expected to attempt all the Check your progress as part of study.

Unit-7

Sources of Finance

STRUCTURE

Overview

Objectives

7.1. Sources of Finance

7.2. According to Time period

7.3. According to Ownership and control

7.4. According to Source of Generation

7.5. Equity Share or Ordinary Share, Preference Share & Retained Earnings

7.6. Debentures

7.7. Loans from financial institutions

7.8. Lease financing and Venture capital

Let Us Sum Up

Check Your Progress

Glossary

Answer Your Progress

Suggested Readings

Overview

This Unit provides an overview of the various sources from where funds can be procured for starting as also for running a business.

It also discusses the advantages and limitations of various sources and points out the factors that determine the choice of a suitable source of business finance.

It is important for any person who wants to start a business to know about the different sources from where money can be raised.

It is also important to know the relative merits and demerits of different sources so that choice of an appropriate source can be made.

Objectives

After studying this unit, you should be able to:

- Understand the source of finance based on time, based on ownership, control and generation
- Examine the sources of finance—Equityshare, Preference share, Debenture, leasing and Venture capital

7.1. Sources of Finance

Sources of finance for business are equity, debt, debentures, retained earnings, term loans, working capital loans, letter of credit, euro issue, venture funding, etc.

These sources of funds are used in different situations. They are classified based on time period, ownership and control, and their source of generation.

It is ideal to evaluate each source of capital before Opting for it Sources of capital are the most explorable area, especially for the entrepreneurs who are about to start a new business.

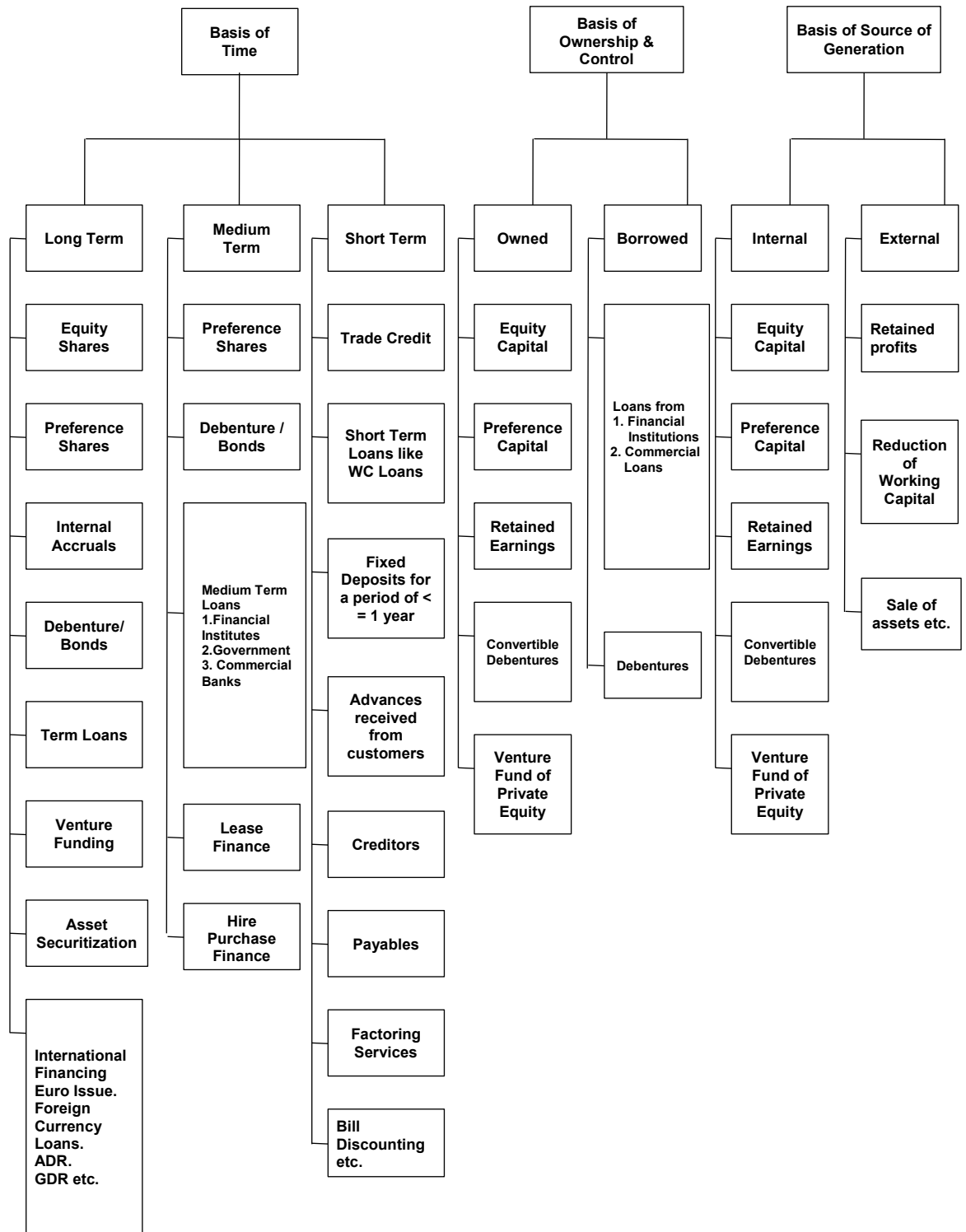
It is perhaps the most challenging part of all the efforts. There are various capital sources we can classify on the basis of different parameters

Choosing the right source and the right mix of finance is a crucial challenge for every finance manager.

Selecting the right source of finance involves an in-depth analysis of each source of fund.

For analysing and comparing the sources, it needs an understanding of all the characteristics of the financing sources.

There are many characteristics on the basis of which sources of finance are classified.



Source: <https://efinancemanagement.com/>

7.2. According to Time Period

On the basis of a time period, sources are classified as long-term, medium-term, and short-term. Ownership and control classify sources of finance into owned and borrowed capital.

Internal sources and external sources are the two sources of generation of capital. All the sources have different characteristics to suit different types of requirements.

Long-Term Sources of Finance

Long-term financing means capital requirements for a period of more than 5 years to 10, 15, 20 years or may be more depending on other factors.

Capital expenditures in fixed assets like plant and machinery, land and building, etc. of business are funded using long-term sources of finance. Part of working capital which permanently stays with the business is also financed with long-term sources of funds.

Long-term financing sources can be in the form of any of them:

- Share Capital or Equity Shares
- Preference Capital or Preference Shares
- Retained Earnings or Internal Accruals
- Debenture / Bonds
- Term Loans from Financial Institutes, Government, and Commercial Banks
- Venture Funding
- Asset Securitization
- International Financing
- By way of Euro Issue, Foreign Currency Loans, ADR, GDR, etc.

Medium to Sources of Finance

Medium term financing means financing for a period of 3 to 5 years and is used generally for two reasons. One, when long-term capital is not available for the time being and second when deferred revenue expenditures like advertisements are made which are to be written off over a period of 3 to 5 years. Medium term financing sources can be in the form of one of them:

Preference Capital or Preference Shares

Debenture/Bonds

Medium Term Loans from

Financial Institutes

Government and Commercial Banks

Medium Term Note

Lease Finance

Hire Purchase Finance

Short-Term Sources of Finance

Short term financing means financing for a period of less than 1 year. The need for short-term finance arises to finance the current assets of a business like an inventory of raw material and finished goods, debtors, minimum cash and bank balance etc. Short-term financing is also named as working capital financing. Short term finances are available in the form of:

- Trade Credit
- Short Term Loans like Working Capital Loans from Commercial Banks
- Fixed Deposits for a period of 1 year or less
- Advances received from customers
- Creditors
- Payables
- Factoring Services
- Bill Discounting etc.

7.3. According to Ownership and Control

Sources of finances are classified based on ownership and control over the business. These two parameters are an important consideration while selecting a source of funds for the business. Whenever we bring in capital, there are two types of costs – one is the interest and another is sharing ownership and control. Some entrepreneurs may not like to dilute their ownership rights in the business and others may believe in sharing the risk.

Owned Capital

Owned capital also refers to equity. It is sourced from promoters of the company or from the general public by issuing new equity shares. Promoters start the business by bringing in the required money for a startup. Following are the sources of Owned Capital:

- Equity
- Preference
- Retained Earnings
- Convertible Debentures
- Venture Fund or Private Equity

Further, when the business grows and internal accruals like profits of the company are not enough to satisfy financing requirements, the promoters have a choice of selecting ownership capital or non-ownership capital. This decision is up to the promoters. Still, to discuss, certain advantages of equity capital are as follows:

- It is long-term capital which means it stays permanently with the business.
- There is no burden of paying interest or installments like borrowed capital. So, the risk of bankruptcy also reduces. Businesses in fancy stages prefer equity for this reason.

Borrowed Capital

Borrowed or debt capital is the finance arranged from outside sources. These sources of debt financing include the following:

- Financial institutions,
- Commercial banks or
- The general public in case of debentures

In this type of capital, the borrower has a charge on the assets of the business which means the company will pay the borrower by selling the assets in case of liquidation. Another feature of the borrowed fund is a regular payment of fixed interest and repayment of capital. Certain advantages of borrowing are as follows:

- There is no dilution in ownership and control of the business.

- The cost of borrowed funds is low since it is a deductible expense for taxation purpose which ends up saving on taxes for the company.
- It gives the business the benefit of leverage.

7.4. According to Sources of Generation

Based on the source of generation, the following are the **internal and external sources of finance**:

Internal Sources

The internal source of capital is the one which is generated internally by the business. These areas follow:

- Retained profits
- Reduction or controlling of working capital
- Sale of assets etc.

The internal source of funds has the same characteristics of owned capital. The best part of the internal sourcing of capital is that the business grows by itself and does not depend on outside parties. Disadvantages of both equity and debt are not present in this form of financing. Neither ownership duties nor does fixed obligation / bankruptcy risk arise.

External Sources

An external source of finance is the capital generated from outside the business. Apart from the internal sources of funds, all the sources are external sources. Deciding the right source of funds is a crucial business decision taken by top-level finance managers. The usage of the wrong source increases the cost of funds which in turn would have a direct impact on the feasibility of the project under concern. Improper match of the type of capital with business requirements may go against the smooth functioning of the business. For instance, if fixed assets, which derive benefits after 2 years, are financed through short-term finances will create cash flow mismatch after one year and the manager will again have to look for finances and pay the fee for raising capital again.

7.5. Equity Share Ordinary Share, Preference Share & Retained Earnings

Equity Shares, also known as ordinary shares, represent the ownership

capital in a company. The holders of these shares are the legal owners of the company. They have unrestricted claim on income and assets of the company and possess all the voting power in the company. Being the owners of the company, they bear the risk of ownership also. They are entitled to dividends after paying the preference dividends. The rate of dividend on these shares is not fixed and depends upon the availability of divisible profits and the intention of the directors. They may be paid a higher rate of dividend in times of prosperity and also run the risk of no dividends in the period of adversity. Similarly, when the company is wound up, they can exercise their claim on those assets which are left after the payment of all other claims including that of preference shareholders.

Advantages of Equity/ Ordinary Shares:

A. Advantages to the Company:

- i. Permanent Source of Funds – Equity capital is a permanent capital, and is available for use as long as the company continues. The management is free to utilize such capital and is not bound to refund it.
- ii. Increase in the Borrowing Capacity – The equity capital increases the company's shareholder's funds. Lenders normally lend in proportion to the amount of shareholder's funds. Higher amount of shareholder's funds provides higher safety to the lenders.
- iii. Not Bound to Pay Dividend – A company is not legally bound to pay dividend to its equity shareholders. The payment of dividend depends on the availability of divisible profits and the discretion of directors. A company can reinvest whole of its income, if it so desires.
- iv. No Need to Mortgage the Assets – The Company need not mortgage its assets to secure equity capital. Hence, if the company desires to raise further finance from other sources, it can easily do so by mortgaging its assets.

B. Advantages to Investors:

- I. Right to Control – Equity shareholders are the real owners of the company. They have the right to elect the directors as well as vote in the meetings of the company.
- II. Increase in Rate of Dividends – In case of higher profits in the company, these shareholders are handsomely rewarded in the form

of higher dividends.

- III. Increase in Market Value – Usually a portion of the profits is ploughed back into the business which results in enhanced earning power of the company and increase in the market value of its shares.
- IV. Bonus Shares – Equity shareholders have a claim on the residual income of the company. This residual income is either directly distributed to them in the form of dividend or indirectly in the form of bonus shares.
- V. Right Shares – Equity shareholders are entitled to get right shares whenever the company issues new shares. The subscription price at which the right shares are offered to them is generally much below the share's current market price.
- VI. Easy to Sell – In comparison to investment in fixed properties, the investment in equity shares is much liquid because the shares can be sold in the market whenever needed.

Disadvantages of Equity Shares:

A. Disadvantages to the Company:

- I. High Cost of Funds – Equity shares have a higher cost for two reasons. Firstly, as compared to interest, dividends cannot be deducted from the income of the company while calculating taxes. Dividends are paid out of post-tax profits. Secondly, equity shares have high floatation cost in terms of underwriting, brokerage and other issue expenses in comparison to other securities.
- II. No Advantage of Trading on Equity – If a Company issues only equity shares, it will be deprived of the benefits of trading on equity. For availing the benefit of trading on equity, it is essential to issue debentures or preference shares with fixed yields lower than the earning rate of the company.
- III. Manipulation by a Group of Shareholders – Shares of a company can be purchased and sold in the stock market. Hence, a group of shareholders may control the company by purchasing shares and they may use such control for their personal advantage at the cost of company's interests.

B. Disadvantages to Investors:

- I. Irregular Dividend – Dividend paid on equity shares is neither regular nor at a fixed rate. In case of lower profits, the company can reduce or suspend payment of dividend. In case of higher profits too, the company is not legally bound to distribute dividends. Entire profits may be ploughed back for expansion and development of the company.
- II. Fall in the Market Value of Shares – If the company does not earn sufficient profits, the shareholders have to bear the loss because of fall in the market value of shares.
- III. No Real Control over the Company – There are a number of shareholders and most of them are scattered and unorganized. Hence, they are unable to exercise effective and real control over the company.
- IV. Ownership Dilution – If the new shares are issued to the public, it may dilute the ownership and control of the existing shareholders. The control of the company may change to new shareholders who may reap the benefits of the company's prosperity and progress.
- V. Loss on Liquidation – In case of liquidation, equity shareholders have to bear the maximum risk. Out of the realized value of assets, first the claims of creditors and then preference shareholders are satisfied, and the remaining balance, if any, is paid to equity shareholders. In most of the cases, equity shareholders do not get anything in case of liquidation.

Characteristics of equityshares:

1. Serve as a source of long-term capital and are repaid during the life time of the organization. Generally, equity shares are repaid at the time of winding up of an organization.
2. Do not require any security from the organization.
3. Allow shareholders to receive dividend after payment is made to each and every stake holder.
4. Provide right to equity shareholders to share profit, assets, and control of the management.

Types of equity shares:

Bonus Shares:

Refer to shares that are issued in place of dividends. Whenever an organization has accumulated surplus profit, it may distribute the profit among its existing shareholders by providing them bonus shares. In other words, bonus shares are issued when an organization has sufficient profit but is in need of more working capital at that particular time. Issuing bonus Shares is beneficial for both the organization as well as the shareholders.

Sweat Equity Shares:

Refer to the shares that are issued to the employees of an organization. Sweat equity shares are always issued at a discount. These shares are a kind of award for employees for the work rendered by them to organization. This makes employees feel that they are owners of the organization and motivate them to demonstrate dedication in their work. In addition, these shares help in motivating employees and increase their productivity.

Preference Share

Preference share capital is another resource of long-term financing for a company. These shares carry preferential rights over equity shares both regarding the payment of dividend and the return of capital.

These shares carry a fixed rate of dividend and such dividend must be paid in full before the payment of any dividend on equity shares. Similarly, at the time of liquidation, the whole of preference capital must be paid before any payment is made to equity shareholders. Preference shares give preferential rights to their holders in comparison to equity shares.

These shares carry a fixed percent of dividend, which is lower than equity shareholders. The organization pays the dividend on preference shares before paying dividend to equity shareholders. Even during the winding up of the organization, the investment of preference shareholders is paid before equity shareholders.

Characteristics of preference shares:

1. Do not allow preference shareholders to act as real owners of the organization
2. Make their payment of preference shares possible during the existence of the organization

3. Allow preference shareholders to receive dividends out of profit earned by the organization
4. Do not bind an organization to offer any asset as security to preference shareholders
5. Carry less risk for investors as compared to equity shares

Different types of preference shares:

- a. Cumulative Preference Shares – Refer to the shares for which dividends get accumulated over a period of time. When the organization has sufficient profit, the accumulated dividend of these preference shares is paid.
- b. Non-Cumulative Preference Shares – Refer to the shares for which dividends are not accumulated over a period of time. The organization has to pay dividends on these preference shares at the end of financial year.
- c. Convertible Preference shares – Refer to the shares that can be converted into equity shares after a certain time-period. The holders of convertible preference shares have to pay conversion price at a given date for converting their shares into equity shares.
- d. Non-Convertible Preference Shares – Refer to the shares that cannot be converted into equity shares.
- e. Redeemable Preference Shares – Refer to the shares that are repaid by the organization. These preference shares are issued for a fixed time-period and are paid during existence of the organization.
- f. Irredeemable Preference Shares – Refer to the shares that are not paid during the existence of the organization. These preference shares are only paid at the time of liquidation of the organization. At the time of liquidation, these shares are paid after paying all the liabilities.

Advantages of preference shares:

1. Help in raising more funds as they are less risky
2. Release preference shareholders from any fixed liability at the time of liquidation of an organization
3. Save an organization from unnecessary interference of preference shareholders as they do not enjoy any voting right

4. Facilitate trading on equity
5. Prevent preference shareholders from claiming for the assets of the organization

Disadvantages of preference shares:

1. Provide low returns to preference shareholders
2. Characterize by fluctuations in returns
3. Do not provide any voting rights to preference shareholders
4. Do not allow an organization to show the dividend paid on these shares on the debit side of profit and loss account

Retained earnings

A new company can raise finance only from external sources such as shares, debentures, loans etc. But an existing company can also generate finance through its internal sources, i.e., retained earnings or ploughing back of profits. When a Company does not distribute whole of its profits as dividend but reinvests a part of it in the business, it is known as ploughing back of profits or retention of earnings. This method of financing is also known as self-financing or internal financing. Ploughing back of profits is made by transferring a part of after-tax profits to various reserves such as General Reserve, Reserve Fund, Replacement Fund, Dividend Equalisation Fund etc. Such retained earnings may be utilised to fulfil the long-term, medium-term and short-term financial requirements of the firm.

Advantages:

- i. Economical Method—It is very economical method of financing.
- ii. A Cushion to Absorb the Shocks of the Business – A concern with larger reserves can easily absorb the shocks of trade cycles and the uncertainty of market.
- iii. Helpful in Following a Balanced Dividend Policy – Such a company can follow the policy of paying regular and balanced dividends because it can use retained earnings for paying dividends in the years when there are inadequate profits.
- iv. Helpful in Making the Company Self-Dependent – Ploughing back of profits makes the company self-dependent because it has not to depend upon outsiders such as banks, financial institutions, debentures etc.

- v. Increase in the Credit Worthiness of the Company – Since the company need not depend upon outside sources for its financial needs; it increases the credit worthiness of the company.
- vi. Helpful in the Repayment of Long-Term Liabilities – It enables the company to repay its long-term loans and debentures and thus relieves the company from the burden of fixed interest payments.

(B) Disadvantages or Dangers of Excessive Ploughing Back:

- i. Misuse of Retained Earnings – It is not necessary that the management may always use the retained earnings to the advantage of shareholders. They may invest the funds in unprofitable areas or may invest in other concerns under the same management, bringing little gain to the shareholders.
- ii. Over-Capitalization – Retained earnings are used for the issue of bonus shares which may result to over-capitalization without any corresponding increase in its earnings.
- iii. Creation of Monopolies – Continuous ploughing back of profits over a long time may lead a company to grow into a monopoly. This is more likely to occur when other companies find it difficult to procure finance from the market where as an existing concern continues to grow through its retained earnings.
- iv. Manipulation in the Value of Shares – Ploughing back of profits provides the management an opportunity to manipulate the market value of its shares. In the name of ploughing back of profits, they may declare lower dividends and when the share values fall in the market, they may purchase them at reduced prices. Later, they may increase the rate of dividend out of past profits and may sell their shares at a profit.
- v. Dissatisfaction among the Shareholders – Excessive ploughing back of profits may create dissatisfaction among the shareholders since the rate of dividend is quite low in relation to the earnings of the company.
- vi. Hindrance in the Free Flow of Capital – According to Prof. Pigou, "Excessive ploughing back entails social waste, because money is not made available to those who can use it to best advantage of the community, but is retained by those who have earned it."

Despite the above disadvantages, the ploughing back of profits is a popular

source of long- term finance and is widely used by most of the companies.

7.6. Debentures

Debentures are one of the frequently used methods by which a company raises long-term funds. Funds acquired by issue of debentures represent loans taken by the company and are also known as 'debt capital'. A debenture is a certificate issued by a company under its seal acknowledging a debt due by it to its holders. There, the term bond refers to an instrument which is secured on the assets of the company whereas the debentures refer to unsecured instruments. But, in India no such distinction is made between bonds and debentures and the two terms are used as synonymous. According to Section 2 (30) of the Companies Act, 2013, "the term debenture includes debenture stock, bonds and any other securities of a company whether constituting a charge on the assets of the company or not."

A debenture is a form of financial instrument that provides long-term debt to an organization. In other words, a debenture is an agreement between a debenture holder and an organization, which acknowledges that the organization would repay the debt at a specified date to debenture holders. If an organization raises funds through issuing debentures, it needs to pay a fixed rate of interest at regular intervals. Debenture holders of an organization are known as creditors.

Characteristics of debentures:

- i. Provide no voting rights to debenture holders
- ii. Allow debenture holders to receive fixed rate of interest
- iii. Facilitate debenture holders to be paid back during the lifetime of an organization
- iv. Allow the debenture holders of an organization to transfer bearer debentures to other individuals
- v. Increase the liability of an organization

Types of debentures:

- i. Convertible Debentures– Refer to the debentures that have right to get converted into the equity shares after a specific period of time.
- ii. Non-Convertible Debentures– Refer to the debentures that have no right to get converted into the equity shares during their maturity period.

- iii. Registered Debentures– Refer to the debentures that are registered in the books of the organization. Registered debenture holders cannot transfer their debentures without giving prior information to the organization.
- iv. Bearer Debentures – Refer to the debentures that are not registered in the books of the organization. Bearer debentureholder can transfer their debentures without giving any prior information to the organization.
- v. Redeemable Debentures – Refer to the debentures that are paid back during the existence of an organization. These are issued for a fixed period of time.
- vi. Irredeemable Debentures – Refer to the debentures that are not paid back during the life time of an organization. An organization pays interest on the irredeemable debentures till its existence.

Advantages of debentures:

- i. Involve less cost in raising funds than equity shares
- ii. Help in raising funds from investors who are less likely to take risks
- iii. Provide fixed returns to debenture holders even if there is no profit
- iv. Allow debenture holders to receive payment before equity and preference shareholders even at the time of liquidation of an organization

Disadvantages of debentures:

- i. Compel an organization to pay interest even if there is no profit or loss
- ii. Make it difficult for an organization to provide security against debentures if an organization has insufficient fixed assets.
- iii. Do not allow debenture holders to vote in the official meetings of the organization and influence the decision.

7.7. Loans from Financial Institutions

Financial Institutions are another important source of long-term finance. In India, a number of special financial institutions have been established by the Government at the national level and state level to provide medium-term and long-term loans to their industrial undertakings. Financial institutions established at the national level include Industrial Development Bank of India

(IDBI), Industrial Finance Corporation of India (IFCI), Industrial Credit and Investment Corporation of India (ICICI), Industrial Reconstruction Corporation of India (IRCI), Unit Trust of India (UTI), Life Insurance Corporation of India (LIC), General Insurance Corporation (GIC) etc. Financial institutions established at the state level include State Financial Corporations (SFCs) and State Industrial Development Corporations (SIDCs). For example, In Haryana, Haryana State Financial Corporation (HFC) and Haryana State Industrial Development Corporation (HSIDC) have been established.

Characteristics of Loans from Financial Institutions:

1. Maturity – Maturity period of term loans provided by Financial Institutions ranges between 6 to 10 years.
2. Direct Negotiation – Terms and conditions of such loans are directly negotiated between the borrower and the financial institution providing the loan.
3. Security – Such loans are always secured. While the assets financed by loans serve as primary security, all the present as well as the future immovable assets of the borrower constitute secondary security.
4. Restrictive Covenants – To protect their interests the financial institutions impose a number of restrictive terms and conditions. These are called covenants. These covenants may be in respect of maintaining a minimum current ratio, not to create further charge on assets, not to sell fixed assets without the lender's approval, restrain on taking additional loan, reduction in debt- equity ratio by issuing additional shares etc.
5. Financial Institutions may also restrict the payment of dividend, salaries and perks of managerial staff. Covenants may also include the appointment of nominee director by financial institutions to safeguard their interests.
6. Convertibility – Financial institutions usually insist on the option of converting their loans into equity shares of the company,
7. Repayment Schedule – Such loans have to be repaid according to predetermined schedule. The common practice in India is the repayment of principal in equal instalments and payment of interest on the outstanding loan.

Advantages and Disadvantages of Loans from Financial Institutions:

Such loans offer all the advantages and disadvantages of debenture financing. An additional disadvantage from borrower's viewpoint is that the loan contracts contain certain restrictive covenants which restrict the managerial freedom. The right of lenders to appoint nominee directors on the board of the borrowing company may further restrict the managerial freedom.

Clauses and conditions for Loans from Financial Institutions:

- I. Amount and time period of the loan
- II. Security offered against the loan
- III. Rate of interest on the loan
- IV. The borrowing organization has to submit audited annual accounts report to the lender or financial institution
- V. Details of fixed assets purchased from the loan

Advantages of term loans from Financial Institutions:

- I. Make the raising of funds easier
- II. Help in maintaining good relation with financial institutions
- III. Help in collecting funds at the right time
- IV. Make organizations more focused on profitable projects, as they have to pay interests on quarterly, half yearly, and annual basis

7.8. Lease Financing and Venture Capital

Leasing is an alternative means of financing business assets. It is a contract between an owner of equipment (the lessor) and another party (the lessee) giving the lessee possession and use of a specific asset in return for payment of specific rentals over an agreed period. The lessee may or may not be entitled to acquire title to the goods through the exercise of an option to purchase, usually at the end of the lease term. The lessor's role is to finance the acquisition of equipment required by the lessee who will have selected the goods and dealt directly with the supplier in determining their performance attributes and suitability (Salam, 2013).

Leasing has been defined by different authors in different ways but all the same, the meaning is anchored toward the same thing. Kurfi (2003) conceptualized leasing as "an alternative mode of financing to the traditional debt and equity capital for the acquisition of capital assets by firms". Kraemer and Lang

(2012) sees leasing as a contract between two parties where one party (the lessor) provides an asset for usage to another party (the lessee) for a specified period of time, in return for a specified payments. Nigerian Accounting Standard Board (NASB) in information circular (2010) viewed leasing as a contractual agreement between an owner (the lessor) and another party (the lessee) which conveys to the lessee the right to use the leased assets for consideration usually periodic payments called rent. Therefore, leasing can be seen as a contractual agreement granting the use of an asset to the lessee by the lessor within a specified period of time in exchange of periodic payment of an agreed rental fee by the lessee to the lessor.

Types of Leases

Leases are classified currently under IAS 17, as finance (Capital) or operating leases, depending on whether substantially all the risks and rewards of ownership transfer to the lessee or not. Finance Lease Finance lease otherwise called Capital lease. Under a finance lease, the lessee has substantially all of the risks and reward of ownership. Finance lease are long-term, non-cancelable lease contracts (Kurfi, 2003). It combines some of the benefits of leasing with those of ownership. Operating Lease An operational lease in volves the lessee only renting an asset over a time period which is substantially less than the asset's economic life. In such cases operating lease may run for 3 to 5 years (Adekunle, 2005). The lessor is usually responsible for maintenance and insurance.

Venture Capital Financing:

It is a private or institutional investment made into early-stage / start-up companies (new ventures). As defined, ventures involve risk (having uncertain outcome) in the expectation of a sizeable gain. Venture Capital is money invested in businesses that are small; or exist only as an initiative, but have huge potential to grow.

The people who invest this money are called Venture Capitalists (VCs). The venture capital investment is made when a venture capitalist buys shares of such a company and becomes a financial partner in the business.

Venture Capital investment is also referred to risk capital or patient risk capital, as it includes the risk of losing the money If the venture doesn't succeed and takes medium the investments to fructify. Venture Capital typically comes from institutional investors and high net worth individuals and

is pooled together by dedicated investment firms. It is the money provided by an outside investor to finance a new, growing, or troubled business. The venture capitalist provides the funding knowing that there's a significant risk associated with the company's future profits and cash flow. Capital is invested next change for an equity stake in the business rather than given as a loan.

Features of Venture Capital investments

- I. High Risk
- II. Lack of Liquidity
- III. Long term horizon
- IV. Equity participation and capital gains
- V. Venture capital investments are made in innovative projects
- VI. Suppliers of venture capital participate in the management of the company

Methods of Venture Capital Financing

- I. Equity
- II. Participating debentures
- III. Conditional loan

The venture capital funding process typically involves four phases in the company's development:

- I. Idea generation
- II. Start-up
- III. Ramp up
- IV. Exit

Types of Venture Capital funding

The various types of venture capital are classified as per their applications at various stages of a business. The three principal types of venture capital are early-stage financing, expansion financing and acquisition/buyout financing.

The venture capital funding procedure gets complete in six stages of financing corresponding to the periods of a company's development

1. Seed money: Low level financing for proving and fructifying a new idea
2. Start-up: New firms needing funds for expenses related with

marketing and product development

3. First-Round: Manufacturing and early sales funding
4. Second-Round: Operational capital given for early-stage companies which are selling products, but not returning a profit
5. Third-Round: Also known as Mezzanine financing, this is the money for expanding a newly beneficial company
6. Fourth-Round: Also called bridge financing, 4th round is proposed for financing the "going public" process

Early-Stage Financing:

Early-stage financing has three sub divisions seed financing, start up financing and first stage financing.

- Seed financing is defined as a small amount that an entrepreneur receives for the purpose of being eligible for a start up loan.
- Start up financing is given to companies for the purpose of finishing the development of products and services.
- First Stage financing: Companies that have spent all their starting capital and need finance for beginning business activities at the full-scale are the major beneficiaries of the First Stage Financing.

Expansion Financing:

Expansion financing may be categorized into second-stage financing, bridge financing and third stage financing or mezzanine financing. Second-stage financing is provided to companies for the purpose of beginning their expansion. It is also known as mezzanine financing. It is provided for the purpose of assisting a particular company to expand in a major way. Bridge financing may be provided as a short-term interest only finance option as well as a form of monetary assistance to companies that employ the Initial Public Offers as a major business strategy.

Acquisition or Buy out Financing:

Acquisition or buyout financing is categorized into acquisition finance and management or lever aged buy out financing. Acquisition financing assists a company to acquire certain parts or an entire company. Management or lever aged buy out financing helps a particular management group to obtain a particular product of another company.

Advantages of Venture Capital

- They bring wealth and expert to the company
- Large sum of equity finance can be provided
- The business does not stand the obligation to repay the money
- In addition to capital, it provides valuable information, resources, technical assistance to make a business successful

Disadvantages of Venture Capital

- As the investors become part owners, the autonomy and control of the founder is lost
- It is a lengthy and complex process
- It is an uncertain form of financing
- Benefit from such financing can be realized in long run only

Let Us Sum Up

In this unit, you have learned the following: Sources of finance can be classified based on time period. Ownership and control and according to sources of generation.

According to time period, it can be classified as long term, medium term and short-term sources of finance. Based on Ownership and control, it can be classified as Owned capital and Borrowed capital and based on sources of generation, it can be classified as Internal sources and External sources.

Leasing as “an alternative mode of financing to the traditional debt and equity capital for the acquisition of capital assets by firms. Two types of leases are operational and financial lease. Venture Capital investment is also referred to risk capital or patient risk capital, as it includes the risk of losing the money if the venture doesn’t succeed and takes medium to long term period for the investments to fructify.

The various types of venture capital are classified as per their applications at various stages of a business. The three principal types of venture capital are early-stage financing, expansion financing and acquisition/buyout financing.

Check Your Progress

1. Under the lease agreement, the lessee gets the right to
 - a. Share profits earned by the lessor
 - b. Participate in the management of the organisation
 - c. Use the asset for a specified period
 - d. Sell the assets
2. Funds required for purchasing current assets is an example of
 - a. Fixed capital requirement
 - b. Ploughing back of profits
 - c. Working capital requirement
 - d. Lease financing
3. Equity shareholders are called
 - a. Owners of the company
 - b. Partners of the company
 - c. Executives of the company
 - d. Guardian of the company
4. The term 'redeemable' is used for
 - a. Preference shares
 - b. Commercial paper
 - c. Equity shares
 - d. Public deposits
5. Fixed capital requirements are generally used to purchase _____:
 - a. Fixed asset
 - b. Current asset
 - c. Cash
 - d. All of the above

Glossary

- Owned Capital:** Owned capital also refers to equity. It is sourced from promoters of the company or from the general public by issuing new equity shares
- Venture Capital:** Venture Capital is money invested in businesses that are small; or exist only as an initiative, but have huge potential to grow
- Leasing:** It is a contract between an owner of equipment (the lessor) and another party (the lessee) giving the lessee possession and use of a specific asset in return for payment of specific rentals over an agreed period.

Answers to Check Your Progress

1. c. Use the asset for a specified period
2. c. Working capital requirement
3. a. Owners of the company
4. a. Preference shares
5. a. Fixed asset

Suggested Reading

1. Pandey, I. M. (2021), Financial Management .New Delhi : (12th Edition), Vikas Publishing House Pvt. Ltd.,
2. P. V. Kulkarni, B. G. Sathya Prasad (1999), Financial Management, (9th revised edition), Himalaya Publishing House.

Unit-8

Cost of Capital

STRUCTURE

Overview

Objectives

8.1. Introduction

8.2. Significance or Importance of Cost of Capital

8.3. Factors determining the Cost of capital

8.4. Different components of Cost of Capital

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Let Us Sum Up

Check Your Progress

Glossary

Answers to Check Your Progress

Suggested Readings

Overview

In this Unit significance, factors determining the cost of capital and different types of cost of capital are discussed. This Unit will also give the complete detail of measurement of cost of capital.

Objectives

After studying this unit, you should be able to:

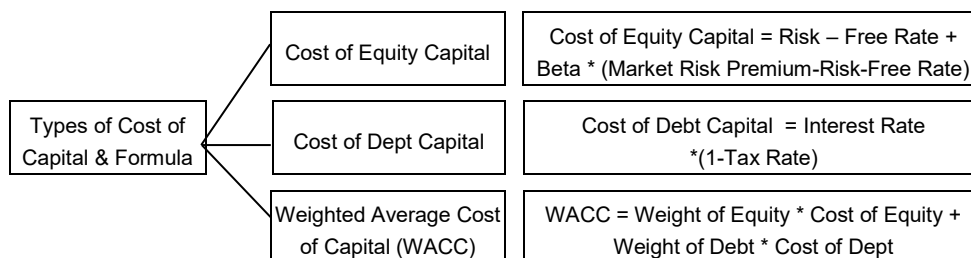
- Understand the meaning of Cost of capital
- Know the significance of cost of capital
- Identify the problems in determination of cost of capital
- Understand the various methods of measuring the cost of capital

8.1. Introduction

Cost of capital plays an important role in the capital budgeting decisions. It determines the acceptability of all investment opportunities regardless of the techniques employed to judge the financial viability of a project. Cost of capital serves as capitalization rate used to determine capitalization of a new concern. With the help of this rate the real worth of various investments of the firm can be evaluated. Cost of capital provides useful guidelines in determining optimal capital structure of a firm. It refers to the minimum rate of return of a firm which must earn on its investment so that the market value of the company's equity share may not fall. In the words of Hampton, John J, cost of capital is the rate of return. The firm requires firm investment in order to increase the value of the firm in the market place. The concept of cost is perceived in different dimensions, which are briefed below:

Cost of capital is one rate of return the capital funds used should produce to justify their use within the firm.

Cost of Capital of an investor, in financial management, is equal to return, an investor can fetch from the next best alternative investment. In simple words, it is the opportunity cost of investing the same money in different investment having similar risk and other characteristics.



Source: <https://efinancemanagement.com/>

8.2. Significance or Importance of Cost of Capital

Significance or importance of cost of capital

Maximization of the Value of the Firm:

For the purpose of maximization of value of the firm, a firm tries to minimize the average cost of capital. There should be judicious mix of debt and equity in the capital structure of a firm so that the business does not bear undue financial risk.

Capital Budgeting Decisions:

Proper estimate of cost of capital is important for a firm in taking capital budgeting decisions. Generally, cost of capital is the discount rate used in evaluating the desirability of the investment

Project. In the internal rate of return method, the project will be accepted if it has a rate of return greater than the cost of capital. In calculating the net present value of the expected future cash flows from the project, the cost of capital is used as the rate of discounting. Therefore, cost of capital acts as a standard for allocating the firm's investible funds in the most optimum manner. For this reason, cost of capital is also referred to as cut-off rate, target rate, hurdle rate, minimum required rate of return etc.

Decisions Regarding Leasing:

Estimation of cost of capital is necessary in taking leasing decisions of business concern.

Management of Working Capital:

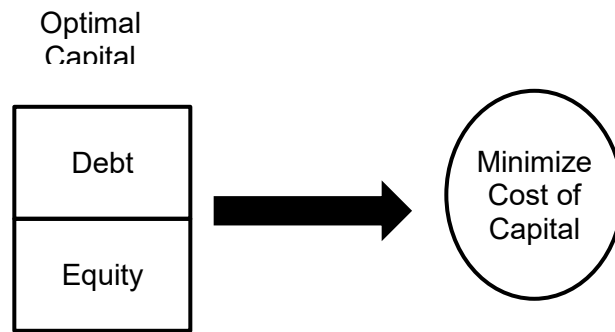
In management of working capital, the cost of capital may be used to calculate the cost of carrying investment in receivables and to evaluate alternative policies regarding receivables. It is also used in inventory management also.

Dividend Decisions:

Cost of capital is significant factor in taking dividend decisions. The dividend policy of a firm should be formulated according to the nature of the firm—whether it is a growth firm, normal firm or declining firm. However, the nature of the firm is determined by comparing the internal rate of return (r) and the cost of capital (k) i.e., $r > k$, $r = k$, or $r < k$ which indicate growth firm, normal firm and decline firm, respectively.

Determination of Capital Structure:

Cost of capital influences the capital structure of a firm. In designing optimum capital structure that is the proportion of debt and equity, due importance is given to the overall or weighted average cost of capital of the firm. The objective of the firm should be to choose such a mix of debt and equity so that the overall cost of capital is minimized.



Source.corporatefinanceinstitute.com

Evaluation of Financial Performance:

The concept of cost of capital can be used to evaluate the financial performance of top management. This can be done by comparing the actual profitability of the investment project undertaken by the firm with the overall cost of capital.

8.3. Factors Determining the Cost of Capital

There are several factors that impact the cost of capital of any company. This would mean that the cost of capital of any two companies would not be equal. Rightly so as these two companies would not carry the same risk.

General economic conditions: These include the demand for and supply of capital within the economy, and the level of expected inflation. These are reflected in the riskless rate of return and is common to most of the companies.

Market conditions: These security may not be readily marketable when the investor wants to sell; or even if a continuous demand for the security does exist, the price may vary significantly. This is company specific.

A firm's operating and financing decisions: Risk also results from the decisions made within the company. This risk is generally divided into two classes:

1. Business risk is the variability in returns on assets and is affected by the company's investment decisions.
2. Financial risk is the increased variability in returns to the common stock holders as a result of using debt and preferred stock.

Amount of financing required: The last factor determining the company's cost of funds is the amount of financing required, where the cost of capital

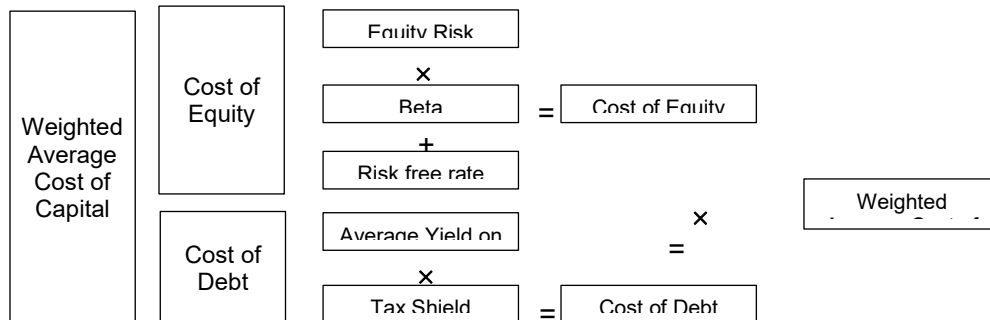
increases as the financing requirements become larger. This increase may be attributable to one of the two factors:

As increasingly larger public issues are increasingly floated in the market, additional flotation costs (costs of issuing the security) and under pricing will affect the percentage cost of the funds to the firm. As management approaches the market for large amounts of capital relative to the firm's size, the investors' required rate of return may rise. Suppliers of capital become hesitant to grant relatively large amounts of funds without evidence of management's capability to absorb this capital into the business. Generally, as the level of risk rises, a larger risk premium must be earned to satisfy company's investors. This, when added to the risk-free rate, equals the firm's cost of capital.

8.4. Different Components of Cost of Capital

Different components of cost of capital

- Cost of Debtor Debenture
- Cost of Preference Share or Preferred capital
- Cost of Equity
- Cost of Retained Earnings
- Weighted Average Cost of Capital (WACC) or Overall cost of capital (or) Composite cost of capital



Source: corporatefinanceinstitute.com

8.5. Measurement of Cost of Capital – Cost of Debt

Measurement of Cost of Capital:

Cost of capital is measured for different sources of capital structure of a firm. It includes cost of debenture, cost of loan capital, cost of equity share capital,

cost of preference share capital, cost of retained earnings etc.

The measurement of cost of capital of different sources of capital Cost of Debentures:

The capital structure of a firm normally includes the debt capital. Debt may be in the form of debentures bonds, term loans from financial institutions and banks etc. The amount of interest payable for issuing debenture is considered to be the cost of debenture or debt capital (K_d). Cost of debt capital is much cheaper than the cost of capital raised from other sources, because interest paid on debt capital is tax deductible.

The cost of debenture is calculated in the following ways:

When the debenture are Issued and redeemable at par: $K_d = r(1-t)$

Where K_d = Cost of debenture r = Fixed interest rate t = Tax rate

When the debentures are issued at a premium or discount but redeemable at par

$$K_d = I/NP(1-t)$$

Where, K_d = Cost of debenture I = Annual interest payment t = Tax rate

NP = Net proceeds from the issue of debenture.

When the debentures are redeemable at a premium or discount and are redeemable after 'n' period:

$$K_d = I(1-t) + 1/N(R_v - NP) / \frac{1}{2}(R_v - NP)$$

Where K_d = Cost of debenture.

I = Annual interest payment = Tax rate

NP = Net proceeds from the issue of debentures

R_v = Redeemable value of debenture at the time of maturity

Example 8.1:

1. A company issues Rs. 1,00,000, 15% Debentures of Rs. 100 each. The company is in 40% tax bracket. You are required to compute the cost of debt after tax, if debentures are issued at
 - I. Par,
 - II. 10% discount, and
 - III. 10% premium.

2. If brokerage is paid at 5%, what will be the cost of debentures if issue is at par?

(a) We know, Cost of Debenture $K_d = \frac{1}{NP} (1-t)$

(i) Issued at par : $K_d = \frac{Rs.15,000}{Rs.1,00,000} (1-0.4) = 0.09$ or 9%.

(ii) Issued at discount of 10% = $K_d = \frac{Rs.15,000}{Rs.90,000} (1-0.4) = 0.10$ or 10%

(iii) Issued at 10% premium $K_d = \frac{Rs.15,000}{Rs.1,10,000} (1-0.4) = 0.0818$ or 8.18%

(b) If brokerage is paid @ 5% and debentures are issued at par

$$K_d = \frac{Rs.15,000}{Rs.95,000 \text{ (i.e. Rs.1,00,000 - Rs.5,000)}} (1-0.4) = 0.0947 \text{ or } 9.47\%$$

Example 8.2:

ZED Ltd. has issued 12% Debentures of face value of Rs. 100 for Rs. 60 lakh. The floating charge of the issue is 5% on face value. The interest is payable annually and the debentures are redeemable at a premium of 10% after 10 years. What will be the **cost of** debentures if the tax is 50%?

Solution:

We know, Cost of Debenture $K_d = \frac{I(1-t) + \frac{1}{n}(R-P)}{\frac{1}{2}(R+P)}$

Here, I = Rs.12. t = 50% or 0.50, P = Rs. 100 – 5 = Rs. 95, n = 10 years

R = Rs. 100 + 10% of Rs. 100 = Rs. 110.

$$K_d = \frac{12(1-0.5) + \frac{1}{10}(110-95)}{\frac{1}{2}(110+95)} = \frac{6+1.5}{102.5} = 0.073 = 7.3\%$$

8.6. Cost of Preference Share

For preference shares, the dividend rate can be considered as its cost, since it is this amount which the company wants to pay against the preference shares. Like debentures, the issue expenses

Or the discount / premium on issue / redemption are also to be taken into account.

1. The cost of preference shares (KP) = DP/NP, Where, DP=Preference dividend per share NP = Net proceeds from the issue of preference shares.

$$K_P = \frac{D_P + \frac{1}{n}(R_V - NP)}{\frac{1}{2}(R_V - NP)}$$

2. If the preference shares are redeemable after a period of 'n', the cost of preference shares (K_P) will be:

Where NP = Net proceeds from the issue of preference shares R_V = Net amount required for redemption of preference shares D_P = Annual dividend amount.

There is no tax advantage for cost of preference shares, as its dividend is not allowed deduction from income for income tax purposes. The students should note that both in the case of debt and preference shares, the cost of capital is computed with reference to the obligations incurred and proceeds received. The net proceeds received must be taken into account while computing cost of capital.

Example 8.3:

A company issues 10% Preference shares of the face value of Rs. 100 each. Floatation costs are estimated at 5% of the expected sale price.

What will be the cost of preference share capital (K_P), if preference shares are issued?

- i. at par,
- ii. at 10% premium and
- iii. at 5% discount ignore dividend tax.

Solution:

We know, cost of preference share capital (K_P) = D_P/P

- (i) When preference shares are issued at par i.e., at Rs. 100 per share, $K_P = \frac{Rs.10}{Rs.95} = 0.1052$ or 10.52%, where, D_P = 10% of Rs. 100 = Rs. 10, P = Rs. 100 – 5% of Rs. 100 = Rs. 95.
- (ii) When preference shares are issued at 10% premium (i.e., at Rs. 110 per share) $K_P = \frac{Rs.10}{Rs.104.50} = 0.0956$ or 9.56% where D_P = 10% of Rs. 100 = Rs. 10. P = Rs.110 – 5% of Rs. 110 = Rs. 104.50.
- (iii) When preference shares are issued at 5% discount (i.e., at Rs. 95 per share) $K_P = \frac{Rs.10}{Rs.90.50} = 0.1108$ or 11.08% where D_P = 10% of Rs. 100 = Rs. 10, P = Rs. 95 – 5% of Rs. 95 = Rs. 90.25.

Example 8.4:

Ruby Ltd. issues 12% Preference Shares of Rs. 100 each at par redeemable after 10 years at 10% premium.

What will be the cost of preference share capital?

Solution:

$$\text{We know, cost of preference share } (K_P) = \frac{D_P + \frac{1}{n}(R-P)}{\frac{1}{2} \times (R+P)}$$

Here, DP = 12% of Rs. 100 = Rs. 12, R = Rs. 110 (at 10% premium)

P = Rs. 100 (at par), n = 10 years.

$$K_P = \frac{Rs.12 + \frac{1}{10}(Rs.110 - Rs. 100)}{\frac{1}{2} \times Rs (110+100)} = \frac{Rs.12+Rs.1}{Rs.105} = \frac{Rs.13}{Rs.105} = 0.1238 = 12.38\%$$

Example 8.5:

A company issues 12% redeemable preference shares of Rs. 100 each at 5% premium redeemable after 15 years at 10% premium. If the floatation cost of each share is Rs. 2, what is the value of K_P (Cost of preference share) to the company?

Solution :

$$K_P = \frac{D_P + \frac{1}{n}(R_V - NP)}{\frac{1}{2} \times (R_V + NP)} \quad \text{Here, DP = 12\% of Rs. 100 = Rs.12, } R_V = \text{Rs.}$$

110 (at a 10% premium) NP = Rs. 100 + 5% of Rs. 100 – Rs. 2

$$= 103, n = 15 \text{ years } K_P = \frac{Rs.12 + \frac{1}{15}(110 - 103)}{\frac{1}{2} \times (110 + 103)} = \frac{Rs. (12 + 0.467)}{RS.106.50} = 11.706\%$$

8.7. Cost of Equity**Cost of Equity or Ordinary Shares:**

The funds required for a project may be raised by the issue of equity shares which are of permanent nature. These funds need not be repayable during the lifetime of the organization. Calculation of the cost of equity shares is complicated because, unlike debt and preference shares, there is no fixed rate of interest or dividend payment. Cost of equity share is calculated by considering the earnings of the company, market value of the shares, dividend per share and the growth rate of dividend or earnings.

Dividend / Price Ratio Method or Dividend Growth Model:

An investor buys equity shares of a particular company as he expects a

certain return (i.e. dividend). The expected rate of dividend per share on the current market price per share is the cost of equity share capital. Thus, the cost of equity share capital is computed on the basis of the present value of the expected future stream of dividends. Thus, the cost of equity share capital (K_e) is measured by:

$K_e = \frac{D}{P} + g$ where D = Dividend per share, P = Current market price per share.

If dividends are expected to grow at a constant rate of 'g' then cost of equity share capital (K_e) will be $K_e = (D/P) + g$.

This method is suitable for those entities where growth rate in dividend is relatively stable. But this method ignores the capital appreciation in the value of shares. A company which declares a higher amount of dividend out of given quantum of earnings will be placed at a premium as compared to a company which earns the same number of profits but utilizes a major part of it in financing its expansion programme.

Example: 8.6. The current market price of a company's share is Rs. 90 and the expected Dividend per share next year is Rs. 4.50. If the dividends are expected to grow at a constant percent, calculate the cost of equity using Dividend Growth.

$K_e = (D/P) + g$

$K_e = (4.50/90) + 0.08$ $K_e = (0.05) + 0.08$

$K_e = 0.13$

$K_e = 13\%$

Capital Asset Pricing Model (CAPM)

The CAPM developed by William F Sharpe, John Linter and Jan Moss is one of the major developments in financial theory. The CAPM establishes a linear relationship between the required rate of return of a security and its systematic or undiversifiable risk or beta. This relationship as defined by CAPM can be used to value an equity share. Mathematically the relationship between the share's return and the market return can be depicted by the following formula:

$K_e = R_f + (R_m - R_f) \beta$ Here

K_e Cost of Equity

R_s stands for return expected on the security, R_f stands for risk-free return,

R_m stands for return from the market portfolio and b stands for beta.

This relationship means that if the market goes up by 10% and the security price also goes up by 10%, and vice versa, the beta is said to be 1.00, i.e., there is a perfect correlation between return from the security and return from the market. If the beta is 2.00 the security price would go up or down by twice the percentage of change of the market. If the beta is 0.00 then no correlation exists between the market movement and the security price movement. It is easy to see that the required return for given security increases with increases in its beta.

Assumptions

The CAPM is based on critical assumptions, some of which are as follows:

Investors are risk-averse and use the expected rate of return and standard deviation of return as appropriate measures of risk and return for their portfolio. In other words, the greater the perceived risk of a portfolio, the risk-averse investor expects a higher return to compensate the risk. Investors make their investment decisions based on a single-period horizon, i.e., the next immediate time period. Transaction costs in financial markets are low enough to ignore and assets can be bought and sold in any unit desired. The investor is limited only by his wealth and the price of the asset. Taxes do not affect the choice of buying assets. All individuals assume that they can buy assets at the going market price and they all agree on the nature of the return and risk associated with each investment.

In the CAPM, the expected rate of return can also be thought of as a required rate of return because the market is assumed to be in equilibrium. The expected return is the return from an asset that investors anticipate or expect to earn over some future period. The required rate of return for a security is defined as the minimum expected rate of return needed to induce an investor to purchase it. Investors can earn a riskless rate of return by investing in riskless assets like treasury bills. This risk-free rate of return is designated R_f and is the minimum return expected by the investors. In addition to this, because investors are risk-averse, they will expect a risk premium to compensate them for the additional risk assumed in investing in a risky asset.

Example: 8.7

Required Rate of Return = Risk-free rate + Risk premium

From the following data, assess and estimate cost of equity using CAPM model.

S.No	Riskfree rate	Market Return	Beta
1	2.25%	7.75%	1.28
2	3%	7%	1.8

$$K_e = R_f + (R_m - R_f)\beta$$

Solution

S.No	Risk free rate (Rf)	Market Return (Rm)	Beta β	Rm-Rf	(Rm-Rf) β	Rf+(Rm-Rf) β
1	2.25%	7.75%	1.28	5.5	7.04	9.29
2	3%	7%	1.8	4	7.2	10.2%

Cost of Equity is 9.29% and 10.2%

8.8. Cost of Retained Earnings

The profits retained by a company for using in the expansion of the business also entail cost. When earnings are retained in the business, shareholders are forced to forego dividends. The dividends forgone by the equity shareholders are, in fact, an opportunity cost. Thus, retained earnings involve opportunity cost. If earnings are not retained, they are passed on to the equity shareholders who, in turn, invest the same in new equity shares and earn a return on it. In such a case, the cost of retained earnings (K_r) would be adjusted by the personal tax rate and applicable brokerage, commission etc. if any.

Therefore, $K_r = K_e (1-t) (1-f)$,

where $K_e = \frac{D}{P} + g$

t = Share holders personal tax rate.

F = rate of flotation cost.

Many accountants consider the cost of retained earnings as the same as that of the cost of equity share capital. However, if the cost of equity share capital is computed on the basis of dividend growth model (i.e., $D/P + g$), a separate cost of retained earnings need not be computed since the cost of retained earnings is automatically included in the cost of equity share capital.

Therefore, $K_r = K_e = D/P + g$.

Example 8.8:

It is given that the cost of equity of a company is 20%, marginal tax rate of the shareholders is 30% and the Broker's Commission is 2% of the investment in share. The company proposes to utilize its retained earnings to the extent of Rs.6, 00,000. Find out the cost of retained earnings.

Solution:

We know that cost of retained earnings

$$K_r = K_e (1 - t) (1 - f) \qquad \text{Here } K_e = 20\% = 0.20$$

$$\text{or } K_r = 0.20 (1 - 0.30) (1 - 0.02) \qquad t = 30\% = 0.30$$

$$= 0.1372 \text{ or, } 13.72\%. \qquad f = 2\% = 0.02$$

8.9. Weighted Average Cost of Capital

Over all or Weighted Average Cost of Capital:

A firm may procure long-term funds from various sources like equity share capital, preference share capital, debentures, term loans, retained earnings etc. at different costs depending on the risk perceived by the investors. When all these costs of different forms of long-term funds are weighted by their relative proportions to get overall cost of capital it is termed as weighted average cost of capital. It is also known as composite cost of capital. While taking financial decisions, the weighted or composite cost of capital is considered. Once the component costs have been calculated, they are multiplied by the proportions of the respective sources of capital to obtain the weighted average cost of capital (WACC). The proportions of capital must be based on target capital structure. WACC is the composite, or over all cost of capital. You may note that it is the weighted average concept, not the simple average, which is relevant in calculating the over all cost of capital. The simple average cost of capital is not appropriate to use because firms hardly use various sources of funds equally in the capital structure.

The following steps are involved for calculating the firm's WACC:

- Calculate the cost of specific sources of funds
- Multiply the cost of each source by its proportion in the capital structure. Add the weighted component costs to get the WACC.
- In financial decision-making, the cost of capital should be calculated

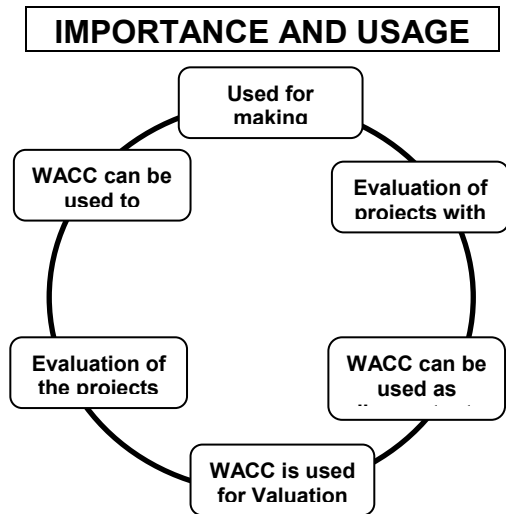
on an after- tax basis. Therefore, the component costs should be the after-tax costs.

Uses of WACC:

- It is useful in taking capital budgeting / investment decisions.
- It recognizes the various sources of finance from which the investment proposal derives its life-blood (i.e., finance).
- It indicates an optimum combination of various sources of finance for the enhancement of the market value of the firm.
- It provides a basis for comparison among projects asast and ardorcut-off rate.

Weighted Average Cost of Capital

WACC indicates minimum rate at which, company should earn from the business so as to give return to finance providers as per their expectations.



Computation of Weighted Average Cost of Capital:

Computation of Weighted Average cost of capital is made in the following ways:

1. The specific cost of each source of funds (i.e., cost of equity, preference shares, debts, retained earnings etc.) is to be calculated.
2. Weights (i.e., proportion of each, source of fund in the capital structure) are to be computed and assigned to each type of funds.

This implies multiplication of each source of capital by appropriate weights.

Generally, the following weights are assigned:

Book values of various sources of funds

- a. Market values of various sources of capital
- b. Marginal book values of various sources of capital.

Book values of weights are based on the values reflected by the balance sheet of a concern, prepared under historical basis and ignoring price level changes. Most of the financial analysts prefer to use market value as the weights to reflect the current cost of capital. But the determination of market value involves some difficulties for which the measurement of cost of capital becomes very difficult.

Add all the weighted component costs to obtain the firm's weighted average cost of capital. Therefore, weighted average cost of capital (K_o) is to be calculated by using the following formula:

$$K_o = K_1W_1 + K_2W_2 + \dots$$

Where K₁, K₂.....are component costs and W₁, W₂..... are weights.

Example 8.9:

Jamuna Ltd has the following capital structure and, after tax, costs for the different sources of fund used, Calculate WACC:

Source	Amount (Rs.)	After – tax Cost
Equity share capital	6,00,000	13%
Preference share capital	3,00,000	8%
Debentures	2,40,000	5%
Retained earnings	60,000	9%

You are required to calculate the Weighted Average Cost of Capital

Solution:

Computation of Weighted Average Cost of Capital

Source (1)	Amount Rs. (2)	Proportion (3)	After-tax Cost (4)	Weighted Cost (5) = (3) x (4)
Equity share capital	6,00,000	0.50	0.13	0.065
Preference share capital	3,00,000	0.25	0.08	0.02
Debentures	2,40,000	0.20	0.05	0.01
Retained earnings	60,000	0.05	0.09	0.0045
	12,00,000	1.00	-	0.0995

Example 8.10:

In considering the most desirable capital structure for a company, the following estimates of the cost Debt and Equity Capital (aftertax) have been made at various levels of debt-equity mix:

Debt as percentage of total capital employed	Cost of debt %	Cost of equity %
0	5.0	12.00
10	5.0	12.00
20	5.0	12.50
30	5.50	13.0
40	6.0	14.0
50	6.50	16.0
60	7.0	20.0

Solution:

Computation of Composite Cost of Capital

Proportion of Debt.	Cost of Debt.	Weighted Cost of Debt.	Proportion of Equity	Cost of Equity	Weighted Cost of Equity	Composite Cost of Capital (%)
(1)	(2)	(3) = (1) x (2)	(4) = 1 - (1)	(5)	(6) = (4) x (5)	(7) = (3) + (6)
0.0	5	0	1	12.0	12.0	12.0
0.1	5	0.5	0.9	12.0	10.8	11.3
0.2	5	1.0	0.8	12.50	10.0	11.0
0.3	5.5	1.65	0.7	13.0	9.1	10.75
0.4	6.0	2.4	0.6	14.0	8.4	10.80
0.5	6.5	3.25	0.5	16.0	8.0	11.25
0.6	7.0	4.20	0.4	20.0	8.0	12.20

You are required to determine the optimum debt-equity mix for the company by calculating composite cost of capital.

Optimal debt-equity mix for the company is at the point where the composite

cost of capital is minimum. Hence, the composite cost of capital is minimum (10.75%) at the debt-equity mix of 3: 7 (i.e., 30% debt and 70% equity). Therefore, 30% of debt and 70% equity mix would be an optimal debt-equity mix for the company.

Practice problems:

1. From the following capital structure, calculate the weighted average cost of capital (WACC)

Source of capital	Cost (%)	Amount(Rs.)
EquitySharecapital	6	4,00,000
Reserves&Surplus	13	80,000
Preference share capital	9	80,000
Debenture	6	2,40,000

2. From the following capital structure, estimate the weighted average cost of capital (WACC)

Source of capital	Cost (%)	Amount (Rs.)
EquityShare capital	17	40,00,000
Reserves & Surplus	4	30,00,000
Preference share	6	10,00,000
Debenture	5	20,00,000

3. The equity stock of RAX Limited is currently selling for Rs.30 per share. The dividend expected next year is Rs.2.00. The Growth rate is 8%. Calculate the cost of growth using dividend.
4. The expected dividend to be paid out next year by ABC Corporation is Rs. 2.00 per share. The current market value of the stock is Rs.20. The historical growth rate for the dividend payments has been 2%. Based on this information, calculate cost of growth using dividend.
5. From the following data, determine cost of equity using CAPM model.

S.No	Riskfree rate	Market Return	Beta
1	6%	15%	1.54
2	5%	13%	1.20

6. From the following capital structure, calculate the weighted average cost of capital (WACC)

Source of capital	Cost (%)	Amount (Rs.)
EquityShare capital	18	4,50,000
Reserves & Surplus	18	1,50,000
Preferenceshare capital	11	1,00,000
Debenture	8	3,00,000

7. The capital structure of Balaji Ltd is as follows. Calculate weighted average cost of capital (WACC) of the company using book and market value

Source of capital	Book value (Rs.)	Market Value (Rs.)	Cost (%)
EquityShare capital	1000000	2000000	18
Retained Earnings	500000	-	15
Preference share capital	700000	700000	14
Debentures	600000	600000	8

8. From the following capital Structure of a company, calculate the overall cost of capital or WACC using (a). Book value weights and (b). Market value weights

Source of capital	Book value (Rs.)	Market Value (Rs.)	Cost (%)
Equity share capital	60000	120000	5%
Retained earnings	20000	-	8%
Preferenceshare capital	10000	11000	13%
Debentures	40000	38000	9%

9. Following are the details regarding the capital structure of a company

Source of capital	Book value (Rs.)	Market Value (Rs.)	Cost (%)
Equity share capital	60000	120000	13%
Retained earning	20000	-	9%
Preference share capital	10000	11000	5%
Debentures	40000	38000	5%

You are required to calculate Weighted Average cost of capital (WACC) using Bookvalue weights and market value weight.

10. From the following capital structure of company, estimate the over all cost of capital (WACC) using

- (a) book value weights
- (b) market value weights

Source of capital	Book value (Rs.)	Market Value (Rs.)	Cost (%)
Equity Share capital	45000	90000	14
Reserves & Surplus	15000	-	13
Preference share capital	10000	10000	10
Debenture	30000	30000	5

The Serve x company has the following capital structure

10% Ordinaryshares (2,00,000 shares)	4,000
10% preference shares	1,000
7% debentures	3,000
Total	8,000

You are required to

- a. Compute a weighted average cost of capital (WACC) based on the existing capital
- b. Compute a new weighted average cost of capital (WACC) if the company raises an additional Rs. 2, 000 debt by issuing 7.5% percent debenture.

11. Calculate Cost of Equity using CAPM model for FirmA, FirmB Firm C

Compan y	Riskfree rate	Market Return	Beta
A	8%	13%	1.7
B	8%	13%	0.6
C	8%	13%	1.2

12. In considering the most desirable capital structure of a company, the following estimates of the cost of debt and equity (after tax) have been made at various levels of debt equity mix. You are required to determine the optimal debt equity mix for the company by calculating the composite cost of capital (WACC)

Debt as percentage of total capital employed	Cost of debt	Cost of equity
0	7	15
10	7	15
20	7	15.5
30	7.5	16
40	8	17
50	8.5	19
60	9.5	20

Let Us Sum Up

It refers to the minimum rate of return of a firm which must earn on its investment so that the market value. Different components of cost of capital are Cost of Debt or Debenture, Cost of Preference Share or Preferred capital, Cost of Equity, Cost of Retained Earnings and Weighted Average Cost of Capital (WACC) or Overall cost of capital (or) Composite cost of capital. CAPM is used to find Cost of Equity and WACC can be found out using Book value as weights and Market value as weights.

Check Your Progress

1. How do we evaluate the committed dividend on preference shares that needs to be furnished by the company?
 - a. By calculating the value of K_p which is possible through division of the selling price for each preference share. Here, the constant dividend per share acts as the divisor.
 - b. Dividing the price for each preference share and then calculating the risk premium.
 - c. Evaluating the value of K_p and then adding the economic growth rate.
 - d. None of these
2. Why do we always see that the price of share capital in equity is more than the overall debt amount?
 - a. This is because equity stakes are not readily sellable in the open market.

- b. Equity shares are not meant for providing a constant dividend rate.
 - c. Debts are relatively safe than equity stakes.
 - d. There is a generalized opinion that equity offer lower face value compared to that debenture on the majority of occasions.
3. What is meant by the cost of capital of a company?
- a. It is the equity shares of the company that will provide variable rates of dividend over a set period.
 - b. It is a metric that is inversely proportional to the overall pile of debts.
 - c. It is the turn on investment recorded against each fixed asset owned by the company.
 - d. Cost of capital of a company is a stat that represents the internal return rates.
4. Choose the factor(s) that can be internally controlled by a company to govern the cost of capital incurred over its assets.
- a. Capital structure targets
 - b. Periodic debt service charges
 - c. Policies designed specifically for investors
 - d. None of the above options.
5. In regards to the cost of capital, please figure out the incorrect proposition from the list given below.
- a. The retained profit margin does not include any of the company's expenditures.
 - b. Composite cost is defined as the additional value obtained by summing the price of equity and overall debts.
 - c. As per traditional accounting theory, the cost of capital always gets related to the debt-equity mix.
 - d. None.

Glossary

Cost of capital: It is the rate of return the firm must earn on its assets to justify the using and acquiring of investible Resources

Capital asset pricing model (CAPM):

This model is based on the premise that degree of risk and returns are related. Relative risks among stocks is measured using the beta coefficient. β coefficient > 1 means the variation in returns on that stock is greater than that of the average stock. β coefficient is a necessary element in determining a stock's required rate of return.

Dividend valuation

method:

According to this method, the return required by the investor is equal to the current dividend yield on the common stock plus an expected growth rate for dividend payments. It is also known as dividend growth model.

Weighted average cost of Capital:

Weights are given in proportion to each source of funds in the capital structure; then weighted average cost of capital is calculated.

Answers to Check Your Progress

1. a. By calculating the value of K_p which is possible through division of the selling price for each preference share. Here, the constant dividend per share acts as the divisor.
2. c. Debts are relatively safer than equity stakes.
3. c. It is their turn on investment recorded against each fixed asset owned by the company.
4. d. None of the above options.
5. d. none.

Suggested reading

1. Eugene F. Brigham | Michael C. Ehrhardt (2017), Financial Management Text and cases, (15th Edition), Cengage Learning.
2. Hampton John J. (1994), Financial Decision Making: Concepts, Problems and Cases. New Delhi: (Fourth Edition), Prentice-Hall of India Pvt. Ltd.,

Unit-9

Leverage

STRUCTURE

Overview

Objectives

9.1. Leverage-Introduction

9.2. Types of Leverage

9.3. Difference between Operating and Financial Leverage

9.4. Impact of Leverage

Let Us Sum Up

Check Your Progress Glossary

Answers to Check Your Progress

Suggested Readings

Overview

In this unit, we see an introduction about leverage and the types of leverage is also discussed. The difference between operating and financial leverage is explained and the impact of financial leverage is also covered in this Unit.

Objectives

After studying this unit, you should be able to:

- Examine the importance of leverage in financial decisions.
 - Understand the different types of leverage and the determination of leverages
 - Differentiate Operating and Financial leverage
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9.1. Leverage- Introduction

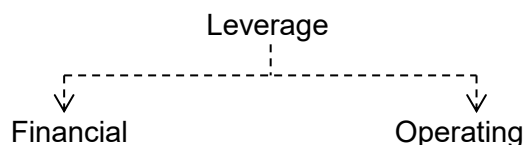
One of the most important of the various financial decisions is how much leverage a firm should employ. A fundamental decision made by any business is the degree to which it incurs fixed costs. A fixed cost is one that remains the same regardless of the level of operations. As sales increase, fixed costs don't increase in the same proportion. Some fixed costs do not increase at all till a particular point. As a result, profits can rise faster during good times. On the other hand, during bad times fixed costs don't decline, so

profits fall more rapidly than sales do. The degree to which a firm locks itself into fixed costs is referred to as its leverage position. The more highly leveraged a firm, the riskier it is because of the obligations related to fixed costs that must be met whether the firm is having a good year or not. At the same time, the more highly leveraged the greater the profits during good times. This presents a classic problem of making a decision where there is a trade-off between risk and return. In finance, leverage is a strategy that companies use to increase assets, cash flows, and returns, though it can also magnify losses. There are two main types of leverage: financial and operating. To increase financial leverage, a firm may borrow capital through issuing fixed-income securities or by borrowing money directly from a lender. Operating leverage can also be used to magnify cashflows and returns, and can be attained through increasing revenues or profit margins. Both methods are accompanied by risk, such as insolvency, but can be very beneficial to a business.

Leverage, as a business term, refers to debt or to the borrowing of funds to finance the purchase of a company's assets. Business owners can use either debt or equity to finance or buy the company's assets. Using debt, or leverage, increases the company's risk of bankruptcy. It also increases the company's returns; specifically, its return on equity. This is true because, if debt financing is used rather than equity financing, then the owner's equity is not diluted by issuing more shares of stock. Leverage is a practice which can help a business drive up its gains / losses. In business language, if a firm has fixed expenses in P/L account or debt in capital structure, the firm is said to be levered. Nowadays, almost no business is away from it but very few have struck a balance.

9.2. Types of Leverage

There is a different basis for classifying business expenses. For our convenience, let us classify fixed expenses into operating fixed expenses such as depreciation on fixed expenses, salaries etc, and financial fixed expenses such as interest and dividend on preference shares. Similar to them, leverages are also of two types – financial and operating



Financial Leverage

It is a leverage created with the help of debt component in the capital structure of a company. Higher the debt, higher would be the FL because with higher debt comes the higher amount of interest that needs to be paid. It can be both good and bad for a business depending on the situation. If a firm is able to generate a higher return on investment (ROI) than the interest rate it is paying, leverage will have its positive effect on shareholder's return. The darker side is that if the said situation is opposite, higher leverage can take a business to a worst situation like bankruptcy.

Operating Leverage

Just like the financial, it is a result of operating fixed expenses. Higher the fixed expense, higher is the OL. Like the FL had an impact on the shareholder's return or say earnings per share, OL directly impacts the operating profits (Profits before Interest and Taxes (PBIT)). Under good economic conditions, an increase of 1% in sales will have more than 1% change in operating profits.

Combined Leverage

It means combination of operating and financial leverages. It expresses the effect of changes on sales over changes in taxable profit. The operating leverage has its effects on operating risk and is measured by the percentage change in EBIT due to percentage change in sales. The financial leverage has its effects on financial risk and is measured by the percentage change in EPS due to percentage change in EBIT. Since both these leverages are closely concerned with ascertaining the ability to cover fixed charges (fixed-operating costs in the case of operating leverage and fixed-financial costs in the case of financial leverage), if they are combined, the result is total leverage and the risk associated with combined leverage is known as total risk. Symbolically,

$DCL = DOL \times DFL$, Where

DCL = Degree of combined leverage, DOL = Degree of operating leverage, DFL = Degree of financial leverage

9.3. Difference between Operating and Financial Leverage

Basis for Comparison between Financial Leverage vs. Operating Leverage	Operating Leverage	Financial Leverage
1. Meaning	Operating leverage can be defined as a firm's ability to use fixed costs to generate more returns.	Financial leverage can be defined as a firm's ability to use capital structure to earn better returns and to Reduce taxes.
2. What it's all about?	It's about the fixed cost of the firm.	It's about the capital structure of the firm.
3. Measurement	Operating leverage Measures the operating risk of a business.	Financial leverage Measures the financial risk of a business.
4. Calculation	Operating leverage can be calculated when we divide contribution by EBIT of the firm.	Financial leverage can be calculated when we divide EBIT by EBT of the firm.
5. Impact	When the degree of operating leverage is higher, it depicts more operating risk for the Firm and vice versa.	When the degree of financial leverage is higher, it depicts more financial risk for the firm And vice versa.
6. In relation with	The degree of operating leverage is usually higher than Break Even Point.	Financial leverage has a direct relationship with the liability side of the balance sheet.
7. How much is it preferred?	The preference is lower.	The preference is much higher.

6.4. Impact of Financial Leverage

Financial leverage acts as a lever to magnify the influence of fluctuations. Any fluctuation in earnings before interest and taxes (EBIT) is magnified on the earnings per share (EPS) by operation of leverage. The greater the degree of leverage, the wider the variation in EPS given any change in EBIT. The following illustration would explain how leverage technique works.

Example 9.1 Pramila company is capitalized with Rs. 10,00,000/- divided in 1,000 common shares of Rs. 1,000 each. The management wishes to raise another Rs. 10,00,000/- to finance a major programme of expansion through one of our possible financing plans. The management may finance the company with:

1. All common stock,

2. Rs.5 lakhs in common stock and Rs.5 lakhs in debt at 5 percent interest,or
3. All debt at 6 percent interest or
4. Rs.5 akhs in common stock and Rs.5 lakhs in preferred stock with 5 per dividend.

The company's existing earnings before interest and taxes (EBIT) amounted to Rs.1,20,000/-. Corporation tax is assumed to be 50 percent.

Solution:

Impact of financial leverage,as observed earlier,will be reflected in earnings per share available to common stock holders.To calculate,the EPS in each of the four alternative BIT has to be first of all calculated:

	Proposal-A Rs.	Proposal-B Rs.	Proposal -C Rs.	Proposal-D Rs
EBIT	120000	120000	120000	120000
LessInterest	-	25000	60000	-
EBT	120000	95000	60000	120000
LessTaxes @50%	60000	475000	30000	60000
EAT	60000	475000	30000	60000
Preferred Dividend	-	-	-	25000
Earnings Available to Common stock holders	60000	47000	30000	35000
Noof Equity Shares	20000	15000	10000	15000
EPS	3.0	3.67	3.0	2.33

Thus, when EBIT is Rs. 1,20,000, proposal B involving a total capitalization of 75 percent common stock and 25 percent debt would be the most favorable with respect to earnings per share. It may further be note that proposition of common stock in total capitalization is the same in both the proposals Band D but EPS is altogether different because of induction of preferred stock. While preferred stock dividend is subject to taxes where as interest on debt is tax-deductible expenditure resulting in variation in EPS in proposals B and D. With a 50 percent tax rate the explicit cost of preferred stock is twice the cost of debt. We have so far assumed that level of earnings would remain the same even after the expansion of funds. Now assume that level of earnings before interest and taxes doubles the present

level in correspondence with increase in capitalization, changes in earnings per share to common stock holders under different alternatives would be as follows:

	Proposal A-Rs.	Proposal B-Rs.	Proposal C-Rs.	Proposal D-Rs.
EBIT	2,40,000	2,40,000	2,40,000	2,40,000
Less Interest	-	2,5000	60,000	-
EBT	2,40,000	2,15,000	1,80,000	2,40,000
Less Taxes@ 50%	1,20,000	1,07,000	90,000	1,20,000
EAT	1,20,000	1,07,000	90,000	1,20,000
Less: Preferred Dividend	-	-	-	25000
Earnings Available to Common stock holders	1,20,000	1,07,000	90,000	1,20,000
No of Equity Shares	20,000	15,000	10,000	15,000
EPS	6	7.17	9	6.33
EPS Before Additional Issue	3	3	3	3

It is evident from illustration that increase in earnings before interest and taxes is magnified on the earnings per share where debt has been inducted. Thus, in proposal B and D where debt comprises a portion of total capitalization, EPS would increase by more than twice the existing level while in proposal A EPS has improved exactly in proportion to increase in earnings before interest and taxes. Since dividend in preferred stock is an affixed obligation and is less than the increase in earnings, EPS in proposal D also increases more than twice the rise in earnings. Another important conclusion that could be drawn from the above illustration is that the larger the ratio of debt to equity, the greater there turns out to be equity. Thus, in proposal C where debt represents 50 percent of the total capitalization, EPS is magnified three times over the existing level while in proposal B where debt has furnished one-third of the total funds, increase in EPS is little more than double.

The earlier level. This volatility of earnings operates during contraction as well as during an expansion. Like wise, financial leverage magnifies all losses sustained by the company. Assume that the Rekha Company expects to sustain a loss of Rs. 60,000 before interest and taxes, loss per share under the different alternatives would be:

	Proposal-A Rs.	Proposal-B Rs.	Proposal-C Rs.	ProposalD Rs.
Lossbeforeinterest and Taxes	- 60,000	- 60,000	- 60,000	- 60,000
Add:Interest	-	25,000	60,000	-
Loss PerShare	3	5.67	12	4

Thus, loss per share is highest under alternative C where proportion of debt is, as high as 50 per cent of the total capitalization and the lowest in proposal A where leverages zero.

This is why the phrase 'financial leverage magnifies both profits and loss is very often quoted to explain magic of the financial leverage. Thus, the financial leverage is useful as long as the borrowed capital can be made to pay the company more than what it costs.

Naturally it will be come source of decrease in profit rates when it costs more than what it earns. To what extent debt capital should be used in order to improve earnings of the company is a major financing problem facing a finance manager. It should be remembered here that the financial leverage offers financial advantages only up to a point. Beyond that point debt financing may be detrimental to the company. For instance, as we expand the use of debt in our capital structure, lenders will perceive a greater financial risk for the company. For that reason, they may raise the average interest rate we pay, and place certain restrictions on the company. Further more, concerned equity stock holders may drive down the price of the stock forcing the management away from the company's main objectives of maximizing overall value of the company in the market. Thus, before using the financial leverage as a technique of improving net earnings of the company, its impact on EPS must be carefully weighed.

Example 9.2 Calculate the operating financial and combined leverage from the following information

Sales	- 35000
Interest	- 2500
Variable costs	- 20000
Fixed cost	- 10000

Sales	35000
Less: Variable cost	20000
Contribution	15000
Less: Fixed cost	10000
Operating profit (EBIT)	<u>5000</u>
Less: Interest	<u>5000</u>
Profit before tax (EBIT)	<u>2500</u>

- Operating Leverage $\text{Contribution} / \text{Operating profit (or) EBIT} = 15000/5000=3$ times
- Financial Leverage $\text{Operating profit} / \text{Profit before tax (or) EBIT} / \text{EBT} = 5000 / 2500 = 2$ times
- Combined Leverage $\text{Operating leverage} \times \text{Financial Leverage} = 3 \times 2 = 6$

Example 9.3. A firm has sales of Rs. 10,00,000, variable cost of Rs. 7,00,000 and fixed costs of Rs. 2,00,000 and debt of Rs. 5,00,000 at 10% rate of interest. What are the operating, financial and combined leverages? If the firm wants to double its earnings before interest and tax (EBIT), how much of a rise in sales would be needed on a percentage basis?

Solution:

Statement of Existing Profit

Sales	Rs. 10,00,000
Less Variable cost	Rs. 7,00,000
Contribution	Rs. 3,00,000
Less fixed cost	Rs. 2,00,000
EBIT	Rs. 1,00,000
Less Interest @10% on 5,00,000	Rs. 50,000
Profit after Tax	Rs. 50,000

Operating leverage Contribution /	EBIT	= 3,00,000 / 1,00,000=3
Financial Leverage	EBIT/ PBT	= 1,00,000 / 50,000=2
Combined Leverage		= 3 x 2 = 6

Example 9.4: The balance sheet of Well – Established Company is as follows:

Liabilities	Amount	Assets	Amount
Equity share capital	60,000	FixedAssets	1,50,000
Retained Earnings	20,000	Current Assets	50,000
10% Long-term debt	80,000		
Current Liabilities	40,000		
	2,00,000		2,00,000

The company's total assets turn over ratio is 3, its fixed operating costs are Rs.1,00,000 and its variable operating cost ratio is 40%. The income tax rate is 50%. Calculate the different types of leverages given that the face value of share is Rs.10.

Solution: Total Assets Turn over Ratio = Sales / Total Assets

$$2 = \text{Sales} / 2,00,000$$

Sales	6,00,000
Variable Operating Cost (40%)	<u>2,40,000</u>
Contribution	3,60,000
Less Fixed Operating Cost	<u>1,00,000</u>
EBIT	2,60,000
Less interest (10% of 80,000)	<u>8,000</u>
PBT	2,52,000
Tax at 50%	<u>1,26,000</u>
PAT	<u>1,26,000</u>
Number of shares	6,000
EPS	Rs.21

Degree of Operating Leverage=Contribution / EBIT

$$= 3,60,000/2,60,000 = 1.38$$

Degree of Financial leverage = EBIT/PBT =2,60,000/2,52,000= 1.03

DegreeofCombinedLeverage = 1.38x 1.03=1.42

Example 9.5: The following information is available for ABC & Co. EBIT Rs. 11, 20,000 Profit beforeTax 3, 20,000 Fixed Costs 7, 00,000.Calculate % change in EPS if the sales are expected to increase by 5%.

Solution: In order to find out the % change in EPS as a result of % change in sales, the combined leverage should be calculated as follows:

Operating Leverage = Contribution / EBIT

$$= \text{Rs. } 11,20,000 + \text{Rs. } 7,00,000 / 11,20,000 = 1.625$$

Financial Leverage = BIT / Profitbefore Tax

$$= \text{Rs. } 11, 20,000 / 3, 20,000 = 3.5$$

Combined Leverage=Contribution/Profit beforeTax = OL x FL

$$= 1.625 \times 3.5 = 5.69$$

The combined leverage of 5.69 implies that for 1% change in sales level, the % change in EPS would be 5.69% so, if the sales are expected to increase by 5%, then the % increase in EPS would be 5 x 5.69 = 28.45%.

Example9.6: The data relating to two companies are as given below:

	Company A	Company B
Capital	Rs.6,00,000	Rs.3,50,000
ebentures	Rs.4,00,000	Rs. 6,50,000
Out put (units) per annum	Rs. 60,000	Rs. 15,000
Selling price / unit	Rs. 30	Rs. 250
Fixed costs per annum	Rs 7,00,000	Rs.14,00,000
Variable cost perunit	10	75

You are required to calculate the Operating leverage, financial leverage and Combined Leverage of two companies.

Solution:

Computation of Operating leverage, Financial Leverage and Combined leverage

	Company A	Company B
Output (units) per annum	60,000	15,000
Selling price/unit (Rs)	30	250
Sales Revenue	18,00,000	37,50,000
Less variable costs @Rs.10 and Rs.75	6,00,000	11,25,000
Contribution	12,00,000	26,25,000
Less fixed costs	7,00,000	14,00,000
EBIT	5,00,000	12,25,000
Less: Interest @12% On debentures	48,000	78,000
PBT	<u>4,52,000</u>	<u>11,47,000</u>

$$\text{DOL} = 26,25,000/12,25,000 = 2.14$$

$$\text{Contribution/EBIT} = 12,00,000/5,00,000 = 2.4$$

$$\text{DFL} = 5,00,000/4,52,000 = 1.11$$

$$\text{EBIT/PBT} = 12,25,000/11,47,000 = 1.07$$

$$\text{DCL} = \text{DOL} \times \text{DFL} = 2.14 \times 1.11 = 2.66$$

$$= 2.14 \times 1.07 = 2.2$$

Example 9.7 Following information is taken from the records of a hypothetical Company:

Installed capacity	1,000 units
Operating capacity	800 units
Selling price per unit	Rs. 10
Variable cost per unit	Rs. 7

Fixed cost :	Rs
Situation A	800
Situation B	1,200
Situation C	1,500

Calculate operating leverage under the following situations:

Solution:

	Situation A	Situation A	Situation A
	Rs.	Rs.	Rs.
Sales	8,000	8,000	8,000
Less: Variable coast	<u>5,600</u>	<u>5,600</u>	<u>5,600</u>
Contribution (C)	2,400	2,400	2,400
Less: Fixed Coast (F)	<u>800</u>	<u>1,200</u>	<u>1,500</u>
Operating Profit (OP)	<u>1,600</u>	<u>1,200</u>	<u>900</u>
Operating leverage	2,400	2,400	2,400
$\left(\frac{C}{OP}\right)$	1,600	1,200	900
Break Even Point (DEP)	1.5	2.0	2.67
$\left(\frac{F}{C} \times s\right)$	2.667	4,000	5,000
Margin of Safety Ratio	66.7%	50%	37.5%
$\left(\frac{OP}{C}\right)$			
Percentage of sales at break even point	33.3%	50%	62.5%

Example 9.8:

Find the operating leverage from the following data:

Sales Rs.50, 000

Variable Costs 60%

Fixed costs Rs.12, 000

Find the financial leverage from the following data:

Net Worth Rs.25, 00,000

Debt / Equity 3/1

Interest rate 12%

Solution:

Calculation of Operating leverage:	
Particulars	(Rs.)
Sales	50,000
Less: Variable Costs (60% of Sales)	<u>30,000</u>
Contribution	20,000
less: Fixed Costs	<u>12,000</u>
Operating Profit	<u>8,000</u>

Operating leverage = Contribution/Operating profit

$$= \text{Rs.}20,000 / \text{Rs.}8,000 = 2.5$$

Calculation of Financial leverage: Calculation of debt and interest there on:

$$\text{a. Debt} = \text{Rs.}25,00,000 \times 3 = \text{Rs.}75,00,000$$

$$\text{b. Interest on debt} = \text{Rs.}75,00,000 \times 12 / 100 = \text{Rs.}9,00,000$$

$$\text{Operating Profit} = 20,00,000$$

$$\text{Less: Interest on debt} = \underline{9,00,000}$$

$$\text{Profit before tax} = \underline{11,00,000}$$

$$\text{Financial Leverage} = \text{Operating profit} / \text{Profit before tax}$$

$$\text{Rs.}20,00,000 / \text{Rs.}11,00,000 = 1.82$$

Let Us Sum Up

In this unit you have learned about, the Leverage, as a business term, refers to debt or to the borrowing of funds to finance the purchase of a company's assets. Business owners can use either debt or equity to finance or buy the company's assets. Leverage is also of two types—financial and operating. Combined leverage is the combination of operating and financial leverages.

Check Your Progress

1. Operating leverage helps in an analysis of:
 - a. Business Risk,
 - b. Financing Risk,

- c. Production Risk,
 - d. Credit Risk
2. Which of the following is studied with the help of financial leverage?
- a. Marketing Risk,
 - b. Interest Rate Risk,
 - c. Foreign Exchange Risk,
 - d. Financing risk
3. High degree of financial leverage means:
- a. High debt proportion,
 - b. Lower debt proportion,
 - c. Equal debt and equity,
 - d. No debt
4. Operating leverage arises because of:
- a. FixedCost of Production,
 - b. Fixed Interest Cost,
 - c. Variable Cost,
 - d. None of the above
5. Financial Leverage arises because of:
- a. Fixed cost of production,
 - b. Variable Cost,
 - c. Interest Cost,
 - d. None of the above

Glossary

- OperatingLeverage:** **Operating leverage** is a cost-accounting formula that measures the degree to which a firm or project can increase operating income by increasing revenue
- Financial Leverage:** Financial leverage is a leverage created with the help of debt component in the capital

structure of a company. Higher the debt, higher would be the FL because with higher debt comes the higher amount of interest that needs to be paid

Fixed Cost:

A **fixed cost** is a cost that does not change with an increase or decrease in the amount of goods or services produced or sold

Answers To Check Your Progress

1. a. BusinessRisk
2. d. Financing risk
3. a. High debt proportion
4. a. Fixed Cost of Production
5. c. Interest Cost

Suggeste Dreading

1. Chandra,Prasanna,(2011),Financial Management: Theory and Practice.New Delhi: (8th Edition), Tata McGraw Hill Publishing Co. Ltd.,
2. D.Chandra Bose (2010), Fundamentals of Financial Management, (2nd Edition), PHI learning India PVT Ltd., www.phindia.com.

Block-4: Introduction

Block-4: Dividend decisions and Financing Decisions has been divided in to three Units.

Unit-10 : Dividend Policy and Decisions deals with Meaning and Forms of Dividend, Objectives of Dividend policy, Practical considerations in dividend policy, Factors determining dividend policy, Types of dividend policy, Kinds of dividend, Issues individual and important dates in dividend policy, Bonus shares, Stock Split and Share Buy back.

Unit-11: Dividend Theories discuss about the Introduction to Theories of Dividend, Walter Model, Gordon Model M Approach and MM Approach.

Unit-12 : Capital Structure explains about Introduction, Objectives and importance of Capital Structure, Composition of Capital Structure, Capital Structure Frame work, Features and Assumptions of Capital Structure, Patterns and Determinants of Capital Structure, Indifference Point, Capital Gearing, Theories of Capital Structure–Net Income (NI) approach, Net Operating Income (NOI) approach *and* Modigliani Miller (M-M) Approach.

In all the units of Block -4 **Dividend decisions and Financing Decisions**, the Check your progress, Glossary, Answers to Check your progress and Suggested Reading has been provided and the Learners are expected to attempt all the Check your progress as part of study.

Dividend Policy and Decisions

STRUCTURE

Overview

Objectives

10.1. Meaning and Forms of Dividend

10.2. Objectives of Dividend policy

10.3. Practical considerations in dividend policy

10.4. Factors determining dividend policy

10.5. Types of dividend policy

10.6. Kinds of dividend

10.7. Issues in dividend and important dates in dividend policy

10.8. Bonus shares

10.9. Stock Split

10.10. Share Buy back

Let Us Sum Up

Check Your Progress

Glossary

Model Questions

Answers to Check Your Progress

Suggested Readings

Overview

In this unit, we discuss the meaning and various forms of dividends. The objectives and practical considerations of dividend policy, the various factors that determine dividend policy are also explained. The various types of dividend policy and the kinds of dividend are explained. The issues related to dividend and concepts of bonus shares, stock split and share buy back are also covered in this unit.

Objectives

After studying this unit, you should be able to:

- Understand the meaning of dividend and different forms of dividend

- Recognize the issues and factors determining dividend policy
- Demonstrate Bonus shares, stock split and Share Buy back

10.1. Meaning and Forms of Dividend

A dividend is a payment made by a corporation to its shareholders, usually as a distribution of profits. When a corporation earns a profit or surplus, the corporation is able to re-invest the profit in the business (called retained earnings) and pay a proportion of the profit as a dividend to shareholders. Distribution to shareholders may be in cash (usually a deposit into a bank account) or, if the corporation has a dividend reinvestment plan, the amount can be paid by the issue of further shares or share repurchase.

Dividend refers to the business concerns net profits distributed among the shareholders. It may also be termed as the part of the profit of a business concern, which is distributed among its shareholders. According to the **Institute of Chartered Accountant of India**, dividend is defined as “a distribution to shareholders out of profits or reserves available for this purpose”.

Forms of Dividend

- 1. Cash dividend:** A cash dividend is a usual method of paying dividends. Payment of dividend in cash results in the reduction of outflow of funds and reduces the net worth of the company. The shareholders get an opportunity to invest the cash in any manner, they desire. Hence, the ordinary shareholders prefer to receive dividends in cash. In case of companies having cash dividends, the firm must have adequate liquid resources, so that its liquidity position is not adversely affected on account of cash dividend.
- 2. Scrip (or) Bond dividend:** A scrip dividend promises to pay the shareholders at a future specific date. In case a company does not have sufficient funds to pay dividends in cash, it may issue notes or bonds for amounts due to the shareholders. The objective of scrip dividends is to postpone the immediate payment of cash. A scrip dividend bears interest and is accepted as collateral security.
- 3. Property Dividend:** Property dividends are paid in the form of some assets other than cash. They are distributed under exceptional circumstances and are not popular in India.
- 4. Stock Dividend:** Stock dividend means the issue of bonus shares

to the existing shareholders. If a company does not have liquid resources, it is better to declare stock dividends. Stock dividend amounts to capitalization of earnings and distribution of profits among the existing shareholders without affecting the cash position of the firm.

- 6. Bonus Share:** A company can pay bonus to its shareholders either in cash or in the form of shares. Many a times a company need not in a position to pay bonus in cash, in spite of sufficient profits, because of unsatisfactory cash position or because of its adverse effects on the working capital of the company. In such cases, if the Articles of Association provide any conditions, then it can pay bonus to its shareholders in the form of cash. The dictionary meaning of bonus shares is a premium or gift, usually a stock, by a corporation to shareholders. A Bonus share is neither dividend nor a Gift.

10.2. Objectives of Dividend Policy

Wealth Maximization:

According to some schools of thought dividend policy has significant impact on the value of the firm. Therefore, the dividend policy should be developed keeping in mind the wealth maximization objective of the firm.

Future Prospects:

Dividend policy is a financing decision and leads to cash outflows and also leads to decrease in availability of cash for financing of profitable projects. If sufficient funds are not available, a firm has to depend on external financing. Therefore the dividend policy needs to be devised in such a manner that prospective projects may be financed through retained earnings.

Stable Rate of Dividend:

Fluctuation in the rate of return adversely affects the market price of shares. In order to have a stable rate of dividend, a firm should retain a high proportion of earnings so that the firm can keep sufficient funds for payment of dividend when it faces loss.

Degree of Control:

Issue of new shares or dependence on external financing will dilute the degree of control of the existing shareholders. Therefore, a more conservative dividend policy should be followed in order that the interest of existing shareholders is not hampered.

10.3. Practical Considerations in Dividend Policy

A discussion on internal financing ultimately turns to practical considerations which determine the dividend policy of a company. The formulation of dividend policy depends up on answers to the questions: whether there should be a stable pattern of dividends over the years or whether the company should treat each dividend decision completely independent. The practical considerations in dividend policy of a company are briefly discussed below:

Financial Needs of the Company:

Retained earnings can be a source of finance for creating profitable investment opportunities. When internal rate of return of a company is greater than return required by shareholders, it would be advantageous for the shareholders to re-invest their earnings. Risk and financial obligations increase if a company raises debt through issue of new share capital where flotation costs are involved.

Constraints on Paying Dividends

Legal: Under Section 205 (1) of the Companies Act 1956, dividend is to be paid out of current profits or past profits after depreciation. The Central Government can allow a company to pay dividend for any financial year out of profits of the company without providing for depreciation if, it is in the public interest. Dividend is to be paid in cash but a company is allowed to capitalize profits or reserves (retained earnings) for issuing fully paid bonus shares.

Liquidity: Payment of dividends means outflow of cash. Ability to pay dividends depends on cash and liquidity position of the firm. A mature company does not have much investment opportunities, nor are funds tied up in permanent working capital and, therefore has a sound cash position. For a growth-oriented company in spite of good profits, it will need funds for expanding activities and permanent working capital and therefore it is not in a position to declare dividends.

(i) *Access to the Capital Market:* By paying large dividends, cash position is affected. If new shares have to be issued to raise funds for financing investment programmes and if the existing shareholders cannot buy additional shares, control is diluted. Payment of dividends may be withheld and earnings reutilized for financing firm's investment opportunities.

(ii) *Investment Opportunities:* If investment opportunities are inadequate,

it is better to pay dividends and raise external funds whenever necessary for such opportunities.

Desire of Shareholders: The desire of shareholders (whether they prefer regular income by way of dividend or maximize their wealth by way of gaining on sale of the shares). In this connection it is to be noted that as per the current provisions of the Income Tax Act, 1961, tax on dividend is borne by the corporate as (Dividend Distribution Tax) and shareholders need not pay any tax on income received by way of dividend from domestic companies.

Stability of Dividends: Regular payment of dividend annually even if the amount of dividend may fluctuate year to year may not be, related with earnings.

10.4. Factors Determining Dividend Policy

Profitable Position of the Firm: Dividend decision depends on the profitable position of the business concern. When the firm earns more profit, they can distribute more dividends to the shareholders.

Uncertainty of Future Income: Future income is a very important factor, which affects the dividend policy. When the shareholder needs regular income, the firm should maintain regular dividend policy.

Contractual constraints: Often, the firm's ability to pay cash dividends is constrained by restrictive provisions in a loan agreement. Generally, these constraints prohibit the payment of cash dividends until a certain level of earnings have been achieved, or they may limit dividends to a certain amount or a percentage of earnings. Constraints on dividends help to protect creditors from losses due to the firm's insolvency. The violation of a contractual constraint is generally grounds for a demand of immediate payment by the fund's supplier.

Internal constraints: The firm's ability to pay cash dividends is generally constrained by the amount of excess cash available rather than the level of retained earnings against which to charge them. Although it is possible for a firm to borrow funds to pay dividends, lenders are generally reluctant to make such loans because they produce not tangible or operating benefits that will help the firm repay the loan. Although the firm may have high earnings, its ability to pay dividends may be constrained by a low level of liquid assets. (Cash and marketable securities) We will take the previous example to explain this point. In our example, the firm can pay Rs. 1,40,000/- in dividends. Suppose that the firm has total liquid assets of Rs. 50,000/- (Rs. 20,000 cash

+ market able securities worth Rs.30,000) and Rs.35,000/- of this is needed for operations, the maximum cash dividend the firm can pay is 15,000/- (Rs.50, 000 – Rs.35, 000)

Prospects: The firm's financial requirements are directly related to the anticipated degree of asset expansion. If the firm is in a growth stage, it may need all its funds to finance capital expenditures. Firms exhibiting little or no growth may never need replace or renew assets. A growth firm is likely to have to depend heavily on internal financing through retained earnings instead of distributing current income as dividends

Owner considerations: In establishing a dividend policy, the firm's primary concern normally would be to maximize shareholder's wealth. One such consideration is then tax status of a firm's owners. Suppose that if a firm has a large percentage of wealthy shareholders who are in a high tax bracket, it may decide to pay out a lower percentage of its earnings to allow the owners to delay the payments of taxes until they sell the stock. Of course, when the equity share is sold, the proceeds are in excess of the original purchase price, the capital gain will be taxed, possible at a more favorable rate than the one applied to ordinary income. Lower-income shareholders, however who need dividend income will prefer a higher payout of earnings. As of now, the dividend income is not taxed in the hands of the shareholders in India. Instead, for paying out such dividends to its shareholders, the company bears the dividend distribution tax.

Market Considerations: The risk-return concept also applies to the firm's dividend policy. A firm where the dividends fluctuate from period to period will be viewed as risky, and investors will require a high rate of return, which will increase the firm's cost of capital. So, the firm's dividend policy also depends on the market's probable response to certain types of policies. Shareholders are believed to value a fixed or increasing level of dividends as opposed to a fluctuating pattern of dividends.

Legal Constrains: The Companies Act 1956 has put several restrictions regarding payments and declaration of dividends. Similarly, Income Tax Act, 1961 also lays down certain restrictions on payment of dividends.

Liquidity Position: Liquidity position of the firms leads to easy payments of dividend. If the firms have high liquidity, the firms can provide cash dividend other wise, they have to pay stock dividend.

Sources of Finance: If the firm has finance sources, it will be easy to

mobilize large finance. The firm shall not go for retained earnings.

Growth Rate of the Firm: High growth rate implies that the firm can distribute more dividends to its shareholders.

Tax Policy: Tax policy of the government also affects the dividend policy of the firm. When the government gives tax incentives, the company pays more dividends

Capital Market Conditions: Due to the capital market conditions, dividend policy may be affected. If the capital market is perfect, it leads to improve the higher dividend.

10.5. Types of Dividend Policy

Dividend policy depends upon the nature of the firm, type of shareholder and profitable position. On the basis of the dividend declaration by the firm, the dividend policy may be classified under the following types: Regular dividend policy, Stable dividend policy, Irregular dividend policy and No dividend policy.

- **Regular Dividend Policy** Dividend payable at the usual rate is called as regular dividend policy. This type of policy is suitable to the small investors, retired persons and others.
- **Stable dividend policy** means payment of certain minimum amount of dividend regularly. This dividend policy consists of the following three important forms: Constant dividend per share Constant pay out ratio Stable rupee dividend plus extra dividend.
- **Irregular Dividend Policy** When the companies are facing constraints of earnings and unsuccessful business operation, they may follow irregular dividend policy. It is one of the temporary arrangements to meet the financial problems. These types are having adequate profit. For others no dividend is distributed.
- **No Dividend Policy** Sometimes the company may follow no dividend policy because of its unfavorable working capital position of the amount required for future growth of the concerns. Dividend is divisible profit distributed amongst members/shareholders of a company in proportion to shares in the manner as prescribed under law. A dividend cannot be declared unless:

Sufficient profit is there in a company.

- a. It has been recommended by Board of Directors.
- b. Its acceptance has been given by the shareholders in Annual General Meeting (AGM)

10.6. Kinds of Dividend

- Type of Security—Preference Dividend, -Equity Dividend
- Timings of Dividends—Interim Dividend—Regular Dividend
- Mode of Payment—Cash—Stock dividend (Bonus)—Script or Bond.

Dividend Policy - Policy followed by Board of Directors concerning quantum of profit to be distributed as dividend. It also includes principal rules and procedure for planning and distributing dividend after deciding rate of dividend.

- ❖ **Stable:** Long term policy without frequent changes i.e. long term policy which is not affected by changes or quantum of profit.
- ❖ **Lenient:** Most of the profit is distributed amongst shareholders and a very small part is kept as retained earnings. Even 90% to 95% profit is distributed as dividend. This is generally done in initial years to gain confidence of shareholders.

10.7. Issues in Dividend and Important Dates in Dividend Announcement

Issues in dividend policy

Normally, a firm would be using its dividend policy to pursue its objective of maximizing its shareholders' return so that the value of their investment is maximized.

Shareholders return consists of dividends and capital gains. Dividend policy directly influences these two components of return.

Even if dividends are not declared but retained in the firm, the shareholders' wealth or return would go up. We shall examine various ratios which impact our firm's dividend policy:

Payout ratio

It is defined as dividend as a percentage of earnings. It is an important concept in the dividend policy.

A firm may decide to distribute almost its entire earnings. Another firm may

decide to distribute only a portion of its earnings. Initially it may appear, the former firm declares maximum dividends. However, in the long run, the latter firm which declares only a portion of its earnings may overtake our former high pay out firm.

Let us now look at this with an example.

Example 10.1: Firms X and Y have equity capital of Rs.100. Let us assume both the firms generate 25% earnings every year. Let us assume that Firm X declares 50% dividend every year and firm Y declares only 25% dividend every year.

Firm / Year	Equity	25% earnings	Dividend	Retained Earnings
Firm X				
1	100	25	12.50	12.50
2	112.50	28.12	14.06	14.06
3	126.56	31.64	15.82	15.82
4	142.38	35.59	17.79	17.79
5	160.17	40.04	20.02	20.02
6	180.19	45.04	22.52	22.52
7	202.71	50.67	25.33	25.33
8	228.04	57.01	28.50	28.50
9	256.54	64.13	32.06	32.06
10	288.60	72.15	36.07	36.07
11	324.67	81.16	40.58	40.58
12	365.25	91.31	45.65	45.65
13	410.90	102.72	51.36	51.36
14	462.26	115.56	57.78	57.78
15	520.04	130.01	65.00	65.00
Total dividend income received by the investor			485.04	

Firm Y				
1	100	25	6.25	18.75
2	118.75	29.68	7.42	22.26
3	141.01	35.25	8.81	26.43
4	167.44	41.86	10.46	31.39
5	198.83	49.70	12.42	37.28
6	236.11	59.02	14.75	44.27
7	280.38	70.09	17.52	52.57
8	332.95	83.23	20.80	62.43
9	395.38	98.84	24.71	74.13
10	469.51	117.37	29.34	88.03
11	557.54	139.38	34.84	104.54
12	662.08	165.52	41.38	124.14
13	786.22	196.55	49.13	147.42
14	933.64	233.41	58.35	175.06
15	1108.7	277.17	69.29	207.88
Total dividend income received by the investor			405.47	

If you look at the returns*to the investors of firms X and Y at the end of 15 years, the following position will emerge on Rs.100 invested in each firm over looking the interest on the dividend received by way of cash

Details	Firm X	Firm Y
Total dividend income	`485.04	`405.47
Total capital gain (over The original investment amount of Rs.100)	`420.04	1,008.70
Total income	`905.08	1414.17

The case of low dividend pay our company, in fact from the year 14 onwards, the quantum of dividend paid has actually over taken the high dividend pay out company. If you look at the market value, a low pay out firm will result in a higher share price in the market because it increases earnings growth. Uncertainty surrounding future company profitability leads certain investors to prefer the certainty of current dividends. Investors prefer "large" dividends. Investors do not like to manufacture "homemade" dividends, but prefer the

company to distribute them directly. Capital gains taxes are deferred until the actual sale of stock. This creates a timing option. Capital gains are preferred to dividends, everything else equal. Thus, high dividend yielding stocks should sell at a discount to generate a higher before-tax rate of return. Certain institutional investors pay no tax. Dividends are taxed more heavily than capital gains, so before-tax returns should be higher for high dividend – paying firms. Empirical results are mixed -- recently the evidence is largely consistent with dividend neutrality.

Retention ratio

If x is payout ratio, then the retention ratio is $100 - x$. That is retention ratio is just the reverse of the payout ratio. As we have seen above, a low payout (and hence a high retention) policy will produce a possible higher dividend announcement (and thereby higher share price in the secondary market leading to huge capital gains) because it increases earnings growth.

Capital gains

Investors of growth companies will realize their return mostly in the form of capital gains. Normally such growth companies will have increasing earnings year after year but their payout ratio may not be very high. Their retention ratio will therefore be higher. Investors in such companies will reap capital gains in the later years. However, the impact of dividend policy (high or low payout with low or high retention ratio) is not very simple. Such capital gains will result in the distant future and hence many investors may consider them as uncertain.

Dividend yield

The dividend yield is the dividends per share divided by the market value per share. The dividend yield furnishes the share holders' return in relation to the market value of the share.

Some Important Dates in Dividend Payments Declaration Date

Every year or half year or quarterly or on chosen special occasions, the Board of Directors of the firm will first meet and recommend on the quantum of dividend and it becomes a liability of the company. Therefore, declaration date is the date at which the company announces it will pay a dividend.

Date of Record

This record date is the date declared by the firm while announcing the dividend payment and only those shareholders who are on the record of the firm on

this date will receive the dividend payment. It is therefore the date at which the list of shareholders who will receive the dividend is made.

Ex-dividend Date

This occurs two business days before date of record. If one were to buy stock or share on or after this date, he or she will not be eligible to receive the dividend. Hence naturally the stock or share price generally drops by about the amount of the dividend on or after this date. Therefore, the convention is that the right to the dividend remains with the stock until two business days before the holder-of-record date. Who ever buys the stock on or after the ex-dividend date does not receive the dividend.

Date of Payment

This is the date on which the dividend payment cheques are made out and mailed. Since many firms follow the electronic clearing system for crediting the dividends to the shareholders' accounts, the date of payment is the date on which such ECS instructions are issued to the banks. In this ECS method of payment, there is no paper work involved – cheques need not be made out and mailed – enormous savings in expenditure in the cheque book costs and also in the dispatch.

10.8. Bonus Shares

Bonus Shares

Bonus shares are the additional shares that a company gives to its existing shareholders on the basis of shares owned by them. Bonus shares are issued to the shareholders without any additional cost. Bonus shares are issued by a company when it is not able to pay a dividend to its shareholders due to shortage of funds in spite of earning good profits for that quarter. In such a situation, the company issues bonus shares to its existing shareholders instead of paying dividend. These shares are given to the current shareholders on the basis of their existing holding in the company. Issuing bonus shares to the existing shareholders is also called capitalization of profits because it is given out of the profits or reserves of the company. The bonus shares are given to the existing shareholders according to their existing stake in the company. Like for example, a company declaring one for two bonus shares would mean that an existing shareholder would get one bonus share of the company for every two shares held. Suppose a shareholder holds 1,000 shares of the company. Now when the company issues bonus shares, he will receive 500 bonus shares ($1,000 \times \frac{1}{2} = 500$). When the company issues bonus shares, the term "record date" is used

along with it Record date is a cut-off date set by the company. If you are the owner of the shares of the company on this cut-off date then you are eligible to receive the bonus shares. The record date is set by the company so that they can find the eligible shareholders and distribute bonus shares to them. Advantages of Bonus Shares:

- There is no need for investors to pay any tax on receiving bonus shares.
- It is beneficial for the long-term share holders of the company who want to increase their investment.
- Bonus shares enhance the faith of the investors in the operations of the company because the cash is used by the company for business growth.
- When the Company declares a dividend in the future, the investor will receive higher dividend because now he holds larger number of shares in the company due to bonus shares.
- Bonus shares give positive signal to the market that the company is committed towards long term growth story.
- Bonus shares increase the out standing shares which in turn enhances the liquidity of the stock.
- The perception of the company's size increases with the increase in the issued share capital.

Since there are many advantages of bonus shares, let us now learn the conditions for the issue of bonus shares.

- ❖ The issue of bonus shares must be authorized by the Articles of the company.
- ❖ The issue of bonus shares must be recommended by the resolution of the Board of Directors. Also, this recommendation must be later approved by the shareholders of the company in the general meeting.
- ❖ The Controller of Capital Issues must give permission to the issue.

Implications of bonus issue:

- The bonus share issue is a corporate action to revamp the existing cash reserve of a company. It brings the employed capital of the company in sync with the issued capital. If a company makes a profit, it increases its employed capital. This surplus is distributed by

increasing issued shares, also known as issued capital.

- A bonus share issue does not impact a company's net assets as the action does not involve any cashflow. Its imply means that the number of shares issued by the company called sharecapital has increased.
- Bonus share issue impacts the Earning per Share (EPS), calculated by dividing a company's net profit by the number of owned shares. However, a decrease in EPS is compensated in the long term by a corresponding increase in the number of owned shares.
- Typically, a bonus share issue underlines the sound financial health of the company. It reflects that the company is strong enough to issue additional equities and has made profits.

Eligibility for bonus issue:

- After announcing a bonus issue, a company simultaneously announces the date of the issuance of bonus shares, known as the record date. All existing shareholders on the record date are eligible to receive bonus shares.
- You must also know about the terms 'Cum-Bonus' and 'Ex-Bonus' regarding the bonus shares issued. The eligible bonus shares between the date of announcement of bonus issue and there corddate are known as 'Cum-Bonus', while the status of bonus shares post-issuance on the record date is known as 'Ex-Issue.'

10.9. Stock Split

A stock split is a corporate action where a company increases the number of shares by reducing the face value of the stock. Companies generally split shares to increase liquidity, since the price of the stock reduces after the split. A split increases the number of shares by decreasing the face value, but the total value of the investment remains the same.

Example 10.2: Say if the stock's face value is ₹10, and there is a stock split in the ratio of 1:2, then the face value will change to ₹5. If you owned 1 share of ₹10 before the split, you would now own 2 shares of ₹5 after the split. The investment value remains the same, ₹10. The table below has more scenarios:

Split Ratio	Old FV	No of shares you own before split	Share Price before split	Investment Value Before split	New FV after the split	No of shares you own after the split	Share Price after the split	Investment value after the split
1:2	10	100	900	90,000	5	200	450	90,000
1:5	10	100	900	90,000	2	500	180	90,000

Reasons for Stock Split Increase Liquidity

This is one of the primary reasons for share split. Often, the share price of a company may be too high for investors to buy and any further rise in prices can discourage them from participating. By reducing value of a stock through split, the shares are made accessible to all.

Increase Stockholder Base

With stock split, the number of outstanding shares of a company increases and it gives opportunity to more investors to purchase shares. This helps increase the stockholder base for a company.

Perception of Future Growth

Companies going for stock splits are perceived to be growing entities. It is a general perception among investors that if a company goes for stock split it has plans for growth, and this belief creates a positive image of the company in the market.

Particulars	Pre Stock Split Data	Post Stock Split Data
The ratio of stock split at 10:2	Old face value of the stock – Rs.10	New face value of the stock – Rs.2
Number of shares outstanding	5 crore shares	25 crore shares
Total Net Profit of the company	Rs.55 crore	Rs.55 crore
Earnings Per share or EPS	Rs.11	Rs.2.20
Price- earnings ratio or PE ratio	25 times	25 times
The intrinsic value of the share	Rs.275 per share	Rs.55
Stock price	Rs.280	Rs.60
Market capitalization	Rs.1,400 crore	Rs.1,500 crore

How is a stock split advantageous?

There are 4 ways in which a stock split is valuable to the investors in stocks.

- a. Stock splits improve liquidity. When a high-price stock is split and brought into a more popular trading range, the liquidity improves.

- b. Stock splits make portfolio rebalancing easier since lower-priced stocks are more liquid and hence easier to sell and churn.
- c. This is more psychological, but the stock split reduces the risk for an option buyer optically as the option premiums come down.
- d. If not all the cases, stock split tend to be price accretive in most cases due to improved liquidity.

In the above illustration, if you are a shareholder, your shareholdings are up 5 times but your price is down to approximately one-fifth. That means; the impact is almost marginal. That is why it is said that the stock split is value-neutral. However, there is an important point to note. When a high-priced stock is split, the price comes into a more popular range so more retail investors get interested in the stock and this higher demand takes the price higher. However, in terms of the valuation of the company, the stock split is still valued neutral

Company	Bonus Ratio	Announcement	Record	Ex-Bonus
Sindhu Trade	2:1	08-04-2022	21-05-2022	19-05-2022
Sec URC redentia	110:100	04-04-2022	19-05-2022	18-05-2022
Dolfin Rubbers	1:3	28-03-2022	17-05-2022	13-05-2022
BLS Internation	1:1	13-04-2022	17-05-2022	13-05-2022
Vikram Thermo	4:1	01-04-2022	13-05-2022	12-05-2022
Pro Fin Capital	2:1	21-03-2022	29-04-2022	28-04-2022

10.10. Share BuyBack

A share buyback is a transaction in which a company buys back its own shares from the open market.

Another term for it is share repurchase. There are various methods to buy back shares.

The company can buy back the shares from the market or tender offer. The shares bought back will be reclassified as treasury shares, or they will be canceled depending on the purpose.

Purposes of Share Buyback

SHARE BUYBACK	
<u>Share Buyback Definition:</u>	
A share buyback is a transaction in which the company buys back its own shares from the market,	
<u>Purposes of Share Buyback:</u>	
1. Distribution of Extra Cash	4. Managing Dilution
2. Support the Undervaluation of the Stock	5. Changing capital structure
3. Boosting Financial Ratio	6. Avoid Hostile Takeovers

Methodsof Share Buyback

SHARE BUYBACK	
<u>Methods of Share Buyback:</u>	
A share buyback is a transaction in which the company buys back its own shares from the market,	
<u>Purposes of Share Buyback:</u>	
1. Buying From Open Market	3. Dutch Auction Tender Offer
2. Fixed Price Tender Offer	4. Repurchase by Direct Negotiation
<u>Advantages:</u>	<u>Disadvantages:</u>
<ul style="list-style-type: none"> • Flexibility • Tax Benefit • Share Buyback as a Signal 	<ul style="list-style-type: none"> • Unrealistic picture through ratios • Judgment Error in Valuation

Buying from Open Market

In this method of share buyback, the company buys its own stocks from the market. This transaction happens through the company's brokers. This repurchases program takes place for a longer period of time as the company needs to buy back large blocks of shares. After the announcement, the company is under no obligation to conduct the repurchase program. The company has the option to cancel it. Also, it can make changes in the repurchase program according to the company's situation and needs. Effective implementation of this method can prove to be very cost-effective.

Fixed Price Tender Offer

In this method, the company makes an offer to buy a fixed number of shares at a fixed price to its shareholders. The company offers a price that is above its current market price. The shareholders have the option to sell back or hold the shares. Interested shareholders submit the number of shares they are

willing to sell back to the company. If the total number of shares exceeds the shares requirement of the company, such buyback will take place on a pro-rata basis. This method is quick to conduct, but it can be costlier than buying shares back from the open market.

Dutch Auction Tender Offer

This is very similar to a fixed price tender offer. Instead of specifying a fixed price, the company offers a range of prices to the shareholders. The minimum price is above the current market price. For example, a stock is currently trading at \$100. The company offers to buy back 2 million shares within the range of \$101 to \$103. Investors will bid the no. of shares and the minimum price they want to sell the shares. The company will start qualifying bids from \$101 and move to higher prices until the requirement of a fixed number of shares is fulfilled. If at \$102, the requirement of 2 million shares is fulfilled, every qualified bidder is paid \$102. Bids above \$102 will be rejected. If total bidding at \$101 and \$102 exceeds the requirement of shares, then share buyback happens on a pro-rata basis.

Re purchase by Direct Negotiation

In this method, the company approaches only those shareholders who have a large block of shares. The company pays a premium above the current market price to them. This is a more logical approach as the company can directly negotiate with larger shareholders.

Advantages of Share Buyback

Flexibility

The share buyback is flexible in nature. The share repurchase program is conducted for an extended period, unlike cash dividends that need to be paid immediately. Also, the company is under no compulsion to conduct the purchase program. It can cancel it or modify it according to their needs. The shareholders are also under no compulsion to sell back the shares. They can choose to hold the shares if they want to.

Tax Benefit

Some countries have lower capital gain tax rates than the dividend tax rates. The share buyback will be liable for tax under the capital gain tax category. So, investors should prefer share buyback over cash dividend while deciding over types of dividends in such countries.

Share Buy back as a Signal

The share buyback is generally a positive signal because the company perceives its shares to be under valued, and it has confidence in its growth prospects. There could also be a possibility that the company does not have profitable reinvestment opportunities, so they are buying back the shares. This could be a negative signal for growth investors. Investors can analyze this action and its purpose to understand where the company is heading to. The idea here is that actions speak louder than words.

Better Financial Ratios

A decrement in the number of shares will lead to higher ratios such as EPS, DPS, ROE, etc. since the profit will remain unaffected. Therefore, this will result in increased profitability per share.

Disadvantages of Share Buyback

Judgment Error in Valuation

Though management has better access to information about the company, there are chances that they also can make mistakes about valuing the company. If the buyback is undertaken to support the undervaluation, but the company over estimates the future prospect, this mistake will make the whole buyback process futile.

Unrealistic Picture through Ratios

Share buyback boosts some ratios like EPS, ROA, ROE, etc. This increase in ratios is not because of the increase in profitability but due to a decrease in outstanding shares. It is not an organic growth in profit. Hence, the buyback will show an optimistic picture that is away for the company's economic reality.

Let Us Sum Up

In this unit you have learned the following:

Dividend refers to the business concerns net profits distributed among the shareholders. It may also be termed as the part of the profit of a business concern, which is distributed among its shareholders. The types of dividend are - based on Type of Security – Preference Dividend, - Equity Dividend, Timings of Dividends– Interim Dividend– Regular Dividend and Mode of Payment–Cash–Stock dividend (Bonus) – Script or Bond. Dividend Policy is the Policy followed by Board of Directors concerning quantum of profit to be

distributed as dividend.

Check Your Progress

1. Which of the following represents passive dividend policy?
 - a. That dividend is paid as a % of EPS,
 - b. That dividend is paid as a constant amount,
 - c. That dividend is paid after retaining profits for re investment,
 - d. All of the above
2. Residuals Theory argues that dividend is a
 - a. Relevant Decision,
 - b. Active Decision,
 - c. Passive Decision,
 - d. Ir relevant Decision
3. Which of the following is not a type of dividend payment?
 - a. Bonus Issue
 - b. Right Issue
 - c. Share Split
 - d. Both (b) and (c)
4. Dividend policy determines _____
 - a. What portion of earnings will be paid out to stock holders
 - b. What portion will be retained in the business to finance long-term growth?
 - c. Only (A)not (B)
 - d. Both (A)and (B)
5. Dividend constitutes the cashflow that accrues to—
 - a. Holders
 - b. Equity holders
 - c. Bond holders
 - d. All of the above

Glossary

Payout ratio: It is defined as dividend as a percentage of earnings. It is an important concept in the dividend policy. A firm may decide to distribute almost its entire earnings

Bonus Share: Bonus shares are the additional shares that a company gives to its existing shareholders on the basis of shares owned by them

Stock Split: A stock split is a corporate action where a company increases the number of shares by reducing the face value of the stock.

Answers to Check Your Progress

1. c. that dividend is paid after retaining profits for reinvestment
2. c. Passive Decision
3. c. Share Split
4. d. Both (A) and (B)
5. b. Equity holders

Suggested Reading

1. Pandey I.M (2021), Financial Management. New Delhi: (12th Edition), Vikas Publishing House Pvt. Ltd.,
2. D.Chandra Bose (2010), Fundamentals of Financial Management, (2nd Edition), PHI Learning India PVT Ltd., www.phindia.com.

Unit-11

Dividend Theories

STRUCTURE

Overview

Objectives

11.1. Introduction To Theories of Dividend

11.2. Walter Model

11.3. Gordon Model M Approach

11.4. MM Approach

Let Us Sum Up

Check Your Progress

Glossary

Answers to Check Your Progress

Suggested Readings

Overview

In this unit, we cover introduction to theories of dividend. The various models and approaches to dividend are also explained in this unit.

Objectives

After studying this unit, you should be able to:

- To understand the different relevant theories in Dividend
- Recognize the irrelevant theory M M approach and its criticisms

11.1. Introduction to Theories of Dividend

Earnings available to shareholder are equal to dividends plus retained earnings. Dividend decision is taken by the Board of Directors of the company and recommended informally by the shareholders in the Annual General Body Meeting.

1. How significant is the dividend decision?
2. Does it affect the value (v) of the company?
3. Does it affect the cost of capital (k) of the company?

If the answer to these two questions is 'yes', dividend decision is significant.

Value of a company is taken to be a function of: Investments which determine the earning power of the company (I) Debt / Equity mix (Capital structure) which decides the cost of capital to the company (F) Tax rate which determines the earnings available either for dividend distribution or retention (T)

Dividend decision which determines the amount of earnings going to the shareholders and retained by the company for future purpose (D) Floatation costs or issue costs which are incurred by a company when it raises funds externally (f) * * .'. $V = f [1. F, D, T, f - 1$ A theory states the relationship between a dependent variable and one independent variable when other independent variables are held constant.

Therefore, theories of dividend are of two types.

- i) Dividend Irrelevance theory
- ii) Dividend Relevance theory in the next part of the lesson we will look into various contributions made to these two schools of thought. Relevance and irrelevance of dividend policy Relevance of dividend policy supports the view that dividend policy has profound impact on the value of a company. There are three theories under this school of thought.
 - a. Traditional view
 - b. Walter model
 - c. Gordon model Irrelevance of dividend policy supports the view that dividend policy has no impact on the valuation of a company.
 - d. Modigliani Miller and Merton H Miller Model

Walter's Model

As per this model, dividend policy of a firm is based on the relationship between internal rate of return (r) earned by it and the cost of capital or required rate of return (k). The optimum dividend policy will have to be determined by relationship of r & k under following assumptions.

- Internal rate of return (r) and cost of capital (k) are constant.
- All new investment opportunities are to be financed through retained earnings and no external finance is available to the firm.
- A firm has perpetual or an infinite life

Hence, as per this Model, a firm should retain its earnings if there turn on investment exceeds cost of capital.

Gordon's Model

This model is like Walters Model but a few extra assumptions are

- The firm operates its investment activity only through equity.
- There tention ratio once decided is constant forever.

As per this Model, Market value of share is equal to present value of its expected future dividend. **Modigliani & Miller (M M Model)**–This model says that dividend decision and retainedearnings decision do not influence market value of shares. As per this model, “Under conditions of Perfect Capital. Market, rational investors, absence of tax, discrimination between dividend income and capital appreciation given the firm's investment policy. Its dividend policy may have no influence on the Market price of shares.

11.2. Walter's Model

Professor James E. Walter argues that the choice of dividend policies almost always affectsthe value of the firm. His model, one of the earlier theoretical works, shows the importance of the relationship between the firm's rate of return, r , and its cost of capital, k , in determining the dividend policy that will maximize the wealth of shareholders. Walter's model is based on the following assumptions

Assumptions of Walter's Model

- Internal financing: All the investments are financed by the firm through retained earnings. No new equity or debt is issued for the same.
- Constant return and cost of capital: The internal rate of return (r) and the cost of capital (k) of the firm are constant. The business risks remain same for all the investment decisions 100 per cent payout or retention: All the earnings of the company are either reinvested internally or distributed as dividends.
- Constant EPSand DIV: Beginning earnings and dividends of the firm never change. Though different values of EPS and DPS may be used in the model, but they are assumed to remain constant while determining a value.
- Infinite time: The firm has a very long or infinite life. Walter's formula for determining the value of share $P = \frac{D}{K} + \left\{ \frac{r(E-D)}{K} \right\} / K$

Where P = Market price per share

D = Dividend per share

r = internal rate of return

E = earnings per share

K = Cost of equity capital.

The above equation clearly reveals that the market price per share is the sum of the present value of two sources of income:

1. The present value of an infinite stream of constant dividends, (D/K) and
2. The present value of the infinite stream of stream gains.

Relation of Dividend Decision and Value of a Firm

According to Walter's theory, the dividend pay out in relation to (Internal Rate of Return) 'r' and (Cost of Capital) 'k' will impact the value of the firm in the following ways:

Example 11.1:

A company has an EPS of Rs. 15. The market rate of discount applicable to the company is 12.5%. Retained earnings can be reinvested at IRR of 10%. The company is paying out Rs. 5 as a dividend. Calculate the market price of the share using Walter's model. Here, $D = 5$, $E = 15$, $k = 12.5\%$, $r = 10\%$

Market price of the share = $P = \frac{5}{.125} + \{.10 * (15 - 5) / .125\} / .125 = \text{Rs. } 104$

Criticism of Walter's Model

Walter's model has been criticized on account of various assumptions made by Prof Walter in formulating his hypothesis.

- I. The basic assumption that investments are financed through retained earnings only is seldom true in real world. Firms do raise fund by external financing.
- II. The internal rate of return i.e. r also does not remain constant. As a matter of fact, with increased investment the rate of return also changes.
- III. The assumption that cost of capital (k) will remain constant also does not hold good. As a firm's risk pattern does not remain constant, it is not proper to assume that (k) will always remain constant.

No external financing: Walter's model of share valuation mixes dividend policy with investment policy of the firm.

The model assumes that retained earnings finance the investment opportunities of the firm and no external financing—debt or equity—is used for the purpose.

When such a situation exists, either the firm's investment or its dividend policy or both will be sub-optimum. The horizontal axis represents the amount of earnings, investment and new financing in rupees.

The vertical axis shows the rates of return and the cost of capital. It is assumed that the cost of capital, k , remains constant regardless of the amount of new capital raised

1. The first component (DIV/k) is the present value of an infinite stream of dividends and
2. The second component $[(EPS - DIV) / k] / k$ is the present value of the infinite stream of capital appreciation. This is the capital gain when the firm retains the earnings within the firm.

Could we note something peculiar here?

When the rate of return is greater than the cost of capital ($r > k$), the price per share increases as the dividend payout ratio decreases. Such firms are recognized as growth firms. For them the internal rate is more than the cost of capital ($r > k$).

They expand rapidly because of available investment opportunities resulting in returns higher than the cost of capital employed. These firms will be able to reinvest earnings at a higher rate (r) than the shareholders' expected rate of return (k).

They will maximize the market value per share as they follow a policy of retaining earnings for reinvestment or internal investment. This is also revealed by the Firm Y in our earlier table of calculations. When the rate of return is equal to the cost of capital ($r = k$), the price per share does not vary with changes in dividend payout ratio. Such firms are treated as normal firms in the market place.

They do not have unlimited surplus generating investment opportunities, yielding higher returns than the cost of the capital. Once they exhaust all portfolios of super profitable opportunities, they earn just a return equal to the cost of capital on their investments. Here the dividend policy has no impact

on the market value per share.

When the rate of return is lesser than the cost of capital ($r < k$), the price per share increases as the dividend payout ratio increases. Such firms are viewed as declining firms in the market place. They do not have any profitable portfolio of investment opportunities to invest their earnings.

These firms would only earn on their investments a rate of return less than the minimum rate required by the investors and that can be obtained elsewhere in the normal circumstances. Investors in such declining firms would require earnings distributed to them so that they can either spend it or invest elsewhere to get a higher rate of return. The market value of such declining firms will be at all.

The optimum payout ratio for a growth firm ($r > k$) is nil. The optimum payout ratio for a normal firm ($r = k$) is irrelevant. The optimum payout ratio for a declining firm ($r < k$) is 100%. The dividend policy of a firm depends on the availability of investment opportunities and the rate of return and its cost of capital.

Despite its popularity does the Walter's model suffer from any limitation?

As we have seen that this model can be useful to show the effects of dividend policy on all equity firms under different assumptions about the rate of return. However, the simplified nature of the model can lead to conclusions, which are not true in general, though true for the model. Now we will analyse the model critically on the following points:

No External Financing

Walter's model of share valuation mixes dividend policy with investment policy of the firm.

The model assumes that retained earnings finance the investment opportunities of the firm only and no external financing—debt or equity—is used for the purpose. When such a situation exists, either the firm's investment or its dividend policy or both will be sub optimum.

Constant rate of return

Walter's model is based on the assumption that r is constant. In fact, r decreases as more and more investment is made. This reflects the assumption that the most profitable investments are made and then the poorer investments are made. The firm should stop at a point where $r = k$.

Constant opportunity Cost of Capital, k

A firm's cost of capital or discount rate, k , does not remain constant; it changes directly with the risk. Thus the present value of the firm's income moves inversely with the cost of capital. By assuming that the discount rate, k , is constant, Walter's model abstracts from the effect of risk on the value of the firm.

Example 11.2:

Illustration: 1

From the following information calculate the market value of equity share of a company using Walter's model.

Earnings per share = Rs. 5; Dividend per share = Rs. 3

Return on investment = 10%; Cost of capital = 10%

Will there be any change in the market value of equity share if the dividend payout ratio is 100% in the place of present rate of 60%?

Answer : Using Walter's model the market value of the share is calculated as:

$$V = \frac{D + (E - D)r/k}{k} = \frac{3 + (5 - 3) \cdot 10/10}{.10} = \frac{3 + 2}{.10} = \frac{5}{.10} = Rs. 50$$

If the dividend payout ratio is 100% in the place of present rate of 60% dividends per share (D) will be Rs. 5. The market value of the share will be

$$V = \frac{5 + [5 - 5] \cdot \frac{10}{10}}{.10} = \frac{5}{0.1} = Rs. 50$$

There is no change in the market value because return on investment (r) is equal to cost of capital (k). This is a case of normal company, dividend payout ratio has no bearing on the value of the share. That is why dividend policy is irrelevant in such cases.

11.3. Gordon Model

Gordon's model and its relevance Gordon, Myron, J's model explicitly relates the market value of the firm to its dividend policy. It is based on the following hypotheses

All-equity firms

A firm is an all-equity firm and it has no debt.

No external financing

A firm has no external finance available for it. Therefore retained earnings would be used to fund or finance any expansion. Gordon's model also supports dividend and investment policies.

Constant return

The firm's internal rate of return, r , is constant

Constant cost of capital

The discount rate, k , is constant as in Walter's model. Gordon's model also overlooks and ignores the effect of a change in the firm's risk class and its effect on the discount rate, k .

Permanent earnings

It is assumed the firm and its stream of earnings are perpetual

No taxes

It is also assumed that the firm does not pay tax on the premise that corporate taxes do not exist

Constant retention

The retention ratio (b) once decided is taken as constant. Thus, the growth rate is constant forever as the internal rate of return is also assumed to be constant

Cost of capital greater than growth rate

The discount rate, k , is greater than the above growth rate ($g = br$).

Valuation Formula

Based on the above assumptions, Gordon has put forward the following formula: $P_0 = \text{EPS}_1(1 - b)/(k - b)$

P_0 = market price per share

EPS_1 = expected earnings per share

b = retention ratio

r = firm's internal profitability

k = firm's cost of capital or capitalization rate

Example11.3:

The following information is available in respect of the rate of return on investments (r) cost of capital (k) and earning per share (e) of X ltd

Rate of return of investment - (r):

(i) 15%; (ii) 10% and (iii) 8%

Cost of capital (k) = 10%

Earning per share (E) = Rs.10

Determine the value of its shares assuming the following:

	$\frac{D}{P}$ ratio i.e., (1-b)	Retention Ratio i.e., $b = \frac{R}{E}$
(a)	100	0
(b)	80	20
(c)	70	30
(d)	50	50
(e)	35	65

According to the formula developed by Gordon, the value of share is given by the following -

$$P = \frac{E(1-b)}{k-br}$$

Therefore, the value of shares of x Ltd. For different $\frac{D}{P}$ and retention ratios for the three alternatives of r.i.e., (i) $r > k$, (ii) $r = k$, and (iii) $r < k$, is presented in the table that follows.

When $r > k$	When $r = k$	When $r < k$
$r = .15$	$r = .10$	$r = .08$
$k = .10$	$k = .10$	$k = .10$
$E = \text{Rs.}10$	$E = \text{Rs.} 10$	$E = \text{Rs.} 10$

Dividend Policy and the Value of shares (Under Gordon's Model)

When r = k	When r = k	When r = k
At different levels of 'b' the value of 'P' will be as under:	At different levels of 'b' the value of 'P' will be as under:	At different levels of 'b' the value of 'P' will be as under:
(a) $b = 0 \therefore br = 0$ $P = \frac{Rs.10(1-0)}{.10-0} = Rs. 100$	$b = 0 \therefore br = 0$ $P = \frac{Rs.10(1-0)}{.10-0} = Rs. 100$	$b = 0 \therefore br = 0$ $P = \frac{Rs.10(1-0)}{.10-0} = Rs. 100$
(b) $b = .20 \therefore br = .20 \times .15 = .030$ $P = \frac{Rs.10(1-.20)}{.10-.03}$ $= \frac{Rs.8}{.070} = Rs. 114.$	$b = .20 \therefore br = .20 \times .15 = .03$ $P = \frac{Rs.10(1-.20)}{.10-.03}$ $= \frac{Rs.8}{.070} = Rs. 100.$	$b = .20 \therefore br = .20 \times .08 = .016$ $P = \frac{Rs.10(1-.20)}{.10-.016}$ $= \frac{Rs.8}{.084} = Rs. 95.$
(c) $b = .30 \therefore br = .03 \times .15 = .045$ $P = \frac{Rs.10(1-.30)}{.10-.045}$ $= \frac{Rs.7}{.055} = Rs. 127.$	$b = .30 \therefore br = .30 \times .10 = .03$ $P = \frac{Rs.10(1-.30)}{.10-.03}$ $= \frac{Rs.7}{.070} = Rs. 100.$	$b = .30 \therefore br = .30 \times .08 = .024$ $P = \frac{Rs.10(1-.30)}{.10-.024}$ $= \frac{Rs.7}{.076} = Rs. 92.$
(d) $b = .50 \therefore br = .05 \times .15 = .075$ $P = \frac{Rs.10(1-.50)}{.10-.075}$ $= \frac{Rs.5}{.025} = Rs. 200.$	$b = .50 \therefore br = .50 \times .10 = .05$ $P = \frac{Rs.10(1-.50)}{.10-.05}$ $= \frac{Rs.5}{.050} = Rs. 100.$	$b = .50 \therefore br = .50 \times .08 = .04$ $P = \frac{Rs.10(1-.50)}{.10-.04}$ $= \frac{Rs.5}{.060} = Rs. 83.$
(d) $b = .65 \therefore br = .65 \times .15 = .098$ $P = \frac{Rs.10(1-.65)}{.10-.098}$ $= \frac{Rs.3.5}{.002} = Rs. 1.750.$	$b = .65 \therefore br = .65 \times .10 = .065$ $P = \frac{Rs.10(1-.65)}{.10-.065}$ $= \frac{Rs.3.5}{.035} = Rs. 100.$	$b = .65 \therefore br = .65 \times .08 = .052$ $P = \frac{Rs.10(1-.65)}{.10-.052}$ $= \frac{Rs.3.5}{.048} = Rs. 73.$

The above table clearly shows that –

- (i) When $r > k$, the market value of shares. P. increases with the retention ratio b for growth firms:
- (ii) When $r = k$, the market value of the share is not affected at all by dividend policy; and
- (iii) When $r < k$. the market value of share. P. increases with the payout ratio for declining firms.

11.4. MM Approach

Dividend Irrelevance

A firm operating in a perfect ideal capital market conditions, may many times face the following dile MM as with regard to payment of dividends. The firm has sufficient cash to pay dividends but such payments may erode its cash balance. The firm does not have enough cash to pay dividends and to meet its dividend payment needs, the firm may have to issue new shares. The firm does not pay dividends, but shareholders expect and need cash. In the first case, when the firm pays dividends, shareholders get cash in their hands but the firm's cash balance gets reduced. Though the shareholders gain in the form of such dividends, they lose in the form of their claims on the cash assets of the firm. This can be viewed as transfer of wealth of the shareholder from one portfolio to another. Thus, there is no net gain or loss. In

a perfect market condition, this will not affect the value of the firm.

In the second one, the issue of new shares to finance dividend payments results in two transactions – existing shareholders get cash in the form of dividends and the new shareholders part with their cash to the company in exchange for new shares. The existing shareholders suffer an equal amount of capital loss since the value of their claim on firm's assets gets reduced. The new shareholders gain new shares at a fair price per share. The fair price per share is the share price before the payment of dividends less dividend per share to the existing shareholders. The existing shareholders transfer a part of their claim on the firm to the new shareholders in exchange for cash. Thus, there is no gain or loss. Since these two transactions are fair, the value of the firm will remain unaffected.

In the third scenario, if the firm does not pay dividend, the shareholder can still create cash to meet his needs by selling a part or whole of his shares at the market price in the stock exchange. The shareholder will have lesser number of shares as he has exchanged a part of his claim on the firm to the new shareholder in exchange for cash. The net effect is the same once again. The transaction is a fair one as there is no gain or loss. The value of the firm will remain unaffected. This dividend irrelevance theory goes by the name Miller– Modigliani (MM) Hypothesis as they have propounded the same. Miller and Modigliani have put forward the view that the value of a firm depends solely on its earnings power and is not influenced by the manner in which its earnings are split between dividends and retained earnings. This view is expressed as the MM – Dividend Irrelevance theory and is put forward in their acclaimed 1961 research work – *Dividend policy, growth and the valuation of shares* – in the Journal of Business Vol 34 (Oct 1961)

In this work, Miller and Modigliani worked out their argument on the following presumptions:

- Capital markets are perfect and investors are rational: information is freely available, transactions are spontaneous, instantaneous, costless; securities are divisible and no one particular investor can influence market prices
- Floatation costs are nil and negligible
- There are no taxes
- Investment opportunities and future profits of firms are known and can be found out with certainty – subsequently Miller and Modigliani have

dropped this presumption

- Investment and dividend decisions are independent

Thus, the MM hypothesis reveals that under a perfect market condition, the dividend policies of a firm are irrelevant, as they do not affect the value and worth of the firm. It further runs folds that the value of the firm depends on its earnings and they result from its investment policy. Therefore, the dividend decision of the firm – whether to declare dividend or not, whether to distribute the earnings towards dividends or retained earnings – does not affect the investment decision. M&M contend that the effect of dividend payments on shareholder wealth is exactly offset by other means of financing. The dividend plus the “new” stock price after dilution exactly equals the stock price prior to the dividend distribution. M&M and the total-value principle ensure that the sum of market value plus current dividend of firms is identical in all respects other than dividend-payout ratios will be the same. Investors can “create” any dividend policy they desire by selling shares when the dividend payout is too low or buying shares when the dividend payout is excessive

Draw backs of MM Hypothesis

Though the critics of Miller Modigliani hypothesis agree with the view that the dividends are irrelevant, they dispute the validity of the findings by questioning the assumptions used by Miller and Modigliani. According to them, dividends matter mainly on account of the uncertain future, the capital market imperfections and incidence of tax.

Uncertain Future

In a word of uncertain future, the dividends declared by a company based as they are on the judgments of the management on the future, convey the prediction about the prospects of the company. A higher dividend payout may suggest that the future of the company, as judged by the management is very promising. A lower dividend pay out thus may suggest that the future of the company as considered by the management may be very uncertain.

An associated argument is that dividends reduce uncertainty perceived by the shareholder investors. Hence they prefer dividends to capital gains. So, shares with higher current dividend yields, other things being equal, attract a very high price in the market. However Miller and Modigliani maintain that dividends merely serve as a substitute for the expected future earnings which really determine the value. They further argue dividend policy is irrelevant.

Uncertainty and Fluctuations

Due to uncertainty share prices tend to fluctuate, sometimes very widely. When the prices vary, conditions for conversion of current income into capital value and vice versa may not be regarded as satisfactory by the investors. Some investors may be reluctant to sell a portion of their investment in a fluctuating if they wish to enjoy more current income. Such investors would naturally prefer and value more a higher dividend payout. Some investors may be hesitant to buy shares in a fluctuating market if they wish to get a less current income and therefore, they may value more a lower dividend payout.

Additional Equity at a Lower Price

Miller and Modigliani assume that a company can sell additional equity at the current market price. However, companies following the advice and suggestions of investment bankers or merchant bankers offer additional equity at a price lower than the current market price. This under pricing practice mostly stems out of market compulsions.

Issue Costs

Miller and Modigliani assumption is based on the basis that retained earnings or dividend payouts can be replaced by external financing. This is possible when there is no issue cost. In the real world where issue costs are very high, the amount of external financing has to be greater than the amount of dividend retained or paid. Due to this, when other thing share equal, it is advantageous to retain earnings rather than pay dividends and resort to external finance.

Transaction Costs

In the absence of transaction costs, dividends and capital gains are equal. In such a situation if a shareholder desires higher current income than the dividends received, he can sell a portion of his capital equal in value to the additional current income required. Like wise, if he wishes to enjoy lesser current income than the dividends paid, he can buy additional shares equal in value to the difference between dividends received and the current in come desired. In a real world, transaction costs are incurred. Due to this, capital value cannot be converted into an equal current income and vice versa.

Tax Considerations

Miller and Modigliani assume that the investors exhibit indifference between dividends and capital appreciation. This may be true when the rate of taxation

is the same for dividends received and capital appreciation enjoyed. In real life, the taxes are different on dividends and capital appreciation. Tax on capital appreciation is lower than tax rate on dividends received. Due to this the investors may go in for capital appreciation

SignalingHypothesis

The M&M dividend irrelevance theory assumes that all investors have the same information regarding the firm's future earnings. In reality, however, different investors have different beliefs and some individuals have more information than others. More specifically, the firm managers have better information about future earnings than outside investors. It has been observed that dividend increases are often accompanied by an increase in the stock price and dividend decreases are often accompanied by stock price declines. These facts can be interpreted in two different ways: Investors prefer dividends to capital gains; *unexpected* dividend increases can be seen as signals of the quality of future earnings (signaling theory).

Modigliani and Miller have expressed in the most comprehensive manner in support to theory of irrelevance. They maintain that dividend policy has no effect on market prices of shares and the value of firm is determined by earning capacity of the firm or its investment policy. As observed by M.M, "Under conditions of perfect capital markets, rational investors, absence of tax discrimination between dividend income and capital appreciation, given the firm's investment policy, its dividend policy may have no influence on the market price of shares". Even, the splitting of earnings between retentions and dividends does not affect value of firm.

Assumptions of MM Hypothesis

1. There are perfect capital markets.
2. Investors behave rationally.
3. Information about company is available to all with out any cost.
4. There are no floatation and transaction costs.
5. The firm has a rigid investment policy.
6. No investor is large enough to effect the market price of shares.
7. There are either no taxes or there are no differences in tax rates applicable to dividends and capital gains.

The Argument to MM

The argument given by MM in support of their hypothesis is that whatever increase in value of the firm results from payment of dividend, will be exactly offset by a change in market price of shares because of external financing and there will be no change in total wealth of the shareholders.

For example, if a company, having investment opportunities distributes all its earnings among the shareholders, it will have to raise additional funds from external sources. This will result in increase in number of shares or payment of interest charges, resulting in fall in earnings per share in future. Thus whatever a shareholder gains on account of dividend payment is neutralized completely by the fall in the market price of shares due to decline in expected future earnings per share.

To be more specific, the market price of share in beginning of period is equal to present value of dividends paid at end of period plus the market price of shares at end of period plus the market price of shares at end of the period.

$$nP_0 = \frac{ND_1 + (n + m)P_1 - mP_1}{(1 + k)}$$

The above equation of M – M valuation allows for the issuance of new shares, unlike Walter's and Gordon's models. Consequently, a firm can pay dividends and raise funds to undertake the optimum investment policy. Thus, dividend and investment policies are not confounded in M – M model, like Walter's and Gordon's models.

Criticism of MM Approach

MM Hypothesis has been criticized on account of various unrealistic assumptions as given below.

1. Perfect capital markets does not exist in reality.
2. Information about company is not available to all persons.
3. The firms have to incur flotation costs which issuing securities.
4. Taxes do exist and there is normally different tax treatment for dividends and capital gains.
5. The firms do not follow rigid investment policy.
6. The investors have to pay broker age, fees etc. which doing any transaction.

7. Shareholders may prefer current income as compared to further gains.

Example 11.4: ABC Ltd. belongs to a risk class for which the appropriate capitalization rate is 10%. It currently has outstanding 5,000 shares selling at Rs.100 each. The firm is contemplating the declaration of dividend of Rs.6 per share at the end of the current financial year. The company expects to have net income of Rs.50,000 and has a proposal for making new investments of Rs.1,00,000. Show that under the MM hypothesis, the payment of dividend does not affect the value of the firm.

Solution:

A. Value of the firm when dividends are paid:

(i) **Price of the share at the end of the current financial year.**

$$\begin{aligned} &= P_0(1+K_e) - D_1 \\ &= 100(1+10) - 6 \\ &= 100 \times 1.10 - 6 \\ &= 110 - 6 = \text{Rs. } 104 \end{aligned}$$

B. Value of the firm when dividends are not paid:

(ii) **Price per share at the end of the current financial year**

$$\begin{aligned} P_1 &= P_0 (1+k_e) - D_1 \\ &= 100(1+.10) - 0 \\ &= 100 \times 1.10 \\ &= \text{Rs. } 110 \end{aligned}$$

Hence, whether dividends are paid or not, the value of the firm remains the same Rs. 5,00,000/-.

Example 11.5: Expandent Ltd. had 50,000 equity shares of Rs.10 each outstanding on January

1. The shares are currently being quoted at part he market. In the wake of the removal of dividend restraint, the company now intends to pay a dividend of Rs. 2 per share for the current calendar year. It belongs to a risk-class whose appropriate capitalization rate is 15%. Using MM model and assuming no taxes, ascertain the price of the company's share as it is likely to prevail at the end of the year

- (i) When dividend is declared, and
- (ii) When no dividend is declared. Also find out the number of new equity shares that the company must issue to meet its investment needs of Rs.2 lakhs, assuming a net income of Rs.1.1lakhs and also assuming that the dividend is paid

Solution:

(iii) Price as per share when dividends are paid

$$\begin{aligned}
 &= P_0 (1+k_e) - D_1 \\
 &= 10 (1+.15) - 2 \\
 &= 11.5 - 2 \\
 &= \text{Rs.}9.5.
 \end{aligned}$$

(iv) Price per share when dividends are not paid:

$$\begin{aligned}
 P_1 &= P_0 (1+k_e) - D_1 \\
 &= 10 (1+.15) - 0 \\
 &= \text{Rs.}11.5
 \end{aligned}$$

Practice Problems:

1. The earnings per share of a company is Rs. 10. Its internal rate of return is 15 percent and the required rate of return of its risk class is 12.5 percent. The dividend per share is Rs. 4. If Walter's model is used what is the price of the share.
2. The V co currently has 100000 outstanding shares selling at Rs.100 each. The firm has net profits of Rs.10,00,000 and wants to make new investments of Rs.20,00,000 during the period. The firm is also thinking of declaring a dividend of Rs.5 per share at the end of the current fiscal year. The firm's opportunity cost of capital is 10%. Use MM approach of dividend. What will be price of the share at the end of the year if
 - i. If dividend not declared
 - ii. If dividend declared
 - iii. How many new shares must be issued

Let Us Sum Up

In this unit, you have studied the following:

There are relevant and irrelevant theories in dividend. Relevant theories are Walter model and Gordon model. The dividend decision has an impact on the market value of the share is proved by relevant theories. MM model says that dividend decision and retained earnings decision do not influence market value of shares. The argument given by MM in support of their hypothesis is that whatever increase in value of the firm results from payment of dividend, will be exactly off set by achieve in market price of shares because of external financing and there will be no change in total wealth of the shareholders

Check Your Progress

1. In MM-Model, irrelevance of capital structure is based on:
 - a) Cost of Debt and Equity
 - b) Arbitrage Process
 - c) Decreasing k_0
 - d) All of the above
2. Walter's Model suggests that a firm can always increase i.e. of the share by
 - a) Increasing Dividend
 - b) Decreasing Dividend,
 - c) Constant Dividend
 - d) None of the above
3. 'Birdinhand' argument is given by
 - a) Walker's Model
 - b) Gordon's Model
 - c) MM Model
 - d) Residuals Theory
4. Dividend irrelevance argument of MM Model is based on:
 - a) Issue of Debentures
 - b) Issue of Bonus Share,
 - c) Arbitrage
 - d) Hedging

5. Which of the following stresses on investor's preference re orient dividend than higher future capital gains?
- a) Walter's Model
 - b) Residuals Theory
 - c) Gordon's Model
 - d) MM Model

Glossary

Walter model:	According to the model, dividend policy of a firm is based on the relationship between internal rate of return (r) earned by it and the cost of capital or required rate of return (k).
Signaling Hypothesis:	Investors prefer dividends to capital gains; UN expected dividend increases can be seen as signals of the quality of future earnings (signaling theory)
Dividend Irrelevance:	A firm operating in a perfect orideal capital market conditions, may Many times face the following dilemmas with regard to payment of dividends

Answers to Check Your Progres

- 1. (b) ArbitrageProcess
- 2. (d) Noneofthe above
- 3. (b) Gordon's Model
- 4. (c) Arbitrage
- 5. (c) Gordon'sModel

Suggested Reading

- 1. Rajiv Srivastava & Anil Misra(2011),Financial Management (Second Edition), Oxford University Press, Chennai.
- 2. Van Horne J.C (1994). Financial Management and Policy. New Delhi: (12th Edition),Prentice Hall of India Pvt. Ltd.

Unit-12

Capital Structure

STRUCTURE

Overview

Objectives

12.1. Introduction

12.2. Objectives and importance of Capital Structure

12.3. Composition of Capital Structure

12.4. Capital Structure Frame work

12.5. Features and Assumptions of Capital Structure

12.6. Patterns and Determinants of Capital Structure

12.7. Indifference Point

12.8. Capital Gearing

12.9. Theories of Capital Structure–Net Income (NI) approach

12.10. Net Operating Income (NOI) approach

12.11. Modigliani Miller (M-M) Approach

Let Us Sum Up

Check Your Progress

Glossary

Suggested Readings

Over View

The objectives, importance and composition of capital structures discussed in this unit. The capital structure frame work and its features, assumptions, patterns and determinants are covered in this unit. Indifference point and capital gearing are also explained and the theories of capital structure are discussed.

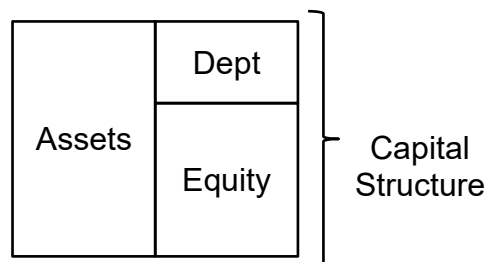
Objectives

After studying this unit, you should be able:

- To understand the composition, Features and determinants of Capital structure.
- To recognize about In difference,point and Capital Gearing
- To examine the different capital structure theories

12.1. Introduction Capitals Tructure

Capital structure refers to the kinds of securities and the proportionate amounts that make up capitalization. It is the mix of different sources of long-term sources such as equity shares, preference shares, debentures, long-term loans and retained earnings. The term capital structure refers to the relationship between the various long-term sources financing such as equity capital, reference share capital and debt capital. Deciding the suitable capital structure is the important decision of the financial management because it is closely related to the value of the firm. Capital structure is the permanent financing of the company represented primarily by long-term debt and equity.



According to the definition of Gerestenbeg, “Capital Structure of a company refers to the composition or make up of its capitalization and it includes all long-term capital resources”.

Low leverage		High leverage						
<table border="1" style="border-collapse: collapse; width: 100%;"> <tr> <td rowspan="2" style="padding: 5px;">Assets \$1,000</td> <td style="padding: 5px;">Dept \$200</td> </tr> <tr> <td style="padding: 5px;">Equity \$800</td> </tr> </table>	Assets \$1,000	Dept \$200	Equity \$800		<table border="1" style="border-collapse: collapse; width: 100%;"> <tr> <td rowspan="2" style="padding: 5px;">Assets \$1,000</td> <td style="padding: 5px;">Dept \$800</td> </tr> <tr> <td style="padding: 5px;">Equity \$200</td> </tr> </table>	Assets \$1,000	Dept \$800	Equity \$200
Assets \$1,000		Dept \$200						
	Equity \$800							
Assets \$1,000	Dept \$800							
	Equity \$200							

According to the definition of James C. Van Horne, “The mix of a firm’s permanent long-term financing represented by debt, preferred stock, and common stock equity”. According to the definition of Persona Chandra, “The composition of a firm’s financing consists of equity, preference, and debt”.

Financial Structure

The term financial structure is different from the capital structure. Financial structures hows the pattern total financing. It measures the extent to which total funds are available to finance the total assets of the business. $\text{Financial Structure} = \text{Total liabilities}$

Optimum Capital Structure

Optimum capital structure is the capital structure at which the weighted average cost of capital is minimum and there by the value of the firm is maximum. Optimum capital structure may be defined as the capital structure or combination of debt and equity that leads to the maximum value of the firm.

12.2. Objectives and Importance of Capital Structure

Objectives of Capital Structure Decision of capital structure aims at the following two important objectives:

- Maximize the value of the firm.
- Minimize the over all cost of capital.

Forms of Capital Structure Capital structure pattern varies from company to company and the availability of finance.

- Equity shares only.
- Equity and preference shares only.
- Equity and Debentures only.
- Equity shares, preference shares and debentures.

Importance of Capital Structure:

The importance or significance of Capital Structure:

1. Increase in value of the firm:

A sound capital structure of a company helps to increase the market price of shares and securities which, in turn, lead to increase in the value of the firm.

2. Utilisation of available funds:

A good capital structure enables a business enterprise to utilise the available funds fully. A properly designed capital structure ensures the determination of the financial requirements of the firm and raise the funds in such proportions from various sources for their best possible utilisation. A sound capital structure protects the business enterprise from over-capitalisation and under-capitalisation.

3. Maximisation of return:

A sound capital structure enables management to increase the profits of a company in the form of higher return to the equity shareholders i.e., increase in earnings per share. This can be done by the mechanism of trading on equity i.e., it refers to increase in the proportion of debt capital

in the capital structure which is the cheapest source of capital. If the rate of return on capital employed (i.e., shareholders' fund + long-term borrowings) exceeds the fixed rate of interest paid to debt-holders, the company is said to be trading on equity.

4. Minimisation of cost of capital:

A sound capital structure of any business enterprise maximises shareholders' wealth through minimisation of the overall cost of capital. This can also be done by incorporating long-term debt capital in the capital structure as the cost of debt capital is lower than the cost of equity or preference share capital since the interest on debt is tax deductible.

5. Solvency or liquidity position:

A sound capital structure never allows a business enterprise to go for too much raising of debt capital because, at the time of poor earning, the solvency is disturbed for compulsory payment of interest to the debt-supplier.

6. Flexibility:

A sound capital structure provides a room for expansion or reduction of debt capital so that, according to changing conditions, adjustment of capital can be made.

7. Undisturbed controlling:

A good capital structure does not allow the equity shareholders control on business to be diluted.

8. Minimisation of financial risk:

If debt component increases in the capital structure of a company, the financial risk (i.e., payment of fixed interest charges and repayment of principal amount of debt in time) will also increase. A sound capital structure protects a business enterprise from such financial risk through a judicious mix of debt and equity in the capital structure.

12.3. Composition of Capital Structure

The following are some important components of a company's capital structure and they will therefore need proper analysis, consideration, evaluation and scrutiny.

Capital mix

It consists of the equity and debt capital. The debt capital which can be raised from a variety of sources like banks and financial institutions, friends and relatives, etc forms an important item of the capital mix. The

percentage of debt capital to the total capital mix will depend on the extent of dependence of debt affordable by the company. And this dependence will in turn depend on the risks undertaken by the company. The lenders will consider these risks on their part before lending their resources to the company. Issues like reasonableness of the debt terms, its mechanism and the policies, systems and procedures of the company will also be looked in to. Ratios like debt ratio, debt service coverage ratio, etc will be handy and helpful in framing up the action plan on capital mix. Cash flow and funds flow statements will also help one in analyzing the capital mix for decision making.

Terms and conditions

A debt can be acquired with many choices on hand. The interest thereon can be either on fixed or floating rate basis. In the case of equity, the investors would prefer regular return by way of dividends. The company will have to decide its preference either for payment of interest or payment of dividends. In case debt capital can be raised at a lower rate of interest than the return on such borrowed capital, then it would be advisable to prefer debt capital to ensure maximum return for the owners. Again, the company's expectation of future interest rates will be yet another consideration.

If, the future interest rates are remaining neutral and if the company's earnings are at a growing pace, then it may be ideal to go in for debt capital. Therefore, the company's choice will depend on the management's assessment of future interest rates and its earnings potential. Of course, the management will take into account hedging instruments available at its disposal for managing such interest rate exposures. There is certain covenant in the loan documentation like what the company can do and cannot do. And these may inhibit the freedom of the management of the company. They normally cover payment of dividends, disposal of fixed assets, raising of fresh debt capital, etc. How these covenants prohibit and limit the company's future strategies including competitive positioning.

Selection of currency of the debt

The currency of the debt capital is yet another factor to reckon with. Now a days, a well run company can easily have access to international debt markets through external commercial borrowings. Such recourse to international markets enables the company to globalize its operations. However, the most important consideration in the selection of the appropriate currency in which such international loans are granted and accepted is the exchange risk factor. Of course, the management can

have access to foreign exchange hedging instruments like forward contracts, options, swaps, etc.

Profile and priority

The profile of the instruments used in the capital mix may differ from each other. Equity is the permanent capital. Under debt, there are short term instruments like commercial papers and long-term instruments like term loans. In the same manner the priorities of the instruments also differ. Repayment of equity will have the least priority when the company is winding up –either on its own or by legal force. Instruments such as hire purchase or leasing are quite safe from the provider's (lender's) point of view. The assets backing such instruments provide the protection or safety net to the lenders. Therefore, secured debts are relatively safe and have priority over unsecured debt in the event of company closure.

Normally the profile of the assets and liabilities of the company do not match. The company is deemed to have obtained risk neutral position by matching the maturities (profile) of the various assets and liabilities. That is why it is always advised that short term liabilities should be used to acquire current assets and long-term liabilities for fixed assets. However, in practice, the companies do not exactly match the profile of sources and uses of funds.

Various financial instruments

Simple instruments or innovative instruments can be availed to raise funds required. Financial innovative instruments are used to attract investors and they are normally associated with reduction in capital cost. A company to reduce its immediate funding cost can consider issue of convertible debentures at a lower interest rate. This way the investors can take up equity holding in the company which is not otherwise available directly at a comparatively cheaper cost. For the company too funds are available initially till the conversion date at a lesser interest rate.

A company can also issue non-convertible debentures at a higher interest rate when compared with convertible debentures, which may carry a lower interest rate as above. Similarly, a company can attempt raising required funds at a lesser cost through cross currency swaps in the international markets. In this, the company which may be having competitive advantage in one currency and in one market can exchange the principal with another currency of its choice and in another market and with another corporate which has an exactly matching and opposite requirement. Such swaps are gaining popularity in the market place.

Therefore, the company and its management have to continuously

innovate instruments and securities to reduce the final cost. An innovation once introduced may not attract new investors. There is also a possibility and the other companies may further fine tune the instruments and securities and make them more innovative and attractive. Therefore, financial innovation is a continuous process.

Various target groups in financial market

The different target groups in any financial market could be individual investor, institutional investors, private companies and corporates, public (government held or widely held) companies and corporates etc. A company can raise its required capital from any of these or all of these segments. A company can issue short term paper like commercial paper or certificate of deposits. It has also the option of raising the funds through public deposits.

12.4. Capital Structure Frame Work

Capital structure frame work

A financial capital structure frame work can be structured and evaluated from various perspectives. From the company's point of view, the following may merit consideration

- Return from investment
- Risk associated with the investment
- Value of the investment at different points of time in its life cycle

From the investor's point of view, the following may pose serious questions

- Control of investment
- Flexibility offered by the company
- feasibility of the investment

Therefore, by balancing all these considerations, a sound capital structure can be worked out. One such analysis is the **FRICT analysis**. It is used to help answer a firm's financing choices. The focus would be on the questions that we are trying to answer and these questions and answers will provide the best choice for the company. The FRICT analysis does not cover other choices such as postponement or cancellation of the project.

The four questions that are normally raised in FRICT analysis are

How much do we need?

- When will we need it

- Why—what will it be used for
- What sources are available

The FRICT frame work consists of Flexibility, Risk, Income, Control and Timing

Flexibility

First of all, the company should find out its debt capacity and the capital structure so determined should be within this debt capacity. And this capacity should not be exceeded at any cost and at any time. As we know, the debt capacity depends on the company's ability to generate future cash flows. Only such cash flows can facilitate prompt repayment – principal and periodic interest payment to the creditors. This cash flow also should leave some surplus to meet evolving emergent situations. Thus the capital structure should be flexible enough to facilitate it to change its structure with minimum cost and delay due to emerging situations.

Risk

The variability in the company's operations throw open many risks. They may arise due to the macro economic factors – industry and company specific – which may be beyond or within the company's scope. Any large dependence on debt will therefore magnify the possible variance in the company owners' earnings and at times may threaten the very existence or solvency of the company

Income

Any debt acquired by the company to build up appropriate capital structure should result in the value addition to the company owners and it should be advantageous by generating maximum returns to the company owners with minimum additional cost (by way of payment of interest and other charges)

Control

The preferred capital structure should not disturb the management control of the company. Therefore, beyond a certain level, the debt providers may insist for management control and

This will be risky for the owners of the company. Hence closely held companies are particularly vulnerable and therefore concerned with the dilution of control

Timing

The chosen capital structure should provide the following comforts

- Feasibility
- Freedom to implement current and future options

Therefore, the progression of financing decision is very important in any capital structure frame work as any current decision may influence or impact future funding options. Therefore, our FRICT analysis provides a general framework for managing and evaluating a company's capital structure. However with in this FRICT frame work companies can provide comfort to the creditors depending on the particular individual characteristics of the company like affording flexibility, control, etc. This is to provide a general adaptable frame work for any company.

12.5. Features and Assumptions of Capital Structure

Feature# (i) Economy

A sound capital structure must ensure the minimum cost of capital. Minimization of the cost of financing enables the firm to increase its surplus and wealth. Use of leverage helps to make the capital structure economical.

Feature# (ii) Safety

Under a sound capital structure fluctuations in earnings should not involve heavy strain on the company's financial structure. Debt should be used to the extent that the burden of fixed charges does not create the danger or risk of insolvency. The company must have sufficient liquidity to meet its obligations in time.

Feature# (iii) Balance

There must be a judicious balance between different types of securities so that there is neither excess of debt nor the lack of trading on equity. Risk and return should be properly balanced.

Feature# (iv) Flexibility

The capital structure should not be rigid but dynamic enough to be adapted to the changing needs of the company. It should permit the company to raise further finance for expansion, modernization, etc. easily and economically.

Feature# (v) Control

A sound capital structure should enable the existing group of shareholders to retain the control of the company's management in their hands. The risk of the loss of control and interference in the autonomy of management should be minimum.

Feature# (vi) Simplicity

The capital structure should be easy to understand and simple to operate. Use of several types of securities with varied terms and conditions may create confusion among investors. It may also result in an increase in the administrative cost of the company.

Maximizing the market price of shares, long-term outlook, provision for contingencies, optimum use of available financial resources and profitability are other requirements of sound capital structure.

Assumptions of Capital Structure

These assumptions of capital structure are as follows:

1. The organization uses only two types of capital, such as debt capital and equity capital.
2. The corporation tax does not exist and there is no bankruptcy cost.
3. The organization distributes its 100% earnings through dividend.
4. The organization has no retained earnings.
5. The operating earnings of an organization is given for a particular date and expected to increase further.
6. The total assets of an organization remain constant.
7. The organization would continue its businesses perpetually.
8. The business risk is independent of capital structure and financial risks.
9. The organization can bring changes in capital structure without any transaction cost.

12.6. Patterns and Determinants of Capital Structure

The following are the patterns of capital structure:

- (i) Complete equity share capital.
- (ii) Different proportions of equity and preference share capital.
- (iii) Different proportions of equity and debenture (debt) capital and.
- (iv) Different proportions of equity, preference and debenture (debt) capital.

Determinants of Capital Structure

The important determinants of capital structure are as under:

Determinant#1. Nature of Business:

The most important determinant of capital structure of a company is the

nature of the business itself. Businesses having more risks and unstable income should prefer equity shares. But firms engaged in public utility services or producing the commodity of basic necessity may resort to debentures and preference shares.

Determinant#2.Stability of Earnings:

Analysis of determinants of capital structure revolves principally around the adequacy and stability of earnings. Sales stability and debt ratios are directly related. The volume, stability and predictability of earnings determine whether the company can undertake the fixed obligations of interest on debts and dividend on preference shares, etc. With greater stability in sales and earnings, a firm can incur the fixed charges of debt with less risk.

Determinant#3. Age of theCompany:

Since a considerable amount of risk is involved in starting a new business, its ideal capital structure is one in which equity share is the only type of security issued. A new company of large size will have to tap all possible sources of capital to secure requisite quantity of funds. On the other hand well established companies with stable earnings records are always in a better position to raise capital from whatever source they like.

Determinant#4.Rapidity of Growth:

The more rapid the expansion, the greater the need to seek all possible sources of capital, ordinarily, rate of expansion of business is the greatest at the beginning of the firm's life, gradually decreasing as the market's saturation point is reached.

Determinant#5.Nature of Investors:

Investors are generally of different tastes and of economic status. Modest investors like debentures or preference shares while investors interested in speculation prefer equity shares. So, a firm will have to use a variety of securities in order to appeal to various types of investors.

Determinant#6.Desire to Retain Control:

The desire to retain the voting control of the company in the hands of a particular limited group may also influence the pattern of capital structure. In a closely held company, efforts are made to use debentures and non-voting shares to avoid the sharing of control with others.

Determinant#7.Assets Structure:

Asset structure also influences the sources of financing in sever always. Firms with long-lived fixed assets, especially when demand for their

output is relatively assured can use long-term debts. Firms whose assets are mostly (current) receivables and inventory whose value is dependent on the continued profitability of the individual firm can rely less on long-term debt financing and more on short-term funds.

Determinant#8. Advice Given by Financing Agencies:

Such agencies are specialized in tendering expert financial advice concerning the capital structure of a firm, their advice should be given due weight in the financial plan of the concern.

Determinant#9. Taxation Policy:

High corporate tax, high tax on dividend and capital gain directly influence the capital structure decisions. High tax discourages the issues of equity shares and encourages issuing more debentures.

Determinant#10. Statutory Requirements:

The legal and statutory requirements of the government also influence the capital structure. For Example, Banking companies are prohibited from issuing any type of security except equity shares.

12.7. Indifference Point

Capital Structure–Point of Indifference or Indifference Point

Ve of the debt, equity mix. In other words, at this point, the rate of return on capital employed is equal to the rate of interest on debt. This is also known as a break-even level of EBIT for alternative financial plans.

Uses of Point of Indifference:

The point of indifference is very useful in choosing the most suitable pattern of capitalisation for the firm. It tells us that if the firm's anticipated earning is much more than the earnings at the indifference level, raising funds through debt will prove advantageous. However, if the firm's future income is likely to drop below the indifference level further induction of debt in the firm will result in decline in EPS, and accordingly the shareholders' interest will be jeopardised. Where the firm's earning is likely to drop sharply so much so that it would not be sufficient to cover fixed charges of debt, use of debt for further financing will put the firm in loss range under such situation the management should discontinue the business, otherwise firm's capital will be utilized to cover the operating losses.

12.8. Capital Gearing

Gearing means the ratio of different types of securities to the total capitalization. When applied to the capital of a company, it means the ratio of equity share capital to the total capital of the company. Capital gearing may be defined as the proportion of the equity share capital to the total capital of the company. Capital-gearing is also called capital-gear ratio

The relation of ordinary shares (equity shares) to preference share capital and loan capital is described as the capital gearing.” Thus, the term ‘capital gearing’ is used to indicate the relative proportion of fixed cost capital as represented by the preference share capital and the debt capital to the ordinary share capital in the capital structure. Capital gearing refers to the relationship between owned funds and borrowed funds or fixed interest or dividend carrying funds.

Significance of Capital Gearing:

A proper capital gearing is quite essential for the smooth and successful running of the enterprise. The role of capital gearing in the smooth and successful running of the enterprise is as important as the use of gears in the speed of an automobile. Gears have to be used in an automobile for maintaining the desired speed.

Initially, the automobile starts with a low gear and as it gets momentum low gear has to be changed to high gear. In the same way in the beginning an enterprise will have to be started with a low gear i.e. with a larger amount (or proportion) of equity share capital. As the enterprise goes on growing, the proportion of fixed cost capital in the form of preference shares, debentures and term-loans will have to be increased i.e. low gearing will have to be changed to high gearing.

Thus the process of capital gearing deals with the make-up of the capitalization. That is it is called the qualitative aspect of capital structure. The knowledge of capital gearing is quite essential for the finance manager as it enables him to raise funds from different sources and employ them effectively for the smooth and successful running of the enterprise.

A proper blending of different sources of funds employed in the business of the concern is every much desirable from the point of view of the shareholders, debenture-holders, creditors and the concern itself. A highly geared company can pay a higher dividend to its equity shareholders. The higher the gear is the more attractive and speculative would be the equity shares.

12.9. Theories of Capital Structure-Net Income (NI) Approach

According to NI approach a firm may increase the total value of the firm by lowering its cost of capital. When cost of capital is lowest and the value of the firm is greatest, we call it the optimum capital structure for the firm and, at this point, the market price per share is maximized.

The same is possible continuously by lowering its cost of capital by the use of debt capital. In other words, using more debt capital with a corresponding reduction in cost of capital, the value of the firm will increase

The same is possible only when:

1. Cost of Debt (K_d) is less than Cost of Equity (K_e);
2. There are no taxes; and
3. The use of debt does not change the risk perception of the investors since the degree of leverage is increased to that extent.

Since the amount of debt in the capital structure increases, weighted average cost of capital decreases which leads to increase the total value of the firm.

So, the increased amount of debt with constant amount of cost of equity and cost of debt will highlight the earnings of the shareholders.

Example 12.1:

X Ltd. presents the following particulars:

EBIT (i.e., Net Operating income) is Rs. 30,000/-;

The equity capitalization ratio (i.e., cost of equity) is 15% (K_e); Cost of debt is 10% (K_d); Total Capital amounted to Rs. 2,00,000/-.

Calculate the cost of capital and the value of the firm for each of the following alternative leverage after applying the NI approach. Leverage (Debt to total Capital) 0%, 20%, 50%, 70% and 100%

From the table it is quite clear that the value of the firm (V) will be increased if there is income

A proportionate increase in debt capital but there will be a reduction in overall cost of capital

Statement Showing the Cost of Capital and the Value of the Firm

Degree of Leverage	0 Rs.	0.2 Rs.	0.5 Rs.	0.7 Rs.	1.0 Rs.
Equity Capital	2,00,000	1,60,000	1,00,000	60,000	-
Debt Capital	-	40,000	1,00,000	1,40,000	2,00,000
Total	2,00,000	2,00,000	2,00,000	2,00,000	2,00,000
EBIT @ 15 %	30,000	30,000	30,000	30,000	30,000
Less: Interest on Debt	-	4,000	10,000	14,000	20,000
Earnings to Equity	30,000	26,000	20,000	16,000	10,000
Market Value of Debt	-	40,000	1,00,000	1,40,000	2,00,000
Market Value of Equity Earnings $\left(\frac{\text{Earnings}}{K_e}\right)$	2,00,000	1,73,333	1,33,333	1,06,667	66,667
Total Value of the firm	2,00,000	2,13,333	2,33,333	2,46,667	2,66,667
Thus,					
Cost of Debt (K_d) – Given	10%	10%	10%	10%	10%
Cost of Equity (K_e) – Given	15%	15%	15%	15%	15%
Average Cost of Capital $\left(\frac{T}{V}\right)$	30%	28%	25%	23%	20%

Workings:

Average Cost of Capital is computed as under (under various financing plans):

$$K_w = \left(\frac{T}{V}\right) K_d + \left(\frac{S}{V}\right) K_e \text{ Substituting the values:}$$

- (i) When leverage is 0
 $K_w = 0 \times 10 + 2 \times 15 = 30\%$
- (ii) When leverage is 0.2
 $K_w = .4 \times 10 + .16 \times 15 = 28\%$
- (iii) When leverage is 0.5
 $K_w = .10 \times 10 + .10 \times 15 = 25\%$
- (iv) When leverage is 0.7
 $K_w = .14 \times 10 + .6 \times 15 = 23\%$
- (v) When leverage is 0.1
 $K_w = .20 \times 10 + 0 \times 15 = 20\%$

So, Cost of Capital is increased and the value of the firm is maximum if a firm uses 100% debt capital.

Example 12.2: Excellent Manufacturing Company expects to earn net operating income of Rs. 1, 50,000 annually. The Company has Rs. 6.00,000/- and 8% debentures. The cost of equity capital of the Company is 10%. What would be the value of Company? Also calculate over all cost of capital.

Solution:

Calculation of Value of Excellent Manufacturing Company

	Rs.
Net Operating Income (NOI)	1,50,000
Less interest on 8% debentures (I)	48,000
Earnings available to equityholders(NI)	1,02,000
Equity capitalization rate (K_e)	0.10
Market value of Equity (S) = $\frac{NI}{K_e}$	10,20,000
Market value of debt (B)	6,00,000
Total value of the firm (S+B) = V	16,20,000
Overall cost of capital = $K_0 = \frac{EBIT}{V} = \frac{Rs.1,50,000}{16,20,000} = .093$	
	= 9.3% approximately

12.10. Net Operating Income (NoI) Approach

Net Operating Income (NOI) Approach which was advocated by David Durand based on certain assumptions.

They are:

- a. The overall capitalization rate of the firm K_w is constant for all degrees of leverages;
- b. Net operating income is capitalized at an overall capitalization rate in order to have the total market value of the firm.

Thus, the value of the firm, V , is ascertained at overall cost of capital (K_w): $V = EBIT / K_w$ (since both are constant and independent of leverage)

1. The market value of the debt is then subtracted from the total market value in order to get the market value of equity $S = V - T$
2. As the Cost of Debt is constant, the cost of equity will be $K_e = EBIT - I / S$

Under this approach, the most significant assumption is that the K_w is constant irrespective of the degree of leverage. The segregation of debt and equity is not important here and the market capitalizes the value of the firm as a whole. Thus, an increase in the use of apparently cheaper debt funds is offset exactly by the corresponding increase in the equity-capitalization rate. So, the weighted average Cost of Capital K_w and K_d remain unchanged for all degrees of leverage. Needless to mention here

that, as the firm increases its degree of leverage, it becomes riskier proposition and investors are to make some sacrifice by having a low P/E ratio.

Example12.3:

Assume:

Net Operating Income or EBIT Rs. 30,000 Total Value of Capital Structure Rs. 2,00,000. Cost of Debt Capital K_d 10%. Average Cost of Capital K_w 12%. Calculate Cost of Equity, K_e : value of the firm V applying NOI approach under each of the following alternative leverages: Leverage (debt to total capital) 0%, 20%, 50%, 70%, and 100%

Statement Showing the Cost of Equity and the Value of the Firm

Degree of Leverage	0 Rs.	0.2 Rs.	0.5 Rs.	0.7 Rs.	1.0 Rs.
Equity Capital	2,00,000	1,60,000	1,00,000	60,000	-
Debt Capital	-	40,000	1,00,000	1,40,000	2,00,000
Total	2,00,000	2,00,000	2,00,000	2,00,000	2,00,000
EBIT	30,000	30,000	30,000	30,000	30,000
Less: Interest on Debt Capital (10%)	-	4,000	10,000	14,000	20,000
Earnings to Equity	30,000	26,000	20,000	16,000	10,000
Value of firm (V) $V = \frac{EBIT}{K_w}$	2,50,000	2,50,000	2,50,000	2,50,000	2,50,000
Less: Value of Debt (T)	-	40,000	1,00,000	1,40,000	2,00,000
Value of Equity (S)	2,50,000	2,10,000	1,50,000	1,10,000	50,000
Thus,					
(K_d) Given	10%	10%	10%	10%	10%
(K_e) – Given	12%	12%	12%	12%	12%
(K_e) $\left(\frac{EBIT}{S}\right)$	12%	12.4%	13.3%	14.5%	20%

Workings:

Although the value of the firm, Rs. 2,50,000/- is constant at all levels, the cost of equity is increased with the corresponding increase in leverage.

Thus, if the cheaper debt capital is used, that will be offset by the increase in the total cost of equity K_e , and, as such, both K_e and K_d remain unchanged for all degrees of leverage, i.e. if cheaper debt capital is proportionately increased and used, the same will offset the increase of cost of equity.

Example 12.4: Canon Manufacturing Company has annual net operating income of Rs. 150000/-.

The Company has Rs. 6,00,000/- and 8% debentures. The overall cost of capital of the Company is 10%. What would be the value of the Company?

Solution:

Value of Can on Company has been computed as below:

	Rs.
Net Operating Income (NOI)	1,50,000
Overall capitalization rate (K_o)	0.10
Total Market value of the company (V)	15,00,000
Total value of debt (B)	6,00,000
Total Market value of Equity (S)	9,00,000

Equity capitalization rate $K_e =$	$\frac{\text{EBIT} - I}{V - B}$
------------------------------------	---------------------------------

=	$\frac{\text{Earnings available to equity - holders}}{\text{Total market value of equity shares}}$
---	--

=	$\frac{\text{Rs. } 1,50,000 - 45,000}{\text{Rs. } 9,00,000}$	= 11.33%
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The overall cost of capital to verify the validity of the NOI approach

$$\begin{aligned} &= K_o = K_t (B/V) + K_e (S/V) \\ &= 8\% \left(\frac{\text{Rs. } 6,00,000 - 96,000}{\text{Rs. } 15,00,000} \right) + 11.33\% \left(\frac{\text{Rs. } 9,00,000}{\text{Rs. } 15,00,000} \right) = 10\% \end{aligned}$$

12.11. Modigliani Miller (M-M) Approach

Modigliani-Miller' (MM) advocated that the relationship between the cost of capital, capital structure and the valuation of the firm should be explained by NOI (Net Operating Income Approach) by making an attack on the Traditional Approach. The Net Operating Income Approach, supplies proper justification for the irrelevance of the capital structure. In Income Approach, supplies proper justification for the irrelevance of the capital structure. In this context, MM support the NOI approach on the principle that the cost of capital is not dependent on the degree of leverage irrespective of the debt-equity mix. In the words, according to their thesis, the total market value of the firm and the cost of capital are independent of the capital structure. They advocated that the weighted average cost of capital does not make any change with a proportionate change in debt-equity mix in the total capital structure of the firm.

Proposition

The following propositions outline the MM argument about the relationship between cost of capital, capital structure and the total value of the firm:

- I. The cost of capital and the total market value of the firm are independent of its capital structure. The cost of capital is equal to the capitalization rate of equity stream of operating earnings for its class, and the market is determined by capitalizing its expected return at an appropriate rate of discount for its risk class.
- II. The second proposition includes that the expected yield on a share is equal to the appropriate capitalization rate of a pure equity stream for that class, together with a premium for financial risk equal to the difference between the pure-equity capitalization rate (K_e) and yield on debt (K_d). In short, increased K_e is offset exactly by the use of cheaper debt.
- III. The cut-off point for investment is always the capitalization rate which is completely independent and unaffected by the securities that are invested.

Assumptions

The MM proposition is based on the following assumptions:

- (a) **Existence of Perfect Capital Market It includes:**
 - (i) There is no transaction cost;
 - (ii) Flotation costs are neglected;
 - (iii) No investor can affect the market price of shares;
 - (iv) Information is available to all without cost;
 - (v) Investors are free to purchase and sell securities.
- (b) **Homogeneous Risk Class/Equivalent Risk Class:** It means that the expected yield/return have the identical risk factor i.e., business risk is equal among all firms having equivalent operational condition.
- (c) **Homogeneous Expectation:** All the investors should have identical estimate about the future rate of earnings of each firm.
- (d) **The Dividend pay-out Ratio is 100%:** It means that the firm must distribute all its earnings in the form of dividend among the shareholders/investors, and
- (e) **Taxes do not exist:** That is, there will be no corporate tax effect (although this was removed at a subsequent date).

Interpretation of MM Hypothesis

MM Hypothesis–The Arbitrage Mechanism

MM have suggested an arbitrage mechanism in order to prove their argument. They argued that if two firms differ only in two points viz.

- III. The process of financing, and
- IV. Their total market value, the share holders/investors will dispose-off share of the over-valued firm and will purchase the share of under-valued firms. Naturally, this process will be going on till both attain the same market value. As such, as soon as the firms will reach the identical position, the average cost of capital and the value of the firm will be equal. So, total value of the firm
- V. And Average Cost of Capital, (K_w) are independent.

Example 12.5: Let there be two firms, Firm 'A' and Firm 'B'. They are similar in all respects except in the composition of capital structure. Assume that Firm 'A' is financed only by equity whereas Firm 'B' is financed by a debt-equity mix.

The following particulars are presented:

	Firm 'A'	Firm 'B'
	Rs.	Rs.
Equity Share Capital	5,00,000	3,00,000
Debt Capital	0	0
Total Capital employed	5,00,000	5,00,000
EBIT (Net Operating Income)	50,000	50,000
Interest on Debt Capital	0	10,000
Market Value of Debt (T) (Debt Capitalisation rate is 5%)		2,00,000
Earnings of Equity	50,000	40,000
Equity Capitalisation Rate	10%	12%
Market Value of Equity (S)	5,00,000	3,33,333
(T + S)	(0+5,00,000)	2,00,000 + 3,33,333
(Weighted) Average Cost of Capital K_w	10%	9.37%

From the table presented above, it is learn tthat value of the levered firm 'B' is higher than the unlevered firm 'A'. According to MM, such situation cannot persist long as the investors will dispose-off their holding of firm 'B' and purchase the equity from the firm 'A' with personal leverage. This process will be continued till both the firms have same market value.

Suppose Ram, an equity shareholder, has 1% equity offirm 'B'. He will do the following:

1. At first, he will dispose-off his equity of firm 'B' for Rs. 3,333.
2. He will take a loan of Rs.2,000 at 5% interest from personal account.
3. He will purchase by having Rs.5,333 (i.e. Rs.3,333+Rs.2,000) 1.007% of equity from the firm 'A', By this, his net income will be increased as:

	Rs.
Return from the firm 'A'	533
Less : Interest @ 5 %	<u>100</u>
Net Income	<u>433</u>

Obviously, this net income of Rs. 433 is higher than that of the firm 'B' by disposing-off 1% holding. It is needless to say that when the investors will sell the shares of the firm 'B' and will purchase the shares from the firm 'A' with personal leverage, this market value of the share of firm 'A' will decline and, consequently, the market value of the share of firm 'B' will rise and this will be continued till both of them attain the same market value. We know that the value of the levered firm cannot be higher than that of the unlevered firm (other things being equal) due to that arbitrage process. We will now highlight the reverse direction of the arbitrage process.

Example 12.6: Two firms A and B falling in the identical risk class have net operating income of Rs.2,00,000 each. Firm A is an unlevered concern having all equity but Firm B is levered concern as it has Rs. 10,00,000 of 10% bonds outstanding. The equity capitalization rate of firm A is 12.5% and of firm B is 16.0%.

Solution:

	Firm 'A'	Firm 'B'
	Rs.	Rs.
Net Operating Income (NOI)	2,00,000	2,00,000
Less interest (I)	-	1,00,000
Earning available to equity holder (NI)	2,00,000	1,00,000
Equity Capitalisation rate K_e	.125	.16
Total market value of equity (S)	16,00,000	6,25,000
Total market value of debt (B)	-	<u>10,00,000</u>
Total value	<u>16,00,000</u>	<u>16,25,000</u>
Implied overall capitalization rate / cost of capital	12.5%	12.3%

Conclusion

Capital structure decision is believed to play an important role in

maximizing the value of a firm. By having the most optimal capital structure, firms might be able to push its cost to the minimum point, which then will help them in dealing with the competitive environment. Through out this research, the interest-bearing debt to total assets ratio was used to measure the level of leverage of a firm. This ratio was then used to find out the relationship between leverage and several factors that are deemed to have influence on capital structure, which are profitability, size, and dividend payout

Criticisms of the MM Hypothesis

We have seen (while discussing MM Hypothesis) that MM Hypothesis is based on some assumptions. There are some authorities who do not recognize such assumptions as they are quite unrealistic, viz. the assumption of perfect capital market. We also know that most significant element in this approach is the arbitrage process forming the behavioral foundation of the MM Hypothesis. As the imperfect market exists, the arbitrage process will be of no use and as such, the discrepancy will arise between the market value of the unlevered and levered firms. The shortcomings for which arbitrage process fails to bring the equilibrium condition are:

Existence of Transaction Cost: The arbitrage process is affected by the transaction cost. While buying securities, this cost is involved in the form of brokerage or commission etc. for which extra amount is to be paid which increases the cost price of the shares and requires a greater amount although the return is same. As such, the levered firm will enjoy a higher market value than the unlevered firm.

Assumption of borrowing and lending by the firms and the individual at the same rate of interest: The above proposition that the firms and the individuals can borrow or lend at the same rate of interest, does not hold good in reality. Since a firm holds more assets and credit reputation in the open market in comparison with an individual, the former will always enjoy a better position than the latter.

As such, cost of borrowing will be higher in case of an individual than a firm. As a result, the market value of both the firms will not be equal.

Institutional Restriction: The arbitrage process is retarded by the institutional investors e.g., Life Insurance Corporation of India, Commercial Banks; Unit Trust of India etc., i.e., they do not encourage personal leverage. At present these institutional investors dominate the capital market.

“Personal or home-made leverage” is not the perfect substitute for

“corporate leverage.”: MM hypothesis assumes that “personal leverage” is a perfect substitute for “corporate leverage” which is not true as we know that a firm may have a limited liability whereas there is unlimited liability in case of individuals. For this purpose, both of them have different footing in the capital market.

Incorporation of Corporate Taxes: If corporate taxes are considered (which should be taken into consideration) the MM approach will be unable to discuss the relationship between the value of the firm and the financing decision. For example, we know that interest charges are deducted from profit available for dividend, i.e., it is tax deductible.

$$V_l = V_n + tD \text{ where}$$

V_l = Value of levered firm
 V_n = Value of unlevered firm
 T = Rate of Corporate tax
 D = Amount of debt

Example 12.7:

Assume: Two firms—Firm ‘A’ and Firm ‘B’ (identical in all respects except capital structure) Firm ‘A’ has financed a 6% debt of Rs. 1,50,000. Firm ‘B’ Unlevered. EBIT (for both the firm) Rs. 60,000 Cost of Capital is @ 10% corporate rate of tax is @ 60%. Compute market value of the two firms.

Solution:

The market value of the firm ‘A’ (unlevered)

$$V_n = \frac{\text{EBIT} (1 - t)}{K_e}$$

$$V = \frac{\text{Rs. } 60,000 (1 - .6)}{.10} \text{ (putting the value)}$$

V = Rs. 2,40,000

The market value of the firm ‘B’ (levered)

$$V_l = V_n - tD$$

$$= \text{Rs. } 2,40,000 + .6 \times \text{Rs. } 1,50,000$$

$$= \text{Rs. } 3,30,000$$

Thus, a firm can lower its cost of capital continuously due to the tax deductibility of interest charges. So, a firm must use the maximum amount of leverage in order to attain the optimum capital structure although the experience that we realize is contrary to the opinion.

Practice Problems:

1. X co has a net operating income of Rs. 2,00,000 on an investment of Rs. 10,00,000 in assets. It can raise debt at 16% rate of interest. Assume that taxes do not exist. Using NI approach and an equity capitalization rate of 18%, compute the total value of the firm and the weighted average cost of capital if the firm has
 - (a) No debt
 - (b) Rs. 3,00,000 as debt
 - (c) Rs. 6,00,000 as debt
2. Zen motors has a net operating income of Rs. 50 lakhs. Zen employs Rs. 120 lakhs of debt carrying 15% interest charges. The equity capitalization rate applicable to Zen is 16%. What market value of Zen motor under net income approach? Assume there is no tax
3. X co has a net operating income of Rs. 200,000 on an investment of Rs. 10,00,000 in assets. It can raise debt at 16% rate of interest. Assume that taxes do not exist. Using No I approach and overall capitalization rate of 12%, compute the total value of the firm and the cost of equity if the firm has
 - (b) No debt
 - (c) Rs. 3,00,000 as debt
 - (d) Rs. 6,00,000 as debt
4. Jupiter construction Ltd has earned a profit before interest and tax of Rs. 500,000. The company's capital structure includes 20,000, 14% of debentures of Rs. 100 each. The overall capitalization rate of the firm is 16%. Using NOI approach, calculate the total value of the firm and equity capitalization rate
5. XYZ Ltd has earnings before interest and tax (EBIT) of Rs. 4,00,000/-. The firm currently has outstanding debt of Rs. 15,00,000/- at 10% interest. Its cost of equity is estimated to be 16%. Calculate the value of the firm and overall capitalization rate using Net Income Approach
6. X Ltd and Y Ltd are identical except that the former uses debt while the latter does not. The levered firm has issued 10% debentures of Rs. 9,00,000/-. Both the firms earn EBIT of 20% on total assets of Rs. 5,00,000/-. Assuming tax rate of 50% and equity capitalization rate of 15%

- a) compute the value of two firm using NI approach
- b) compute the value of two firm using NOI approach

Letus Sumup

In this unit, you have learned the following:

Capital Structure of a company refers to the composition or make up of its capitalization and it includes all long-term capital resources". The FRICT frame work consists of Flexibility, Risk, Income, Control and Timing. The objectives of Capital Structure Decision of capital structure aims at the following two important objectives: Maximize the value of the firm and minimize the overall cost of capital. In difference point is the rate of return on capital employed is equal to the rate of interest on debt. The trade-off between costs and benefits of debt can turn capital structure into a relevant decision. There are other views also on the relevance of capital structure. Relevant theory: - According to this theory, capital structure decision is relevant to the valuation of firm. So, it is called as relevant theory-Net Income approach (NI). Irrelevant theory: - According to this theory, capital structure decision is not relevant to the valuation of firm. So, it is called as irrelevant theory – The two irrelevant theories are Net Operating Income approach (NOI) and Modigliani – Miller approach (MM)

Check Your Progress

1. The term capital structure denotes:
 - a. Total of Liability side of BalanceSheet,
 - b. Equity Funds, Preference Capital and Longterm Debt
 - c. Total Shareholders Equity,
 - d. Types of Capital Issued by a Company.
2. Which of these is a theory of capital structure?
 - a. Net Income
 - b. Modigliani-MillerTheorem
 - c. Net Operating Income
 - d. All of the Above
3. How can optimal capital structure be maintained?
 - a. Increase in the credit rating of the firm
 - b. A good record of revenue
 - c. A stable dividend policy
 - d. All of the above

4. _____ Is one that maximizes value of business, minimizes over all cost of capital, that is flexible, simple and futureistic, that ensures adequate control on affairs of business by the owners and so on.
 - a. Minimal capital structure.
 - b. Moderate capital structure.
 - c. Optimal capital structure.
 - d. Deficit capital structure
5. _____ of different sources of capital in fluences capital structure.
 - a. Restrictive covenants.
 - b. Tax advantage.
 - c. Cost of capital.
 - d. Tradingonequity.

GLOSSARY

Capital Structure:	It is the mix of different sources of long-term sources such as equityshares, preference shares, debentures, long-term loans and retained earnings.
Indifference Point:	It refers to that EBIT level at which EPS remains the same, irrespective of the debt, equity mix
Capital gearing:	Capital gearing refers to the relationship between owned funds and borrowed funds or fixed interest or dividend carrying funds

Answers to Check Your Progres

1. (b) Equity Funds,Preference Capital and Long-term Debt
2. (d) All of the Above
3. (d) All of the Above
4. (c) Optimal capital structure.
5. (c) Cost of capital.

Suggested Reading

1. Eugene F. Brigham | Michael C. Ehrhardt (2017), Financial Management Text and cases, (15th Edition) , C engage learning
2. Hampton John J. (1994), Financial Decision Making: Concepts, Problems and Cases. New Delhi: (Fourth Edition), Prentice-Hall of India Pvt. Ltd.,.

Block-5: Introduction

Block-5: Liquidity Decisions has been divided in to three Units.

Unit-13 : Principles of Working Capital deals with Introduction, Concepts of Working Capital, Types of Working Capital, Determination of working capital requirement, Significance of working capital, Problems of Inadequate working capital, Characteristics of working capital, Importance or Advantages of Adequate working capital, Working capital management under inflation, Operating cycle, Estimating working capital needs and Forecasting working capital requirements.

Unit-14: Receivables Management and Factoring explains about Introduction to Receivables management, Factors considering the receivables size, Credit control, Cost of credit control, Factoring, Functions of factoring, Cost involvement in factoring, Types of factoring, Modus operandi of a factor, Benefits of factoring and Need for factoring in India.

Unit-15: Inventory Management and Cash Management discuss about the Introduction, Kinds of Inventories, Objectives of Inventory Management, Techniques of Inventory Management, Techniques based on classification of inventories, Cash Management, Motives of holding cash, Cash Management strategies, Techniques of Cash management and marketable securities, Sources of Short-term finance and Working capital policies.

In all the units of Block -5 **Liquidity Decisions**, the Check your progress, Glossary, Answers to Check your progress and Suggested Reading has been provided and the Learners are expected to attempt all the Check your progress as part of study.

Unit-13

Principles of Working Capital

STRUCTURE

Overview

Objectives

13.1. Introduction

13.2. Concepts of Working Capital

13.3. Types of Working Capital

13.4. Determination of working capital requirement

13.5. Significance of working capital

13.6. Problems of Inadequate working capital

13.7. Characteristics of working capital

13.8. Importance or Advantages of Adequate working capital

13.9. Working capital management under inflation

13.10. Operating cycle

13.11. Estimating working capital needs

13.12. Forecasting working capital requirements

Let Us Sum Up

Check Your Progress

Glossary

Answers to CheckYourProgress

Suggested Readings

Overview

This unit discusses the concepts, types and significance of working capital. It also covers the determination of working capital requirements and the problems of inadequate working capital. The importance of adequate working capital and the working capital management under inflation are discussed. Operating cycle, estimating the working capital needs and the forecasting of working capital requirements are covered.

Objectives

- After studying this unit, you should be able to:
- To understand concepts and determinants of working capital
- Estimate the working capital requirement

13.1. Introduction

In the words of **Shubin**, “Working capital is the amount of funds necessary to cover the cost of the enterprise”. According to **Genestenberg**, “Circulating capital means current assets of a company that are changed in the ordinary course of business from one form to another, as for example, from cash to inventories, inventories to receivables, receivables into cash”. Effective financial management is concerned with the efficient use of important economic resources, namely, capital funds. The capital funds can be used to invest in two forms like,

Fixed Assets

A major portion of the capital funds used for investing in purchase of fixed assets for permanent or long-term purposes, for the purpose of diversification, expansion of business, renovation or modernization of plant and machinery and research and development and

Current Assets

Rest of the portion of funds needed for short-term purposes like investing into assets for current operations of business is called working capital. For example, one who is managing a trading business has to arrange funds regularly for, purchase of finished stock and keeping it in store room, and also find suitable customer to go for sales. On the other hand if it is a manufacturing firm he has to arrange for funds continuously for, buying raw materials, keeping it for some time in store, then taking it for the process of converting into finished goods, and ultimately selling it to consumers.

Fixed Asset Investments Vs Current Asset Investments

Out of the two types of investments, investing in the current operations of the business is more difficult and is a continuous process with more components of assets rather than the first case where the investment is one time or long-term in the business process. Further, purchase of fixed assets can only be by long-term sources of funds. But both long-term as well as short-term sources of funds are used to finance current assets. If so, what is the ratio of both long-term and short-term sources? Even if we decide the ratio, is it a fixed one? The answer is no. It is flexible on the basis of seasons like operational cycle, production policy, credit term, growth and expansion, price level changes, etc. Improper working capital management can lead to business failure. Many profitable companies fail because their management team fails to manage the working capital properly. They may be profitable, but they are not able to pay the bills. Therefore management of working capital is not very easy and the

financial manager takes very important role in it. Hence, the following guide lines regarding concepts, components, types and determinants will be very useful to a financial manager.

13.2. Concepts of Working Capital

There are two concepts of working capital namely Gross concepts and Net concepts:

Gross Working Capital

According to this concept, what ever funds are invested are only in the current assets. This concept expresses that working capital is an aggregate of current assets. The amount of current liabilities is not deducted from the total current assets. This concept is also referred to as "Current Capital" or "Circulating Capital".

Net Working Capital

What is net working capital? The term net working capital can be defined in two ways:

1. The most common definition of net working capital is the capital required for running day-to-day operations of a business. It may be expressed as excess of current assets over current liabilities.
2. Net working capital can alternatively be defined as a part of the current assets, which are financed with long-term funds. For example, if the current asset is Rs. 100 and current liabilities is Rs. 75, and then it implies Rs. 25 worth of current assets is financed by long-term funds such as capital, reserves and surplus, term loans, debentures, etc. On the other hand, if the current liability is Rs. 100 and current assets is Rs. 75, and then it implies Rs. 25 worth of short-term funds is used for investing in the fixed assets. This is known as negative working capital situation. This is not a favorable financial position. When the current assets are equal to current liabilities, it implies that there is no net working capital. This means no current asset is being financed by long-term funds.

Net Working Capital = Current assets – Current liabilities.

13.3. Types of Working Capital

Working capital can be divided into two categories on the basis of time:

1. Permanent, fixed or regular working capital,
2. Temporary, variable, fluctuating, seasonal or specified working capital.

Permanent working capital

This refers to minimum amount of investment required in all current assets at all times to carryout minimum level of activity. In other words, it represents the current assets required over the entire life of the business. Tandon Committee has referred to this type of working capital as 'Core current assets' or 'Hard-core working capital'. The need for investment in current assets may increase or decrease over a period of time according to the level of production. Some amount of permanent working capital remains in the business in one form or another. This is particularly important from the point of view of financing. Tandon Committee has pointed out that this type of core current assets should be financed through long-term sources like capital, reserves and surplus, preference share capital, termloans, debentures, etc. Leader in two-wheelers Hero Honda Ltd. and in four-wheelers Maruti Udyog Ltd. Keeping their model in each type in their show rooms are typical examples of permanent working capital.

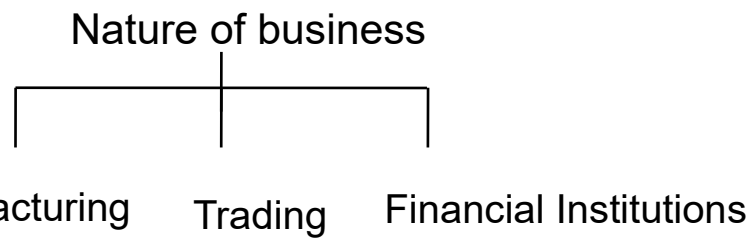
Temporary Working Capital

Depending upon the production and sales, the need for working capital over and above permanent working capital will change. The changing working capital may also vary on account of seasonal changes or price level changes or un anticipated conditions. For example, raising the prices of materials, labor rate and other expenses may lead to an increase in the amount of funds invested in the stock of raw materials, work-in-progress as well as in finished goods. Sometimes additional working capital may be required to face the cut-throat competition in the market. Sometimes when the company is planning for special advertisement campaigns organized for promotional activities or increasing the sales, additional working capital may have to be financed. All these extra capitals needed to support the changing business activities are called temporary, fluctuating or variable working capital.

13.4. Determination of Working Capital Requirements

Determination of working capital requirements

There are no uniform rules or formulae to determine the working capital requirements in a firm. A firm should not plan its working capital neither too much nor too low. If it is too high it will affect profits. On the other hand, if it is too low, it will have liquidity problems. The total working capital requirements is determined by a wide variety of factors. They also vary from time to time. Among the various factors, the following are necessary.



The working capital requirements of an organization are basically influenced by the nature of its business. The trading and financial institutions require more working capital rather than fixed assets because these firms usually keep more varieties of stock to satisfy the varied demands of their customers.

The public utility service organizations require more fixed assets rather than working capital because they have cash sales only and they supply only services and not products.

Thus, the amounts tied up with stock and debtors are almost zero. Generally, manufacturing business needs, more fixed assets rather than working capital. Further, the working capital requirements also depend on the seasonal products.

Size of the business

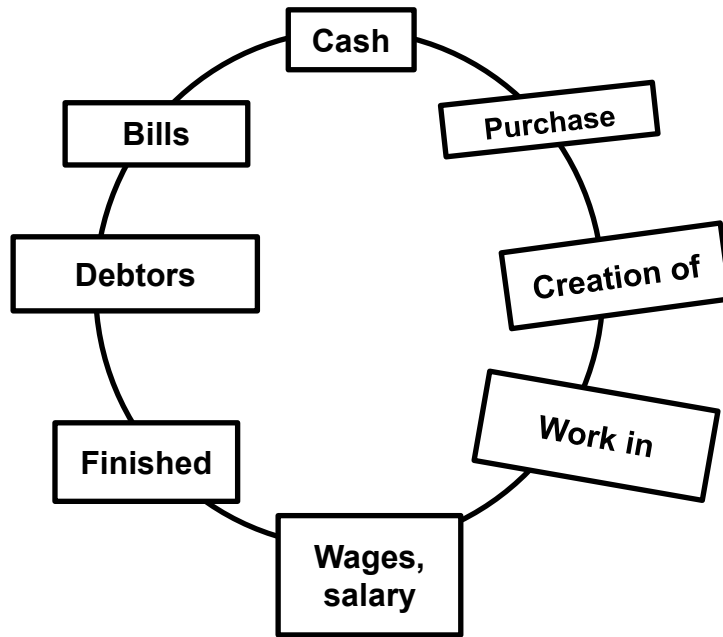
Another important factor is the size of the business. Size of the business means scale of operation. If the operation is on a large scale, it will need more working capital than a firm that has a small-scale operation.

Operating Cycle:

The term “production cycle” or “manufacturing cycle” refers to the time involvement from cash to purchase of raw materials and completion of finished goods and receipt of cash from sales.

If the operating cycle requires a longer time span between cash to cash, the requirement of working capital will be more because of larger tie up of funds in all the processes. If there is any delay in a particular process of sales or collection there will be further increase in the working capital requirements.

A distillery is to make a relatively heavy investment in working capital. A bakery will have a low working capital.



Where

$$O = (R + W + F + D) - C$$

O = Duration of operating cycle

R = Raw material averages to rage period

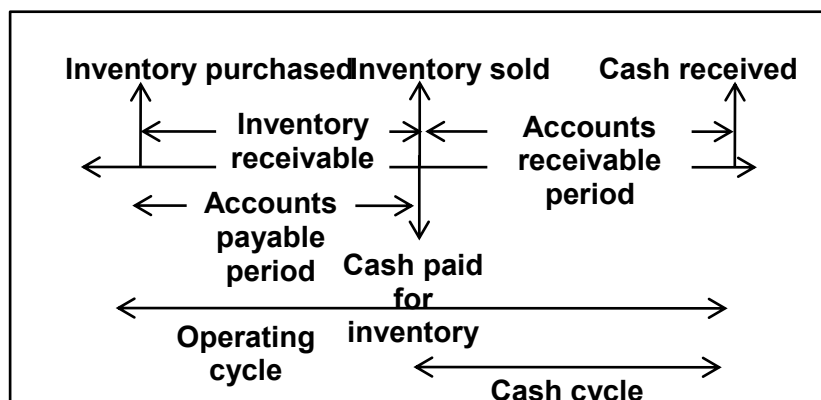
W = Average period of work-in-progress

F = Finished goods averages to rageperiod

D = Debtors Collection period

C = Creditors payment period

The Working Capital Cycle (or operating cycle) is the length of time between a company's paying for material entering in to stock and receiving the inflow of cash from sales. The movements in the cycle are different for different types of companies and a redepent on the nature of the company



Production policy

The requirements of working capital are also determined by production policy. When the demand for the product is seasonal, inventory must be accumulated during the off-season period and this leads to more cost and risks. These firms, which manufacture variety of goods, will have advantages of keeping low working capital by adjusting the production according to season.

Turn over of Working capital

The speed of working capital is also influenced by their requirements of working capital. If the turnover is high, the requirement of working capital is low and vice versa.

Credit Terms

The level of working capital is also determined by credit terms, which is granted to customers as well as available from its creditors. More credit period allowed to debtors will result in high book debts, which leads to high working capital and more bad debts. On the other hand liberal credit terms available from creditors will lead to less working capital.

Growth and Expansion

As a company grows and expands logically, it requires a larger amount of working capital. Other things remaining same, growing industries need more working capital than those that are static.

Price level changes

Rising prices would necessitate the organization to have more funds for maintaining the same level of activities. Raising the prices in material, labor and expenses without proportionate changes in selling price will require more working capital. When a company raises its selling prices proportionally there will be no serious problem in the working capital.

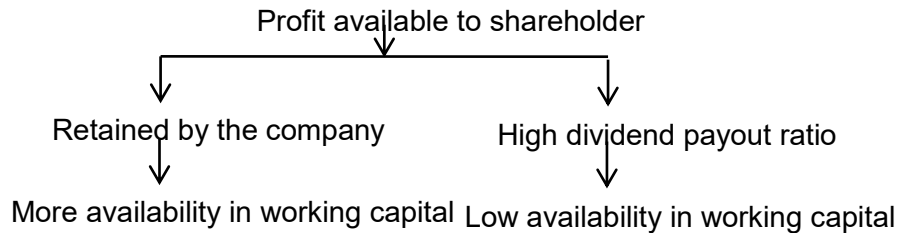
Operating efficiency

Though the company cannot control the rising price in material, labor and expenses, it can make use of the assets at a maximum utilization with reduced wastage and better coordination so that the requirement of working capital is minimized.

Other factors

Level of taxes: In this respect the management has no option. If the government increases the tax liability very often, taxes have to be paid in advance on the basis of the profit on the current year and this will need more working capital.

Dividend policy: Availability of working capital will decrease if it has a high dividend pay out ratio. Conversely, if the firm retains all the profits without dividend, the availability of working capital will increase. In practice, although many firms earn profit, they do not declare dividend to augment the working capital.



13.5. Significance of Working Capital

The basic objective of financial management is to maximize the shareholders' wealth. This is possible only when the company increases the profit. Higher profits are possible only by way of increasing sales. However, sales do not convert into cash instantaneously. So some amount of funds is required to meet the time gap arrangement in order to sustain the sales activity, which is known as working capital. In case adequate working capital is not available for this period, the company will not be in a position to sustain stocks as it is not in a position to purchase raw materials, pay wages and other expenses required for manufacturing goods to be sold. Working capital, thus, is a life-blood of a business. As a matter of fact, any organization, whether profit oriented or otherwise, will not be able to carry on day-to-day activities without adequate working capital.

13.6. Problems of Inadequate Working Capital

Proper management of working capital is very important for the success of an enterprise. It should be neither large nor small, but at the optimum level. In case of inadequate working capital, a business may suffer the following problems.

Purchase of Raw Materials

Availing the cash discount from the suppliers (creditors) or on favorable credit terms may not be available from creditors due to shortage of funds. For e.g. This situation arises when the suppliers supply the goods on two months credit allowing 5% cash discount, if it is payable within the 30 days.

In the above situation, if a person buys material for Rs. 10,000 by availing the cash discount, he has to pay only Rs 9,500 [10,000 – 500]. This is possible only with the help of adequate working capital.

Credit Rating

When the financial crisis continues due to shortage of funds [working capital], the credit worthiness of the company may be lost, resulting in poor credit rating. E.g. a company is having the liquid assets of Rs 20,000, current assets of Rs 30,000 and current liabilities of Rs 40,000. From the above data we can determine the short-term solvency with the help of the following ratios 1. Liquid ratio 0.50 and 2. Current ratio 0.75. The standard ratios are 1:1 and 2:1 for liquidity ratio and current ratio respectively. But seeing the above ratios, it shows that the short-term solvency is very poor. This clearly shows that the company is not in a position to repay the short-term debt. This is due to inadequate working capital.

Seizing Business Opportunity

Due to lack of adequate working capital, the company is not in a position to avail business opportunity during boom period by increasing the production. This will result in loss of opportunity profit. E.g. During boom or seasonal period, generally the company will be getting more contribution per unit by accepting special orders or by increasing the production, matching with high demand. This opportunity can be availed only if it is having sufficient amount of working capital.

Duration of Operating Cycle

The duration of operating cycle is to be extended due to inadequate working capital. E.g. If the company's duration of operating cycle is 45 days when a company is having sufficient amount of working capital, due to delay in getting the material from the suppliers and delay in the production process, it will have to extend the duration of operating cycle. Consequently, this results in low turnover and low profit.

Maintenance of plant and machinery

Due to lack of adequate working capital, plant and machinery and fixed assets cannot be repaired, renovated, maintained or modernized in an appropriate time. This results in non-utilization of fixed assets. Moreover, inadequate cash and bank balances will curtail production facilities. Consequently, it leads to low fixed assets turnover ratio. E.g. Cost of goods sold is Rs 2,40,000 fixed assets is Rs 60,000 and average industrial fixed assets turnover ratio is 10 times.

$$\frac{\text{Cost of sales}}{\text{Fixed assets}} = \frac{2,40,000}{60,000} = 4 \text{ times}$$

When industrial average ratio is 10 times and the actual turn over ratio is 4 times, it is understood that the fixed assets are not utilized to the maximum.

Higher Interest

In order to account for the emergency working capital fund, the company has to pay higher rate of interest for arranging either short- term or long-term loans.

Low Return on Investment (ROI)

Inadequate working capital will reduce the working capital turnover, which results in low return on investment.

Liquidity verses profitability

Inadequate working capital may result instock out of cost, reduced sales, loss of future sales, loss of customers, and loss of goodwill, down time cost, idle labour, idle production and finally results in lower profitability.

Dividend policy

A study of dividend policy cannot be possible unless and otherwise the organization has sufficient available funds. In the absence of proper planning and control, the company's inadequate working capital will cause the above said problems.

13.7. Characteristics of Working Capital

Short-term Requirements: Working capital is utilized to purchase current assets which can be easily converted into cash in short period of time. The length of production process decides the duration of working capital; it is the time period between sale and cash receipts.

Circular Movement: Working capital is continuously transformed into cash but it again turns into working capital. This process is on continuous basis. When cash is utilized to purchase current assets and with the help of current assets goods are produced and sold then therefore working capital is also termed as circulating capital.

Permanence: Working capital is a short-term capital but in order to continue the production process it is always required by the firm. Hence working capital is also termed as permanence or regular working capital.

Instability: Though working capital is required permanently in a firm but the amount of working capital required frequently changes with the changes in production level, changes in purchase, sale policy, price level and demand level. The amount of working capital that changes due to changes in other factors is called variable working capital.

Liquidity: Working capital can be easily converted into cash, hence it is more liquid. Firms which maintain adequate amount or working capital finds easy to convert it into cash in time when cash is required.

Less Risky: Working capital is the investment in current assets which is for a short period of time. Hence it involves less risk. Working capital does not involve any risk related to technological changes. It involves a very less amount of physical risk only.

Special Accounting System not required: As working capital is for short-term usually for one year. Hence, there is no need to adopt special accounting system for it.

13.8. Importance or Advantages of Adequate Working Capital

Working capital is the life blood and nerve Centre of a business. Hence, it is very essential to maintain smooth running of a business. No business can run successfully without an adequate amount of working capital. The main advantages of maintaining adequate amount of working capital are as follows:

Solvency of the Business: Adequate working capital helps in maintaining solvency of business by providing uninterrupted flow of production.

Goodwill: Sufficient working capital enables a business concern to make prompt payments and hence helps in creating and maintaining goodwill.

Easy Loans: A concern having adequate working capital, high solvency and good credit standing can arrange loans from banks and others on easy and favorable terms.

Cash Discounts: Adequate working capital also enables a concern to avail cash discounts on purchases and hence it reduces cost.

Regular Supply of Raw Material: Sufficient working capital ensure regular supply of raw materials and continuous production.

Regular payment of salaries, wages and other daytoday commitments: A company which has ample 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 enables a concern to face business crisis in emergencies such as depression.

Quick and regular return on investments: Every investor wants a quick and regular return on his investments. Sufficiency of working capital enables a concern to pay quick and regular dividends to be investor as there may not be much pressure to plough back profits which gains the confidence of investors and creates a favorable market to raise additional

funds in future.

Exploitation of Favorable market conditions: Only concerns with adequate working capital can exploit favorable market conditions such as purchasing its requirements in bulk when the prices are lower and by holding its inventories for higher prices.

High Morale: Adequacy of working capital creates an environment of security, confidence, and high morale and creates overall efficiency in a business.

13.9. Working Capital Management under Inflation

One of the most important areas in the day-to-day management of working capital includes all the short-term assets (current assets) used in daily operations. Such management will have more significance during the time of inflation. The following measures can be applied to control the working capital during the period of inflation.

Cost Control

Cost control aims at maintaining the costs in accordance with the predetermined cost. According to this concept, the management aims at material, labor and other expenses.

Cost Reduction

Cost reduction aims at exploring the possibilities of using alternative raw materials without affecting the quality of the products by adoptions of new technology for the improved quality of products and reducing the cost.

Large-Scale Production

Within the given capacities the management can increase the productivity by proper cost control strategy. Increased price due to inflation may compensate with reduction in fixed cost when production is increased.

Management Cost

Since management cost is a fixed, period cost, the maximum possible use of facilities already created must be secured.

Operating Cycle

The time gap between purchase of inventory and converting the material into cash is known as operating cycle. The management attempts to decrease the duration of operating cycle during inflation.

Turnover

Turnover ratio indicates how the capitals are effectively used in order to

increase the sales during the purchase period. By increasing the rate of rotation there will be an increase in sales which in turn will increase the profit. Improvement of turnover includes improvement in fixed assets turnover ratio and working capital turnover ratio, which are elements of the capital employed.

Capital employed = Fixed assets + working capital.

Creditors' Turn over Ratio

It indicates the speed with which the payments are made to credit purchases. This can be computed as follows:

$$\text{Creditors payment period} = 365 \times \frac{\text{Average Creditors}}{\text{Credit purchase}}$$

Higher creditors' turnover ratio with a lower payment period shows that the creditors are paid promptly or even earlier. During inflation the company with help of bargaining power and good relation they can ask to increase the payment period, trade discount, cash discount, etc.

Stock turn over ratio

A low stock turnover ratio may indicate a slow-moving inventory suffering from low sales force. On the contrary, higher stock turn over ratio shows better performance of the company.

Under this situation the company may keep relatively small amount of funds as resources. Thus, during inflation, the company tries to keep high stock turn over ratio.

$$\text{Stock turn over ratio} = \frac{\text{Cost of goods sold}}{\text{Average stock}}$$

This should be more during inflation than the ordinary period.

Debtors' Turnover

Debtors constitute an important component of the working capital and therefore the quality of debtors to a great extent determines the liquidity position during inflation. A higher ratio gives a lower collection period and a low ratio gives a longer collection period. During inflation, the management tries to keep a high turnover ratio.

Other Factors

The management can try to decrease the overhead expenses like administrative, selling and distributing expenses. Further the management should be very careful in sanctioning any new expenditure belonging to the cost areas. The managers should match the cash in flow with cash outflow for future period through cash budgeting.

What is negative working capital and how it arises?

Negative working capital is where the organization uses supplier credit or customer prepayment to fund their day-to-day needs. Organization with negative working capital uses the money from their customer with which to invest and to pay suppliers. Banks and financial services, retailers, distributors, industries with cash sales or advance payments on signature of contract are some of the firms which may have low or negative working capital / sales % figures. Competition is fiercest among industries with low or negative working capital / sales % figures. Financial entry barriers are lower and these industries are easier to expand. However, profit margins are often lower because of the competition (but not always!) and the failure rate among such industries in developed countries is usually higher. Banks are attracted to industries with lower negative working capital/ sales% figure as cash and profits are more quickly. Entrepreneurs are attracted to industries with low or negative working capital% figures. The customers, suppliers and authors of books publishers also want to operate to a low or negative working capital / sales %.

13.10. Operating Cycle

Operating Cycle:

This is the chronological sequence of events in a manufacturing company in regard to working capital. We know that working capital is the excess of current assets over current liabilities. In reality such excess of current asset over current liabilities may be either more or less than the working capital requirement of the company. Accordingly, it is necessary to calculate the working capital of the company. This is illustrated with an example. Such computation of working capital requirement may also be necessary for planning increase of sales from existing level. The operating cycle is the length of time for a company to acquire materials, produce the products, sell the products, and collect the proceeds from customers. The normal operating cycle is the average length of time for a company to acquire materials, produce the products and collect the proceeds from customers. From the above it is very clear that the working capital is required to meet the **time-gap** between the raw materials and actual realization of stocks. This time gap is technically termed as operating cycle or working capital cycle. The operating cycle can be sub-divided into two on the basis of the nature of the business namely trading cycle and manufacturing cycle.

Trading Cycle:

Trading business does not involve any manufacturing activities. Their activities are limited to buying finished goods and selling the same to consumers. Therefore, operating cycle requires a short time span behavior cash to cash, the requirement of working capital will be low because very less number of processes in the operation is given below:

Cash → Inventories → Debtors → Bills Receivable → Cash

In the case of trading firm the operating cycle includes time required to convert (1) Cash into inventories, (2) Inventories into debtors, (3) Debtors into cash. In the case of financing firm, the operating cycle is still less when compared to trading business. Its operating cycle includes time taken for (1) Conversion of cash into suitable borrowers and (2) Borrowers into cash.

Importance of operating cycle:

If a company can shorten the operating cycle, cash can accumulate more quickly, and due to the time value of money, there should be a positive impact on the share value. Holding everything else constant, an investor would prefer a company with a short operating cycle to a similar company with a longer operational cycle.

The formula to calculate operating cycle:

Operating cycle = Age of inventory + collection period

Net operating cycle = Age of inventory + collection period – deferred payments

For calculating net operating cycle, various conversion periods may be calculated as follows: Raw material cycle period (RMCP) = $(\text{Average Raw material stock} / \text{Total raw material Consumable}) \times 365$

Working progress cycle period (WPCP) = $(\text{Average work in progress} / \text{Total cost of Production}) \times 365$

Finished goods cycle period (FGCP) = $(\text{Average finished goods} / \text{Total cost of goods Sold}) \times 365$
Accounts receivable cycle period (ARCP) = $(\text{Average Account receivable} / \text{Total of sales}) \times 365$
Accounts payable cycle period (APCP) = $(\text{Average account payable} / \text{Total credit purchase}) \times 365$

Where, Total credit purchase = cost of goods sold + ending inventory – beginning of inventory

For above calculations, the following points are essential:

1. The average value is the average of opening balance and closing

balance of the respective items. In case the opening balance is not available, only the closing balance is taken as the average.

2. The figure 365 represents number of days in a year. Sometimes even 360 days are considered.
3. The calculation of RMCP, WPCP and FGCP the denomination is taken as the total cost of raw material consumable, total cost of production total, cost of goods sold respectively since they form respective end products.
4. On the basis of the above, the operating cycle period:
5. Total operating cycle period (TOCP) = RMCP + WPCP + FGCP + ARCP
Net operating cycle period (NOCP) = TOCP - DP (deferred payment) (APCP)

The operating cycle for individual components are not constant in the growth of the business. They keep on changing from time to time, particularly the Receivable Cycle Period and the Deferred Payment. But the company tries to retain the Net Operating Cycle Period as constant or even less by applying some requirements such as inventory control and latest technology in production. Therefore regular attention on the firm's operating cycle for a period with the previous period and with that of the industrial average cycle period may help in maintaining and controlling the length of the operating cycle.

Manufacturing Cycle:

In the case of manufacturing company, the operating cycle refers to the time involvement from cash through the following events and again leading to collection of cash. Operating cycle of a manufacturing concern starts from cash to purchase of raw materials, conversion of work in progress into finished goods, conversion of finished goods into Bills Receivable and conversion of Bills Receivable into cash. In the other words the operating cycle is the number of days from cash to inventory to accounts receivable back to cash.

The operating cycle denotes how long cash is tied up in inventories and receivables. If the operating cycle requires a longer time span between cash to cash, the requirement of working capital will be more because of the huge funds required in all the process. If there is any delay in a particular process there will be further increase in the working capital requirement. A long operating cycle means that less cash is available to meet short-term obligations. A distillery has to make a heavy investment in working capital rather than a bakery, which has a low working capital.

Forecasting/estimate of working capital requirement

“Working capital is the life-blood and the controlling nerve centre of a business”. No business can run successfully without an adequate amount of working capital. To avoid the shortage in working capital, an estimate of working capital requirements should be made in advance so that arrangements can be made to procure adequate working capital.

The most appropriate method of calculating the working capital needs of a firm is the concept of operating cycle. However, a number of other methods may be used to determine working capital needs in practice. We shall illustrate here three approaches which have been successfully applied in practice:

- **Current assets holding period:** To estimate working capital requirements on the basis of average holding period of current assets and relating them to costs based on the company's experience in the previous years. This method is essentially based on the operating cycle concept.
- **Ratio of sales:** To estimate working capital requirements as a ratio of sales on the assumption that current assets change with sales.
- **Ratio affixed investment:** To estimate working capital requirements as a percentage of fixed investment.

13.11. Estimating Working Capital Requirements

Example 13.2: From the following information, prepare a statement in column form showing the working capital requirements.

- (i) In total and
- (ii) As regards each constituent part of working capital.

Budgeted sales (Rs.10 per unit) Rs.2,60,000 p.a.

Analysis of Costs	Rs
Raw Materials	3.00
Direct Labour	4.00
Over heads	2.00
Total Cost	9.00
Profit	1.00
Sales	10.00
It is estimated that	

- i. Raw materials are carried in stock for three weeks and finished

goods for two weeks.

- ii. Factory processing will take three weeks.
- iii. Suppliers will give full five weeks credit.
- iv. Customers will require eight weeks credit.

It may be assumed that production and over heads accrue evenly throughout the year.

Solution: Statement of Working Capital Requirement

Current Assets	Rs.
Raw Materials $78,000 \times 3/52$	= 4,500
Work in Progress (Note)	= 9,000
Finished Goods $2,34,000 \times 2/52$	= 9,000
Debtors $2,60,000 \times 8/52$	= 40,000
Less: Current Liabilities	= 62,000
Trade Creditors (5 weeks) $5/52 \times 78,000$	= 7,500
Working Capital Required	= 55,000

Working Notes:

i. Number of Units	
ii. Finished Goods	= 26,000
Raw Materials $26,000 \times 3$	= 78,000
Direct Labour $26,000 \times 4$	= 1,04,000
Over heads $26,000 \times 2$	= 52,000
Finished Goods	= 2,34,000
iii. Work in Progress	
Raw Material $78,000 \times 3/52$	= 4,500
Labour $1,04,000 \times 3/52 \times 1/2$	= 3,000
Over head $52,000 \times 3 / 52 \times 1/2$	= 1,500
Work in Progress	= 9,000

NOTE: (i) Normally finished goods and work in progress are taken as same value. Suppose wages and over heads accrue evenly throughout the year given in the problem, we have to find

13.12. Fore Casting Working Capital Requirements

“Working capital is the life-blood and controlling nerve centre of a business”. No business can be successfully run without an adequate amount of working capital. To avoid the shortage of working capital at once, an estimate of working capital requirements should be made in advance so that arrangements can be made to procure adequate working capital.

Methods of Estimating Working Capital Requirements.

The following methods are usually followed in forecasting working capital requirements of a firm

1. Percentage of Sales Method
2. Regression Analysis Method
3. Cash Forecasting Method
4. Operating Cycle Method
5. Projected Balance Sheet Method

Percentage of Sales Method: This method of estimating working capital requirements is based on the assumption that the level of working capital for any firm is directly related to its sales value. If past experience indicates a definite relationship between the amount of sales and working capital, then this basis may be used to determine the requirements of working capital for a future period. Thus, if sales for the year 2007 amounted to Rs.30,00,000 and working capital required was Rs.60,00,000; the requirement of working capital for the year 2008 on an estimated sales can also be estimated on the basis of the past experience as a percentage of sales. This method is simple to understand and easy to operate but it cannot be applied in all cases because the direct relationship between sales and working capital may not be established.

Regression Analysis Method (Average Relationship between Sales and Working Capital): This method of forecasting working capital requirements is based upon the statistical technique of estimating or predicting the unknown value of a dependent variable from the known value of an independent variable. It is the measure of the average relationship between two or more variables, i.e., sales and working capital, in terms of the original units of the data.

The relationships between sales and working capital are represented by the equation:

Cash Forecasting Method: This method of estimating working capital

requirements involves forecasting of cash receipts and disbursements during a future period of time. Cash forecast will include all possible sources from which cash will be received and the channels in which payments are to be made so that a consolidated cash position is determined. This method is similar to the preparation of a cash budget. The excess of receipts over payments represents surplus of cash and the excess of payments over receipts causes deficit of cash or the amount of working capital required. The following illustration explains the cash forecasting method of estimating working capital requirements.

Operating Cycle Method: This method of estimating working capital requirements is based upon the operating cycle concept of working capital. We have discussed earlier, in this Unit, the concept and determination of duration or operating cycle. The cycle starts with the purchase of raw material and other resources and ends with the realization of cash from the sale of finished goods. It involves purchase of raw materials and stores, its conversion into stock of finished goods through work-in-process with progressive increment of labor and service costs, conversion of finished stock into sales, debtors and receivables, realization of cash and this cycle continues again from cash to purchase of raw material and so on. The speed/time duration required to complete one cycle determines the requirement of working capital—longer the period of cycle, larger is the requirement of working capital and vice-versa.

Projected Balance Sheet Method: Under this method, projected balance sheet for future date is prepared by forecasting of assets and liabilities by following any of the methods stated above. The excess of estimated total current assets over estimated current liabilities, as shown in the projected balance sheet, is computed to indicate the estimated amount of working capital required.

Practice Problems:

1. The Perma cost sheet of a company provides the following data;

Cost per unit	
Raw material	Rs. 52.00
Direct labor	Rs. 19.50
Over heads	Rs. 39.00
Total cost per unit	Rs. 110.50
Profit	Rs. 19.50
Selling price	Rs. 130.00

The following is the additional information available;

Average raw material in stock;

one month Average material in process;

half a month Credit allowed by suppliers;

one month; Credit allowed to debtors;

Two months. Time lag in payment of wages; one and a half weeks Time lag in payment of over heads; one month.

Cash balance is expected to be Rs. 120000. You are required to prepare a statement showing the working capital needed to finance a level of activity of 70000 units' output. You may assume that production is carried on evenly through them and wages and overheads accrue similarly.

1. The management of Royal Industries has called for a statement showing the working capital to finance a level of activity of 1,80,000 units of output for the year. The cost structure is

Cost per unit (Rs.)	20
Raw materials	5
Direct labor	15
Over heads	40
Profit	10
Selling price	50

- a. Minimum desired cash balance is Rs. 20,000
- b. Raw materials are held in stock on an average for two months
- c. Work in progress will approximate to half a month's production
- d. Finished goods remain in warehouse on an average for a month
- e. Suppliers (Creditors) of materials extend a month's credit and debtors (Customers) are provided two month's credit.
- f. There is a time lag in payment of wages of a month, and half a month in the case of over heads

From the above facts, you are required to prepare a statement showing working capital requirements

2. ABC Ltd is presently producing 36000 packets of snack foods.

- a. Unit cost structure of the product at current level Rs. (in lakhs)

Raw material 4

Wages	2
Over heads	3
Profit	3
Selling price	12

- b. Raw material will remain in stores for 1 month before being issued for production. Material will remain in process for further 1 month. Suppliers grant 3 months credit to the company.
- c. Finished goods remaining on hand for 1 month
- d. Debtors are allowed credit for 2 months
- e. Lag in wages and over heads payment is 1 month and these expenses accrue evenly through out the production cycle.

Calculate the working capital requirement at the new level, assuming that a minimum cash balance of Rs. 19,500 has to be maintained.

Let Us Sum Up

In this unit, you have learned about Working capital is the amount of funds necessary to cover the cost of the enterprise". There two concepts of working capital. Gross working capital and Net working capital. Management of Current assets is called is called Gross working capital and excess of current assets over current liabilities is called as Net working capital. Requirement of working capital for a company is determined by number of factors.

Check Your Progress

1. In finance, "working capital" means the something as _____.
 - (a) Total assets.
 - (b) Fixed assets.
 - (c) Current assets.
 - (d) Current assets minus current liabilities.
2. Working capital is also known as ____ capital.
 - (a) Current asset
 - (b) Operating
 - (c) projecting
 - (d) Operation capital

3. Which of the following analyzes the accounts receivable, inventory and accounts payable cycles in terms of number of days?
 - (a) Operation cycle
 - (b) Current asset cycle
 - (c) Operating cycle
 - (d) Business cycle
4. Operating cycle is also called as –
 - (a) Working cycle
 - (b) Business cycle
 - (c) Current asset cycle
 - (d) Working capital cycle
5. Current assets are those assets –
 - (a) Which can be sold by the companies.
 - (b) Which are less important from production angle.
 - (c) Which are held by the companies to pay-off current liabilities.
 - (d) Which are converted into cash within a period of one year.

Glossary

Gross current assets:	It means the aggregate of all current assets including cash.
Fixed working capital:	It is the amount that remains more or less permanently invested as working capital in business
Fluctuating working capital:	Fluctuating working capital is the amount of working capital over and above the fixed amount of working capital. It may keep on fluctuating from period to period depending upon several facts.

Answers to Check Your Progress

1. (d) Current assets minus current liabilities
2. (b) Operating
3. (c) Operating cycle
4. (d) Working capital cycle
5. (d) Which are converted in to cash with in a period of one year

Suggested Reading

1. Chandra Bose(2010),Fundamentals of Financial Management, (2nd Edition), PHI learning India PVT Ltd., www.phindia.com
2. Rajiv Srivastava & Anil \Misra (2011), Financial Management, (Second Edition), Oxford University Press, Chennai.

Receivables Management and Factoring

STRUCTURE

Overview

Objectives

14.1. Introduction to Receivables management

14.2. Factors considering the receivables size

14.3. Credit control

14.4. Cost of credit control

14.5. Factoring

14.6. Functions of factoring

14.7. Cost involvement in factoring

14.8. Types of factoring

14.9. Modus operandi of a factor

14.10. Benefits of factoring

14.11. Need for factoring in India

Let Us Sum Up

Check Your Progress

Glossary

Answers to Check Your Progress

Suggested Readings

Overview

In this unit, receivables management and factors that needs to consider the receivable size are discussed. Credit control, factoring and the costs and types of factoring are explained. Also, the needs, benefits and the modus operandi of a factor are discussed in this unit.

Objectives

After studying this unit, you should be able to:

- To understand the meaning of receivables management and factors affecting it
- To examine the types of factoring and its importance.

14.1. Introduction to Receivables Management

Accounts receivable typically comprise more than 25 percent of a firm's assets. The term receivables is described as debt owed to the firm by the customers resulting from the sale of goods or services in the ordinary course of business. There are the funds blocked due to credit sales. Receivables management denotes to the decision a business makes regarding to the overall credit, collection policies and the evaluation of individual credit applicants. Receivables

Management is also known as trade credit management. Robert N. Anthony, explained it as "Accounts receivables are amounts owed to the business enterprise, usually by its customers. Sometimes it is broken down into trade accounts receivables; the former refers to amounts owed by customers, and the latter refers to amounts owed by employees and others". Receivables are forms of investment in any enterprise manufacturing and selling goods on credit basis, large sums of funds are tied up in trade debtors. When company sells its products, services on credit, and it does not receive cash for it immediately, but would be collected in near future, it is termed as receivables. However, no receivables are created when a firm conducts cash sales as payments are received immediately. A firm conducts credit sales to shield its sales from the rivals and to entice the potential clientele to buy its products at favorable terms. Generally, the credit sales are made on open account which means that no formal reactions of debt obligations are received from the buyers. This enables business transactions and reduces the paperwork essential in connection with credit sales.

Receivables are useful for clients as it increases their resources. It is preferred particularly by those customers, who find it expensive and burden some to borrow from other resources. Thus, not only the present customers but also the Potential creditors are attracted to buy the firm's product at terms and conditions favorable to them.

Objectives of receivables management:

The objective of Receivables Management is to promote sales and profits until that point is reached where the return on investment in further funding receivables is less than the cost of funds raised to finance that additional credit i.e. cost of capital. Management of Accounts Receivables is quite expensive. The following are the main costs related with accounts receivables management: A sound managerial control requires proper management of

liquid assets and inventory. These assets are a part of working capital of the business. An efficient use of financial resources is necessary to avoid financial distress. Receivables result from credit sales. A concern is required to allow credit sales in order to expand its sales volume. It is not always possible to sell goods on cash basis only. Sometimes, other concerns in that line might have established a practice of selling goods on credit basis. Under these circumstances, it is not possible to avoid credit sales without adversely affecting sales. The increase in sales is also essential to increase profitability. After a certain level of sales the increase in sales will not proportionately increase production costs. The increase in sales will bring in more profits. Thus, receivables constitute a significant portion of current assets of a firm. But, for investment in receivables, a firm has to incur certain costs. Further, there is a risk of bad debts also. It is, therefore, very necessary to have a proper control and management of receivables.

Meaning

The term receivable is defined as debt owed to the concern by customers arising from sale of goods or services in the ordinary course of business. Receivables are also one of the major parts of the current assets of the business concerns. It arises only due to credit sales to customers; hence, it is also known as Account Receivables or Bills Receivables. Management of account receivable is defined as the process of making decision resulting to the investment of funds in these assets which will result in maximizing the overall return on the investment of the firm. The objective of receivable management is to promote sales and profit until that point is reached where there turn on investment in further funding receivables is less than the cost of funds raised to finance that additional credit.

The costs associated with the extension of credit and accounts receivables are identified as follows:

- a. Collection Cost
- b. Capital Cost
- c. Administrative Cost
- d. Default Cost.

❖ **Collection Cost :** These costs incurred in collecting the receivables from the customers, to who credit sales have been made. This is the cost on the use of additional capital to support credit sales which Alternatively could have been employed else where.

- ❖ **Administrative Cost** : This is an additional administrative cost for maintaining account receivable in the form of salaries to the staff kept for maintaining accounting records relating to customers, cost of investigation etc.
- ❖ **Default Cost** : Default costs are the over dues that cannot be recovered. Business concern may not be able to recover the over dues because of the inability of the customers.

14.2. Factors Considering the Receivables Size

Receivables size of the business concern depends upon various factors. Some of the important factors are as follows:

Sales Level

Sales level is one of the important factors which determine the size of receivable of the firm. If the firm wants to increase the sales level, they have to liberalize their credit policy and terms and conditions. When the firms maintain more sales, there will be a possibility of large size of receivable.

Credit Policy

Credit policy is the determination of credit standards and analysis. It may vary from firm to firm or even some times product to product in the same industry. Liberal credit policy leads to increase the sales volume and also increases the size of receivable. Stringent credit policy reduces the size of the receivable.

Credit Terms

Credit terms specify the repayment terms required of credit receivables, depend upon the credit terms, size of the receivables may increase or decrease. Hence, credit term is one of the factors which affect the size of receivable.

Credit Period

It is the time for which trade credit is extended to customer in the case of credit sales. Normally it is expressed in terms of 'Net days'.

Cash Discount

Cash discount is the incentive to the customers to make early payment of the due date. A special discount will be provided to the customer for his payment before the due date.

Management of Receivable

It is also one of the factors which affects the size of receivable in the firm. When the management involves systematic approaches to the receivable, the firm can reduce the size of receivable

14.3. Credit Control

Credit control involves three types of action:

- a. Deciding the normal credit period to be allowed;
- b. Establishing credit limits for individual customers;
- c. Implementing the system (that is to say, ensuring that credit limits and the credit period are not exceeded).

If a business is offering a unique product or service, or one for which demand exceeds supply, there may be no need to offer credit terms at all. In other cases the starting point in deciding credit policy is the view of the credit terms offered by competitors, and from this basis the credit terms of the particular business will be developed. Other factors that affect the length of the credit period are the following:

- Buyer's inventory and operating cycle
- Perishability and collateral value
- Consumer demand
- Cost, profitability and standardization
- Credit risk
- The size of the account
- Competition
- Customer type

Long credit period may be offered to the customers if this will enable the business to capture a larger share of the available market, or to break into a new market.

14.4. Cost of Credit Control

The costs of credit control include the cost of:

- Assessing and reviewing credit worthiness;

- Checking incoming orders;
- Sales ledger keeping, and invoicing
- Debt collection.

These costs may occur in various departments of the business, but there should be some means of identifying them and collecting the total cost, which will have to be taken in to account in reviewing the benefits of the credit policy.

Cash Discount

An alternative or supplement of a formal credit policy is to offer discount for prompt payment. In considering this possibility it is important to be in mind that:

1. Customers who normally pay promptly will now become entitled to discount, although there will be no improvement in the timing of their payments'.
2. Some late payers will never the less deduct discount from their settlements, and there may be some practical difficulty in recovering these incorrect deductions.
3. There are various other ways in which a business can speed up its collection of cash without requiring the customer to pay any earlier. The most common examples are by using bills discounting or factoring both of which have been mentioned earlier.

Personal Guarantees

An alternative form of protection against bad debts is to take a personal guarantee in support of the customer's account.

The value of personal guarantees varies considerably and they are likely to present two problems. It may be more difficult to assess the credit worthiness of an individual guarantor than of the trade customer; The guarantor does not normally expect to be called up on to pay, and there may be difficulties in obtaining money from him when the need arises.

These problems do not occur to the same extent when the guarantor is another company, often the parent company in the customer's group. So the objective of the receivables management remains as the most effective way to receive the cash back without sacrificing the sales and future prospects of the company.

14.5. Factoring

Factoring:

In case of credit sales, it attracts more customers, resulting in increased sales and higher profit, but it has a cost also. This cost may be of two types, namely investment cost and administrative cost. Moreover, the sellers have to raise funds from various sources in order to finance the receivables. While maintaining receivables, a firm may have to face two types of problems. First, the problem of raising funds to finance the receivables, and second the problem relating to collection, delay and defaults of the receivables. If the firm concentrates on managing funds and receivables, it cannot concentrate on other functions like finance, production, marketing, personal etc. Under this situation a firm can avail the services of a specialist organization engaged in receivables management. These specialist firms are known as **factoring firms**.

Definition:

Factoring is a service that covers the financing and collection of account receivables in domestic and international trade. Factoring may be defined as the relationship between the seller of the goods and a financial firm, called the factor, whereby the latter purchases the receivables from the former and also administers the receivables of the former. Factoring is an on going arrangement between client and factor, where invoices raised on open account sales of goods and services are regularly assigned to 'the Factor' for financing, collection and sales ledger administration. Factoring is a financing technique in which a business sells invoiced receivables at a discount to a bank or a financing house or to an internal finance company. The factor may or may not accept the incumbent credit risk. This is a service offered by a factoring company that enables companies to sell their outstanding book debts for cash.

Factoring is a method by which a business man can obtain cash for invoices he sends to his customer's in respect of supply of goods and services to them. Factoring is also termed as 'Invoice Discounting.'

Factoring involves the sale of receivables to a financial institution such as an old-line factor—a commercial financial company or one of a few commercial banks. The factor purchases accounts acceptable to him generally with out recourse; if the customer does not pay, the factor takes the loss. The client no longer carries factored account receivable on his balance sheet, in effect

having converted them into cash. Firms selling the accounts receivable to client firms are notified that the account has been sold to the factor and are asked to remit directly to the factor. It is noteworthy that the factor seldom agrees to buy all of the accounts receivable of a client firm; instead, he retains the right to screen the accounts and selects those acceptable to him. The client firm can continue to sell to customers whose accounts are unacceptable to the factor, but it must carry them itself and assume all risks on them. Factoring involves rendering of services varying from the bill discounting facilities offered by commercial banks to a total take over of administration of the sales ledger and credit control functions, from credit approval to collecting cash, credit insurance and provision of finance. Factoring agreement is normally continuous. As new receivables arise, they are regularly sold to the factor. Under the typical factoring arrangement, the client maintains a running account with the factor. As receivables are sold to the factor, the proceeds are put at the client's disposal in this account. Often, clients are given the privilege of overdrawing their account with the factor, or, in effect, of borrowing on an unsecured basis, in addition to drawing against the proceeds of the factored accounts. Also, interest is normally credited by the factor on funds left with him.

14.6. Functions of Factoring

A factor performs a number of functions for his client. These functions are:

Maintenance of Sales Ledger

A factor maintains sales ledger for his client firm. An invoice is sent by the client to the customer, a copy of which is marked to the factor. The client need not maintain individual sales ledgers for his customers. On the basis of the sales ledger the factor reports to the client about the current status of his receivables, as also receipt of payments from the customers and as part of a package, may generate other useful information. With the help of these reports, the client firm can review its credit and collection policies more effectively.

Collection of Accounts Receivables

Under factoring arrangements, a factor undertakes the responsibility of collecting the receivables for his client. Thus, the client firm is relieved of the rigors of collecting debts and thereby enables to concentrate on improving the purchase, production, marketing and other managerial aspects of the business. With the help of trained manpower backed by infrastructural

facilities a factor systematically undertakes follow up measure and makes timely demand on the debtors to pay the amounts.

Normally, debtors are more responsive to demands or reminders from a factor as they would not like to go down in the esteem of credit institution as a factor.

Credit Control and Credit Protection

Another useful service rendered by a factor is credit control and protection. As a factor maintains extensive information records (generally computerized) about the financial standing and credit ratio of individual customers and their track record of payments, he is able to advise its client on whether to extend credit to a buyer or not and if it is to be extended the amount of the credit and the period therefore. Further, the factor establishes credit limits for individual customers indicating the extent to which he is prepared to accept the client's receivables on such customers without recourse to the client. This specialized service of a factor assists clients in handling far greater volume of business with confidence than would have been possible otherwise.

Advisory Functions

At times, factors render certain advisory services to their clients. Thus, as a credit specialist factor undertakes comprehensive studies of economic conditions and trends and thus is in a position to advise its clients of impending developments in their respective industries. Many factors employ individuals with extensive manufacturing experience who can even advise on work loan analysis, machinery replacement programs and other technical aspects of a client's business. Factors also help their clients in choosing suitable sales agent because of their close relationships with various individuals and non-factored organizations.

14.7. Cost Involvement in Factoring

Cost involvement in factoring:

Monetary Costs:

The factors are providing advances to their client upto 80% to 90% of the invoice amount within 24 hours of issuing invoices. For this cash advance they are charging interest. The interest charges calculated on the daily use of funds are typically comparable to normal secured bank overdraft rates.

Service Charges:

The charge, which is known as service charge, is expressed as a percentage of sales factored. The service charge, covering sale ledger management, collection services, and bad debts protection can range between **0.60% and 3.0%** of turnover.

14.8. Types of Factoring

Over a period of time, the factors world over have devised different types of factoring services to suit the requirements of their clients. On the basis of the nature of the services, factoring may be categorized as:

1. Full Factoring
2. Recourse Factoring
3. Maturity Factoring
4. Advance Factoring
5. Un disclosed Factoring
6. Invoice Discounting
7. Buyer-based Factoring
8. Seller-based Factoring

Full Factoring

Under full factoring arrangement, a factor renders services of collection of receivables and maintains sales ledgers, credit control and credit protection. On the basis of credit worthiness of the firm a monetary limit is fixed upto which trade credit provided by the client will be taken over by the factor without recourse to the client. The liability of the factor is limited only to the defaults arising out of customers' financial inability to pay. If the payment is withheld for reason of dispute regarding inherent defect in goods, quality, quantity, counter claim, etc., recourse will be available to the factor against the client.

Recourse Factoring

In this type of factoring the factor does not provide any protection to the client against a customer's failure to pay debts. It may, therefore, not be necessary for the factor to either approve the customer or fix a credit limit. If the customer does not pay the invoice on maturity for any reason, the factor is entitled to recover from the client the amount paid in advance.

Maturity Factoring

This type of factoring involves no financing *abinitio* and hence no drawing limit is made available to the client. But the factor administers the client's sales ledger and renders debt collection services. The amount of each invoice is made over to the client at the end of the credit period on an agreed maturity date, less the factor charges. The maturity date is decided upon at the commencement of the agreement by reference to the average-time taken by the client to collect a debt. The maturity date bears no relation to the date on which the receivable is actually due for payment as it is an 'estimated data of collection. Such factoring could be with or without recourse. If it is with out recourse, the amount will be made over to the client regardless of whether the factor has been able to collect the invoice or not. If the debtor becomes insolvent, on proof of insolvency, payment will be made to the client even before maturity. In with recourse factoring, the factor will either pay the client on collection of invoice or on maturity date with recourse later on.

Advance Factoring

In this kind of factoring, factor is prepared to pay for debts in advance of receiving the payment due from the customers. This is only a prepayment and not an advance. A drawing limit is made available to the client as soon as the invoice is accounted for.

Un disclosed Factoring

Unlike all other types of factoring, in undisclosed factoring customers are not informed about the arrangements between the factor and the client. The factor maintains the sales ledger on the basis of the copy of invoice. He provides the client with either debt default cover or finance or both as desired. Debt collection is done by the client who makes over payment of each invoice to the factor. The factor keeps a check on its risk by receiving from the client on age-wise analysis of debts at regular intervals. The types of services which may be offered under an undisclosed arrangement are very flexible. This may be on non-recourse basis and /or seasonal and/ or selective basis.

Invoice Discounting

Under this arrangement the factor buys all or selected invoices of its client at a discount. The factor neither maintains sales ledger for his client nor undertakes debt collection function. He only provides finance to his client.

Buyer-based Factoring

Buyer-based factoring involves factoring of all the buyer's payables. Thus, the factor would maintain a list of 'approved buyers' and any claims on such buyers (by any seller) would be factored without recourse to the sellers.

Seller-based Factoring

In this type of factoring the factor takes over the credit function of the seller entirely. After invoicing his customer (who should be previously cleared by the factor), the seller submits a copy of the invoice, the delivery, challan, the buy-sell contract and related papers like quality stipulations and test certificate to the factor who takes over the remaining operations like reminding the buyer for payment, maintaining his account and collecting the amount. The seller closes his transaction after assigning the debt to the factor, by treating the transaction as a cash sale. In such a case, the factor is also able to supply additional information to the management, viz., approved, unapproved and disputed claims outstanding, sales analysis by area, by salesman, by products, etc., excise and sales tax payments and the like.

14.9. Modus Operandi of a Factor

Where a firm has decided to factor its receivables, it submits particulars such as list of customers, amount of the order, terms of sales, etc., in the case of 'approved' buyers and 90% of the invoice less commission to the factor before dispatching any merchandise to its customers. The factors scrutinize each customer's account of the client firm to make a decision whether to 'accept' or 'reject.' A decision may also be taken to 'limit' purchases on account of a single 'buyer.' The factor returns to the client the list submitted with these orders. The client is free to supply to a customer, who has been rejected by the factor at his own risk.

After the goods are dispatched, the client firm prepares an assignment schedule and attaches a copy of invoice and delivery challan. In this assignment schedule, complete details about the sale, such as the customer's name, address, terms of sale, due dates and amounts of invoices are recorded. The invoices are stamped before being sent to the buyer directing him to make the payment to the factor. Sufficient copies of each instrument are made out in advance so that all the parties involved have records.

The factor scrutinizes the assignment schedule to segregate 'approved' and 'unapproved' buyers. The client company's account is then credited with the

entire amount of the invoice less commission, in the case of 'approved' buyers and 90% of the invoice less commission, for 'unapproved buyers. The factor prepares on 'accounts current' at the end of the month to reveal the exact financial standing the client has with him. The interest charges and commissions are also recorded there in.

14.10. Benefits of Factoring

Benefits of factoring:

1. **Better working capital management:** Since there is instant cash and 80-90% of issued invoices are prepaid within 24 hours the problem of additional working capital required to match sales growth does not arise at all.
2. **Management of receivables:** Sales ledger management and debt collection is done by the factoring company.
3. **Improved growth:** Firm borrows based on sales activity so firm can automatically set up to finance the growth of the company.
4. **Flexibility with financing:** Factoring reveals and often replaces the traditional bank overdraft. In addition to all the credit management services, a factoring facility grows.
5. With the business and does not need renegotiating every time an increase is required.
6. **Better risk management:** In case of non-recourse factoring, the risk of default is born by the factor firm and the selling firm does not assume any risk in connection with collection of money from the customers.

14.11. Need for Factoring In India

Factoring in India:

Factoring in India is of recent origin. In order to study the feasibility of factoring services in India the RBI constituted a committee in January 1988. The committee submitted its response in January 1989 and RBI accepted its recommendation with specific guidelines permitting banks to start factoring in India through their subsidiaries. In India, factoring is still not very common and only a few commercial banks have established factoring agencies. The first factoring i.e. the SBI commercial and factoring services Ltd started working in April 1991. This company looks after the business of Western

India. The business of Northern India, Southern India and Eastern India are being looked after by Punjab national bank, Canara bank and Allahabad bank respectively. Hongkong and Shanghai Banking Corporation (HSBC) currently offers both domestic and international factoring. When such banks are fully in operation, it will be a boon to especially small and medium sections.

At present the commercial banks in India provide working capital finance through purchasing/discounting of receivables allowing over-draft/cash credit against hypothecation of outstanding book debts, allowing over-draft/cash credit against bills sent for collection through the bank and allowing overdraft / cash credit against amounts due from Government /Semi-government agencies in respect of supplies made to them.

While the banks do finance the receivables, such finance is with recourse to the supplier who bears the risk of default by the debtor. The bank's credit support to the supplier is, thus, for a limited or pre-determined period and on the expiry of the said period, if the dues are not realised, it generally calls up on the supplier/ borrower to repay the finance.

Thus, the bank finance is always with recourse to the seller, i.e., if the buyer fails to make payment for any reason, the bank recovers the amount involved from its customer, viz., the seller

Let Us Sum Up

Receivables are forms of investment in any enterprise manufacturing and selling goods on credit basis, large sums of funds are tied up in trade debtors. When a company sells its products, services on credit, and it does not receive cash for it immediately, but would be collected in near future, it is termed as receivables. Factoring may be defined as the relationship between the seller of the goods and a financial firm, called the factor, where by the latter purchases the receivables from the former and also administers the receivables of the former.

Check Your Progress

1. Which of the following is not a technique of receivables Management?
 - a. Funds Flow Analysis
 - b. Ageing Schedule,
 - c. Days sales outstanding
 - d. Collection Matrix.

2. If a company sells its receivable to another party to raise funds, it is known as
 - a. Securitization
 - b. Factoring
 - c. Pledging
 - d. None of the above.
3. Bad debt cost is not borne by factor in case of
 - a. Pure Factoring
 - b. Without Recourse Factoring,
 - c. With Recourse Factoring
 - d. None of the above
4. Receivables Management deals with
 - a. Receipts of raw materials
 - b. Debtors collection
 - c. Creditors Management
 - d. Inventory Management
5. Securitization is related to conversion of
 - a. Receivables
 - b. Stock
 - c. Investments
 - d. Creditors

Glossary

Factoring: Factoring is a method by which a business man can obtain cash for invoices he sends to his customers in respect of supply of goods and services to them

Credit Terms: Credit terms specify the payment terms required of credit receivables, depend upon the credit terms, size of the receivables may increase or decrease. Hence, credit term is one of the factors which affect the size of receivable.

Credit Policy: Credit policy is the determination of credit standards and

analysis. It may vary from firm to firm or even sometimes product to product in the same industry. Liberal credit policy leads to increase the sales volume and also increases the size of receivable. Stringent credit policy reduces the size of the receivable.

Answers to Check Your Progress

1. (a) Funds Flow Analysis
2. (b) Factoring
3. (c) With Recourse Factoring
4. (b) Debtors collection
5. (a) Receivables

Suggested Reading

1. Pandey I.M (2021), Financial Management. New Delhi: (12th Edition), Vikas Publishing House Pvt. Ltd.,
2. VanHorne J.C (1994). Financial Management and Policy. New Delhi: (12th Edition), Prentice Hall of India Pvt. Ltd.,

Unit-15

Inventory Management and Cash Management

STRUCTURE

Overview

Objectives

15.1. Introduction

15.2. Kinds of Inventories

15.3. Objectives of Inventory Management

15.4. Techniques of Inventory Management

15.5. Techniques based on classification of inventories

15.6. Cash Management

15.7. Motives of holding cash

15.8. Cash Management strategies

15.9. Techniques of Cash management and marketable securities

15.10. Sources of Short-term finance

15.11. Working capital policies

Let Us Sum Up

Check Your Progress

Glossary

Answers to Check Your Progress

Suggested Readings

Overview

In this unit, inventories and its types are discussed. The objectives and techniques of inventory management is also covered. Cash management and the motives of holding cash are discussed. The techniques of cash management and marketable securities, the sources of short-term finance and the various working capital policies are explained in this unit

Objectives

After studying this unit, you should be able to:

- To understand the different kinds and objectives of inventory management
- Recognize the techniques of inventory management

15.1. Introduction

Inventory management is basically related to task of controlling the assets that are produced to be sold in the normal course of the firm's procedures. In supply chain management, major variable is to effectively manage inventory. The significance of inventory management to the company depends on the extent of its inventory investment.

Inventories constitute the most significant part of current assets of the business concern. It is also essential for smooth running of the business activities. A proper planning of purchasing of raw material, handling, storing and recording is to be considered as a part of inventory management. Inventory management means, management of raw materials and related items. Inventory management considers what to purchase, how to purchase, how much to purchase, from where to purchase, where to store and when to use for production etc.

Meaning

The dictionary meaning of the inventory is stock of goods or a list of goods. In accounting language, inventory means stock of finished goods. In a manufacturing point of view, inventory includes, raw material, work in process, stores, etc.

15.2. Kinds of Inventories

Inventories can be classified in to five major categories.

1. **Raw Material:** It is basic and important part of inventories. These are goods which have not yet been committed to production in a manufacturing business concern.
2. **Work in Progress:** These include those materials which have been committed to production process but have not yet been completed.
3. **Consumables:** These are the materials which are needed to smooth running of the manufacturing process.
4. **Finished Goods:** These are the final output of the production process of the business concern. It is ready for consumers.
5. **Spares:** It is also a part of inventories, which includes small spares and parts.

15.3. Objectives of Inventory Management

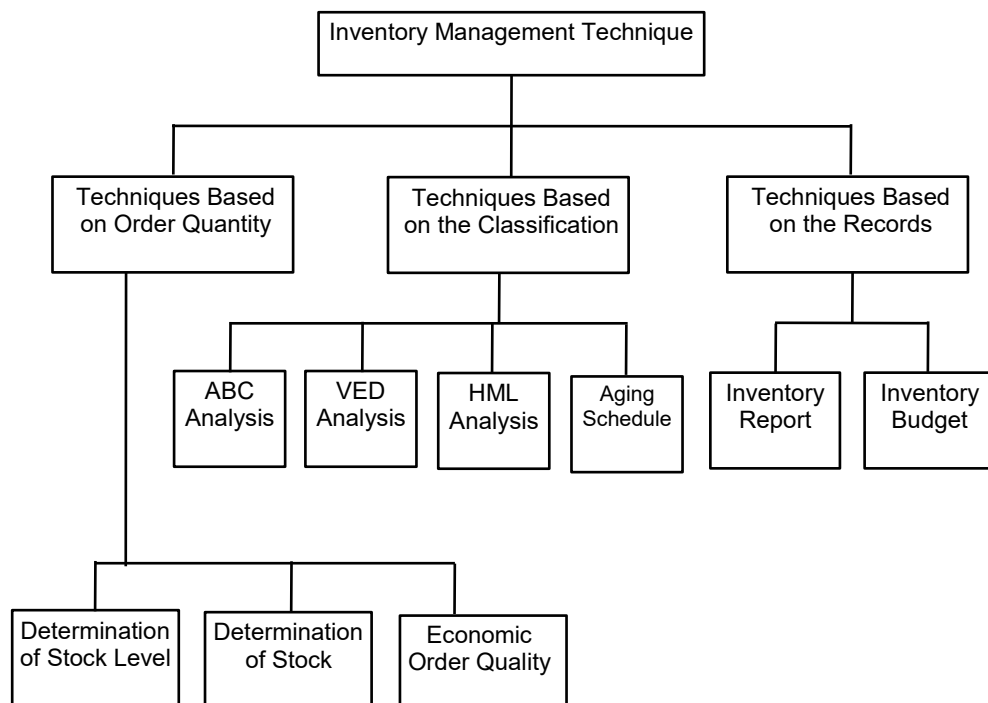
Inventory occupies 30–80% of the total current assets of the business concern. It is also very essential part not only in the field of Financial Management but also it is closely associated with production

management. Hence, in any working capital decision regarding the inventories, it will affect both financial and production function of the concern. Hence, efficient management of inventories is an essential part of any kind of manufacturing process concern. The major objectives of the inventory management are as follows:

- ❖ To efficient and smooth production process.
- ❖ To maintain optimum inventory to maximize the profitability.
- ❖ To meet the seasonal demand of the products.
- ❖ To ensure the level and site of inventories required.
- ❖ To plan when to purchase and where to purchase
- ❖ To avoid both over stock and under stock of inventory.
- ❖ To avoid price increase in future.

15.4. Techniques of Inventory Management

Inventory management consists of effective control and administration of inventories. Inventory control refers to a system which ensures supply of required quantity and quality of inventories at the required time and at the same time prevents unnecessary investment in inventories. It needs the following important techniques.



Techniques based on the order quantity of Inventories

Order quantity of inventories can be determined with the help of the

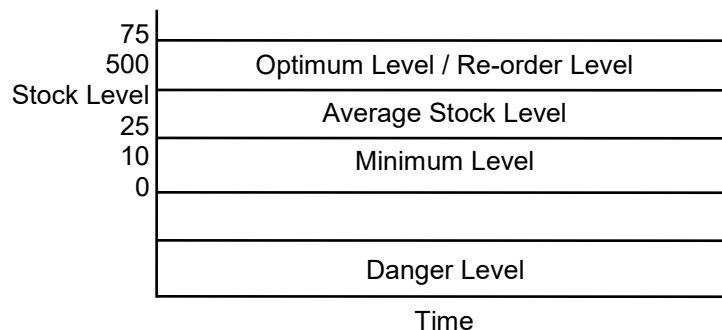
following techniques:

Stock Level

Stock level is the level of stock which is maintained by the business concern at all times. Therefore, the business concern must maintain optimum level of stock to smooth running of the business process. Different level of stock can be determined based on the volume of the stock.

Minimum Level

The business concern must maintain minimum level of stock at all times. If the stocks are less than the minimum level, then the work will stop due to shortage of material.



Re-order Level

Re-ordering level is fixed between minimum level and maximum level. Re-order level is the level when the business concern makes fresh order at this level. $\text{Re-order level} = \text{maximum consumption} \times \text{maximum Re-order period}$.

Maximum Level

It is the maximum limit of the quantity of inventories, the business concern must maintain. If the quantity exceeds maximum level limit then it will be overstocking. $\text{Maximum level} = \text{Re-order level} + \text{Re-order quantity} - (\text{Minimum consumption} \times \text{Minimum delivery period})$

Danger Level

It is the level below the minimum level. It leads to stoppage of the production process. $\text{Danger level} = \text{Average consumption} \times \text{Maximum re-order period for emergency purchase}$

Average Stock Level

It is calculated such as, $\text{Average stock level} = \text{Minimum stock level} + \frac{1}{2} \text{ of re-order quantity}$.

Lead Time

Lead time is the time normally taken in receiving delivery after placing

order s with suppliers. The time taken in processing the order and then executing it is known as lead time.

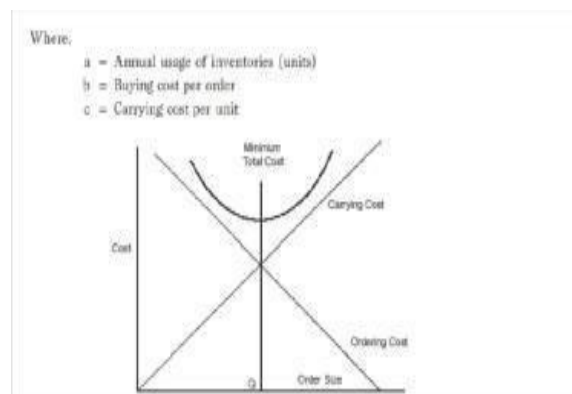
Safety Stock

Safety stock implies extrain ventories that can be drawn down when actual lead time and / or usage rates are greater than expected. Safety stocks are determined by opportunity cost and carrying cost of inventories.If the business concerns maintain low level of safety stock, it will lead to larger opportunity cost and the larger quantity of safety stock involves higher carrying costs.

Economic Order Quantity (Eoq)

EOQ refers to the level of inventory at which the total cost of inventory comprising ordering cost and carrying cost.Determining an optimum level involves two types of cost such a sordering cost and carrying cost. The EOQ is that inventory level that minimizes the total of ordering of carrying cost. EOQ can be calculated with the help of the mathematical formula:

$$\text{EOQ} = 2ab/c$$



15.5. Techniques Based on Classification of Inventories

A-B-Canalysis

It is the inventory management techniques that divide inventory into three categories based on the value and volume of the inventories; 10%of the inventory's item contributes to 70% of value of consumption and this category is known as a category. About 20% of the inventory item contributes about 20% of value of consumption and this category is called category B and 70% of inventory item contributes only 10% of value of consumption and this category is called Ccategory.

Aging Schedule of Inventories

Inventories are classified according to the period of their holding and also this method helps to identify the movement of the inventories. Hence, it is also called as,

FNSD analysis—Where,

F=Fastmoving inventories

N=Normal moving inventories S=Slow moving inventories

D = Dead moving inventories

This analysis is mainly calculated for the purpose of taking disposal decision of the inventories.

VED Analysis

This technique is ideally suited for spare parts in the inventory management like ABC analysis. Inventories are classified into three categories on the basis of usage of the inventories.

V=Vitalitem of inventories

E=Essential item of inventories

D=Desirable item of inventories

HML Analysis

Under this analysis, inventories are classified into three categories on the basis of the value of the inventories.

H=High valueof inventories

M=Medium value of inventoriesL=Low value of inventories

Valuation of Inventories

Inventories are valued at different methods depending upon the situation and nature of manufacturingprocess.Some ofthe majormethods of inventory valuationare mentioned as follows:

- ❖ First in First out Method (FIFO)
- ❖ Last in First out Method(LIFO)
- ❖ Highest in First out Method (HIFO)
- ❖ Nearest in First out Method (NIFO)
- ❖ Average Price Method

15.6. Cash Management

In managing financial growth of company, Cash, receivables and inventory jointly form working capital of a firm.It is imperative for experts to keep good balance of these factors. "Cash, like the blood stream in the human body, gives vitality and strength to a business enterprise.Though cash hold the smallest portion of total current assets.However,"Cash is

both the beginning and end of working capital cycle- cash, inventories, receivables and cash. It is the cash, which keeps the business going. Hence, every enterprise has to hold necessary cash for its existence. Moreover, "Steady and healthy circulation of cash throughout the entire business operations is the basis of business solvency." A Now-a-days non-availability and high cost of money have created a serious problem for industry. Nevertheless, cash like any other asset of a company is treated as a tool of profit." Further, "today the emphasis is on the right amount of cash, at the right time, at the right place and at the right cost." In the words of R.R. Bari, "Maintenance of surplus cash by a company unless there are special reasons for doing so, is regarded as a bad sign of cash management. "As, "holding of cash balance has an implicit cost in the form of its opportunity cost.

"Meaning of cash management

The term cash management refers to the management of cash resource in such a way that generally accepted business objectives could be achieved. In this context, the objectives of a firm can be unified as bringing about consistency between maximum possible profitability and liquidity of a firm. Cash management may be defined as the ability of a management in recognizing the problems related with cash which may come across in future course of action, finding appropriate solution to curb such problems if they arise, and finally delegating these solutions to the competent authority for carrying them out. The choice between liquidity and profitability creates a state of confusion. It is cash management that can provide solution to this dilemma. Cash management may be regarded as an art that assists in establishing equilibrium between liquidity and profitability to ensure undisturbed functioning of a firm towards attaining its business objectives. Cash management has assumed importance because it is the most significant of all the current assets. It is required to meet business obligations and it is productive when not used.

Cash management deals with the following:

- (i) Cash inflows and outflows
- (ii) Cash balances held by the firm at a point of time
- (iii) Cash balances held by the firm at a point of time

Management of Cash

Cash is considered as a vital asset and its proper management supports company development and financial strength. An effective cash management program designed by companies can help to realise this

growth and strength. Cash is vital element of any company needed to acquire supply resources, equipment and other assets used in generating the products and services. Marketable securities also come under near cash, serve as back pool of liquidity which provides quick cash when needed.

Cash management is the stewardship or proper use of an entity's cash resources. It assists to keep an organization functioning by making the best use of cash or liquid resources of the organization. Cash management is associated with management of cash in such a way as to realise the generally accepted objectives of the firm, maximum productivity with maximum liquidity. It is the management's capability to identify cash problems before they ascend, to solve them when they arise and having made solution available to delegate someone carry them out.

The objectives of cash management are

To make Payment According to Payment Schedule: Firm needs cash to meet its routine expenses including wages, salary, taxes etc. to minimize Cash Balance

The second objective of cash management is to reduce cash balance. Excessive amount of cash balance helps in quicker payments, but excessive cash may remain unused & reduces profitability of business. Contrarily, when cash available with firm is less, firm is unable to pay its liabilities in time

15.7. Motives of Holding Cash

In a classic economic treatise John Maynard Keynes segmented the firm's or any economic units demand for cash into three categories:

- (1) The transactions motive,
- (2) The precautionary motive, and
- (3) The speculative motive.

Transactions Motive

Balances held for transactions purposes allow the firm to dispense with cash needs that arise in the ordinary course of doing business. Transactions balances would be used to meet the irregular outflows as well as the planned acquisition of fixed assets and inventories.

The relative amount of transactions cash held with be significantly affected by the industry in which the firm operates. If revenues can be cast to fall within a tight range of outcomes, then the ratio of cash and near cash to total assets will be less for the firm than if the prospective cash inflows

might be expected to vary over a wide range. In this regard, it is well known that utility concerns can forecast cash receipts quite accurately, owing to demand for their services arising from their quasi-monopoly status. This enables them to stagger their billings throughout the month and to time them to coincide with their planned expenditures.

Inflows and outflows of cash are therefore synchronized. Thus, we would expect the cash holdings of utility firms relative to sales or assets to be less than those associated with a major retail chain that sells groceries. The concern is the experience of a large number of transactions each day, almost all of which involve an exchange of cash.

The Precautionary Motive

Precautionary balances are a buffer stock of liquid assets. This motive for holding cash is related to the maintenance of a balance to be used to satisfy possible, but as yet indefinite, needs.

In our discussion of transactions balances, we saw that cash flow predictability could affect a firm's cash holdings through synchronization of receipts and disbursements. Cash flow predictability also has a material influence on the firm's demand for cash through the precautionary motive. The airline industry provides a typical illustration. Air passenger carriers are plagued with a very high degree of cash flow uncertainty. The weather, rising fuel costs, and continual strikes by operating personnel make cash forecasting a most difficult activity for any airline company. The upshot of this problem is that because of all the things that might happen, the minimum cash balances desired by the management of the airline tend to be large.

In addition to cash flow predictability the precautionary motive for holding cash is affected by the firm's access to external funds. Especially important are those cash sources that can be tapped on short-notice. Book banking relationships and established lines of credit can reduce the firm's need to keep cash on hand. This unused borrowing power will obviate somewhat the need to invest in precautionary balances.

In actual business practice the precautionary motive is to a large extent met by the holding of a portfolio of liquid assets, not just cash. In large corporate organizations, funds may flow either in to or out of the marketable securities portfolio on a daily basis. Because a higher rate of return can be earned on the near-cash assets, compared with a zero rate of return available on cash holding, it is logical that the precautionary motive will be met in part by investment in marketable securities. The Speculative Motive Cash is held for speculative purposes in order to take advantage of hoped-for,

profit-making situations. Construction firms that erect private wellings will at times accumulate cash in anticipation of a significant drop in lumber costs. If the price of building supplies does drop, the companies that build up their cash balances stand to profit by purchasing materials in large quantities. This will reduce their cost of goods sold and increase their net profit margin. Generally,

The speculative motive is the least important component of a firm's preference for liquidity. The transactions and precautionary motive account for most of the reasons why a company holds cash balances. Decisions that concern the amounts of liquid assets to hold rest with the financial officer responsible for cash management. A number of factors that can be expected to influence the financial officer's investment in cash and near cash have just been reviewed. Not

15.9. Techniques of Cash Management and Marketable Securities

Techniques of Cash Management and Marketable Securities Cash Concentration Systems

There are three basic tasks of the cash concentration systems:

- a. Receive Deposits
- b. Transfer funds to disbursal banks
- c. Serve as focal point of short-term investments and credit transactions

Disbursement Systems

Many times, the cash is collected from several places where the customers are there but is disbursed from the factory premises or the corporate head quarters. So the objective function would be to maximize the disbursement floats available without straining the relationships with the suppliers.

Required Cash Balance

The question may be designed as whether it is possible to define the amount of cash which ought to be held at anytime? Cash is needed for three reasons:

1. To finance transactions (which was the main theme of the previous paragraphs):
2. As a precaution- as a safeguard against the inaccuracies in cash forecasts- bearing in mind that every forecast, by its very nature,

will be inaccurate.

3. For speculative purposes-to take advantage of any profitable opportunities that arise.

What average cash balance then should be held to finance normal transactions, including any necessary margin of safety? The word 'normal' is important because it may be assumed that small deviations from the norm will be covered by overdraft facilities.

This is a question closely akin to one we shall be asking about stock holdings in the next unit. Attempts are sometimes made to establish an equation based on:

- The 'holding cost' of cash (i.e., the opportunity cost of keeping the cash un-invested);
- The 'procurement cost' of cash (i.e., the transaction cost of converting securities into cash, or otherwise obtaining new funds).

The estimates used in such calculations are likely to be suspected, and the model to which they give rise is only applicable when the demand for cash is reasonably consistent from period to period. There are two models used. The first one is the Baumol Model which works exactly on the lines of the inventory model and that is its biggest shortcoming. The second one is the Miller-Orr model which specifies a minimum and a maximum level of cash in the system and expects the cash levels to move between the two. Let us look at the Miller-Orr model in slightly more detail. We can see that the company has established upper and lower limits within which it allows the cash levels to operate. If the cash level touches the upper level, the company converts extra cash into securities so as to bring it to the target cash balance. It follows the same procedure for the lower limit where it sells securities instead of buying them. This makes it easy for the company to manage cash as the levels of cash are difficult to predict very accurately. Note that the target cash balance point is at one-third of the distance between the lower and upper level, from the lower level instead of half-way between the two.

Investing Surplus Funds

If the cash forecast for a business shows surplus funds becoming available, then plans should be made for putting them to use. However, the surpluses may be transitory, either because they are being accumulated deliberately for some purpose such as the purchase of plant or the payment of taxes, or because the business is seasonal and the

funds will eventually be required to finance off-peak activities. It is important to schedule in detail, with frequent reviews, how much money will be available for various period of times, so that it can be put to the best possible use. Small amounts which are required to be kept liquid are probably best placed on deposit with clearing bank or other finance house. The rate of interest will be low, but only short notice is required for withdrawal. When large sums are available there is a greater range of investment alternatives.

Loans to local authorities or merchant banks or local authority bonds, have various terms from day up to five years, so they can be matched to the availability of funds, however, they are not readily negotiable. Negotiable certificates of deposit issued by the commercial banks overcome this disadvantage, offer a higher rate of interest and can cover a wide range of maturities from three months upwards. The purpose of this type of investment is to squeeze extra profit out of money which is normally in use in the operations of the business. It does not give full scope for portfolio planning, which is essential when funds are available for investment over a long period. The main principle involved in planning the investment of short-term cash surpluses is to match investment maturities with cash needs. Before considering investment, therefore, it is necessary to have a reliable cash movements forecast, so that one knows with reasonable certainty how much cash will be spare for what period of time.

The second principle is to invest for as long as possible, because interest rates are higher for long periods. Opposed to this principle is the need to have a margin of safety, this may be a bank overdraft facility or may take the form of slightly more liquidity in the investment portfolio than the forecast strictly requires. The size of the fund available for investment will have an effect on how profitably it can be used, both because large funds can bear the cost of a professional investment manager and because such funds can be placed directly on the money market rather than through the company's bank.

15.10. Sources of Short-Term Finance

Funds available for a period of one year or less are called short-term sources of finance. They are raised from sources, which can provide funds only for short period quickly, and its cost is less than the funds raised from long-term sources. These funds are usually met by taking short-term loans or getting the bills discounted from the commercial banks. Spontaneous sources and bank loans are important sources of short-term funds. They are explained in detail below:

A. Tradecredit:

The credit extended in connection with the goods purchased for resale by a retailer or a wholesaler for materials used by manufacturers in producing its products is called the tradecredit. Trade credit is a form of short-term financing common in almost all types of business firm. As a matter of fact, it is the largest source of short-term funds. The amount of such financing depends on the volume of purchase and the payment timings. Small and new firms are usually more dependent on the trade credit, as they find it difficult to obtain funds from other sources. This trade credit may be extended to the customers in the form of

- (a) An opening account credit and
- (b) Acceptance credit management / bills payable.

(i) Open account:

Trade credit is mostly an informal arrangement, and is granted on an open account basis. Open account is usually extended only after the seller conducts a fairly extensive investigation of the buyer's standard and reputation. In the case of open account credit arrangement the buyer does not sign any formal debt instrument as an evidence of the amount due by him to the seller. The only evidence is the copy of the invoice that goods have been delivered. Open account trade credit appears as Sundry creditors on the buyer's balance sheet in the liability side.

(ii) Acceptance credit / Bills payable:

Trade credit may also take the form of Bills payable. In such a case the buyer accepts a bill of exchange or gives a promissory note for the amount due by him to the seller. This bill has specified future date, and is usually used when the supplier is less sure about buyer's willingness and ability to pay or when the supplier wants cash by discounting the bill from a bank. Thus, it is an arrangement by which the indebtedness of the buyer is recognized formally. This appears in the buyer's balance sheet as accounts payable or bills payable.

Merits of trade credit:

1. **Easy availability:** Unlike other sources of finance trade credit as a source of finance is relatively easy to obtain. The easy availability is very important in the case of small and medium firms where they cannot raise funds in the capital market.
2. **Flexibility:** The trade credit increases or decreases depending upon the growth of the firm. Moreover, it need not pledge securities or adhere to strict payment schedule.

3. **Informality:** Trade credit is an informal spontaneous source of finance. It does not require to sign in the negotiable instruments to obtain the credit.

Demerits of trade credit:

Increased cost:

The trade credit is usually very high when compared to cash sales. The seller while fixing the selling price will consider all explicit and implicit costs.

Over trading:

Trade credit facility may induce the buyer to buy a large quantity as a result it may occur in over trade.

Accrued expenses:

Another spontaneous source of short-term financing is the accrued expenses as the outstanding expense liabilities. Accrued expenses refer to services received by the firm but the payment for which has not been made. The accrued expenses represent an interest free source of finance. There is no explicit and implicit cost included in the accrued expenses.

The most common accrued expenses are salary, wages and taxes. In these cases the amount may be due but the payments are not paid immediately. For example, a firm having a policy of paying salary and wages on a monthly basis. Similarly, the sales commission or target incentives, sales tax etc. are always payable with a time lag. The interest on debentures and borrowings is also payable periodically and thereby provides funds to the firms for the intervening period between two interest rates.

Merits:

Interest free cost: The accrued expenses are interest free sources of financing. It is consistent with the general philosophy of paying the creditors' as late as possible as long as the firm does not damage its credit rating.

Demerits:

Postponement of salary and wages beyond normal level will affect the morale of the employees, resulting in reduced efficiency and higher labour turnover.

// Bank Loans:

The bank loans, in general, are a short-term financing say for a year or

so. This short- term financing to business firm is regarded as self-liquidating. It means, banks routinely provide finance to meet the seasonal demand e.g., to cover the seasonal increase in inventories or receivables. Sometimes, the banks may approve separate limits for peak season and non- peak season. The main sources of short-term funds are cash credit, overdraft and bill discounting.

Types of Bank Loans:

In India banks provide financial assistance for working capital in different shapes and forms. The usual form of bank loans are as follows:

- a) **Cash credit:** Cash credit arrangements are usually made against the security of commodities hypothecated with the bank. It is an arrangement by which a banker allows his customer to borrow money upto a certain limit. The interest is charged at the specified rate on the amount withdrawn and for the relevant period.
- b) **Overdraft:** A firm, already having a current account with a banker is allowed to withdraw above the balance in the current account. The amount so overdrawn may be repaid by depositing back in the current account as and when the firm wants. The firm need not get permission from the banker every time it is over drawing but one time approval is necessary. How ever a bank can review and modify the over draft limit at any time. A cash credit differs from an overdraft in the sense that the former is used for long-term by commercial and industrial concerns during regular business while the latter is supposed to be a form of bank credit to be used occasionally and for shorter durations.
- c) **Bills discount and bills purchased:** The banks also give short-term advances to their customers by discounting the bills of exchange. The discount depends upon the amount of the bill, the maturity period and the prime-lending rate prevailing at that time. The bills may be payable on demand or on maturity. Whenever bills payable on demand is discounted, it is called **bills purchased**, and when the bills payable at maturity is discounted by bank, it is called **bills discounting**.

15.11. Working Capital Policies

Working capital policy can also be known as working capital management. Working capital management refers to a strategy which mainly focuses on maintaining adequate level of current assets and current liabilities in a firm, so that appropriate level of working capital can be maintained. The ratio helps to examine the following alternative working capital policies:

Conservative Policies: Assuming a constant level of fixed assets, a higher current asset to fixed assets ratio, refers to conservative policies. It indicates the firm's sound liquidity position and lower risk to meet its current obligations and investments. This policy is also termed as flexible policy. It also indicates that the current assets are efficiently utilized at every levels or output.

Conservative Policy Indicates

1. Sound liquidity
2. Lower risk
3. Current assets are efficiently utilized in production
4. No bottle necks in production, because of the maintenance of huge stock
5. Prompt payment of accounts payable, because of huge liquid cash in hand

Moderate Policies: Moderate policy is otherwise termed as average current assets policy. This ratio occurs between higher and lower ratio of current assets to fixed assets ratio. In other words, the current assets policy of most firms may fall between the conservative policies and aggressive policies. This indicates moderate risk and average liquidity position of a firm.

Moderate Policy Indicates:

1. Average liquidity position
2. Current assets are used in production
3. Maintenance of stock of raw materials, work-in-progress and finished goods are at an average level

Aggressive Policies: Lower level of current assets to fixed assets ratio represents aggressive policy. This aggressive policy indicates higher risk and poor liquidity position of a firm. It also indicates that the current assets are not efficiently utilized at all levels of output. This policy is also termed as restrictive policy.

Aggressive Policy Indicates

1. Poor liquidity position
2. Higher risk
3. Current assets are utilized at lowest in all levels of output
4. Maintenance of small stock levels

5. Declining size of sales because of rare credit sales facilities
6. Stoppage and bottle necks in production, due to lack of stock

Let Us Sum Up

In this unit, you have learned about the following:

Inventory means stock of finished goods. In a manufacturing point of view, inventory includes, raw material, work in process, stores, etc. It is also very essential part not only in the field of Financial Management but also it is closely associated with production management.

Hence, in any working capital decision regarding the inventories, it will affect both financial and production function of the concern. Hence, efficient management of inventories is an essential part of any kind of manufacturing process concern.

Cash management is the stewardship or proper use of an entity's cash resources. It assists to keep an organization functioning by making the best use of cash or liquid resources of the organization.

Funds available for a period of one year or less are called short-term sources of finance. They are raised from sources, which can provide funds only for short period quickly, and its cost is less than the funds raised from long-term sources.

These funds are usually met by taking short-term loans or getting the bills discounting from the commercial banks. Working capital policies can be conservative, moderate and aggressive policies.

Check Your Progress

1. Companies hold cash time to time. Transaction motive of holding cash means
 - a. Keeping a cash reserve for purchasing goods and services to balance out the cash inflows and outflows.
 - b. Keeping the cash for all the transactions made during a periodic term.
 - c. Keeping the cash for transactions mandatory for day to day activities
 - d. Keeping the transactions for foreign trading.
2. Inventory consists of
 - a. Intangible property
 - b. Tangible property

- c. (A) or (B)
 - d. (A) & (B)
3. Inventory is valued at.....
- a. Replacement price
 - b. Replacement price or purchase value, whichever is less.
 - c. At cost or net realizable value whichever is less.
 - d. Replacement price or net realizable value, whichever is less.
4. Inventory held for sale in the ordinary course of business is known as.....
- a. Finished Goods
 - b. Raw Material
 - c. Work-in-progress
 - d. Miscellaneous inventory
5. Marketable securities are primarily
- a. Short-term debt instruments
 - b. Short-term equity securities
 - c. Long-term debt instruments
 - d. Long-term equity securities

Glossary

Re-order Level: Re-ordering level is fixed between minimum level and maximum level. Re-order level is the level when the business concern makes fresh order at this level. $\text{Re-order level} = \text{maximum consumption} \times \text{maximum Re-order period}$.

VED Analysis: This technique is ideally suited for spare parts in the inventory management like ABC analysis. Inventories are classified into three categories on the basis of usage of the inventories.

Economic Order Quantity (Eoq): EOQ refers to the level of inventory at which the total cost of inventory comprising ordering cost and carrying cost.

Answers To Check Your Progress

1. a. Keeping a cash reserve for purchasing goods and services to balance out the cash inflows and outflows
2. b. Tangible property
3. a. At cost or net realizable value which-ever is less.
4. d. Finished Goods
5. a. Short-term debt instruments

Suggestedreading

1. BrealeyR.A and MyersS.C (1988).Principles of Corporate Finance,New York: (13thEdition), Mc Graw Hill Book Company
2. Chandra, Prasanna,(2011),Financial Management:Theory and Practice. New Delhi:(8th Edition), Tata McGraw Hill Publishing Co. Ltd.,

Annexure-Case Study

1. There are 2 projects X and Y. X requires an investment of Rs.26, 000 while Y requires an investment of Rs.38, 000. The cost of capital is 12%. Calculate PB, ARR, NPV, PI and IRR for both the projects and suggest the best one.

Year	Project X	Project Y	Discount rate 12%
1	9000	8000	0.893
2	7000	10000	0.797
3	6000	12000	0.712
4	5000	14000	0.636
5	4000	8000	0.567
6	4000	2000	0.507
7	3000	16000	0.452
8	3000		0.404
9	3000		0.361
10	3000		0.322

2. The Servex company has the following capital structure

	(Rs. '000)
10 % Ordinary shares (2, 00,000 shares)	4,000
10% preference shares	1,000
7% debentures	3,000
	8,000

You are required to

- a. Compute a weighted average cost of capital (WACC) based on the existing capital structure.
 - b. Compute a new weighted average cost of capital (WACC) if the company raises an additional Rs. 2, 000 debt by issuing 7.5% percent debenture.
3. The V co currently has 100000 outstanding shares selling at Rs.100 each. The firm has net profit s of Rs.10,00,000 and wants to make new investments of Rs.20,00,000 during the period. The firm is also thinking of declaring a dividend of Rs.5 per share at the end of the current fiscal year. The firm's opportunity cost of capital is 10%. Use

MM approach of dividend. What will be price of the share at the end of the year if

- (1) If dividend not declared
- (2) If dividend declared
- (3) How many new shares must be issued?

4. The present share capital of A Ltd consists of 1000 shares selling at Rs. 100 each. The company is contemplating a dividend per share of Rs. 10 at the end of the current financial year. The company belongs to a risk class for which appropriate capitalization rate is 20%. The company expects to have a net income of Rs. 25000. Assume the company pays the dividend and has to make new investment of Rs. 48000 in the coming period. Use MM approach of dividend. What will be the price of the share at the end of the year if
- I. Dividend is not declared
 - II. If dividend is declared
 - III. How many new shares must be issued?

5. Calculate Cost of Equity using CAPM model for Firm A, Firm B and Firm C

Company	Risk free rate	Market Return	Beta
A	8%	13%	1.7
B	8%	13%	0.6
C	8%	13%	1.2

6. From the following particulars, calculate working capital requirements
- a. Expected level of production for the year 15600 units
 - b. Cost per unit: Raw material Rs. 90, Direct labour Rs. 40, Overheads Rs. 75
 - c. Selling price per unit : Rs. 265
 - d. Raw materials in stock on an average for one month
 - e. Materials are in process on an average for 2 weeks
 - f. Finished goods in stock on an average for one month
 - g. Credit allowed by suppliers is one month
 - h. Time lag in payment from debtors is 2 months
 - i. Lag in payment of wages 1.5 weeks
 - j. Lag in payment of overheads is one month. All sales are on credit

k. Cash in hand and at bank is Rs. 60,000

It is assumed that production is carried on evenly throughout the year. Wages and overheads accrued evenly and a period of 4 weeks is equivalent to a month.

7. Calculate and analyse Sustainable growth rate (SGR) of the following companies.

(Rs. In cr)

	TCS		M & M		LUPIN	
	2018	2019	2018	2019	2018	2019
Net income	19,257	22,883	3,321	3,168	2,397	2,885
Shareholders' equity	45,416	58,867	19,255	21,707	9,028	11,593
Dividend paid	15,474	8,571	745	745	337	338

8. From the following, calculate DOL, DFL and DCL for two companies

	A Ltd	B Ltd (Rs. In million)
Sales	500	1000
Variable cost	200	300
Fixed cost	150	400
Interest	50	100

9. In considering the most desirable capital structure of a company, the following estimates of the cost of debt and equity (after tax) have been made at various levels of debt equity mix. You are required to determine the optimal debt equity mix for the company by calculating the composite cost of capital (WACC)

Debt as percentage of total capital employed	cost of debt	cost of equity
0	5	12
10	5	12
20	5	12.5
30	5.5	13
40	6	14
50	6.5	16
60	7	20

10. In considering the most desirable capital structure of a company, the following estimates of the cost of debt and equity (after tax) have been made at various levels of debt equity mix. You are required to

determine the optimal debt equity mix for the company by calculating the composite cost of capital (WACC)

Debt as percentage of total capital employed	cost of debt	cost of equity
0	7	15
10	7	15
20	7	15.5
30	7.5	16
40	8	17
50	8.5	19
60	9.5	20

Model End Semester Examination Question Paper

Master of Business Administration (MBA)

Course Code: **DCMBA-22**/Course Title: **Financial Management**

Max. Marks: 70

Time: 3 hours

PART – A (10x2 =20 Marks)

Answer any TEN questions out of TWELVE questions

[All questions carry equal marks]

- (1).Distinguish between bond and shares.
- (2).Illustrate the time value of money.
- (3).Define inflation and list any two undesirable effects.
- (4).Define Cost of Capital.
- (5).What is operating leverage?
- (6).Define Share Split.
- (7).What is trade credit?
- (8).What is commercial paper?
- (9).What is hire purchase?
- (10).What is Financial Leverage?
- (11).Explain the importance of dividend policy?
- (12).What are the factors responsible for changes in working capital?

PART – B (5X8=40 Marks)

Answer any FIVE questions out of SEVEN questions [All questions carry equal marks

- (13).Brief the terms: (a) Controller (b) Treasurer (c) Owners of residue (d) Profitability – Liquidity trade off
- (14).Calculate and analyse Sustainable growth rate (SGR) of the following companies.(Rs. In cr)

	Net income	Shareholders' equity	Dividend paid
RIL	22,719	216,159	2,944
IOC	5,273	67,970	1,603
LUPIN	2,397	9,028	337
SUN PHARMA	-1,474	22,738	722

- (15).Analyse how today's money value is different than tomorrow's money value – Discuss (or) Discuss about time value of money.

(a) The current market price of a company's share is Rs. 90 and the expected dividend per share next year is Rs. 4.50. If the dividends are expected to grow at a constant rate of 8 percent, calculate the cost of

equity using Dividend Growth model

(b) The equity stock of RAX Limited is currently selling for Rs. 30 per share. The dividend expected next year is Rs. 2.00. The growth rate is 8%. calculate the cost of equity using Dividend Growth model.

(16).From the following data, determine cost of equity using CAPM model.

S.No	Risk free rate	Market Return	Beta
1	6%	15%	1.54
2	5%	13%	1.20

(17).Explain its determinants of working capital.

(18).A company has an EPS of Rs. 1.5, internal rate of return of 15% and retention ratio of 50%. If the required rate of return of the firm is 10%, determine the price of its share using Gordon model.

(19).What shall happen to the price of the share of the company has a retention ratio of 20%?

PART - C (1x10=10 Marks)

CASE STUDY

(20).The management of Royal Industries has called for a statement showing the working capital to finance a level of activity of 180000 units of output for the year. The cost structure is -

	Cost per unit (Rs.)
Raw materials	20
Direct labour	5
Overheads	15
	<hr/>
	40
Profit	10
	<hr/>
Selling price	50

a. Minimum desired cash balance is Rs. 20000

b. Raw materials are held in stock on an average for two months

c. Work in progress will approximate to half a month's production

d. Finished goods remain in warehouse on an average for a month

e. Suppliers (Creditors) of materials extend a month's credit and debtors (Customers) are provided two month's credit.












f. There is a time lag in payment of wages of a month, and half a month in the case of overheads

From the above facts, you are required to prepare a statement showing working capital requirements.

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Similarity	18,8%
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