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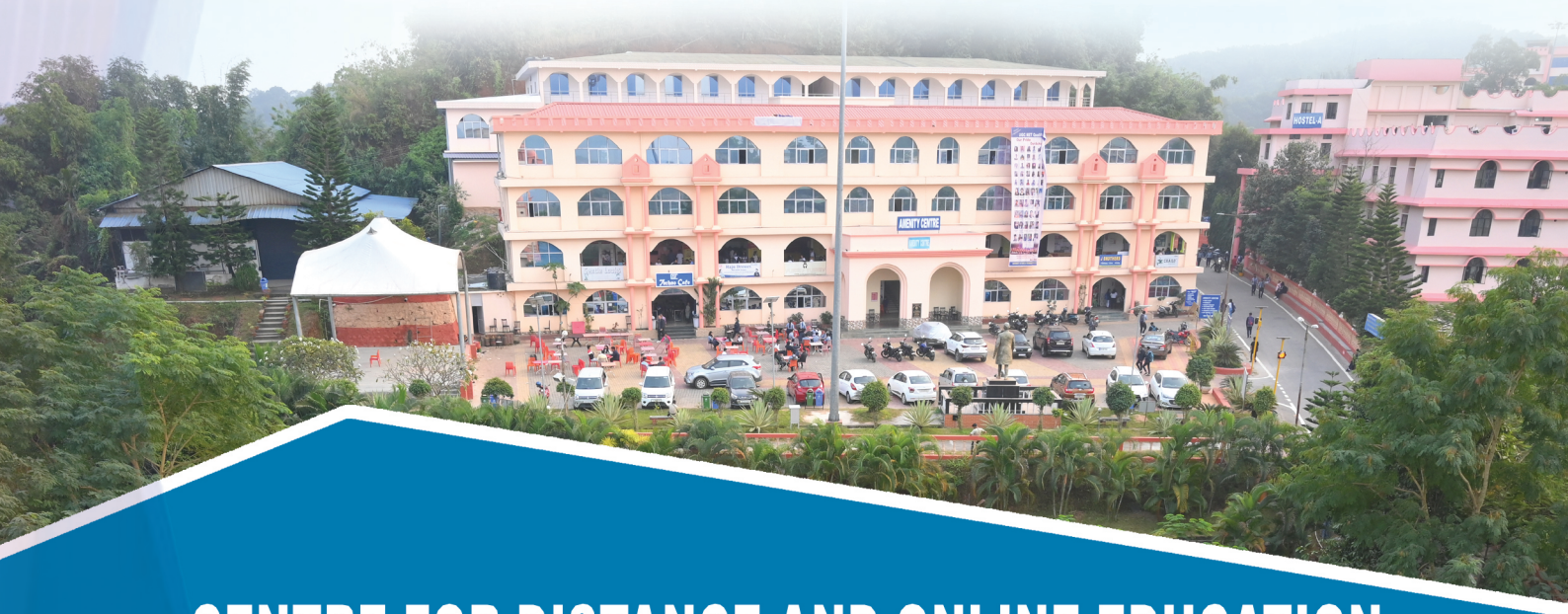
MASTER OF COMMERCE

MCM 203: FINANCIAL MANAGEMENT & CONTROL

w.e.f Academic Session: 2023-24



CENTRE FOR DISTANCE AND ONLINE EDUCATION

UNIVERSITY OF SCIENCE & TECHNOLOGY MEGHALAYA

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Accredited 'A' Grade by NAAC

Techno City, 9th Mile, Baridua, Ri-Bhoi, Meghalaya, 793101

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SYLLABUS

MCM-203: FINANCIAL MANAGEMENT & CONTROL

Objective: The Objective of this course is to acquaint the students with the basic analytical techniques and methods of financial management of business firms useful for financial policy decisions.

Learning Outcomes: After studying this course the students should be able to:

1. Evaluate the financial objectives of various types of organizations and understand the organization of finance function.
2. Examine the capital projects under different circumstances using appropriate capital budgeting methods.
3. Determine the cost of capital of different sources of finance for taking financing decisions and critically examine various theories and determine the optimal capital structure.
4. Critically examine and interpret various theories and policies of dividend and determine optimal dividend payout policy.
5. Estimate the working capital requirements of an organization and effectively manage working capital.

Credit: 3 **Full Marks: 100**

UNIT-I: Introduction
Introduction to Financial Management: Meaning, nature and scope of finance – Financial goal (profit vs. wealth maximization), Finance functions, Organization of Finance function - Finance and other related areas.

UNIT-II: Capital Budgeting
Meaning, nature, significance, steps involved in capital budgeting process; Investment evaluation Criteria - net present value. Internal rate of return, Profitability index, payback period, accounting rate of return; NPV and IRR comparison; Capital rationing; Risk analysis in capital budgeting.

UNIT-III: Cost of capital
Meaning and significance of cost of capital – Computation of cost of capital (debt, preference capital, equity capital and retained earnings) – Combined cost of capital (weighted)

UNIT-IV: Capital Structure & Dividend Policy
Capital Structure: Meaning and concept of Capital Structure, Optimum Capital Structure, Determinants of Capital Structure; Theories of capital structure – Net Income Approach, Net Operating Approach, Traditional Approach and Modigliani-Miller Approach, Capital Structure Planning: EBIT-EPS Analysis.
Dividend Policy: Forms of Dividends, Stability of dividend policy, Determinants of dividend policy, Theories on Dividend Policy, Dividend under the Companies Act 2013.

UNIT-V: Working Capital Management

Meaning, significance and types of working capital; Calculating operating cycle period and estimation of working capital requirements; Financing of working capital and norms of bank finance; Sources of working capital; Dimensions of working capital management; Management of cash, receivables and inventory

Suggested Readings (Latest Edition):

1. Van Horne, James C., Financial Management and Policy, Prentice Hall of India
2. Pandey I. M., Financial Management, 9th Ed. Vikas Publishing.
3. Ross S.A., R.W. Westerfield and J. Jaffe, Corporate Finance, McGraw Hill.
4. Brealey R.A. and S.C. Myers, Principles of Corporate Finance, McGraw Hill
5. Damodaran, A, "Corporate Finance: Theory and Practice". John Wiley & Sons
6. Banerjee, B., Financial Management, PHI Ltd, New Delhi
7. Chandra, P., Financial Management, Tata McGraw Hill, New Delhi

MCM-203: FINANCIAL MANAGEMENT & CONTROL

CONTENTS

UNIT-I: INTRODUCTION

1.1 INTRODUCTION

Business entities require financial resources to fulfill their needs in the economic landscape. Finance is considered the lifeblood of any business organization, as all business activities, regardless of their scale, rely on it.

In the contemporary world, economic activities are primarily focused on generating profits through various ventures. Profit-making is directly associated with all business operations. According to economic principles related to factors of production—rent for landlords, wages for labor, interest for capital, and profit for shareholders or proprietors—a business entity necessitates finance to address these essential requirements. Therefore, finance is interchangeably referred to as capital, investment, fund, etc., each term carrying distinct meanings and unique attributes. The primary objective of any economic activity is to enhance profitability.

1.2 MEANING AND DEFINITION OF FINANCE

Finance can be described as the art and science that involves the skillful management of money, encompassing both financial services and instruments. Additionally, finance is synonymous with supplying funds when they are required. The function of finance involves acquiring funds and efficiently deploying them in business entities.

The idea of finance encompasses capital, funds, money, and amount, each carrying its distinct significance. Grasping and comprehending the concept of finance is a crucial aspect of any business enterprise.

Definition

According to Khan and Jain, "Finance is the art and science of managing money".

According to **Oxford dictionary**, the word 'finance' connotes 'management of money'.

Webster's Ninth New Collegiate Dictionary defines finance as "the Science on study of the management of funds' and the management of fund as the system that includes the circulation of money, the granting of credit, the making of investments, and the provision of banking facilities.

1.3 MEANING AND DEFINITION OF FINANCIAL MANAGEMENT

Financial management is an essential component of comprehensive management, focusing on the responsibilities of financial managers within a business entity.

The term financial management has been defined by **Solomon**, “It is concerned with the efficient use of an important economic resource namely, capital funds”.

The most popular and acceptable definition of financial management as given by **S.C. Kuchal** is that “Financial Management deals with procurement of funds and their effective utilization in the business”.

Howard and Upton : Financial management “as an application of general managerial principles to the area of financial decision-making.

Weston and Brigham : Financial management “is an area of financial decision-making, harmonizing individual motives and enterprise goals”.

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

Hence, Financial Management pertains to the segment of management that involves the strategic planning and regulation of a company's financial assets. It involves identifying diverse channels to secure funds for the company, and the optimal utilization of these funds is also a component of financial management.

In the other words, Financial Management focuses on obtaining and utilizing funds, aiming to optimize the value/earnings of the business by judiciously managing its funds.

1.4 SCOPE OR CONTENT OF FINANCE FUNCTION/FINANCIAL MANAGEMENT

The primary goal of financial management is to secure adequate funds to address both short-term and long-term requirements. These funds are acquired at the lowest possible costs to maximize the profitability of the business. Taking these considerations into account, a Financial Manager must focus on the following areas of the finance function.

1. **Estimating Financial Requirements**: The first task of a financial manager is to assess the immediate and future financial needs of the business. To accomplish this, they will develop a financial plan that considers both present and future requirements. The estimations should adhere to sound financial principles to ensure there is neither a shortage nor an excess of funds within the organization.

2. **Deciding capital structure**: The term "capital structure" pertains to the type and proportion of various securities utilized for fund procurement. Once the determination of the required funds is made, the next step involves deciding the type of securities to be raised. Opting for long-term debts may be prudent for financing fixed assets. However, in cases of extended gestation periods,

share capital might be the most suitable option. The decision regarding the type of securities to be utilized and the proportion in which they should be employed is a significant choice that impacts both short-term and long-term financial planning for an enterprise.

3. **Selecting a Source of Finance**: Following the formulation of a capital structure, a suitable means of financing is chosen. Diverse sources from which funds can be raised encompass share capital, debentures, financial institutions, commercial banks, public deposits, and so forth.

4. **Selecting a Pattern of Investment**: Once funds have been acquired, a determination regarding the investment pattern must be made. The choice of an investment pattern is linked to the utilization of funds. A decision needs to be made concerning the assets to be acquired.

5. **Proper Cash Management**: Efficient cash management is a crucial responsibility of the finance manager. The management of cash should be designed to prevent both shortages and idle balances.

6. **Implementing Financial Controls**: Effectively employing profits or surpluses is a crucial aspect of financial management. Thoughtful utilization of surpluses is vital for initiatives related to expansion, diversification, and safeguarding the interests of shareholders.

7. **Proper Use of Surpluses**: The proper allocation of profits or excess funds is a crucial aspect of financial management. Prudent utilization of surpluses is vital for both expansion and diversification initiatives, as well as for safeguarding the interests of shareholders.

1.5 OBJECTIVES OF FINANCIAL MANAGEMENT

The effective procurement and efficient utilization of financial resources play a crucial role in ensuring that a business organization appropriately uses its funds. This represents a fundamental responsibility of financial managers. Consequently, financial managers need to define the primary objectives of financial management. Objectives of Financial Management may be broadly divided into two parts such as:

1. Profit maximization
2. Wealth maximization.

1. Profit Maximization

The main aim of all economic activities is to generate profit. Likewise, a business operates primarily with the goal of making a profit, using profit as a metric to assess the efficiency of the business. Profit maximization is a traditional and narrow strategy focused on maximizing the earnings of the business concern.

Profit maximization consists of the following important features.

1. Earnings per share maximization, synonymous with profit maximization, entails fine-tuning business operations to attain increased profits.

2. The foremost objective of a business entity is profit generation, leading it to explore diverse avenues to boost overall profitability.

3. Profit functions as a metric for assessing the effectiveness of a business entity, offering a comprehensive perspective on its overall status.

4. Pursuing profit maximization objectives aids in reducing business risks.

Favourable Arguments for Profit Maximization

The profit maximization objectives of the business concern are supported by the following crucial points:

(i) The main goal is to generate profits.

(ii) Profit acts as a measure for the functioning of business activities.

(iii) Profits help alleviate the risks linked with the business entity.

(iv) Earnings constitute the primary funding source.

(v) Profitability also caters to social requirements.

Unfavourable Arguments for Profit Maximization

The following important points are against the objectives of profit maximization:

(i) The pursuit of maximizing profits leads to the mistreatment of workers and consumers.

(ii) Striving for profit maximization encourages unethical behaviors such as corruption and unfair trade practices.

(iii) Objectives aimed at maximizing profits contribute to disparities among stakeholders, encompassing customers, suppliers, and public shareholders.

Drawbacks of Profit Maximization

The profit maximization goal comes with certain disadvantages as well:

(i) **Lack of clarity:** This objective is ambiguous as profit is not precisely or clearly defined, potentially giving rise to misconceptions about the earning practices of the business entity.

(ii) **Disregard for the time value of money:** Profit maximization neglects the importance of the time value of money and the net present value of cash inflows, resulting in discrepancies between actual cash inflows and net present cash flow over a specific period.

(iii) **Neglect of risk:** Profit maximization does not consider the risks faced by the business entity, whether internal or external, which can affect the overall operations of the business.

2. Wealth Maximization

Wealth maximization represents a modern approach that integrates recent innovations and advancements within the business sector. The term "wealth" pertains to either shareholder wealth or the prosperity of individuals connected to the business entity. Additionally known as value maximization or net present worth maximization, this goal is universally acknowledged in the business realm.

Favourable Arguments for Wealth Maximization

(i) Regarded as superior to profit maximization, wealth maximization positions the primary objective of a business concern as enhancing the value or wealth of its shareholders.

(ii) Involving an evaluation of value in relation to the costs linked to business operations, wealth maximization compares the total derived value to the overall costs, providing an accurate assessment of the business concern's value.

(iii) Wealth maximization considers both the time and risk factors associated with the business concern.

(iv) Facilitating the effective allocation of resources, wealth maximization streamlines resource management.

(v) It protects the economic interests of society, ensuring societal well-being.

Unfavourable Arguments for Wealth Maximization

(i) The ideology of wealth maximization proposes a business model that might not be in harmony with the demands of modern business activities.

(ii) Essentially, wealth maximization is interchangeable with profit maximization, representing an indirect allusion to the endeavor of maximizing profits.

(iii) Embracing wealth maximization could lead to clashes between ownership and management.

(iv) Management alone reaps exclusive benefits.

(v) The ultimate goal of wealth maximization is the maximization of profits.

(vi) The implementation of wealth maximization depends on the profitability of the business concern.

1.6 IMPORTANCE OF FINANCIAL MANAGEMENT

Finance serves as the essential lifeline for business organizations, fulfilling their requirements. Every business entity must ensure the presence of a sufficient financial base to facilitate the seamless operation and careful management of the business, ultimately leading to the attainment of its goals. Effective financial management plays a crucial role in realizing the objectives of the business. The significance of finance cannot be disregarded under any circumstances or at any point in time. Some of the importance of the financial management is as follows:

Financial Planning

Financial management aids in identifying the financial needs of the business entity and guides the formulation of financial plans for the organization. Financial planning, an integral aspect of business operations, holds significance in promoting the enterprise.

Acquisition of Funds

Financial management encompasses obtaining the necessary funds for the business entity. The acquisition of required funds is a significant component of financial management, involving the exploration of potential sources of finance at minimal costs.

Proper Use of Funds

Effective utilization and distribution of funds contribute to enhancing the operational efficiency of the business entity. When the finance manager employs funds efficiently, it results in a reduction of the cost of capital and an increase in the firm's value.

Financial Decision

Financial management aids in making prudent financial decisions for the business entity. Financial decisions have a profound impact on the overall business operations of the concern, establishing a direct connection with various departmental functions such as marketing, production personnel, etc.

Improve Profitability

The profitability of the concern is entirely contingent on the efficiency and appropriate utilization of funds by the business entity. Financial management plays a crucial role in enhancing the profitability position of the concern through robust financial control mechanisms like budgetary control, ratio analysis, and cost-volume-profit analysis.

Increase the Value of the Firm

Effective financial management is critical for augmenting the wealth of investors and the business entity. The primary objective of any business concern is to attain maximum profit, and elevated profitability serves as a means to maximize the wealth of both investors and the nation.

Promoting Savings

Accumulating savings becomes feasible when a business concern achieves heightened profitability and wealth maximization. Competent financial management plays a pivotal role in encouraging and channeling both individual and corporate savings.

In contemporary times, financial management is commonly referred to as business finance or corporate finances. The operational functionality of business concerns or corporate sectors is heavily reliant on the significance of financial management.

1.7 ECONOMIC VALUE ADDED

Economic Value Added (EVA) is a financial performance measure that assesses a company's ability to generate value for its shareholders. It is also known as economic profit, economic rent, or residual income. EVA goes beyond traditional accounting measures, such as net income or earnings per share, by considering the cost of capital in its calculations

The basic idea behind Economic Value Added is to determine whether a company is creating wealth for its shareholders after accounting for the cost of capital. The formula for EVA is:

EVA = Net Operating Profit After Taxes (NOPAT) - (Capital × Cost of Capital)

Where:

- NOPAT is the company's net operating profit after taxes, which is calculated as the operating income minus taxes.
- Capital represents the total capital employed by the company, including both debt and equity.
- Cost of Capital is the weighted average cost of the company's debt and equity.

In essence, EVA measures how much value a company is creating for its shareholders after deducting the cost of the capital used to generate that profit. If the EVA is positive, the company is considered to be generating wealth for its shareholders. Conversely, a negative EVA indicates that the company is not earning enough to cover its cost of capital

EVA is used by investors, financial analysts, and company management to assess and compare the financial performance of businesses. It provides a more comprehensive view of a company's

economic profitability and helps in making informed decisions about resource allocation and strategic planning. Keep in mind that the specific calculation details and adjustments may vary among different practitioners and organizations.

1.8 MARKET VALUE ADDED

Market Value Added (MVA) is a financial metric that assesses the market value created by a company for its investors. It focuses on the difference between the total market value of a company (the sum of its equity and debt) and the total capital contributed by investors (the sum of equity and debt). MVA is used to evaluate whether a company's activities are generating value for its shareholders in the eyes of the market.

The formula for Market Value Added is:

MVA = Market Value of Equity + Market Value of Debt - Total Capital Invested

Where:

- Market Value of Equity is the total market value of the company's outstanding equity shares.
- Market Value of Debt is the total market value of the company's outstanding debt.
- Total Capital Invested is the sum of the total equity and total debt invested in the company.

In essence, MVA helps assess the extent to which a company's market value exceeds the total capital invested by its shareholders and debt holders. A positive MVA suggests that the company has created value for its investors, while a negative MVA indicates that the market value is less than the total capital invested.

Managers and investors use MVA to evaluate the overall performance and wealth creation of a company. Positive MVA is generally seen as a positive signal, indicating that the company's investments and operations have generated value for its investors. However, it's important to note that MVA is just one metric, and investors typically consider multiple factors when making investment decisions

It's worth mentioning that MVA, like Economic Value Added (EVA), provides insights beyond traditional accounting measures and focuses on the economic value created for shareholders.

Both metrics offer different perspectives on a company's performance and can be used in conjunction for a more comprehensive analysis.

1.9 FINANCE FUNCTION

The finance function holds paramount importance among all business functions and remains central to all activities. The requirement for funds is perpetual, commencing with the establishment of an enterprise and persisting throughout its operation. Effective management necessitates the ability to utilize funds judiciously, ensuring a harmonious balance between inflows and outflows.

The following explanation will help in understanding each finance function in detail

The subsequent elucidation will aid in comprehending each function within the realm of finance in-depth:

Investment Decision

One of the pivotal functions in finance is the judicious allocation of capital to long-term assets, commonly referred to as capital budgeting. This process involves allocating capital to long-term assets with the aim of maximizing future yields. The investment decision encompasses two key aspects:

a. Evaluating new investments based on their profitability.

b. Comparing the cut-off rate against new and existing investments.

Given the inherent uncertainty of the future, calculating the expected return poses challenges. Additionally, the risk factor, intrinsic to uncertainties, plays a crucial role in estimating the expected return for potential investments. Therefore, when evaluating investment proposals, it is imperative to consider both the expected return and associated risks.

Furthermore, investment decisions not only entail allocating capital to long-term assets but also involve deciding to use funds obtained by divesting assets that have become less profitable and productive. Prudent decisions may involve disposing of depreciated assets that do not contribute value and reallocating the funds to acquire more advantageous assets. In this process, the opportunity cost of capital becomes crucial for determining the correct cut-off rate, calculated as the opportunity cost of the required rate of return (RRR).

Financial Decision

Making financial decisions is another critical function that a financial manager must undertake. The judicious determination of when, where, and how a business should procure funds is crucial.

There are various methods and channels through which funds can be obtained. In a broader sense, it is essential to maintain an appropriate balance between equity and debt. This combination of equity capital and debt constitutes a firm's capital structure.

Optimally, a firm stands to gain the most when the market value of its shares is maximized. This not only signifies growth for the firm but also enhances shareholders' wealth. However, the utilization of debt has implications for the risk and return borne by shareholders. While it may increase the return on equity funds, it also introduces higher risk.

A robust financial structure is one that strives to maximize shareholders' return with minimal risk. In such a scenario, the market value of the firm is maximized, achieving an optimal capital structure. Apart from equity and debt, several other tools are employed to determine a firm's capital structure.

Dividend Decision

Generating a profit or achieving a positive return is a shared objective among all businesses. However, concerning profitability, a crucial role performed by a financial manager is determining whether to distribute all profits to shareholders, retain the entirety of profits, or distribute a portion to shareholders while retaining the rest within the business. The financial manager bears the responsibility of establishing an optimal dividend policy aimed at maximizing the market value of the firm. Consequently, an optimal dividend payout ratio is computed. It is customary to pay regular dividends in profitable scenarios, and another approach is to issue bonus shares to existing shareholders.

Liquidity Decision

Maintaining a firm's liquidity is crucial to prevent insolvency, and the investment in current assets is linked to the firm's profitability and risk. Striking a balance between profitability and liquidity necessitates allocating adequate funds to current assets. However, as current assets do not generate earnings for the business, careful consideration is required before investing in them. Proper valuation and timely disposal of non-profitable current assets are essential. Current assets should be utilized during periods of liquidity challenges and instances of insolvency.

1.10 ORGANIZATION OF THE FINANCE FUNCTION

Establishing a robust and effective organizational structure is imperative for every type of organization due to the critical role of the Finance function. The specific nature and size of the organization will influence the organizational structure, and while there cannot be a universal

structure for all enterprises, we can outline the fundamental aspects for a corporate organization as follows:

Share holders determine the following while approving the Articles of Association and the bye – laws:

- The amount and kind of capital
- Rules governing issue and transfer of stock
- Powers of directors to declare a dividend, choose a bank, create reserves
- Sale of firm's assets
- Plans for reorganization, liquidation, consolidation and mergers etc.

The board of directors of a limited company comprises a managing director (or CEO – chief executive officer), along with several functional executive directors, and it may encompass one or more professionally qualified accountants, with one potentially serving as the finance director. The board delegates the day-to-day management of the business to middle and junior managers. It is probable that among this group of managers, reporting to the board, there will be one or more qualified accountants tasked with overseeing the finance function.

The traditional arrangement of the finance function in a medium to large-sized company typically divides responsibilities broadly into accounting and finance, overseen by the finance director (or CFO – chief financial officer). The financial controller (or chief accountant) manages accounting, while a corporate treasurer (or financial manager) may handle cash and corporate finance; both roles report to the finance director. In the past, the IT function (information technology or data processing) was commonly under the purview of the finance director in many companies. This is because the accounting function was an early adopter of computers, initially for payroll and then for accounting ledgers, financial reporting, budgeting, and financial information.

The Board of Directors approves financial policies, declares dividends, translates shareholders' aspirations into specific goals and objectives, and selects and appoints senior officers. The Controller primarily focuses on Planning, Accounting, and Control activities, while the Treasurer is mainly responsible for financing, managing cash and receivables, and investment activities.

The organization of the financial function is contingent on the specific needs of each organization, which can vary significantly. Some organizations, such as manufacturing firms, may have higher working capital requirements compared to service organizations. Additionally, some organizations may experience a longer gestation period before generating revenues and profits.

1.11 FINANCE AND OTHER RELATED AREAS

Financial management constitutes a vital component of overall management, establishing direct connections with various functional departments such as personnel, marketing, and production. It spans a broad domain, employing multifaceted approaches.

The following are the important scope of financial management.

1. Financial Management and Economics

Financial management approaches are intimately intertwined with economic concepts such as micro and macroeconomics. The functions of financial managers are closely linked to investment decisions and micro and macro environmental factors. Additionally, financial management utilizes economic equations like money value discount factor and economic order quantity. The emerging field of financial economics presents significant opportunities for the integration of finance and economics.

2. Financial Management and Accounting

Financial information of the business concern is encompassed in accounting records. Consequently, the connection between financial management and accounting becomes readily apparent. Historically, financial management and accounting were considered synonymous and were merged into Management Accounting due to its utility in aiding finance managers' decision-making. However, in contemporary times, financial management and accounting are distinct yet interconnected disciplines.

3. Financial Management or Mathematics

Contemporary financial management employs an extensive array of mathematical and statistical tools and techniques, often referred to as econometrics. Within this framework, mathematical and statistical tools such as economic order quantity, discount factor, time value of money, present value of money, cost of capital, capital structure theories, dividend theories, ratio analysis, and working capital analysis play pivotal roles.

4. Financial Management and Production Management

Production management constitutes the operational aspect of a business, contributing to the conversion of capital into profit. The profitability of the business hinges on the effectiveness of production performance. This performance is contingent on financial resources, as the production department necessitates funds for raw materials, machinery, wages, and operational expenses. The financial department, under the guidance of the financial manager, determines and estimates these expenditures, ensuring that the production department receives the requisite financial allocation. It is imperative for the financial manager to possess a thorough understanding of the operational processes and the financial requirements associated with each stage of production activities.

5. Financial Management and Marketing

Goods manufactured are introduced to the market using inventive and contemporary strategies. To facilitate this process, the marketing department requires financial resources. The responsibility of allocating the necessary funds to the marketing department lies with the financial manager or finance department. Consequently, marketing and financial management are interconnected and rely on each other.

6. Financial Management and Human Resource

Financial management is also connected with the human resource department, responsible for supplying personnel to all management functional areas. The financial manager must meticulously assess the manpower needs of each department and allocate finances to the human resource department for wages, salaries, remuneration, commissions, bonuses, pensions, and other financial benefits. Consequently, financial management has a direct correlation with human resource management

1.12 TIME VALUE OF MONEY

The time value of money (TVM) is a financial concept that recognizes the idea that the value of money changes over time. It is based on the principle that a sum of money today is worth more than the same amount in the future, or conversely, that a future sum of money is worth less than the same amount today. The underlying premise is that money has the potential to earn interest or experience inflation over time, impacting its purchasing power.

The time value of money is relevant in various financial calculations, including investment valuation, loan amortization, annuities, and discounted cash flow analysis. The two main principles associated with the time value of money are present value and future value.

1. Present Value (PV): This concept involves calculating the current worth of a future sum of money, discounted at a specified rate of return. The formula for present value is:

$$\text{PV} = \frac{FV}{(1+r)^2}$$

Where:

- PV is the present value,
- FV is the future value,
- r is the discount rate or interest rate per period, and
- n is the number of periods.

This formula helps to determine the current value of a future cash flow, taking into account the opportunity cost of not having that money available for investment today.

2. Future Value (FV): This concept involves calculating the future worth of a current sum of money, compounded at a specified rate of return. The formula for future value is

$FV = PV (1 + r)^2$

Where:

- FV \) is the future value,
- PV \) is the present value,
- r is the interest rate per period, and
- n is the number of periods.

This formula helps to determine the value of an investment at a future date, accounting for compound growth.

Understanding the time value of money is crucial for making informed financial decisions, such as evaluating investment opportunities, comparing financing options, and determining the fair value of assets. It allows individuals and businesses to account for the impact of interest rates, inflation, and the opportunity cost of money over time.

CHECK YOUR PROGRESS

A. Multiple Choice Questions:

Select the most appropriate answer:

1. It means maximizing the net present value or wealth of a course of to shareholders.
   (a) Corporate finance
   (b) Profit maximization
   (c) Wealth maximization
   (d) None of the above
2. Wealth maximization is also known as:
   (a) Value maximization
   (b) Profit maximization
   (c) EBIT
   (d) None of the above
3. It involves the determination of the percentage of profits earned by the enterprise which is to be paid to its shareholders.
   (a) Investment decision
   (b) Capital budgeting
   (c) Financing decision
   (d) Dividend decision
4. Profit maximization is concerned with:
   (a) Maximizing the net present value
   (b) Maximizing the EPS
   (c) Actions that increase profits
   (d) None of the above
5. When the firm had adequate cash to pay for its bills, it is known as:
   (a) Profitability
   (b) Liquidity
   (c) Risk
   (d) None of the above
6. Finance function involves
   (a) Procurement of finance only

(b) Expenditure of funds only

(c) Procurement and effective utilization of funds

(d) Safe custody of funds only

7. The appropriate objective of an enterprise is:

(a) Maximization of sales

(b) Maximization of owner's equity

(c) Maximization of profits

(d) None of the above

8. Financial decisions involve

(a) Investment, financing and dividend decisions

(b) Investment, financing and sales decisions

(c) Financing, dividend and cash decisions

(d) Financing, sales and cash decisions

9. How to achieve wealth maximization?

(a) Avoid high level of risks

(b) Reduction in cost

(c) Pay dividends

(d) All of the above

10. What is ignored in profit maximization?

(a) Net value

(b) Time value of money

(c) Wealth

(d) None of the above

[Ans. 1(c); 2(a); 3(d); 4(c); 5(b); 6(c); 7(b); 8(a); (d); 10(b)]

B. Short Answer Type Questions:

1. Define finance.

2. What is financial management?

3. What are the objectives of finance function?

4. What is economic value added?

5. What is market value added?

6. What is time value of money?

C. Long Answer Type Questions:

1. Explain the objectives of financial management.
2. Explain the scope of financial management.
3. Explain the importance of financial management.
4. "Finance function is concerned with allocating funds to specific assets and obtaining the best mix of financing in relation to the overall valuation of the firm."
5. What is financial management? What major decisions are required to be taken in finance?
6. Maximization of profits is regarded as the proper objective of investment decision, but it is not as exclusive as maximizing shareholders' wealth." Comment.
7. Discuss the areas of finance function.
8. Write a note on organization of finance function
9. "Finance function of a business is closely related to its other functions." Discuss.

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UNIT 2: CAPITAL BUDGETING

2.1 MEANING AND NATURE OF CAPITAL BUDGETING

Capital budgeting involves the decision-making process related to investments in capital expenditures. A capital expenditure may be defined as an expenditure the benefits of which are expected to be received over period of time exceeding one year.

The following are some of the examples of Capital Expenditure:

(a) Cost of acquisition of permanent assets as land and building, plant and machinery, goodwill etc.

(b) Cost of addition, expansion, improvement or alteration in the fixed assets

(c) Cost of replacement of permanent assets.

(d) Research and development project cost etc.

According to the definition of Charles T. Hrongreen, "capital budgeting is a long-term planning for making and financing proposed capital out lays.

According to the definition of G.C. Philippatos, "capital budgeting is concerned with the allocation of the firms source financial resources among the available opportunities. The consideration of investment opportunities involves the comparison of the expected future streams of earnings from a project with the immediate and subsequent streams of earning from a project, with the immediate and subsequent streams of expenditure".

According to the definition of Richard and Green law, "capital budgeting is acquiring inputs with long-term return".

According to the definition of Lyrich, "capital budgeting consists in planning development of available capital for the purpose of maximizing the long-term profitability of the concern".

From the above description, it may be concluded that the important features which distinguished capital budgeting from the ordinary day to day business decisions are:

1. Capital budgeting decisions entail the exchange of current funds for future benefits.
2. The anticipated future benefits are expected to materialize over a span of several years.
3. The funds are allocated to non-flexible, long-term activities.
4. These decisions have a lasting and substantial impact on the profitability of the business.
5. They involve, generally, huge funds;
6. They are irreversible decisions.

7. These decisions are characterized as 'strategic' investments, involving substantial sums of money. They represent a major departure from the firm's past practices, leading to a significant change in expected earnings and carrying a high degree of risk. This is in contrast to 'tactical' investment decisions, which involve relatively small amounts of funds and do not deviate significantly from the firm's historical practices.

2.2 NEED AND IMPORTANCE OF CAPITAL BUDGETING

Capital budgeting is a critical financial management process that involves evaluating and selecting long-term investment projects to ensure optimal allocation of resources. The need for capital budgeting arises from several factors, and its significance lies in its ability to contribute to the overall financial health and success of a business.

1. Large-scale investments: Capital budgeting involves substantial funding requirements, but the funds at hand are limited. Therefore, firms must strategically plan and control their capital expenditure before investing in projects.

2. Resource Limitation:

Organizations often face limitations on available funds. Capital budgeting helps in prioritizing investment projects based on their potential returns and aligning them with the financial capacity of the firm.

Efficient capital budgeting ensures that scarce resources are directed towards projects that offer the highest return on investment, maximizing the overall value of the firm.

3. Long-Term Impact:

Capital expenditures typically have a long-term impact on the financial health of a company. It is crucial to assess the long-term consequences of investment decisions.

Capital budgeting allows businesses to evaluate the potential benefits and risks associated with long-term projects, ensuring strategic alignment with the company's objectives.

4. Financial Risk Management:

Capital investments inherently involve financial risks. Businesses need to assess and manage these risks to protect their financial stability.

Through careful analysis, capital budgeting helps in identifying and mitigating financial risks associated with investment decisions, promoting financial sustainability.

5. Irreversibility of Decisions:

Once capital investment decisions are made, they are often irreversible, and reversing them can incur significant costs.

Capital budgeting emphasizes the irreversible nature of investment decisions, encouraging thorough evaluation before commitments are made to avoid potential losses.

6. Maximizing Shareholder Wealth:

Shareholders invest in a company with the expectation of a return on their investment. Capital budgeting ensures that investment decisions contribute to maximizing shareholder wealth.

By selecting projects that enhance the company's value and profitability, capital budgeting aligns with the interests of shareholders, fostering trust and confidence in the business.

7. Strategic Planning:

Businesses operate in dynamic environments, requiring strategic planning for sustainable growth. Capital budgeting is integral to strategic planning as it aids in identifying investment opportunities that align with the long-term goals and competitive positioning of the organization.

In conclusion, the need for capital budgeting arises from the challenges of resource scarcity, long-term impact, financial risk, irreversibility of decisions, and the overarching goal of maximizing shareholder wealth. Its significance lies in its ability to guide businesses in making informed, strategic investment decisions that contribute to their financial success and sustainability.

2.3 CAPITAL BUDGETING PROCESS

Capital budgeting poses a challenging task in allocating available funds for investment, especially considering the uncertainty of future returns. Nevertheless, a systematic approach can facilitate the process. The key steps involved in capital budgeting include:

1. **Identification of Investment Proposals:** Various investment opportunities may emerge from top management or lower-ranking sources. Department heads analyze these proposals, submitting selected ones to the planning committee for further consideration.
2. **Screening and Matching Proposals:** The planning committee assesses and screens proposals, aligning them with the available financial resources. This step minimizes the disparity between resources and investment costs.

3. **Evaluation:** Following screening, proposals undergo evaluation using methods like payback period, net present value, accounting rate of return, and risk analysis. Evaluation is carried out for independent, contingent or dependent, and partially exclusive proposals.
    - Independent proposals stand alone, either accepted or rejected.
    - Contingent or dependent proposals' acceptance depends on other proposals.
    - Partially exclusive proposals compete with others, considering factors like risk, return, and market demand.
4. **Fixing Priority:** The planning committee predicts which proposals offer optimal profit or economic benefits. If a proposal doesn't align with the financial condition of the concern, it is rejected.
5. **Final Approval:** The planning committee, considering profitability, economic factors, financial viability, and market conditions, approves final proposals. Cost estimates are prepared and submitted to management.
6. **Implementation:** The competent authority allocates funds and implements approved proposals. Responsibilities are assigned, and techniques like PERT and CPM are employed for effective monitoring, cost reduction, and timely completion.
7. **Performance Review and Feedback:** The final stage involves comparing actual results with standards. Identifying adverse outcomes and addressing project difficulties provides valuable insights for future proposals. This feedback loop aids in refining the capital budgeting process.

2.4 METHODS OF CAPITAL BUDGETING OR EVALUATION OF INVESTMENT PROPOSALS

Investment can be made by aligning resources with available projects, utilizing funds that are constantly in circulation. The investment decision-making process involves various factors, including environmental and economic conditions.

The methods of evaluations are classified as follows:

(A) Traditional Methods (or Non-discounted methods)

(i) Pay-back Period Method

(ii) Accounting Rate of Return Method

(B) Modern Methods (or Time-adjusted or Discounted methods)

(i) Net Present Value Method

(ii) Internal Rate of Return Method

(iii) Profitability Index Method

(A) Traditional Methods (or Non-discounted methods)

(i) Pay-back Period Method

The payback period method is a financial metric used to assess the time it takes for an investment to recover its initial cost through cash inflows. It is a basic and widely used tool for assessing the profitability and risk of an investment project.

The basic formula for calculating the payback period is straightforward:

Pay-back period= $\frac{Initial\ Investment}{Annual\ cash\ inflows}$

Merits of Pay-back method

The following are the important merits of the pay-back method:

1. It is easy to calculate and simple to understand.
2. Pay-back method provides further improvement over the accounting rate return.
3. Pay-back method reduces the possibility of loss on account of obsolescence.

Demerits of Pay-back method

The following are the important demerits of the pay-back method:

1. It ignores the time value of money.
2. It ignores all cash inflows after the pay-back period.
3. It is one of the misleading evaluations of capital budgeting.

Accept /Reject criterion

If the actual pay-back period is less than the predetermined pay-back period, the project would be accepted. If not, it would be rejected.

Case 1.Where the project generates uniform cash inflows

Payback Period = $\frac{\text{Cost of the Project or Initial Cash Outlay}}{\text{Annual Cash Inflow}}$

Where, Cash Inflow means profit before depreciation but after tax

Illustration 1. A project costs Rs. 1,00,000 and yields an annual cash inflow of Rs.20,000 for 8 years. Calculate its pay back period.

Solution:

Here,

Cost of the Project = Rs.1,00,000

Annual Cash Inflow = Rs.20,000

$$\text{Payback Period} = \frac{\text{Cost of the Project or Initial Cash Outlay}}{\text{Annual Cash Inflow}}$$

$$= \frac{1,00,000}{20,000}$$

= 5 Years

Illustration 2. A project cost Rs.5,00,000 and yields annually a profit of Rs.80,000 after depreciation @ 12% p.a. but before tax of 50%. Calculate the pay back period.

Solution:

	Rs.
Profit after depreciation but before tax	80,000
Less: Tax @50% of 80,000	40,000
Profit after depreciation and tax	40,000
Add: Depreciation @12% on Rs.5,00,000	60,000
Profit before depreciation but after tax or Cash Inflow	1,00,000

$$\text{Payback Period} = \frac{\text{Cost of the Project or Initial Cash Outlay}}{\text{Annual Cash Inflow}}$$

$$= \frac{5,00,000}{1,00,000}$$

=5 years

Case 2.Where the project does not generate uniform cash inflows

Illustration 3. Determine the pay-back period for a project which requires a cash outlay of Rs.10,000 and generates cash inflows of Rs.2,000, Rs.4,000, Rs.3,000, Rs.2,000 in the first, second, third and fourth year respectively.

Solution:

Year	Cash Inflow (Rs.)	Cumulative Cash Inflow (Rs.)
1	2,000	2,000
2	4,000	6,000
3	3,000	9,000
4	2,000	11,000

$$\text{Payback Period} = 3 + \frac{(10000-9000)}{2000}$$

$$= 3 + \frac{1000}{2000}$$

$$= 3 + 0.5$$

$$= 3.5\ Years/\ 3 \text{ years } 6 \text{ months}$$

(ii) Accounting Rate of Return or Average Rate of Return Method

The Accounting Rate of Return (ARR), also known as the Average Rate of Return or the Return on Investment (ROI), is a financial metric used to evaluate the profitability of an investment project. Unlike some other methods, the ARR is primarily based on accounting profit rather than cash flows. It takes into consideration average rate of return to evaluate the profitability the project.

The formula for calculating the Accounting Rate of Return is as follows:

$$\textbf{ARR} = \frac{\textbf{Average Anuual Profit (after depreciation and tax)}}{\textbf{Average Investment}} \textbf{ x 100}$$

Merits of Accounting Rate of Return

1. It is easy to calculate and simple to understand.
2. It is based on the accounting information rather than cash inflow.
3. It is not based on the time value of money.
4. It considers the total benefits associated with the project.

Demerits of Accounting Rate of Return

1. It ignores the time value of money.
2. It ignores the reinvestment potential of a project.
3. Different methods are used for accounting profit. So, it leads to some difficulties in the calculation of the project.

Accept/Reject criterion

If the actual accounting rate of return is more than the predetermined required rate of return, the project would be accepted. If not it would be rejected.

Illustration 4. Calculate the average rate of return for projects X and Y from the following:

	Project X	Project Y

Investments	Rs.20,000	Rs.30,000
Expected Life (no salvage value)	4 years	5 years

Projected Net Income (after interest, depreciation and taxes)

Year	Project X Rs.	Project Y Rs.
1	2,000	2,500
2	1,000	3,000
3	2,500	2,500
4	1,500	2,000
5	-	1,000
Total	7,000	11,000

If the required rate of return is 12% which project should be undertaken?

Solution:

Project X

Average Annual Profit (after depreciation and tax) $= \frac{2000+1000+25}{4}$

$$= \frac{7000}{4}$$

$$=1750$$

Average Investment $= \frac{\text{Cost of the Machine} - \text{scrap value}}{2}$

N.B.: In this problem scrap value of the project is NIL

$$= \frac{20000}{2}$$

$$=10000$$

ARR $= \frac{\text{Average Anuual Profit (after depreciation and tax)}}{\text{Average Investment}}$ x 100

$= \frac{1750}{10000}$ x 100

=17.5%

Project Y

Average Annual Profit (after depreciation and tax) $= \frac{2500+3000+2500+2000+1000}{5}$

$$= \frac{11000}{5}$$

$$=2200$$

Average Investment $= \frac{\text{Cost of the Machine} - \text{scra value}}{2}$

N.B.: In this problem scrap value of the project is NIL

$$= \frac{30000}{2}$$

$$=15000$$

ARR $= \frac{\text{Average Anuual Profit (after depreciation and tax)}}{\text{Average Investment}}$ x 100

$= \frac{2200}{15000}$ x 100

=14.67%

Conclusion: The average return on average investment is higher in case of project X and is also higher than the required rate of return of 12% and hence Project X is suggested to be undertaken.

Illustration 5. A project costs Rs. 25,000 and has a scrap value of Rs.5,000 after 5 years. The net profits before depreciation and taxes for the five years period are expected to be Rs.5,000, Rs.6,000, Rs.7,000, Rs.8,000 and Rs.10,000. You are required to calculate the accounting rate of return (on average investments) assuming 50% rate of tax and depreciation on straight line method.

Solution:

Calculation of Net Profit after Depreciation and Tax

Year	NBDT	Depreciation	NPADBT	Tax @50%	NPADT
(1)	(2)	(3)	(4)=2-3	(5)=50% of (4)	(6)=4-5

1	5000	4000	5000-4000=1000	50% of 1000=500	1000-500=500
2	6000	4000	6000-4000=2000	1000	2000-1000=1000
3	7000	4000	7000-4000=3000	1500	3000-1500=1500
4	8000	4000	8000-4000=4000	2000	4000-2000=2000
5	10000	4000	10000-4000=6000	3000	6000-3000=3000
Total					8000

$$\text{Annual Depreciation} = \frac{\text{Cost of the Project} - \text{S Vale}}{\text{Estimated life of the Project}}$$

$$= \frac{25000-5000}{5}$$

$$= \frac{20000}{5}$$

$$= 4000$$

$$\text{Average Annual Income} = \frac{\text{Total Profit (after depreciation and tax)}}{\text{No.of Years}}$$

$$= \frac{8000}{5}$$

$$= 1600$$

$$\text{Average Investment} = \frac{Cost\ of\ the\ Project - Scrap\ Value}{2}$$

$$= \frac{25000-5000}{2}$$

$$= 10000$$

$$\text{ARR} = \frac{Average\ Annual\ Income\ (after\ depreciation\ and\ tax)}{Average\ investment} \text{ x } 100$$

$$= \frac{1600}{1000} \text{ x } 100$$

$$= 16\%$$

(B) Modern Methods (or Time-adjusted or Discounted methods)

(i) Net Present Value Method

Net present value method is one of the modern methods for evaluating the project proposals. In this method cash inflows are considered with the time value of the money. Net present value describes as the summation of the present value of cash inflow and present value of cash outflow. Net present value is the difference between the total present value of future cash inflows and the total present value of future cash outflows.

Merits of Net Present Value Method

1. It recognizes the time value of money.
2. It considers the total benefits arising out of the proposal.
3. It is the best method for the selection of mutually exclusive projects.
4. It helps to achieve the maximization of shareholders' wealth.

Demerits of Net Present Value Method

1. It is difficult to understand and calculate.
2. It needs the discount factors for calculation of present values.
3. It is not suitable for the projects having different effective lives.

Accept/Reject criterion

If the present value of cash inflows is more than the present value of cash outflows, it would be accepted. If not, it would be rejected.

(ii) Internal Rate of Return Method

The Internal Rate of Return (IRR) is a widely used financial metric in capital budgeting that evaluates the profitability of an investment by determining the discount rate at which the net present value (NPV) of cash inflows equals the NPV of cash outflows. In other words, it is the rate of return at which the present value of future cash flows is equal to the initial investment. The IRR is expressed as a percentage and is a critical tool for decision-making in capital budgeting. Here are some key aspects of the Internal Rate of Return method

Merits of Internal Rate of Return Method

1. It considers the time value of money.
2. It takes into account the total cash inflow and outflow.
3. It does not use the concept of the required rate of return.
4. It gives the approximate/nearest rate of return.

Demerits of Internal Rate of Return Method

1. It involves complicated computational method.
2. It produces multiple rates which may be confusing for taking decisions.

3. It is assume that all intermediate cash flows are reinvested at the internal rate of return.

Accept/Reject criterion

If the present value of the sum total of the compounded reinvested cash flows is greater than the present value of the outflows, the proposed project is accepted. If not it would be rejected.

(iii) Profitability Index Method

It is also a time-adjusted method of evaluating the Investment proposals. Profitability index also called as Benefit-Cost Ratio is the relationship between present value of cash inflows and the present value of cash outflows. Thus

Profitability Index= $\frac{Present\ Value\ of\ Cash\ Inflows}{Present\ Value\ of\ Cash\ Outflows}$

The advantages and disadvantages of this method are the same as those of net present value method.

Accept/Reject criterion

The proposal is accepted if the profitability index is more than one and is rejected in case the profitability index is less than one.

Illustration 6. From the following information calculate the net present value and profitability index of the two projects and suggest which of the two projects should be accepted assuming a discount rate of 10%.

	Project X	Project Y
Initial Investment	Rs.20,000	Rs.30,000
Estimated Life	5 years	5 years
Scrap Value	Rs.1,000	Rs.1,000

The profits before depreciation and after taxes (cash flows) are as follows:

	Year 1 Rs.	Year 2 Rs.	Year 3 Rs.	Year 4 Rs.	Year 5 Rs.
Project X	5,000	10,000	10,000	3,000	2,000
Project Y	20,000	10,000	5,000	5,000	3,000

Solution:

Project X

Year	Cash Inflows Rs.	P.V. factor @ 10%	P.V. of Cash Inflows Rs.
1	5000	0.909	4545
2	10000	0.826	8260
3	10000	0.751	7510
4	3000	0.683	2049
5	2000	0.621	1242
5 (Scrap Value)	1000	0.621	621
P.V. of Cash Inflows			24227
Less: P.V. of Cash Outflows			20000
NPV			4227

$$PI = \frac{\text{P.V.of Cash Inflows}}{\text{P.V.of Cash Outflows or Initial Cash Outlay}}$$

$$= \frac{24227}{20000}$$

=1.21

Project Y

Year	Cash Inflows Rs.	P.V. factor @ 10%	P.V. of Cash Inflows Rs.
1	20000	0.909	18180
2	10000	0.826	8260
3	5000	0.751	3755
4	3000	0.683	2049
5	2000	0.621	1242
5 (Scrap Value)	2000	0.621	1242
P.V. of Cash Inflows			34728
Less: P.V. of Cash Outflows			30000
NPV			4728

$$PI = \frac{\text{P.V.of Cash Inflows}}{\text{P.V.of Cash Outflows or Initial Cash Outlay}}$$

$$= \frac{34728}{3000}$$

=1.16

Conclusion:

NPV of Project Y is higher than the NPV of Project X. Hence, Project Y should be selected.

Illustration 7. No project is acceptable unless the yield is 10%. Cash inflows of a certain project alongwith cash outflows are given below:

Year	Outflows Rs.	Inflows Rs.
0	1,50,000	-
1	30,000	20,000
2		30,000
3		60,000
4		80,000
5		30,000

The salvage value at the end of the 5th year is Rs.40,000. Calculate net present value and Profitability Index.

Solution:

Calculation of Present value of Cash Outflows

Year	**Cash Outflows Rs.**	**P.V. factor @10%**	**P.V. of Cash Outflows Rs.**
0	150000	1.000	150000
1	30000	0.909	27270
P.V of Cash Outflows			177270

Calculation of Present value of Cash Outflows

Year	**Cash Outflows Rs.**	**P.V. factor @10%**	**P.V. of Cash Inflows Rs.**
1	20000	0.909	18180
2	30000	0.826	24780
3	60000	0.751	45060
4	80000	0.683	54640
5	30000	0.621	18630

5 (Salvage)	40000	0.621	24840
P.V of Cash Inflows			186130

NPV=P.V. of Cash Inflows – P.V. of Cash Outflows

=186130 – 177270

=8,860

$$\textbf{PI} = \frac{\textbf{P.V.of Cash Inflows}}{\textbf{P.V.of Cash Outflows or Initial Cash Outlay}}$$

$$= \frac{\mathbf{186130}}{\mathbf{177270}}$$

=1.05

Illustration 8.

Initial Outlay Rs.50,000

Life of the asset 5 years

Estimated Annual Cash Flow Rs. 12,500

Calculate the internal rate of return

Solution

$$\text{Present Value Factor} = \frac{\text{Initial Outlay}}{\text{Annual Cash Inflow}}$$

$$= \frac{50,000}{12,500} = 4$$

Consulting Present Value Annuity tables for 5 years periods at present Value Factor of 4, Internal Rate of Return = 8%

(as we see from the table that at 8% for 5 years period, the present value is 3.9927 which is nearly equal to 4)

Illustration 9.

Initial Investment Rs. 60,000

Life of the Asset years 4 years

Estimated Net Annual Cash Flows: Rs.

1st Year	15,000
2nd Year 20,000	20,000
3rd Year 30,000	30,000

Solution;

Cash Flow Table at Various Assumed Discount Rate of 10%, 12%, 14% & 15%									
Year	Annual Cash Flow Rs.	Discount Rate @10%		Discount Rate @12%		Discount Rate @14%		Discount Rate @15%	
		P.V.F	P.V. Rs.	P.V.F	P.V. Rs.	P.V.F	P.V. Rs.	P.V.F	P.V. Rs.
1	15,000	0.909	13,635	0.892	13,380	0.877	13,155	0.869	13,035
2	20,000	0.826	16,520	0.797	15,940	0.769	15,380	0.756	15,120
3	30,000	0.751	22,530	0.711	21,330	0.674	20,220	0.657	19,710
4	20,000	0.683	13,660	0.635	12,700	0.592	11,840	0.571	11,420
			66,345		63,350		60,595		59,285

The present value of net cash flows at 14% rate of discount is Rs. 60,595 and at 15% rate of discount it is Rs 59,285. So the initial cost of investment which is Rs. 60,000 fails in between these two discount rates. At 14% the NPV is + 559 but at 15% the NPV is – 715, we may say that

$$\text{IRR} = 14\% + \frac{595}{595+715} + (15\% - 14\%)$$

$$= 14.45\%$$

2.5 CAPITAL RATIONING

Capital rationing is a financial management strategy in which a company imposes restrictions on the amount of capital it allocates to various investment projects. The primary goal of capital rationing is to optimize the allocation of limited financial resources among competing projects. This process involves selecting the most promising projects within the constraints of the available capital budget. Here are key points about capital rationing:

1. Reasons for Capital Rationing:

Limited Funds: Capital rationing is often implemented when a company has limited financial resources and cannot fund all potentially profitable projects simultaneously.

Strategic Constraints: Companies may choose to ration capital based on strategic considerations, focusing on specific types of projects that align with the organization's long-term goals.

2. Types of Capital Rationing:

Hard Capital Rationing: This occurs when external factors, such as a lack of available financing or regulatory restrictions, impose strict limits on the amount of capital that can be raised.

Soft Capital Rationing: In this case, internal factors, like management decisions or risk aversion, lead to restrictions on capital allocation. The limits are not imposed by external factors but are rather self-imposed by the company.

3. Capital Budgeting Decision Process:

Capital rationing requires a careful evaluation and selection process for potential investment projects. The company must prioritize projects based on their expected returns, risk profiles, and alignment with strategic objectives.

4. Project Selection Criteria:

Companies typically use a set of criteria to prioritize projects under capital rationing. Common criteria include return on investment (ROI), payback period, net present value (NPV), internal rate of return (IRR), and risk assessment.

5. Optimization Techniques:

Several optimization techniques are employed to make the most efficient use of the available capital. These may include mathematical models, linear programming, or other quantitative methods to maximize the overall value of the project portfolio given the constraints.

6. Flexibility in Resource Allocation:

Capital rationing allows for flexibility in resource allocation over time. As financial conditions change or new opportunities arise, companies may revisit their capital rationing strategy and adjust their investment priorities accordingly.

7. Challenges of Capital Rationing:

Missed Opportunities: The primary challenge is the potential for missed opportunities. Capital rationing may lead to the exclusion of valuable projects with high potential returns.

Risk of Suboptimal Portfolio: Imposing constraints on capital allocation can result in a suboptimal project portfolio, as projects might be selected based on availability of funds rather than maximizing overall value.

8. Strategic Considerations:

Capital rationing often involves aligning investment decisions with the company's overall strategic objectives. Projects that contribute most effectively to the company's long-term goals may receive higher priority.

In summary, capital rationing is a strategic financial management approach that involves carefully selecting and prioritizing investment projects within the constraints of limited capital. It requires a thorough evaluation of project proposals, a focus on key financial metrics, and the use of optimization techniques to make informed decisions that align with the company's strategic vision and financial capabilities.

2.6 RISK AND UNCERTAINTY IN CAPITAL BUDGETING

All the techniques of capital budgeting require the estimation of future cash inflows and cash outflows. The figure cash flows are estimated based on the following factors:

1. Expected economic life of the project
2. Salvage value of the asset at the end of the economic life
3. Capacity of the project
4. Selling price of the product
5. Production cost
6. Depreciation rate
7. Rate of taxation
8. Future demand of the product, etc.

But due to uncertainties about the future, the estimates of demand, production, sales costs, selling prices etc., cannot be determined exactly. For example, a product may become

obsolete much earlier than anticipated due to unexpected developments. All these elements of uncertainty have to be taken into account in the firm of forcible risk while taking a decision on investment proposals. It is perhaps the most difficult task while making an investment decision. But some allowances for the element of risk have to be provided.

The following methods are suggested for accounting for risk in capital budgeting:

(i) Risk Adjusted Discount Rate or Method of Varying Discount Rate

(ii) Certainty Equivalent Method

(iii) Sensitivity Technique

(iv) Probability Technique

(v) Standard Deviation Method

(vi) Co-efficient of Variation Method

(vii) Decision Tree Analysis

(i) Risk Adjusted Discount Rate or Method of Varying Discount Rate

The Risk-Adjusted Discount Rate (RADR) or the Method of Varying Discount Rates is a financial evaluation technique used in capital budgeting to account for the varying levels of risk associated with different projects or investment opportunities. This method recognizes that projects with different risk profiles should be evaluated using different discount rates to reflect their respective levels of uncertainty

Illustration 10. The X Company Ltd. is considering the purchase of a new investment. Two alternative investments are available (A & B) each costing Rs. 1,00,000. Cash inflows are expected to be as follows:

Year	Cash Inflows	
	Investment A (Rs.)	Investment B (Rs.)
1	40,000	50,000
2	35,000	40,000
3	25,000	30,000
4	20,000	30,000

The company has a target return on capital of 10%. Risk premium are 2% and 8% respectively for investments A and B. Which investment should be preferred.

Solution:

The profitability of the two investments can be compared on the basis of net present values. Cash inflows adjusted for risk premium rates as follows:

Investment A

Year	Discount Factor @(10+2)=12%	Cash inflows (Rs.)	P.V. of cash Inflows (Rs.)
1	0.893	40,000	35,720
2	0.797	35,000	27,895
3	0.712	25,000	17,800
4	0.6354	20,000	12,700
P.V of Cash Inflows			94,115
Less: P.V. Cash Outflows			1,00,000
NPV			-5,885

Investment B

Year	Discount Factor @(10+8)=18%	Cash inflows (Rs.)	P.V. of cash Inflows (Rs.)
1	0.847	50,000	42,350
2	0.718	40,000	28,720
3	0.609	30,000	18,270
4	0.516	30,000	15,480
P.V of Cash Inflows			1,04,820
Less: P.V. Cash Outflows			1,00,000
NPV			4,820

As even higher discount rate investment B gives higher net present value, investment B should be preferred.

(II) Certainty Equivalent Method

The Certainty Equivalent Method is a financial valuation technique used in decision-making under uncertainty. It is particularly relevant in the field of investment analysis and capital budgeting, where future cash flows are uncertain and may be subject to risk. The Certainty Equivalent Method helps decision-makers evaluate and compare projects or investment opportunities by expressing uncertain future cash flows in terms of their equivalent certain (risk-free) cash flows.

Illustration 11: There are two projects X and Y. Each involves an investment of Rs. 40,000. The expected cash inflows and the uncertainty coefficient are as under:

Year	Project X		Project Y	
	Cash Inflow Rs.	Certainty Coefficient	Cash Inflow Rs.	Certainty Coefficient
1	25,000	.8	20,000	.9
2	20,000	.7	30,000	.8
3	20,000	.9	20,000	.7

Risk-free cut off rate is 10%. Suggest which of the two projects should be preferred.

Solution:

Calculation of Cash Inflows with Certainty

Year	Project X			Project Y		
	Cash Inflow Rs.	Certainty Coefficient	Certain Cash Inflow Rs.	Cash Inflow Rs.	Certainty Coefficient	Certain Cash Inflow Rs.
1	25,000	.8	20.000	20,000	.9	18,000
2	20,000	.7	14,000	30,000	.8	24,000
3	20,000	.9	18,000	20,000	.7	14,000

Calculation of Present Vales of Cash Inflows

Year	**Discount Factor @10%**	**Project X**		**Project Y**	
		Cash Inflows Rs.	**Present Value Rs.**	**Cash Inflows Rs.**	**Present Value Rs.**
1	.909	20.000	18,180	18,000	16,362
2	.826	14,000	11,564	24,000	19,824
3	.751	18,000	13,518	14,000	10,514
Total			43,262		46,700

Net Present Value of Project X = Rs. (43,262 -40,000)= Rs.3,262

Net Present Value of Project Y = Rs. (46,700-40,000)= Rs.4,600

As the net present value of Project Y is more than that of Project X. Project Y should be preferred.

(iii) Sensitivity Technique

Sensitivity analysis is a technique commonly employed in risk analysis within capital

budgeting to assess the impact of variations in key project parameters on the project's financial outcomes. It helps decision-makers understand how changes in certain variables or assumptions affect the project's viability and allows for a more comprehensive evaluation of risk

The Standard Deviation Method is a risk analysis technique used in capital budgeting to quantify the level of risk associated with expected cash flows or other financial metrics. It measures the dispersion or variability of potential outcomes around the expected value

Illustration 12. Mr. X is considering two mutually exclusive projects A and B. You are required to advise him about the acceptability of the projects from the following information :

	Project A	Project B
Cost of the Investment	50,000	50.000
Forecast Cash Inflows per annum for 5 years		
Optimistic	30,000	40,000
Most Likely	20,000	20.000
Pessimistic	15,000	5,000
(The cut-off rate may be assumed to be 15%)		

Solution:

Calculations of Net Present Value of Cash Inflows at a Discount Rate of 15% (Annuity of Re. | for 5 Years)

Economic Environment	Project A				Project B			
	Annual Cash Inflow Rs.	Discount Factor Rs.	Present Value Rs.	Net Present Value	Annual Cash Inflow Rs.	Discount Factor Rs.	Present Value Rs.	Net Present Value
Optimistic	30,000	3.3522	1,00,566	50,566	40,000	3.3522	134,088	84.088
Most Likely	20,000	3.3522	67,014	17,044	30.000	3.3522	67,044	17,044
Pessimistic	20,000	3.3522	50,283	283	5,000	3.3522	16,761	33,239

The net present values as calculated above indicate that Project B is more risky as compared to Project A. But at the same time during favourable conditions, it is more profitable also The

acceptability of the project will depend upon Mr. X attitude towards risk. If he could afford to take higher risk, project B may be more

(iv) Probability Techniques

Probability techniques, also known as probabilistic analysis or Monte Carlo simulation, are methods used in capital budgeting for risk analysis. These techniques involve incorporating probability distributions into financial models to assess the impact of uncertainty on project outcomes. By considering a range of possible values for key variables and assigning probabilities to those values, decision-makers can gain a more comprehensive understanding of the potential risks associated with an investment.

(v) Standard Deviation Method

The Standard Deviation Method is a risk analysis technique used in capital budgeting to quantify the level of risk associated with expected cash flows or other financial metrics. It measures the dispersion or variability of potential outcomes around the expected value.

The standard deviation is calculated using the formula

$$\text{Standard Deviation} = \sqrt{\frac{\Sigma f d^2}{n}}$$

(vi) Co-efficient of Variation Method

The Coefficient of Variation (CV) Method is a risk analysis technique used in capital budgeting to assess the relative risk of different investment projects by considering the ratio of the standard deviation of cash flows to the mean (expected value) of cash flows. This method allows decision-makers to compare and rank projects based on their risk-adjusted returns.

$$\text{CV} = \frac{SD}{\text{Mean}} \times 100$$

Where,

CV = Co-efficient of Variation

SD = Standard Deviation

(vii) Decision Tree Analysis

Decision Tree Analysis is a powerful tool in risk analysis within capital budgeting. It is a graphical representation of decision choices and their potential outcomes, incorporating probabilities and associated values. Decision trees help decision-makers evaluate complex investment decisions under uncertainty, considering different scenarios and their respective payoffs. Here are key points about Decision Tree Analysis in the context of capital budgeting:

CHECK YOUR PROGRESS

A. Multiple Choice Questions:

Select the most appropriate answer:

1. It concerned with the allocation of the firm's scarce financial resources among the available market opportunities.
   (a) Working capital requirement
   (b) Capital budgeting
   (c) Current assets management
   (d) None of the above
2. When one project is accepted, other project(s) will be automatically rejected for implementation. These are
   (a) Mutually exclusive proposals
   (b) Dependent proposals
   (c) Independent proposals
   (d) None of the above
3. The pay back method of capital budgeting appraisal method is suitable when
   (a) A firm suffers from liquidity crisis
   (b) A firm expects long-term growth
   (c) A firm has stable political conditions
   (d) A firm has favourable market conditions
4. ……is the ratio of the average annual profits after taxes to the average investment in the projects.

(a) Average rate of return
(b) Internal rate of return
(c) Net present value
(d) Profitability index

5. The length of time required to recover the initial cash outlay on the project is known as
(a) Normal period
(b) Short period
(c) Pay back period
(d) Super normal period
6. Profitability index is also known as ……..
(a) Benefit cost ratio
(b) Cost benefit ratio
(c) Net profit ratio
(d) Gross profit ratio
7. What is the rate which equates the present value of expected future cash flows with the cost of investment?
(a) External rate of return
(b) Average rate of return
(c) Internal rate of return
(d) Return on investment
8. Discounted cash flow techniques involves
(a) Net present value
(b) Payback method
(c) Accounting Rate of Return
(d) None of the above
9. The difference between the total present value of a stream of cash flows at a given rate of discount and the initial capital outlay is known as the:
(a) Net Profit
(b) Net present value
(c) Gross Profit
(d) Gross Loss

10. …….. is long-term planning for making and financing proposed capital outlays.
    (a) Capital budgeting
    (b) Working capital management
    (c) Planning for capital
    (d) None of the above

[Ans. 1(b); 2(a); 3(a); 4(a); 5(c); 6(a); 7(c); 8(a); 9(b); 10(a)]

B. Short Answer Type Questions:

1. Define capital budgeting.
2. What is the need of capital budgeting.
3. Name various methods of capital budgeting.
4. What is capital rationing?

C. Long Answer Type Questions:

1. What is capital budgeting? Examine its need and importance.
2. What is capital budgeting? Why is it significant for a firm?
3. Explain the nature and concept of capital budgeting.
4. Explain briefly the methods of capital budgeting bringing out the merits and demerits of each.
5. Enumerate briefly the major steps involved in capital budgeting.

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UNIT-III: COST OF CAPITAL

3.1 INTRODUCTION

The cost of capital plays a crucial role in investment decisions, serving as a tool to assess the viability of investment proposals put forth by a business. It is employed as a discount rate to calculate the present value of future cash flows linked to capital projects. Additionally, the cost of capital is referred to as the cut-off rate, target rate, hurdle rate, and required rate of return. When a company utilizes various sources of financing, the finance manager must make prudent decisions concerning the cost of capital, as it has a direct connection to the firm's value and earning capacity.

3.2 MEANING AND DEFINITION OF COST OF CAPITAL

Cost of capital is the rate of return that a firm must earn on its project investments to maintain its market value and attract funds.

Cost of capital is the required rate of return on its investments which belongs to equity, debt and retained earnings. If a firm fails to earn return at the expected rate, the market value of the shares will fall and it will result in the reduction of overall wealth of the shareholders.

Definitions

The following important definitions are commonly used to understand the meaning andconcept of the cost of capital.

According to the definition of **John J. Hampton** " Cost of capital is the rate of returnthe firm required from investment in order to increase the value of the firm in the market place".

According to the definition of **Solomon Ezra,** "Cost of capital is the minimum requiredrate of earnings or the cut-off rate of capital expenditure".

According to the definition of James **C. Van Horne**, Cost of capital is "A cut-off rate forthe allocation of capital to investment of projects. It is the rate of return on a project thatwill leave unchanged the market price of the stock".

According to the definition of **William and Donaldson**, “Cost of capital may be definedas the rate that must be earned on the net proceeds to provide the cost elements of theburden at the time they are due”.

3.3 ASSUMPTIONS OF COST OF CAPITAL

Cost of capital is based on certain assumptions which are closely associated while calculatingand measuring the cost of capital. It is to be considered that there are three basic concepts:

1. It is not a cost as such. It is merely a hurdle rate.

2. It is the minimum rate of return.

3. It consis of three important risks such as zero risk level, business risk and financial risk.

Cost of capital can be measured with the help of the following equation.

$K = rj + b + f.$

Where,

K = Cost of capital.

rj = The riskless cost of the particular type of finance.

b = The business risk premium.

f = The financial risk premium.

3.4 CLASSIFICATION OF COST

Cost may be classified into the following types on the basis of nature and usage:

• Historical and Future Cost.

• Specific and Combined Cost

• Explicit and Implicit Cost.

• Average and Marginal Cost.

- **Historical cost and future cost**

Historical costs are book costs which are related to the past. Future costs are estimated cost for the future.

- **Specific cost and composite cost**

Specific cost refers to the cost of a specific source of capital while composite cost is combined cost of various sources of capital

- **Explicit cost and implicit cost**

An explicit cost is the discount rate which equates the present value of cash inflows with the present value of cash outflows. In other words, it is the internal rate of return.

Implicit cost also known as the opportunity cost is the cost of the opportunity foregone in order to take up a particular project.

- **Average cost and marginal cost**

An average cost refers to the combined cost of various sources of capital such as debentures, preference shares and equity shares. It is the weighted average cost of various sources of finance.

Marginal cost of capital refers to the average cost of capital which has to be incurred to obtain additional funds required by a firm.

3.5 IMPORTANCE OF COST OF CAPITAL

The cost of capital holds significant importance in financial decision-making for businesses and organizations. Here are key reasons illustrating its significance:

1. Capital Budgeting Choices:

The cost of capital is pivotal in making decisions related to capital budgeting. It assists in assessing the viability and profitability of long-term investment projects by comparing anticipated returns with the cost of capital.

2. Project Assessment:

Organizations utilize the cost of capital to evaluate the feasibility of potential projects. Projects with expected returns higher than the cost of capital are considered acceptable.

3. Establishing Financial Objectives:

Determining the cost of capital helps in setting financial goals and benchmarks for the organization. It serves as a reference point for measuring the performance of different investments and projects.

4. Capital Structure Determinations:

Optimal capital structure decisions, regarding the mix of debt and equity, are influenced by the cost of capital. This metric aids in minimizing the overall cost of financing.

5. Meeting Investor Expectations:

The cost of capital reflects the anticipated return expected by investors for providing funds to a company. Meeting or exceeding this cost is crucial for attracting and retaining investors.

6. Financial Performance Evaluation:

The cost of capital serves as a metric for evaluating the financial performance of a company. A return on investment exceeding the cost of capital indicates positive financial performance.

7. Risk Evaluation:

By incorporating the risk associated with various financing sources, the cost of capital assists in assessing the risk-return tradeoff and making decisions aligned with the organization's risk tolerance.

8. Dividend Policy Determination:

Companies use the cost of capital to guide their dividend policies, balancing the retention of profits for future investments with the distribution of dividends to shareholders.

9. Share Valuation Considerations:

Investors utilize the cost of equity capital to evaluate the valuation of a company's shares, particularly in discounted cash flow (DCF) models used for share valuation.

10. Market Competitiveness:

Understanding the cost of capital is essential for maintaining competitiveness. Ensuring that the cost of capital aligns with industry standards is crucial for attracting investors and securing favorable financing terms.

In summary, the cost of capital is a crucial financial metric influencing decisions ranging from project evaluations and capital structure choices to investor relations and overall financial performance assessment. It serves as a guiding factor in shaping the financial strategy and direction of a business.

3.6 COMPUTATION OF COST OF CAPITAL

Computation of cost of capital consists of two important parts:

A. COMPUTATION OF COST OF SPECIFIC OF SOURCE OF FINANCE

B. COMPUTATION OF WEIGHTED AVERAGE COST OF CAPITAL

A. COMPUTATION OF SPECIFIC COST OF CAPITAL

1. COST OF DEBT

1.1 Cost of Irredeemable/Perpetual Debt

(i) Before tax cost of debt

$$\mathbf{K_{db}} = \frac{I}{NP}$$

Where,

K_{db}= Before tax cost of debt

I = Interest

NP = Net Proceeds

(ii) After tax cost of debt

$$\mathbf{K_{da} = K_{db}(1 - t)}$$

$$= \frac{I}{NP}(1 - t)$$

Where,

K_{da} = After tax cost of debt

I = Interest

NP = Net Proceeds

t = Rate of tax

Illustration 1: (a) X Ltd. issues Rs. 50,000 8% debentures at par. The tax rate applicable to the company is 50%. Compute the cost of debt capital.

(b) X Ltd. issues Rs. 50,000 8% debentures at a premium of 10%. The tax rate applicable to the company is 60%. Compute the cost of debt capital.

(c) A Ltd. issues Rs. 50,000 8% debentures at a discount of 5%. The tax rate applicable to the company is 50%. Compute the cost of debt capital.

Solution:

(a) Here,

I = 8% of 50,000 = Rs. 4,000

NP = Rs. 50,000

t = 50% = 0.5

$K_{da} = \frac{I}{NP}(1 - t)$

$= \frac{4000}{50000}(1 - 0.5)$

$= \frac{4000}{50000}$ x 0.5

= 0.04 or 4%

Alternatively,

$\mathbf{K_{db} = \frac{I}{NP}}$

$\mathbf{K_{db} = \frac{4000}{50000}}$

=0.8

$\mathbf{K_{da} = K_{db}(1 - t)}$

$\mathbf{K_{da} = 0.8(1 – 0.5)}$

=0.8 x 0.5

=0.04 or 4%

(b) Here,

I = 8% of 50,000 = Rs. 4,000

NP = 50,000 + 10% of 50,000

=50,000 + 5,000

= Rs. 55,000

t = 60% = 0.6

$K_{da} = \frac{I}{NP}(1 – t)$

$= \frac{4000}{55000}(1 – 0.6)$

$= \frac{4000}{55000}$ x 0.4

= 0.0291 or 2.91%

(c) Here,

I = 8% of 50,000 = Rs. 4,000

NP = 50,000 - 5% of 50,000

= 50,000 – 2,500

= Rs. 47,500

t = 50% = 0.5

$K_{da} = \frac{I}{NP}(1 – t)$

$= \frac{4000}{47500}(1 – 0.5)$

$= \frac{4000}{47500}$ x 0.5

= 0.421 or 4.21%

Explanation:

(i) This is a problem of irredeemable/perpetual debt because its redeemable period is not mentioned in the question. Debentures or bonds are debt instruments.

(ii) It is not mentioned in the question which cost of debt (before tax or after tax) will be calculated. Since, the rate of tax is mentioned in the question, after tax cost of debt will be calculated. Otherwise, before tax cost of debt has to be calculated.

(iii) 8% debenture means, rate of interest on this debenture is 8% i.e. I = 8% of par value i.e. 8% of 50000. Interest is always calculated on par value of debenture.

(iv) In the question (a) Debentures are issued at par that is why NP = 50,000.

(v) In the question (b) Debentures are issued at Premium of 10% that is why NP = 50,0000+10% of 50000 =55000. Premium will be added.

(vi) In the question (c) Debentures are issued at discount of 5% that is why NP = 50,0000 - 5% of 50000 =47500. Discount will be deducted.

(vii) Answer is always expressed in percentage by multiplying the number by 100.

1.2 Cost of Redeemable Debt

(i) Before tax cost of debt

$$K_{db}=\frac{I+(RV-NP)/n}{(RV+N\ )/2}$$

Where,

K_{db}= Before tax cost of debt

I = Annual Interest

RV = Redeemable value of debt

NP = Net Proceeds

n = Number of years in which debt is to be redeemed

(ii) After tax cost of debt

$$K_{db}=\frac{I(1-t)+(RV-NP)/n}{(RV+NP)/2}$$

Where,

K_{da}= After tax cost of debt

I = Annual Interest

RV = Redeemable value of debt

NP = Net Proceeds

n = Number of years in which debt is to be redeemed

t = Rate of tax

Illustration 2. A 5 year debenture of a firm can be sold for a net price of Rs.96.50. The coupon rate of interest is 14% per annum, and the debenture will be redeemed at 5% premium on maturity. The firm's tax rate is 40%. Compute the before and after-tax cost of debenture.

Solution:

Before tax-cost of redeemable debt

Here,

I = 14% of 100 = Rs. 14

NP = Rs. 96.50

RV = 100 + 5% of 100 = 100 + 5 =105

n = 5 years

t = 40% 0r 0.4

$$K_{db}=\frac{I+(RV-N)/n}{(RV+N)/2}$$

$$=\frac{14+(105-96.50)/5}{(105+96.50)/2}$$

$$=\frac{14+(8.5)/5}{(201.50)/2}$$

$$=\frac{14+1.7}{100.75}$$

$$=\frac{15.7}{100.75}$$

= 0.1558

=15.58%

After tax-cost of redeemable debt

Here,

I = 14% of 100 = Rs. 14

NP = Rs. 96.50

RV = 100 + 5% of 100 = 100 + 5 =105

n = 5 years

t = 40% 0r 0.4

$$K_{db}=\frac{I(1-t)+(RV-NP)/n}{(RV+NP)/2}$$

$$=\frac{14(1-0.4)+(105-96.50)/n}{(105+96.5)/2}$$

$$=\frac{14(0.6)+(8.5)/5}{(201.50)/2}$$

$$=\frac{8.4+1.7}{(100.75}$$

$$=\frac{8.4+1.7}{(100.75}$$

$$=\frac{10.1}{100.75}$$

$$= 0.1003$$

$$= 10.03\%$$

2. **Cost of Term Loan**

$K_t = I\ (1 - t)$

Where,

K_t = Cost of term loan

I = Rate of interest

t = Rate of tax

Illustration 3. R Co. Ltd. has taken loan of Rs. 10,00,000 from Canara Bank @14%. Calculate cost of term loan if the rate of tax is 50%.

Solution:

Here,

I = 14% or 0.14

t = 50% or 0.5

$K_t = I\ (1 - t)$

$= 0.14\ (1 - 0.5)$

$= 0.14 \times 0.5$

$= 0.07$

$=7\%$

3. Cost of Preference Share Capital

(i) Cost of Irredeemable/Perpetual Preference Capital.

$$K_p=\frac{D}{NP}$$

Where,

D = Annual Preference Dividend

NP = Net Proceeds of Preference Shares (NP = Face value +premium –discount – floatation cost)

(ii) Cost of Redeemable Preference Capital

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

Where,

D = Annual Preference Dividend

MV = Maturity Value of Preference Shares

NP = Net Proceeds of Preference e Shares

n = No. of years to maturity

Illustration 4. A company issues 10,000 10% Preference Shares of Rs. 100 each. Cost of issue is Rs. 2 per share. Calculate cost of preference capital if these shares are issued (a) at par, (b) at a premium of 10% and (c) at a discount of5%.

Solution:

(a) If shares are issued at par

Here,

D = 10% of 10,00,000 = Rs. 1,00,000 FV=10000 x100=10,00,000

NP = (10,000 x 100) – (10,000 x 2) (NP = FV + premium – discount – floatation cost)

= 10,00,000 -20,000

=Rs. 9,80,000

$$\mathbf{K_p = \frac{D}{NP}}$$

$$= \frac{1,00,000}{9,80,000}$$

= 0.102

= 10.2%

(b) If shares are issued at a premium of 10%

Here,

D = 10% of 10,00,000 = Rs. 1,00,000

NP = (10,000 x 100) + 10% of 10,00,000 – (10,000 x 2) (NP = FV + premium – discount – floatation cost)

= 10,00,000 + 1,00,000 – 20,000

= Rs. 10,80,000

$\mathbf{K_p}=\frac{D}{NP}$

$=\frac{1,00,000}{10,80,000}$

= 0.0926

= 9.26%

(c) If shares are issued at a discount of 5%

Here,

D = 10% of 10,00,000 = Rs. 1,00,000

NP = (10,000 x 100) - 5% of 10,00,000– (10,000 x 2) (NP = FV + premium – discount – floatation cost)

= 10,00,000 - 50,000 – 20,000

= Rs. 9,30,000

$K_p=\frac{D}{NP}$

$=\frac{1,00,000}{9,30,000}$

= 0.1075

= 10.75%

Explanation:

(i) This is a irredeemable/perpetual preference share as its maturity/redemption period is not given.

(ii) 10,000 units of preference shares are issued at Rs.100 each. Therefore, its face value is Rs. (10,00,000 x 100)= Rs. 10,00,000

(iii) 10% Preference shares means, the rate of dividend of the shares is 10%.

(iv) Therefore, annual dividend (D)= 10% of 10,00,000 = Rs. 1,00,000. Dividend is always calculated on face of shares.

(v) NP = Issue Price of shares – cost of issue of shares

(vi) In case (a) preference shares are issued at par means at face value i.e. at 10,00,000.

Cos of issue = 10,000 x 2 =20,000. Therefore, NP = Issue Price – cost of issue = 10,00,000 - 20,000 = Rs. 9,80,000

(vii) In case (b) preference shares are issued at a premium of 10%. Therefore, it is issued 10% more than its face or par value. Hence, Issue price = 10,00,000 + 10% of 10,00,000. In this case, NP = Issue Price – Cost of issue = 10,00,000 + 10% of 10,00,000 – (10,000 x 2) = Rs. 9,80,000.

(viii) In case (c) preference share are issued at a discount of 5%. Therefore, it is issued 5% less than is face or par value. Hence, NP = 10,00,000 – 5% of 10,00,000. In this case, Np = NP = Issue Price – Cost of issue = 10,00,000 – 5% of 10,00,000 – (10,000 x 2) = Rs. 9,30,000.

(ix) The way of solving the problems of cost of preference capital is same as way of solving the problems of cost of debt (debentures). The difference is that we have to write D in place of I. The reason is that preference shareholders are getting Dividend.

(ii) Cost of Redeemable Preference Capital

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

Where,

D = Annual Preference Dividend

MV = Maturity Value of Preference Shares

NP = Net Proceeds of Preference e Shares

n = No. of years to maturity

Illustration 5. A company issues 1,000 7% Preference Shares of Rs. 100 each at a premium of 10% redeemable after 5 years at par. Compute the cost of preference capital.

Solution:

Here,

D = 7% of 1,00,000 = Rs. 7,000 1000 x 100=100000

NP = 1,00,000 + 10% of 1,00,000 (NP = FV + premium – discount – floatation cost)

= 1,00,000 + 10,000

= Rs. 1,10,000

MV = Rs. 1,00,000 (MV= FV + premium – discount)

n = 5 Years

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

$$= \frac{7{,}000 + (1{,}00{,}000 - 1{,}10{,}000)/5}{(1{,}10{,}000 + 1{,}00{,}000)/2}$$

$$= \frac{7{,}000 + (-10{,}000/5)}{(2{,}10{,}000)/2}$$

$$= \frac{7{,}000 - 2{,}000}{1{,}05{,}000}$$

$$= \frac{5{,}000}{1{,}05{,}000}$$

$$= 0.0476$$

$$= 4.76\%$$

Explanation:

(i) The above preference share is redeemable preference share as its redeemable or maturity period is given i.e. 5 years.

(ii) Par value or face value of preference shares is (1,000 x 100) Rs.1,00,000

(iii) Dividend (D) always calculated on par or face value i.e. 7% of 1,00,000 =Rs. 7,000

(iv) Preference shares are issued at premium. Therefore, issue price = 1,00,000 + 10% of 1,00,000 = 1,00,000 + 10,000 = Rs. 1,10,000. NP = Issue Price – cost of issue= Rs. 1,10,000. Cost of issue is not given in this question.

(v) Preference shares are redeemed at par i.e. redeemed at face value i.e. Rs. 1,00,000. Therefore, MV or RV = Rs. 1,00,000

(vi) Premium or discount is always calculated on par value of shares.

Illustration 6. A company issues 1,000 7% Preference Shares of Rs. 100 each at a discount of 5% redeemable after 5 years at a premium of 10%. Compute the cost of preference capital.

Solution:

Here,

D = 7% of 1,00,000 = Rs. 7,000

NP = 1,00,000 - 5% of 1,00,000

= 1,00,000 – 5,000

= Rs. 95,000

MV = 1,00,000 + 10% of 1,00,000

= 1,00,000 + 10,000

= Rs. 1,10,000

n = 5 Years

$$\mathbf{K_p = \frac{7{,}000 + (1{,}10{,}000 - 95{,}000)5}{(1{,}10{,}000 + 95{,}000)/2}}$$

$$= \frac{7{,}000 + (15{,}000)/5}{(2{,}05{,}000)/2}$$

$$= \frac{7{,}000 + 3.000}{1{,}02{,}500}$$

$$= \frac{10{,}000}{1{,}02{,}500}$$

$$= 0.0976$$

$$= 9.76\%$$

Explanation:

(i) The above preference shares are issued at discount of 5%. Therefore, NP = 1,00,000 – 5% of 1,00,000 =1,00,000 -5,000 = Rs. 95,000.

(ii) But the shares are redeemable at a premium of 10%. Therefore, MV or RV = 1,00,000 + 10% of 1,00,000.

(iii) Premium is added and discount is deducted.

4. COST OF EQUITY CAPITAL

The cost of equity share capital can be computed in the following ways:

(a) Dividend Yield Method

$$K_e = \frac{D}{NP \text{ or } MP}$$

Where,

K_e= Cost of Equity Capital

D= Expected dividend per share

NP= Net proceeds per share

MP= Market price per share

Illustration 7. A company issues 1000 equity shares of Rs.100 each at a premium of 10%. The company has been paying 20% dividend to equity shareholders for the past five years and expects to maintain the same in the future also. Compute the cost of equity capital. Will it make any difference if the market price of equity share is Rs.160?

Solution:

Here,

D= 20

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

Therefore,

$K_e = \frac{D}{NP}$

$K_e = \frac{20}{110}$

=0.1818

= 18.18% (converting to Percentage)

(b) Dividend Yield Plus Growth in Dividend Method

$$\mathbf{K_e = \frac{D1}{NP} + g = \frac{D0(1+g)}{NP} + g}$$

Illustration 8. A company plans to issue 1000 new shares of Rs.100 each at par. The floatation n costs are expected to be 5% of the share price. The company pays a dividend of Rs. 10 per share initially and the growth in dividend is expected to be 5%. Compute the cost of new issue of equity shares.

Solution :

Here,

D_1= Rs. 10

NP= 100 – 5% of 100 =100 – 5 = Rs.95 (floatation cost i.e. 5% will be deducted while calculating NP)

g = 5% or 0.05

Therefore,

$$\mathbf{K_e = \frac{10}{95} + 0.05}$$

= 0.1053 + 0.05

=0.1553

= 15.53% (converting to percentage)

(c) Earning Yield Method / Earning Price Ratio

$$\mathbf{K_e = \frac{EPS}{NP\ or\ MP}}$$

Where,

EPS = Earnings per share

NP = Net proceed

MP = Market price per share

Illustration 9. A firm is considering an expenditure of Rs.60 lakhs for expanding its operations. The relevant information is as follows:

	Rs.
Number of existing equity shares	10 lakhs
Market value of existing share	60
Net earnings	90 lakhs

Compute the cost of existing equity share capital and of new equity capital assuming that new shares will be issued at a price of Rs. 52 per share and the costs of new issue will be Rs. 2 per share.

Solution:

Here,

$\mathbf{K_e = \frac{EPS}{MP}}$

EPS= $\frac{90,00,000}{10,00,000}$

= Rs. 9

MP = Rs. 60

$K_e = \frac{9}{60}$

= 0.15

= 15%

Cost of New Equity Capital

$K_e = \frac{EPS}{MP}$

$= \frac{9}{52-2}$

$= \frac{9}{50}$

= 0.18

=18%

(d) Capital Asset Pricing Model (CAPM)

$\mathbf{K_e = R_f + \beta(R_m - R_f)}$

Where,

K_e = Cost of equity capital

R_f = Risk free rate of return

R_m = Market return of a diversified portfolio

β = Beta of co-efficient of the firm's portfolio

Illustration 10: You are given the following facts about a firm:

(i) Risk-free rate of return is 11%

(ii) Beta-co-efficient β of the firm is 1.25

Compute the cost of equity capital using Capital Asset Pricing Model (CAPM) assuming a market return of 15 per cent next year.

Solution

Here,

R_f = 11% or 0.11

R_m = 15% or 0.15

β = 1.25

$$\mathbf{K_e = R_f + \beta(R_m - R_f)}$$

$$\mathbf{= 0.11 + 1.25\ (0.15 - 0.11)}$$

$$\mathbf{= 0.11 + 1.25\ (0.04)}$$

$$\mathbf{= 0.11 + 0.05}$$

$$\mathbf{= 0.16 \text{ or } 16\%}$$

5. COST OF RETAINED EARNINGS

$K_r = K_e(1 - t)\ (1 - b)$

Where,

K_e = Cost of equity capital

t = Tax Rate

b = Brokerage cost

Illustration 11. A firm's K_e (return available to shareholders) is 15%, the average tax rate of shareholders is 40% and it is expected that 2% is brokerage cost that shareholders will have to pay while investing their dividends in alternative secures. What is the cost of retained earnings?

Solution:

Here,

K_e = 15% or 0.15

t = 40% = 0.4

b = 2% = 0.02

Therefore,

$K_r=K_e(1 – t) (1 –b)$

$K_r=0.15 (1 -0.4)(1-0.02)$

$=0.15(0.6)(0.98)$

$=0.0882$

$= 8.82\%$

B. COMPUTATION OF WEIGHTED AVERAGE COST OF CAPITAL

Weighted average cost of capital is the expected average future cost of funds over the long run found by weighting the cost of each specific type of capital by its proportion in the firms capital structure.

The computation of the overall cost of capital (Ko) involves the following steps.

(a) Assigning weights to specific costs.

(b) Multiplying the cost of each of the sources by the appropriate weights.

(c) Dividing the total weighted cost by the total weights.

The overall cost of capital can be calculated with the help of the following formula;

Ko= Kd Wd + Kp Wp + Ke We + Kr Wr

Where,

Ko = Overall cost of capital

Kd = Cost of debt

Kp = Cost of preference share

Ke = Cost of equity

Kr = Cost of retained earnings

Wd= Percentage of debt of total capital

Wp = Percentage of preference share to total capital

We = Percentage of equity to total capital

Wr = Percentage of retained earnings

Weighted average cost of capital is calculated in the following formula also:

$K_w= \frac{\sum XW}{\sum W}$

Where,

K_w = Weighted Average Cost of Capital

X = Cost of specific source of finance

W = Weight or proportion of specific source of finance.

Illustration 12. A firm has the following capital structure and after-tax costs for the different sources of funds used:

Sources of Funds	Amount (Rs.)	After-tax cost (%)
Debt	15,00,000	5
Preference Shares	12,00,000	10
Equity Shares	18,00,000	12
Retained Earnings	15,00,000	11
Total	60,00,000	

You are required to compute the weighted average cost of capital.

Solution:

Sources of Funds	Amount (Rs.)	Proportion or Weight	After-tax cost	Weighted Cost
Debt	15,00,000	15,00,000/60,00,000=0.25	0.05	0.25x0.05=0.0125
Preference Shares	12,00,000	12,00,000/60,00,000=0.2	0.1	0.2x0.1=0.02
Equity Shares	18,00,000	18,00,000/60,00,000=0.3	0.12	0.3x0.12=0.036
Retained Earnings	15,00,000	15,00,000/60,00,000=0.25	0.11	0.25x0.11=0.0275
Weighted Average Cost of Capital				= 0.096 or 9.6%

CHECK YOUR PROGRESS

A. Multiple Choice Questions

1. Cost of capital means
   (a) The minimum rate of return that a firm must earn on its investment
   (b) The present value of a past investment
   (c) The expected cash inflows
   (d) None of the above
2. According to traditional approach, cost of capital is affected by…….
   (a) Debt capital
   (b) Equity capital
   (c) Debt-equity mix
   (d) None of the above
3. .....is the combined cost of various sources of capital.
   (a) Specific cost
   (b) Composite cost
   (c) Weighted average cost of capital
   (d) Both (b) & (c)
4. …….is the discount rate which equates the present value of cash inflows with present value of cash inflows.
   (a) Specific cost
   (b) Composite cost
   (c) Explicit cost
   (d) Implicit cost
5. …….. is the cost of the opportunity foregone in to take up a particular project.
   (a) Specific cost
   (b) Composite cost
   (c) Explicit cost
   (d) Implicit cost
6. ……. Is the rate of interest payable on debt.
   (a) Cost of debt

(b) Cost of equity capital

(c) Cost of retained earnings

(d) None of the above

7. …… is a function of dividend expected by its investors i.e., its stated dividend.

(a) Cost of debt

(b) Cost of equity capital

(c) Cost of retained earnings

(d) Cost of preference capital

8. ……is the opportunity cost of dividends foregone by the shareholders.

(a) Cost of debt

(b) Cost of equity capital

(c) Cost of retained earnings

(d) Cost of preference capital

9. According to …….. method, the cost of equity capital is the discount rate that equates the present values of expected future earnings per share with net proceeds of a share.

(a) Dividend yield

(b) Earning yield

(c) Retained yield

(d) None of the above

10. …….. cost of capital is the average cost of the costs of various sources of financing .

(a) Marginal

(b) Nominal

(c) Weighted Average

(d) Specific

[Ans. 1(a); 2(c); 3(d); 4(c); 5(d); 6(a); 7(d); 8(c); 9(b); 10(c)]

B. Short Answer Type of Questions

1. What is cost of capital?

2. Specific cost Vs. composite cost.

3. Name various methods of computing cost of equity capital.

4. What is cost of retained earnings?

B. Long Answer Type Questions

1. What is cost of capital? Explain the significance of cost of capital.

2. Explain the computation of specific sources of cost of capital.

3. What is weighted average cost of capital> How weighted average cost of capital is calculated?

4. Explain various approaches for calculation of cost of equity.

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UNIT-IV: CAPITAL STRUCTURE & DIVIDEND POLICY

4.1 MEANING AND CONCEPT OF CAPITAL STRUCTURE

The term 'structure' refers to the organization of different elements. Hence, capital structure implies organizing capital from various sources to raise the required long-term funds for the business.

Therefore, capital structure pertains to the ratios or blends of long-term funding sources, including equity share capital, preference share capital, debentures, long-term loans, retained earnings, and other long-term sources of funds, within the overall capital amount that a firm needs to generate for its business operations.

Few definitions of capital structure given by some financial experts:

“Capital structure of a company refers to the make-up of its capitalisation and it includes all long-term capital resources viz., loans, reserves, shares and bonds.”— Gerstenberg.

“Capital structure is the combination of debt and equity securities that comprise a firm’s financing of its assets.”—John J. Hampton.

“Capital structure refers to the mix of long-term sources of funds, such as, debentures, long-term debts, preference share capital and equity share capital including reserves and surplus.”—I. M. Pandey.

4.2 DETERMINANTS OF CAPITAL STRUCTURE

1. **Financial Leverage or Trading on Equity:**

The term "equity" signifies ownership in a company. Trading on equity involves leveraging equity share capital with borrowed funds judiciously. It refers to the additional profits generated by equity shares due to the funds raised through the issuance of other securities like preference shares and debentures. This strategy assumes that if the interest rate on borrowed capital and the dividend rate on preference capital are lower than the company's general earnings rate, equity shareholders will gain additional profits. Thus, by strategically combining long-term loans (debentures) and preference shares with equity shares, the return

on equity shares can be maximized. Conditions for trading on equity include higher company earnings than debenture interest and preference share dividend rates, stable and regular earnings to meet debenture interest payments, and sufficient assets for securing borrowed funds.

2. Expected Cash Flows:

Debentures and preference shares are often redeemable, requiring payment after maturity. The anticipated cash flows must cover yearly debenture interest payments and the return of the maturity amount at the debentures' term end. Companies with irregular future cash flows may find debentures unsuitable.

3. Stability of Sales:

A stable sales turnover enhances the company's capacity to meet debenture interest payments. Companies with rising sales can employ more debt capital, while those with unstable or declining sales should exercise caution in using additional debt capital.

4. **Control over the Company:**

Control of a company is held by the Board of Directors elected by equity shareholders. To retain control, the board and shareholders may restrict the issuance of additional equity shares to the public. In such cases, additional funds can be raised through preference shares and debentures.

5. Flexibility of Financial Structure:

An effective financial structure should offer flexibility for capital expansion or contraction as needed. Securities with a redemption option after a certain period contribute to financial plan elasticity. Unlike equity shares, redeemable preference shares and debentures can be paid off when necessary.

6. Cost of Floating the Capital:

The cost of raising funds from various sources must be carefully estimated to determine the most economical option. Factors such as prevailing interest rates, expected investor returns, and administrative expenses influence the cost of financing. Generally, financing through debentures and preference shares for a reputable company incurs lower costs. Consideration of flotation costs, including prospectus printing and advertising, is also essential.

7. Period of Financing:

For permanent investments, equity share capital is preferred, while redeemable preference shares and debentures may be issued for financing expansion programs, with the expectation of redemption within the company's lifetime.

8. Market Conditions:

Capital market conditions influence the choice of securities to be issued. During economic downturns, investors may shy away from equity shares due to risk aversion. In contrast, during economic upswings, investors may be more willing to take risks and invest in equity shares. Therefore, fixed-return securities like debentures and preference shares may find greater market acceptance during periods of low economic activity.

9. Types of Investors:

The preferences of potential investors influence capital structure. Issuing various securities in different denominations caters to the preferences of diverse investors. Equity shares attract those willing to take investment risks, while debentures and preference shares appeal to investors seeking safety and certainty of returns.

10. Legal Requirements:

Statutory requirements, such as those outlined in the Banking Regulation Act, can influence a company's capital structure. For example, banking companies are prohibited from issuing any securities other than equity shares.

4.3 OPTIMAL CAPITAL STRUCTURE

The optimal capital structure can be described as "the blend of debt and equity that results in the highest value for the firm." It is a structure that not only maximizes the company's value but also minimizes its cost of capital, thereby enhancing the wealth of its owners. Consequently, it is advisable for every firm to strive for the optimal capital structure and subsequently uphold it, as emphasized by Solomon Ezra in "The Theory of Financial Management."

The following consideration should be kept in mind while maximizing the value of the firm in achieving the goal of optimum capital structure:

(i) If the returns on investments surpass the fixed cost of funds, it is advisable for the company to opt for funding with a fixed cost, such as debentures, loans, and preference share

capital. This strategy enhances earnings per share and the market value of the firm, emphasizing the importance of leveraging to the maximum extent.

(ii) Utilizing debt as a source of finance allows the firm to benefit from significant tax savings, as interest is considered a deductible expense in tax calculations. This results in a reduction of effective debt, referred to as tax leverage. Companies should, therefore, capitalize on this tax leverage opportunity.

(iii) The company should carefully consider the financial risks associated with increased debt financing. If shareholders perceive a heightened risk in utilizing additional debt capital, it can negatively impact the market price of shares.

(iv) It is crucial for the capital structure to be adaptable and flexible to changing financial needs and market conditions.

4.4 ESSENTIAL FEATURES OF SOUND/OPTIMAL CAPITAL MIX (CAPITAL STRUCTURE)

A sound or an appropriate capital structure should possess the following essential characteristics:

(i) Optimal utilization of leverage.

(ii) Flexibility to easily undergo adjustments.

(iii) Mitigation of unwarranted financial or business risks associated with increased debt.

(iv) Prudent use of debt within the firm's capacity, ensuring the ability to meet loan and interest obligations promptly.

(v) Involvement of minimal risk concerning the loss of control.

(vi) Avoidance of unnecessary restrictions in debt agreements.

(vii) Simplicity and comprehensibility for ease of understanding and operation whenever possible.

(viii) Minimization of financing costs while maximizing earnings per share.

4.5 THEORIES OF CAPITAL STRUCTURE

Various authors have put forth diverse theories aiming to elucidate the interconnection among capital structure, cost of capital, and firm value. Key contributors to these theories include Durand, Ezra Solomon, as well as Modigliani and Miller.

The important theories are discussed below:

1. Net Income Approach

2. Net Operating Income Approach
3. The Traditional Approach
4. Modigliani and Miler Approach

1. Net Income Approach

David Durand is the proponent of this approach. In accordance with the net income approach, an elevation in debt corresponds to a decrease in the overall or weighted average cost of capital, and conversely, a reduction in debt leads to an increase in the cost of capital. Consequently, augmenting the level of debt results in an increae in the firm's value, thereby enhancing the value of the company's equity shares. The theory asserts that a company can boost its overall value and lower the cost of capital by augmenting the proportion of debt within its capital structure.

Net Income approach is based on the following assumptions:

(i) There are no corporate taxes.

(ii) The cost associated with debt is lower than that of equity, meaning the capitalization rate of debt is lower than the rate of equity capitalization. This motivates the company to seek financing through borrowing.

(iii) The investors' perception of risk remains unaffected by the proportion of debt.

In line with this approach, companies aim to optimize their capital structure by incorporating an increasing amount of debt, which incurs a lower cost than equity in the overall capital structure. Consequently, as financial leverage grows, the share of the more economical funding source, namely debt, increases, leading to a decline in the overall cost of capital. This, in turn, enhances the market value of the firm and the value of its equity shares.

The total market value of a firm on the basis of Net Income Approach can be ascertained as below:

V=S+D

Where,

V=Total market value of a firm

S= Market value of equity shares

$$= \frac{\textbf{Earings Available to Equity Shareholders (NI)}}{\textbf{Equity Capitalisation Rate}}$$

D=Market value of debt

Overall Cost of Capital (k_o) or Weighted Average Cost of Capital can be calculated as:

$$\mathbf{K_o = \frac{EBIT}{V}}$$

EBIT= Earnings before Interest and Tax

Overall Cost of Capital (k_o) or Weighted Average Cost of Capital can be calculated as:

$$\mathbf{K_o = \frac{EBIT}{V}}$$

EBIT= Earnings before Interest and Tax

Criticisms of NI Approach

The NI approach is criticized on following grounds:

(i) The idea that the cost of debt remains constant at any debt level is inaccurate. Providers of funds often demand a higher interest rate beyond a certain level of debt.

(ii) The assumption about the risk perception of equity shareholders is likewise flawed. With an increase in debt, financial risk rises, prompting equity shareholders to anticipate higher returns on their investment. Consequently, the rate of equity capitalization also rises with an increase in financial leverage.

(iii) Achieving a 100% dividend payout and the absence of corporate tax are not feasible in practical terms.

2. NET OPERATING INCOME APPROACH

This theory was also developed by David Durand is another extreme of the effect of leverage on the value of the firm. It is diametrically opposite to the net income approach. According to this approach, change in the capital structure of a company does not affect the value of the firm and the overall cost of the capital remains irrespective of the method of financing. It implies that the overall cost of capital remains the same whether the debt-equity mix is 50:50 or 20:80 or 0:100. Thus, there is nothing as an optimal capital structure and every capital structure is the optimum capital structure.

The NOI approach is based on following assumptions:

(i) The market capitalizes the value of the firm as a whole

(ii) The business risk remains constant at every level of debt equity mix

(iii)There are no corporate taxes

The rationale behind this assumption is that a heightened reliance on debt elevates the financial risk for equity shareholders, leading to an increase in the cost of equity. Conversely, the cost of debt remains consistent with a rising proportion of debt, as the financial risk for

lenders remains unaffected. Therefore, the benefit of utilizing the more economical funding source, i.e., debt, is precisely counterbalanced by the elevated cost of equity.

According to the Net Operating Income (NOI) Approach, the financing mix is irrelevant and it does not affect the value of the firm.

The value on the basis of Net Operating Income Approach can be determined as below:

$$\mathbf{V=\frac{EBIT}{Ko}}$$

Where,

V= Value of firm

EBIT=Earnings before interest and tax

K_O=overall cost of Capital

Criticisms of NOI approach

The NOI approach is criticized on the following grounds:

(i) The assumption of absence of corporate tax is not correct.

(ii) The cost of debt increases with the increase in the quantum of debt.

(iii) As the cost of debt increases with the increase in financial leverage, the overall cost of capital also increases with increase in financial leverage.

(iv) An investor values differently the firm having higher level of debt in its capital structure than the firm having less debt or no debt.

3. THE TRADITIONAL APPROACH

The traditional approach was propounded by Ezra Soloman in 1963 (Pandey, 2005). The traditional approach, also known as intermediate approach, is a compromise between the two extremes of net income approach and net operating income approach. As per this theory, the firm's value can be initially increased or the cost of capital decreased by incorporating more debt since debt is a more economical source of funds than equity. Consequently, an optimal capital structure can be achieved through a balanced mix of debt and equity. However, beyond a specific threshold, the cost of equity rises due to the heightened financial risk for equity shareholders resulting from increased debt usage. The initial advantage of cost-effective debt at this point is counteracted by the heightened cost of equity. Subsequently, a phase is reached where the increased cost of equity cannot be offset by the benefit of low-cost debt. Consequently, the overall cost of capital decreases up to a certain point, remains relatively stable for a moderate increase in debt thereafter, and subsequently ascends beyond

a specific threshold. Even the cost of debt may rise during this phase due to increased financial risk. Thus, the traditional theory outlines three stages in the relationship between capital structure and firm value.

First Stage: Increasing Value

In the initial phase, the cost of equity (ke) either stays consistent or experiences a slight increase with a rise in debt. In this stage, the uptick in the cost of equity is outweighed by the advantage gained from the lower cost of debt compared to equity. Throughout this period, the cost of debt (kd) remains stable as it is viewed as a judicious decision. Consequently, the overall cost of capital (ko) diminishes with an increase in leverage, resulting in an elevation of the total value of the firm (V).

Second Stage: Optimum Value

During this phase, the acceleration of the increase in the cost of equity surpasses the rate observed in the initial stage of debt augmentation. Moreover, the advantage derived from the lower cost of debt is nullified by the escalating cost of equity beyond a specific threshold. Consequently, the firm reaches a point of minimum weighted average cost of capital and maximum firm value at a particular level of debt-equity mix, signifying the achievement of the optimal capital structure.

Third Stage: Declining Value

When debt is raised beyond a specific threshold, the rise in the cost of equity exceeds the benefit gained from the lower cost of debt. Consequently, the weighted average cost of capital increases, leading to a decline in the market value of the firm. In this phase, the firm's value continues to decrease with each increment in debt at the expense of equity. This decline occurs because investors perceive an elevated level of financial risk, prompting them to seek a higher rate of return on equity, which surpasses the advantage offered by low-cost debt.

Optimum Capital Structure under Traditional Approach

Proponents of the traditional theory assert that incorporating debt into the capital structure results in a reduction of the overall cost of capital, and it is feasible to achieve an optimal capital structure. The optimal capital structure is reached at the point of the debt-equity mix where the overall cost of capital is at its minimum, and the firm's value is at its maximum.

Criticisms of traditional Approach:

The traditional theory is criticized on following grounds;

(i) The assumption that investors value leveraged firms more than unleveraged ones is not practically accurate.

(ii) For financially stable firms, the risk for shareholders does not rise with the inclusion of additional debt.

(iii) Investor perception regarding the risk of leverage remains constant for the same firm across different levels of leverage.

(iv) The optimal capital structure is influenced by factors such as the tax deductibility of interest and other capital market considerations, which are overlooked.

4. MODIGLIANI MILLER (MM) APPROACH

In the article "The Cost of Capital, Corporate Finance, and the Theory of Investment," published in the American Economic Review in June 1958 (Pandey, 2005), Modigliani and Miller presented their perspective on the optimal capital structure, commonly known as the MM Approach. According to their theory, the cost of capital remains unaffected by the capital structure, and financial leverage has no impact on the overall cost of capital. Consequently, they argue that there is no optimal capital structure. The MM theory closely resembles the NOI approach, with a key distinction. While the NOI approach is essentially a definitional term, explaining the concept without behavioral justification, the M.M. Approach provides behavioral reasoning in support of the theory.

Assumptions:

M.M. Approach is based on certain assumptions, as under:

(i) There are no corporate taxes.

(ii) There is a perfect market.

(iii) Investors act rationally

(iv) The expected earnings of all the firms have identical risk characteristics.

(v) The cut-off point investment in a firm is capitalization rate

(vi) Risk to investors depends upon the random fluctuations of expected earnings and the possibility that the actual value of the variables may turn out to be different from their best estimates.

(vii) Dividend payout ratio is 100% and there are no retained earnings.

Prepositions of MM Approach

There are two basic prepositions of MM Approach:

Preposition I: The market value of any firm is independent of the proportion of debt equity mix.

Preposition II: Shareholders expect more and more return as debt equity ratio increases.

Criticism of the MM Hypothesis

MM hypothesis is criticized on following grounds:

(i) Imperfections do exist in capital market

The concept of a flawless capital market is not practically accurate. Imperfections are inevitable in the capital market due to a variety of factors. These imperfections can lead to failures in arbitrage, causing variations in the market values of leveraged and unleveraged firms.

(ii) The assumptions of rate of interest fail in practice

The assumption posits that both firms and individuals can borrow and lend funds at an identical interest rate. However, given that firms generally exhibit higher creditworthiness, they can secure loans at a more favorable and lower interest rate compared to individuals.

(iii) Personal leverage is not a substitute for corporate leverage

The hypothesis suggests that personal or homemade leverage can seamlessly replace corporate leverage, but this is an inaccurate assumption. Shareholders, in the case of corporate leverage, have limited liability restricted to their investments. In contrast, individuals bear unlimited liability. Consequently, creating personal leverage and investing in an unleveraged firm is riskier than directly investing in a leveraged firm.

(iv) The assumption of the absence of transaction cost is also not correct

Transaction costs associated with buying and selling securities are indeed present. As a result of these costs, it becomes essential to invest larger amounts to achieve an equivalent return.

(v) Corporate tax does exist

The idea that there is no corporate tax is also inaccurate. In reality, interest charges are often tax-deductible, making the cost of borrowing less expensive than the stated annual interest rate. The tax advantage leads to a significant return for a leveraged firm if the return on investment exceeds the interest rate.

4.6 CAPITAL STRUCTURE PLANNING: EBIT-EPS ANALYSIS

EBIT-EPS analysis, also known as capital structure analysis, is a strategic financial planning tool employed by businesses to ascertain the optimal combination of debt and equity that

minimizes the cost of capital and maximizes shareholder wealth. This analytical approach involves assessing the impact of various capital structures on Earnings Before Interest and Taxes (EBIT) and Earnings Per Share (EPS). The process unfolds as follows:

1. Identify Varied Capital Structures:

Companies can modify their capital structure by adjusting the proportions of debt and equity in their financing.

Diverse capital structures encompass alterations in debt levels, equity distribution, and other financial instruments.

2. Compute EBIT for Each Capital Structure:

Compute EBIT for each capital structure by factoring in the interest expense linked to the debt component, utilizing the formula:

3. Calculate EPS for Each Capital Structure:

Derive EPS for each capital structure by accounting for interest expense, taxes, and the number of outstanding shares, using the formula:

4. Evaluate the Impact on EPS:

Compare the EPS values for each capital structure to discern how alterations in debt levels influence per-share profitability.

Identify the point at which the capital structure optimizes EPS.

5. Determine the Optimal Capital Structure:

The optimal capital structure is the one that maximizes shareholder wealth or EPS. This point signifies the minimization of the cost of capital and the maximization of returns to shareholders.

The juncture where EPS is maximized is often termed the "EPS Indifference Point."

6. Consider Additional Factors:

While EPS maximization is pivotal, companies should also factor in considerations such as financial risk, credit rating, and the capacity to meet debt obligations.

Striking a balance between the cost of capital and financial risk is imperative.

7. Sensitivity Analysis:

Conduct sensitivity analysis to gauge how alterations in assumptions, interest rates, or other variables may impact the optimal capital structure.

8. Implementation:

Following the identification of the optimal capital structure, companies may choose to implement changes to align with that structure.

In summary, EBIT-EPS analysis regarding capital structure assists companies in determining the most advantageous blend of debt and equity financing. It is a dynamic process necessitating careful consideration of the trade-offs between the cost of capital, risk, and shareholder value. Regular reassessment becomes crucial, particularly in the face of notable shifts in market conditions, interest rates, or the financial standing of the company.

CHECK YOUR PROGRESS

A. Multiple Choice Questions

Select the most appropriate answer:

1. The assumptions of M-M hypothesis of capital structure do not include the following:
   (a) Capital markets are imperfect
   (b) Investors have homogenous expectations
   (c) All firms are classified into homogenous risk classes
   (d) The dividend-payout ratio is cent percent

2. Which of the following is irrelevant for optimal capital structure?
   (a) Flexibility
   (b) Solvency
   (c) Liquidity
   (d) Control

3. Financial structure refers to
   (a) All financial resources
   (b) Short-term funds
   (c) Long-term funds
   (d) None of the above

4. An EBIT-EPS indifference analysis chart is used for
   (a) Evaluating the effects of business risk on EPS

(b) Examining EPS results for alternative financial plan at varying EBIT levels

(c) Determining the impact of a change in sales on EBIT

(d) Showing the change in EPS quality over time

5. The term "capital structure" means
   (a) Long-term debt, preferred stock, and equity shares

   (b) Current assets and current liabilities

   (c) Net working capital

   (d) Shareholders' equity

6. The Net Income approach was suggested by
   (a) Modigliani and Miller

   (b) Ezra Solomon

   (c) Durand

   (d) Walter

7. The traditional approach towards the valuation of a firm assumes:
   (a) That the overall capitalization rate changes in financial leverage

   (b) That there is a optimum capital structure

   (c) That total risk is not changed with the changes in the capital structure

   (d) That market are perfect

8. Market values are often used in computing weighted average cost of capital because
   (a) This is simplest way to do the calculation

   (b) This is consistent with the goal of maximizing shareholders value

   (c) This is required by SEBI

   (d) This is a very common mistake

9. A firm's optimal capital structure:
   (a) Is the debt equity ratio that results in the minimum possible weighted average cost of capital

   (b) 40 percent debt and 60 percent equity

   (c) When the debt equity ratio .50

   (d) When the cost of equity minimum

10. Capital structure of a firm influences the
    (a) Risk

(b) Return

(c) Both Risk and Return

(d) Return but not risk

[Ans. 1(a); 2(b); 3(a); 4(b); 5(a); 6(c); 7(b); 8(b); 9(a); 10(c)]

B. Short Answer Type Questions

1. Define capital structure.
2. What is optimal capital structure?
3. Name various theories of capital structure.
4. What is trading on equity?
5. What are the essentials of a sound capital mix?

C. Essay Type Questions

1. What is meant by capital structure? Discuss the major determinants of capital structure.
2. 3. Critically explain the Net Income and Net Operating approach to the capital structure.
3. Give a critical appraisal of the traditional approach and the Modigliani-Miller approach to the problem of capital structure.

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4.7 MEANING OF DIVIDEND

The term dividend refers to that part of the profits of a company, which is to be distributed amongst its shareholders. It can be defined as the share of profits that shareholders receive from the company based on their ownership. As per the Institute of Chartered Accountants of India, a dividend is described as "a distribution to shareholders from profits or reserves allocated for this purpose."

A company cannot declare dividend unless there is:

- Sufficient profits in the company
- Recommendation of the Board of Directors
- An Acceptance of the shareholder in the Annual General Meeting

4.8 TYPES OF DIVIDENDS

1. Cash Dividend:

This is among the most prevalent forms of dividend, involving the payment of cash to shareholders. The declared amount is announced on the "date of declaration," allocated to shareholders on the "date of record," and disbursed on the "date of payment." Adequate retained earnings and a sufficient cash balance are prerequisites for companies to fulfill cash payments to shareholders.

2. Scrip Dividend:

In this format, a company issues transferable promissory notes to shareholders, confirming the future payment of dividends. Scrip dividends typically have shorter maturity periods and may or may not bear interest. Such dividends are employed when a company lacks immediate liquidity and needs time to convert current assets into cash.

3. Bond Dividend:

When a company lacks sufficient funds for cash dividends, it may issue bonds for the owed dividend amount. These bonds have a longer maturity period compared to scrip dividends and always carry interest. While bondholders receive regular interest, this practice is not envisioned or legally permitted in India.

4. Stock Dividend/Bonus Shares:

Issued when a company faces a shortage of operating cash, these dividends involve the issuance of common stock to shareholders without any extra charge. Shareholders receive additional shares in proportion to their existing holdings. Despite increasing the total

outstanding shares, the issuance of bonus shares has a positive psychological impact on investors.

5. Property Dividend:

Instead of cash, these dividends are provided to investors in the form of property. When a company lacks operating cash, non-monetary dividends, such as inventory, assets, vehicles, or real estate, may be distributed. The company records the property dividend at fair market value, accounting for any differences from the book value as gains or losses.

6. Liquidating Dividend:

When the board of directors decides to return the original capital contributed by equity shareholders as dividends, it is termed a liquidating dividend. These dividends are typically paid during the winding-up of the firm's operations or its final closure.

4.9 MEANING OF DIVIDEND POLICY

A company's dividend policy dictates the amount of dividends paid out by the company to its shareholders and the frequency with which the dividends are paid out. When a company generates profits, it faces a choice regarding the utilization of those earnings. The company can either retain the profits within the organization, reflected as retained earnings on the balance sheet, or distribute the funds to shareholders through dividends.

4.10 OBJECTIVES OF DIVIDEND POLICY

Wealth Maximization: Theoretical models indicate that the firm's value is significantly influenced by its dividend policy. Consequently, the development of the dividend policy should align with the firm's objective of maximizing wealth.

Future Prospects: As a financing decision, dividend policy involves cash outflows and diminishes the availability of cash for funding lucrative projects. In cases where ample funds are not at hand, external financing becomes necessary. Hence, the dividend policy should be formulated to enable the financing of potential projects through retained earnings.

Stable Rate of Dividend: Fluctuations in the rate of return have an adverse impact on share market prices. To maintain a stable rate of dividend, a firm should retain a substantial portion of its earnings to ensure adequate funds for dividend payments during periods of financial setbacks.

Degree of Control: The issuance of new shares or reliance on external financing can reduce the control held by existing shareholders. Therefore, adopting a more conservative dividend policy becomes essential to safeguard the interests of current shareholders.

4.11 DETERMINANTS OF DIVIDEND POLICY

The announcement of dividends encompasses both legal and financial factors. Legally, the fundamental principle stipulates that dividends can only be disbursed from profits without causing any impairment to the capital. However, the diverse financial considerations pose a challenging scenario for management when deciding on the distribution of dividends.

Some of the most important determinants of dividend policy are: (i) Type of Industry (ii) Age of Corporation (iii) Extent of share distribution (iv) Need for additional Capital (v) Business Cycles (vi) Changes in Government Policies (vii) Trends of profits (vii) Trends of profits (viii) Taxation policy (ix) Future Requirements and (x) Cash Balance.

(i) Industry Type:

Industries with consistent earnings stability are better positioned to establish a predictable dividend policy compared to those with irregular income flows. For instance, public utility companies are more likely to adopt a relatively fixed dividend rate than industrial enterprises.

(ii) Corporation Age:

Newly established businesses typically allocate most earnings for plant improvements and expansion, whereas older companies with more extensive earning histories can formulate clear dividend policies, potentially being more generous in dividend distribution.

(iii) Share Distribution:

Closely held companies may find it easier to obtain shareholder consent for dividend suspension or conservative dividend policies. In contrast, companies with numerous widely dispersed shareholders face challenges in securing such approval. While dividend reductions are possible, they require shareholder cooperation.

(iv) Need for Additional Capital:

The extent to which profits are reinvested in the business significantly influences dividend policy. Profits may be retained to meet increased working capital requirements or facilitate future expansion.

(v) Business Cycles:

During economic booms, prudent corporate management builds reserves to navigate the ensuing crisis following an inflationary period. Higher dividend rates can be used as a strategic tool to market securities in a depressed market.

(vi) Changes in Government Policies:

Government interventions, such as restrictions on dividend rates, can impact companies in specific industries or across all business sectors. Temporary restrictions on dividend payments were imposed by the government in July 1974 through an amendment to the Indian Companies Act, 1956, and were lifted in 1975.

(vii) Profit Trends:

An in-depth analysis of a company's past profit trends helps determine its average earning position, which should be evaluated in the context of general economic conditions. In approaching a depression, a conservative dividend policy may be considered prudent.

(viii) Taxation Policy:

Corporate taxes have a direct and indirect impact on dividends—directly by reducing residual profits available for shareholders and indirectly as the distribution of dividends beyond a certain limit is subject to tax. Currently, the amount of declared dividends is tax-free for shareholders.

(ix) Future Requirements:

Accumulating profits becomes necessary to safeguard against business contingencies, finance future expansions, and modernize or replace enterprise equipment. Management must equitably balance conflicting claims of dividends and accumulations.

(x) Cash Balance:

Companies with limited working capital cannot adopt a liberal cash dividend policy. Dividends may take the form of bonus shares issued to members in lieu of cash payments if the working capital is constrained.

4.12 TYPES OF DIVIDEND POLICIES

There are numerous dividend policies:

1. Stable Dividend Policy:

Stability in dividends refers to consistency or minimal change in dividend payouts over the years. When a company consistently pays dividends at a fixed rate, maintaining this practice

despite fluctuations in earnings levels, it is considered to have a stable dividend policy. This enhances management's reliability in the market, and shareholders prefer stocks that provide a steady return at regular intervals, leading to an increase in the market price of shares. Companies with stable earnings typically follow this policy, which can be defined through constant/fixed dividends per share or a constant payout ratio.

Constant Amount per Share:

This involves the company paying a fixed dividend amount per share regularly, irrespective of the company's earnings. However, this doesn't imply that the management is static; if the company's earnings increase, the dividend per share is also increased correspondingly. This policy is often favored by individuals and institutions relying on dividend income for living expenses.

Constant Payout Ratio:

In this policy, a fixed percentage of net earnings is paid as a dividend every year, maintaining a constant payout ratio.

2. Policy of No Immediate Dividend:

This policy is formulated when management opts not to immediately distribute dividends initially. This decision may be driven by the need for funds for growth and development or financial difficulties preventing immediate dividend payments. To mitigate adverse effects on stock prices, the company should clearly communicate the reasons for withholding dividends. After the no-dividend policy, it is advisable for the company to either issue bonus shares from reserves or split existing shares into smaller amounts to maintain a realistic dividend rate.

3. Policy of Irregular Dividend:

When a firm does not consistently pay a fixed dividend and varies payouts according to changes in earnings, it is considered an irregular dividend policy. This approach is based on the management's belief that dividends should only be paid when warranted by the firm's earnings and liquidity position. Firms with fluctuating earnings, especially those involved in luxury goods, tend to adopt this policy.

4. Policy of Regular Dividend plus Extra Dividend:

Suitable for firms with stable earnings and limited growth opportunities, this policy involves announcing an extra dividend in good earnings years. The term 'extra' is used to inform

shareholders that this is additional and may not be continued in the future. When the company's earnings have permanently increased, the extra dividend should be combined with the regular normal dividend, resulting in a higher normal dividend rate.

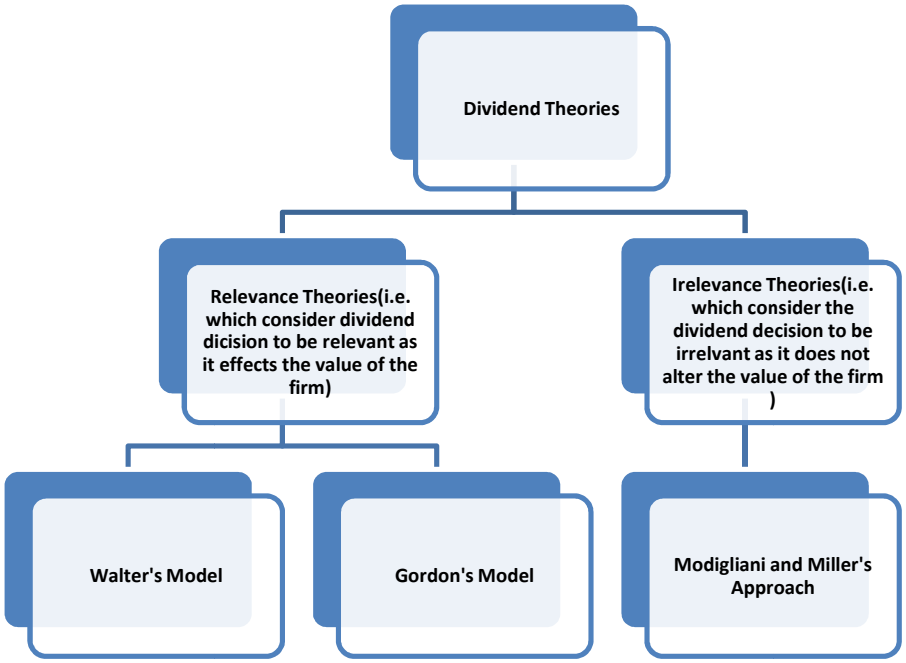
5. Policy of Regular Dividend plus Stock Dividend:

In this policy, the company issues stock dividends alongside regular dividends, splitting the dividend into two parts. This approach is adopted when the company has earned substantial profits and wishes to provide shareholders with a share in the additional profit while retaining cash for development. However, it is not advisable to follow this policy for an extended period, as the increase in the number of shares can reduce earnings per share and lead to a decline in share prices.

4.13 DIVIDEND POLICY THEORIES

Over the time various theories of dividend policy have emerged, some of the main theories are as follows:

Figure 5.1 Dividend Theories



WALTER'S MODEL

Prof. Walter's model supports the doctrine that dividend decisions are relevant and affect the value of the firm. The correlation between the firm's internal rate of return and its cost of capital plays a pivotal role in influencing the dividend policy, ultimately aiming to maximize

shareholders' wealth, as per Professor Walter's model. This model is rooted in the connection between the firm's return on investment (r) and the cost of capital, also known as the required rate of return (k).

According to Professor Walter, in instances where the firm's rate of return on investment (r) exceeds the required rate of return (k), signifying a higher earned rate, the optimal approach is for the firm to retain earnings. Firms exhibiting this characteristic are categorized as growth-oriented, and in their case, the optimal payout ratio would be zero, thereby maximizing the value of shares.

On the other hand, for firms experiencing a decline with an earned rate lower than the required rate ($r < k$), and lacking lucrative investment opportunities, shareholders would gain from the distribution of earnings. In such cases, the optimal payout ratio would be 100%, indicating that the firms should disburse their entire earnings as dividends.

In the case of normal firms where the earned rate equals the required rate ($r = k$), the dividend policy does not influence the market value of shares. Shareholders receive the expected return from the firm, and there is no specific optimal dividend payout. Consequently, changes in the dividend rate do not impact the overall value of the firm.

Assumptions of Water's Model

(i) The investment of the firm are financed through retained earnings only and the frim does not use external sources of funds

(ii) The internal rate (r) and the cost of capital (k) of the firm are constant.

(iii) Earnings and dividend do not change while determining the value.

(iv) The firm has a very long life.

Walter's Formula for Determining the Value of a Share

His formula in determination of expected market price of a share is given below:

$$P = \frac{D + \frac{r(E-D)}{Ke}}{Ke}$$

Where,

P = Market value of equity share

D = Dividend per share paid by the firm

r = Rate of return on investment of the firm

Ke = Cost of Equity Capital

E = EPS of the firm

The value of a share, like any other financial asset, is the present value of the future cash flows associated with ownership. On this view, the value of the share is calculated as the present value of an infinite stream of dividends.

Gordon's Model

Myron Gordon's Dividend Growth Model explains how dividend policy of a firm is a basis of establishing share value. Gordon's model uses the dividend capitalization approach for stock valuation. The model holds that share market price is equal to the sum of share discounted future dividend payments. The formula used is as follows:

$$Po = \frac{E1\ (1-b)}{K - br}$$

Where,

Po = Price per Share at the end of the year

E1 = EPS at the end of the year 1

1-b = Eraction of earnings the firm distributes by way of dividend

K = Rate of return required by the Shareholders

b = Retention Ratio

br = Growth rate of earnings and dividend

Assumptions:

Gordon Growth Model using dividend capitalization is based on the following assumption:

(i) The firm is an all equity firm and has no debt.

(ii) External financing is not used in the firm. Retained earnings represent the only source of financing.

(iii) The internal rate of return is the firm's cost of capital 'K'. It remains constant as is taken as the appropriate discount rate.

(iv) Future annual growth rate dividend is expected to be constant.

(v) Growth rate of the firm is the product of retention ratio and its rate of return.

(vi) Cost of capital is always greater than the growth rate.

(vii) The company has a perpetual life and the streams of earning are perpetual.

(viii) Corporate taxes do not exist.

The mode provided by Walter and Gordon Growth Model lead to the following implications:

(i) If r > k price per share increases as dividend payout ratio decrease.

(ii) If r < k price per share increases as dividend payout ratio Increase.

(iii)If r = k price per share remains unchanged with change in dividend payout ratio.

MODIGLIANI AND MILLER APPROACH

Modigliani and Miller have expressed in the most compressive manner in support of the theory of irrelevance. They contend that the market price of shares is unaffected by dividend policy, and a firm's value is determined by its earning capacity or investment strategy. The distribution of earnings between retention and dividends, as chosen by the firm in any manner, does not impact the firm's overall value. As expressed by M.M., "in situations characterized by perfect capital markets, rational investors, and the absence of tax discrimination between dividend income and capital appreciation, the firm's dividend policy may not influence the market price of the shares, considering the firm's investment policy."

Assumptions of MM Hypothesis

(i) There are perfect capital markets.

(ii) Investors behave rationally.

(iii) Information about the company is available to all without any cost.

(iv) There are no floatation and transaction costs.

(v) No investor is large enough to effect the market price of shares.

(vi) There are either no taxes or there are no differences in the tax rates applicable to dividends and capital gains.

(vii) The firm has rigid investment policy.

(viii) There is no risk or uncertainly in regard to the future of the firm.(MM dropped this assumption later)

Criticism of MM Approach

MM hypothesis has been criticized on account of various unrealistic assumptions as given below:

(i) Perfect capital market does not exist in reality.

(ii) Information about the company is not available to all the persons

(iii) The firms have to incur flotation costs while issuing securities.

(iv) Taxes do exit and there is normally different tax treatment for dividends and capital gains.

(v) The firms do no follow a rigid investment policy.

(vi) The investors have to pay brokerage, fees, etc., while doing any transaction.

(vii) Shareholders may prefer current income as compared to further gains.

4.14 DIVIDEND UNDER THE COMPANIES ACT 2013

Under the Companies Act 2013, dividends refer to the distribution of profits by a company to its shareholders. The Act provides guidelines and regulations regarding the declaration and payment of dividends. Here are some key aspects related to dividends under the Companies Act 2013:

1. Declaration of Dividends:

Dividends can only be declared out of profits of the company, and no dividend shall be declared unless carried to reserves or provided for depreciation.

The company's board of directors has the authority to recommend the amount of dividend to be paid.

2. Types of Dividends:

Dividends can be declared in various forms, including cash, bonus shares, or assets of the company.

3. Prohibition on Interim Dividends:

The Act prohibits the payment of interim dividends except in certain circumstances and subject to specified conditions.

4. Transfer to Reserves:

Before declaring dividends, companies are required to transfer a certain percentage of profits to reserves.

5. Dividend Warrant:

Dividends are typically paid through dividend warrants or credited to the bank accounts of shareholders.

6. Unpaid or Unclaimed Dividends:

The Act specifies the treatment of unpaid or unclaimed dividends and mandates the transfer of such amounts to a special account.

7. Compliance and Documentation:

Companies need to comply with the provisions of the Act and maintain proper documentation related to the declaration and payment of dividends.

8. Shareholder Approval:

Certain matters related to dividends, such as the declaration of final dividends, may require approval from shareholders in a general meeting.

9. Legal Consequences of Violation:

Non-compliance with the dividend-related provisions of the Companies Act 2013 may result in legal consequences for the company and its officers.

It's essential for companies to adhere to the regulations outlined in the Companies Act 2013 regarding dividends to ensure transparency, fairness, and legal compliance in the distribution of profits to shareholders.

CHECK YOUR PROGRESS

A. Multiple Choice Questions

Select the most appropriate answer:

1. Which one of the following is the assumption of Gordon's Model?
   (a) Ke > g
   (b) Retention ratio (b), once decide upon, is constant
   (c) Firm is an all equity firm
   (d) All of the above

2. What should be the optimum Dividend pay-out ratio, when r = 15% & ke = 12%:
   (a) 100%
   (b) 50%
   (c) Zero
   (d) None of the above

3. Which of the following is the irrelevance theory of Dividend Policy?
   (a) Walter model

(b) Gordon's model

(c) M.M. hypothesis

(d) Linter's model

4. If the company's D/P ratio is 60% & ROI is 16%, what should be the growth rate:
   (a) 5%
   (b) 7%
   (c) 6.4%
   (d) 9.6%

5. If the shareholders prefer regular income, how does it affect the dividend decision:
   (a) It will lead to payment dividend
   (b) It is the indicator to retain more earnings
   (c) It has no impact on divided decision
   (d) Can't say

6. Mature companies having few investment opportunities will show high payout ratios, this statement is
   (a) False
   (b) True
   (c) Partial true
   (d) None of the above

7. A stable dividend policy refers to
   (a) The consistency or lack of variability in the stream of dividends
   (b) Same dividend to be paid every year
   (c) Shareholder's wishes regarding dividends
   (d) None of the above

8. In formulating dividend theory both Walter and Gordon assumed three categories of firms except
   (a) Normal firm
   (b) Growth firm
   (c) Declining firm
   (d) Liquidating firm

9. Which of the following is the relevance theory?
   (a) Walter model

(b) Gordon's model

(c) M.M. hypothesis

(d) Both (a) and (b)

10. According to Prof. Walter, If r>k i.e., if the firm earns a higher rate of return on its investment than the required rate of return, the firm should ……..
(a) Retain the earnings

(b) Distributes its earnings

(c) Partially distribute its earnings

(d) None of the above

[Ans. 1(d); 2(c); 3(c); 4(c); 5(a); 6(b); 7(a); 8(d); 9(d); 10(a)]

B. Short Answer Type Questions

1. What is dividend?

2. Enlist the factors that influence the dividend policy of a firm.

3. Name the two main theories of divided policy.

4. What is 'Scrip Dividend'?

5. What is dividend policy?

C. Long Answer Type Questions

1. Discuss the various forms of dividend

2. What do you understand by a stable dividend policy? Why should it be followed?

2. Explain the various factors which influence the dividend decision of a firm.

3. Critically explain the Walter's model to dividend policy.

4. Critically explain the Gordon's Model to dividend policy.

5. Critically explain the Modigliani and Miller to dividend policy.

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UNIT-V: WORKING CAPITAL MANAGEMENT

5.1 MEANING AND CONCEPT OF WORKING CAPITAL

A business requires two types of capital: fixed capital and working capital. Fixed capital is employed to procure long-term assets like buildings, land, machinery, and furniture, remaining invested for an extended duration, earning its categorization as long-term capital. On the other hand, the capital needed for investing in current assets crucial for daily business operations is termed working capital. Working capital is also recognized by alternative names such as circulating capital, revolving capital, or short-term capital.

In the words of **John. J Harpton** "Working capital may be defined as all the shot term assets used in daily operation".

According to "**Hoagland**", "Working Capital is descriptive of that capital which is not fixed. But, the more common use of Working Capital is to consider it as the difference between the book value of the current assets and the current liabilities.

Based on the given definitions, Working Capital represents the excess of Current Assets over Current Liabilities. It is essentially the net amount of Current Assets, reflecting the investments made by a business organization in short-term assets such as Cash, Debtors, Bills receivable, and similar holdings.

Concepts of Working Capital

There are two concepts of working capital:

(i) Gross working capital

(ii) Net working capital

(i) **Gross Working Capital:**

Gross working capital denotes the entire sum invested in current assets. Current assets are those readily convertible to cash within a one-year timeframe. This encompasses cash on hand and in the bank, short-term securities, debtors, bills receivable, prepaid expenses, accrued expenses, as well as inventories such as raw materials, work-in-progress, stores and spare parts, and finished goods. The gross concept of working capital refers to the firm's investment in above current assets.

It is useful for the following purposes:

(a) It represents the complete investment in current assets that generates profits.

(b) Efficient and meticulous management attention is necessary for each current asset to minimize issues like bad debt, slow-moving and non-moving items, and idle cash.

(c) This acknowledges that, with all other factors unchanged, injecting funds into the business enhances its working capital.

(d) It allows management to calculate the rate of return on the overall investment in current assets.

(ii) **Net Working Capital:**

Net working capital is defined as the excess of current assets over current liabilities. Simply put, it represents the portion of current assets that would remain within a firm after settling all its current liabilities. Current liabilities encompass obligations to external entities that are due within one year, including sundry creditors, bills payable, outstanding expenses, short-term loans, advances and deposits, bank overdraft, proposed dividend, provision for taxation, and similar commitments.

The net concept of working is useful for the following reasons:

(a) It signifies the firm's liquidity status, indicating its ability to fulfill short-term obligations.

(b) It assists creditors and potential investors in assessing the financial well-being of the firm.

(c) The gross working capital concept may lead to inaccurate conclusions about the financial stability of firms with identical amounts of current assets.

(d) It reveals the extent to which long-term funding sources are utilized to finance a business enterprise's current assets.

Both the gross and net concepts of working capital are valuable for effective working capital management. However, in the preparation of a vertical balance sheet, the Institute of Chartered Accountants of India defines and presents working capital as the disparity between current assets and current liabilities.

Alternatively, another perspective suggests referring to net working capital as the qualitative and gross working capital as the quantitative aspects of the idea. These two working capital concepts are commonly recognized as balance sheet concepts, relying on the content of items within the balance sheet.

Types of Net Working Capital:

If gross concept of working capital is used, there will always be positive working capital as it represents only current assets. On the other hand, if net concept of working capital is used, there may be positive, negative or zero (nil) working capital.

(i) **Positive Working Capital:**

Positive working capital denotes the excess of current assets over current liabilities, signifying the utilization of long-term funding sources like equity shares, preference shares, retained earnings, long-term loans, and debentures to support the current assets of a business entity.

(ii) **Negative Working Capital:**

When a firm's current liabilities excess its current assets, it is termed negative working capital. In simpler terms, working capital is considered negative when current assets are insufficient to cover current liabilities. The surplus of current liabilities over current assets is presumed to have been employed in acquiring fixed assets for the firm.

Consequently, it reflects the degree to which short-term funding sources have been utilized to finance the firm's fixed assets. Negative working capital signifies adverse liquidity and poses a significant threat to the firm.

(iii) **Zero Working Capital:**

If the current assets are equal to current liabilities, it is called zero or nil working capital.

5.2 CLASSIFICATION OR KINDS OF WORKING CAPITAL

Working capital may be classified in two ways:

(i) On the basis of concept

(ii) On the basis of time

(i) On the basis of concept, working capital is classified as gross working capital and net working capital as discussed earlier.

(ii) On the basis of time, working capital may be classified as :

(a) Permanent or fixed working capital

(b) Temporary or variable working capital

(a) Permanent working or fixed working capital:

Permanent or fixed working capital represents the essential minimum amount necessary to optimize the use of fixed facilities and sustain the flow of current assets. Every enterprise consistently requires a baseline of current assets to conduct its regular business operations.

(b) Temporary or variable working capital:

Temporary or variable working capital is the working capital amount needed to address seasonal demands and specific exigencies. This variable working capital can be categorized into seasonal working capital and special working capital. Many enterprises must allocate extra working capital to address both seasonal and special requirements. The capital necessary to fulfill the seasonal demands of the enterprise is referred to as seasonal working capital. Meanwhile, special working capital is required to address specific exigencies, such as launching extensive marketing campaigns or conducting research.

5.3 IMPORTANCE OF WORKING CAPITAL

The significance of having ample working capital in a business is paramount. A business entity needs sufficient working capital to ensure the seamless and efficient execution of its daily operations. Insufficient working capital not only hampers the profitability of the firm but also leads to production halts and challenges in meeting current obligations promptly. Therefore, working capital is regarded as the lifeblood of a business.

The advantages of having adequate working capital may be summarised:

1. Smooth Operations:

Having enough working capital ensures the smooth execution of daily operations, covering routine expenses, payroll, and operational overheads.

2. Meeting Immediate Obligations:

It enables the business to promptly fulfill short-term commitments like paying suppliers, settling short-term debts, and addressing other immediate financial needs.

3. Enhanced Liquidity and Adaptability:

Satisfactory working capital enhances liquidity, providing flexibility to seize unexpected opportunities or navigate unforeseen challenges without disrupting regular activities.

4. Effective Inventory Control:

Businesses can maintain optimal inventory levels, ensuring products are readily available to meet customer demand, preventing stockouts and potential sales loss.

5. Credibility and Financial Trustworthiness:

Adequate working capital bolsters the business's credibility and financial trustworthiness, signaling to stakeholders that the company is financially stable and capable of meeting its commitments.

6. Negotiation Leverage:

Businesses with surplus working capital may negotiate more effectively with suppliers, securing advantageous credit terms, discounts, or bulk purchase benefits.

7. Capitalizing on Growth Opportunities:

Sufficient working capital provides the resources for businesses to invest in growth opportunities, such as expanding operations, launching new products, or entering new markets.

8. Risk Mitigation:

It helps manage financial risks by serving as a buffer for unforeseen events, economic downturns, or industry-specific challenges, reducing the impact of financial shocks.

9. Stress Alleviation:

Adequate working capital minimizes financial stress for management, allowing them to concentrate on strategic planning, innovation, and overall business development.

10. Customer Satisfaction:

Timely access to resources ensures the business can fulfill customer orders promptly, contributing to improved customer satisfaction and loyalty.

11. Interest Cost Optimization:

With sufficient working capital, businesses can decrease reliance on short-term borrowings, lowering interest costs associated with external financing.

12. Operational Efficiency:

It promotes operational efficiency by providing the necessary resources for equipment maintenance, repairs, and upgrades, ensuring uninterrupted production processes.

In summary, maintaining ample working capital is indispensable for a business's day-to-day operations, growth initiatives, and resilience. It empowers the business to navigate a dynamic business landscape, capitalize on opportunities, and effectively manage risks.

5.4 COMPONENTS OR COMPOSITION OF WORKING CAPITAL

There are two components of working capital viz., current assets and current liabilities.

Current Assets:

Current assets generally mean those assets which, in the normal and ordinary course of business, will be or are likely to be converted into cash within a year.

Examples of current assets are:

1. Inventories like raw materials, work-in-progress, stores and spare parts, finished goods

2. Sundry Debtors (net of provision)
3. Short-term investment or marketable securities
4. Short-term loans and advances
5. Bills receivable or accounts receivable
6. Pre-paid expenses
7. Accrued Income
8. Cash in hand and bank balances.

Current Liabilities:

Current liabilities means those liabilities repayable within the same period, i.e., a year. In other words, current liabilities are those which are to be repaid in the ordinary course of the business within a year.

Examples of current liabilities are:

1. Sundry creditors
2. Bills payable
3. Outstanding expenses
4. Short-term loans, advances and deposits
5. Provision for tax
6. Proposed dividend
7. Bank overdraft.

5.5 DETERMINANTS OF WORKING CAPITAL

It is imperative for a business to consistently uphold a necessary level of working capital to ensure the smooth and effective operation of its activities. The overall requirement for working capital is influenced by numerous factors, which impact various enterprises in distinct ways. Additionally, these factors are subject to variation over time.

In general, the following factors are to be considered in determining the working capital requirement of a firm:

1. Nature of Business:

The working capital needs of a company are significantly influenced by its nature of business. Public utilities, such as bus services, railways, and water supply, have lower working capital requirements due to the cash nature of their business and the provision of services instead of

manufacturing products. In contrast, trading and manufacturing concerns necessitate more working capital to manage stock-in-trade, receivables, and liquid cash.

2. Size of the Business:

The working capital requirement is also contingent on the size of the business, measured in terms of the scale of operations. Larger firms with higher-scale operations require more working capital compared to smaller-scale operations.

3. Production Cycle:

The time involved in manufacturing or processing a product, known as the production cycle, influences the working capital needs. A longer production cycle results in a higher need for working capital as funds remain tied up in work-in-progress for extended periods. For example, a ship-building industry has more prolonged working capital needs than a bakery.

4. Business Cycle:

Working capital requirements are affected by the business cycle's nature. During a boom period, increased production and sales necessitate higher working capital, while in a slack period, reduced operational volume requires relatively less working capital.

5. Credit Terms of Purchase and Sale:

The credit periods provided by suppliers and granted to customers impact the working capital needs. Short credit periods result in quicker cash realization, reducing the need for working capital. Conversely, a liberal credit policy leads to higher book debts and an increased requirement for working capital.

6. Seasonal Variations:

Industries with seasonal production or sales, like cold drinks and ice-cream, experience large working capital requirements during peak seasons that decrease as the season concludes. However, management policies can influence this, as even production throughout the year can reduce working capital needs.

7. Operating Efficiency:

High operating efficiency allows optimal resource utilization, reducing pressure on working capital. Conversely, inefficiency necessitates a higher level of working capital.

8. Price Level Changes:

Rising input prices require additional working capital to maintain the same production level.

9. Growth and Expansion of the Business:

Growing businesses require greater working capital as their size increases, contrasting with static businesses.

10. Profitability and Retention Money:

Net profits contribute to working capital, with the amount reinvested influenced by the firm's retention policy, corporate tax structure, and dividend policy.

11. Relationship of Material Cost to Total Cost:

Manufacturing concerns with higher raw material costs relative to total production costs necessitate more significant working capital. For instance, industries like textiles and electronics require substantial sums to maintain raw material inventories.

12. Turnover of Current Assets:

The speed at which current assets turn over affects working capital requirements. Businesses with rapid turnover, such as vegetable or fruit shops, may require minimal working capital for stock maintenance.

5.6 SOURCES OF WORKING CAPITAL

Broadly speaking, there are two sources from which funds can be raised for current asset financing:

1. Short-term sources options include bank overdrafts, cash credits, trade deposits, bills discounting, short-term loans, inter-corporate loans, commercial paper, and more.

2. Long-term financing avenues encompass share capital, long-term borrowings, retained earnings, and others. These will be briefly explored in the following paragraphs.

These are briefly discussed in the following paragraphs:

1. **Short-Term Financing:**

Short-term funding sources can be categorized into internal and external channels for working capital. Internal sources, such as tax provisions and dividend provisions, are integral to the business's financial structure. On the other hand, external sources encompass short-term financing options from banks, including overdrafts, cash credits, trade deposits, bills discounting, short-term loans, inter-corporate loans, and commercial paper.

Tax and dividend provisions, being current liabilities, are non-deferrable, and the funds allocated to these provisions serve as working capital until their settlement. While obtaining short-term working capital finance from banks incurs higher interest rates compared to long-term sources, it offers significant time flexibility.

This temporal adaptability allows the finance manager to utilize the funds, pay interest based on the business's usage, and settle them whenever cash becomes available. Overall, these facilities prove cost-effective in comparison to long-term sources that necessitate holding funds even when not immediately required.

Some of the short-term external sources are discussed below:

(a) **Inter Corporate Loans:**

These refer to unsecured short-term funds acquired by a firm from another, relying on personal connections. This financing method has a brief duration, typically spanning 3 to 6 months, and lacks regulation by any legal framework. While entailing elevated risk, it proves beneficial for addressing temporary capital challenges.

(b) **Commercial Paper:**

This is an unsecured promissory note issued by reputable large banks and corporations with strong credit ratings. These notes are issued at a discounted rate and are supported by the corporation's commitment to repay the face value upon the maturity date. The discount rate is determined by the issuer and is not subject to regulation. Introduced in India in 1990, these notes can have maturities ranging from a minimum of 7 days to a maximum of up to one year from the date of issue. They can be directly sold or through a dealer and are available in denominations of Rs.5 lakh or multiples thereof.

(c) **Trade Credit:**

It functions as a primary method for financing working capital in India, where a company secures goods or services without an immediate cash expenditure. Choosing credit-based transactions, like procuring raw materials from suppliers, grants the company immediate access to resources while allowing for postponed payment flexibility. This setup essentially involves suppliers of raw materials contributing to the funding of the business's working capital needs by accommodating deferred payments. This practice is a crucial element of business capitalization, as it holds the potential to reduce the capital investment necessary for effective business operations.

Referred to as a spontaneous or transactional source of funds, this approach naturally arises in the regular course of business. The primary advantage of spontaneous funding for working capital lies in its uncomplicated accessibility and minimal cost in comparison to conventional

financing methods. The incurred costs and the extent of credit are contingent on factors such as the maximum credit limit, credit period, and offered discounts for immediate cash payments.

Each supplier typically establishes a maximum credit limit for the buyer, dependent on the buyer's business capacity and creditworthiness. Additionally, specific credit periods, like 30 or 45 days, are stipulated. Buyers have the opportunity to avail discounts on immediate cash payments made when purchasing materials, signifying an opportunity cost for delayed payments.

(d) **Bank Overdraft:**

An overdraft is an arrangement where a bank permits a company to borrow within a specified limit. The company can borrow any amount within this overdraft limit, and the bank charges daily interest at a variable rate on the outstanding debt. To safeguard against the risk of non-payment, the bank may request security or collateral. An overdraft serves as a flexible financing option, utilized by the company as needed. It's important to note that, technically, an overdraft is repayable on demand, although the bank typically provides prior notice before withdrawing the agreed overdraft facilities..

(e) **Loan:**

It involves obtaining a specific amount of debt financing from a bank, with repayment scheduled in the near future, typically after one year. The firm is obligated to pay interest on the loan at regular intervals, whether at a fixed or variable rate, such as quarterly. In comparison to an overdraft, a short-term bank loan is less flexible, requiring the full loan amount to be borrowed over the specified period. The firm commits to paying interest on the entire loan amount, unlike an overdraft where interest is only on the borrowed sum, not the agreed overdraft limit. Both options may involve similar requirements for security from the banks to extend overdraft or short-term loan facilities.

(f) **Letter of Credit:**

It is an official document issued by a financial institution to a seller of goods or services. This document signifies that the issuer commits to paying the seller for the delivered goods or services to a third-party buyer. Subsequently, the issuer seeks reimbursement from the buyer or the buyer's bank. Essentially, the Letter of Credit serves as a guarantee to the seller, assuring payment from the issuer in case the buyer fails to fulfill the payment obligation. This mechanism effectively shifts the risk of non-payment from the seller to the issuer of the Letter of Credit.

(g) **Purchasing and Discounting of Bills:**

The acquisition and discounting of bills represent a significant method of bank financing that does not require any collateral security. In this process, the seller issues a bill of exchange to the buyer for credit transactions. This bill can be either a clean bill or a documentary bill, accompanied by documents confirming the ownership of goods, such as a railway receipt. The bank acquires these bills, payable on demand, and credits the customer's account with the discounted amount of the bill. Upon maturity, the bank presents the bill to the acceptor for payment. If the discounted bill is dishonored due to non-payment, the bank recovers the entire bill amount from the customer along with associated expenses.

Additionally, short-term financing can also come from sources like advance payments, accrued expenses (incurred but not yet due for payment), and deferred income (income received in advance before supplying goods).

2. **Long-Term Financing:**

Unlike short-term loans, long-term debt serves to fund business investments characterized by extended payback periods. An illustration is the acquisition of machinery that aids the firm in producing goods over a span of 5 years. Long-term financing can be derived from either internal or external sources. Retained earnings and depreciation provisions constitute internal funding sources. External finance options encompass shares, debentures, term loans, and public deposits. These are briefly discussed below:

(a) **Shares:**

The issuance of shares stands as the primary means to secure permanent or long-term capital. A company can opt for either equity shares or preference shares. Preference shares hold priority concerning fixed-rate dividends and capital repayment during the firm's liquidation. Equity shares lack fixed commitment charges, and dividends on these shares are contingent upon the availability of ample profits. Ideally, a company should strive to generate the maximum permanent working capital through share issuance.

(b**) Debentures:**

A debenture is a document issued by a company, acknowledging its indebtedness to the holder. It serves as a significant approach for securing long-term or permanent working capital. Debenture holders assume the role of creditors for the company. Debentures earn a fixed interest rate, and

the interest paid on them is considered a tax-deductible expense against the profit and loss account.

(c) **Term Loan:**

It is a loan that extends beyond a one-year repayment period, typically sought by businesses with extended investment or payback timelines, such as constructing a new factory or acquiring production equipment. Repayment of a bank term loan typically occurs through regular installments. The loan may be secured by specific collateral, such as a designated real estate property (mortgage).

(d) **Public Deposits:**

These refer to fixed deposits directly received by a business entity from the general public. This method of obtaining short-term and medium-term funds was prevalent when banking services were limited. Historically, industries in cities like Ahmadabad and Mumbai, especially in the textile sector, accepted public deposits for periods ranging from 6 months to 1 year. Nowadays, businesses even secure long-term deposits extending to 5 to 7 years. Public deposits serve as a straightforward and convenient financial source, offering tax benefits, leveraging equity trading, requiring no collateral, and being a cost-effective financing option. However, they come with limitations, such as being uncertain, unreliable, and lacking flexibility.

(e**) Retained Earnings:**

This entails the retention of earnings, indicating the reinvestment of surplus profits back into the business. It serves as an internal financial source and is particularly suitable for an established firm seeking expansion, modernization, or replacement. This method is cost-effective, requiring no securities and avoiding control dilution. It ensures a stable dividend policy, instilling public confidence. However, excessive retention of profits may lead to issues such as monopolies, fund misuse, overcapitalization, and speculation.

Short-term financing options are generally more economical and flexible compared to long-term alternatives. For instance, an overdraft offers greater flexibility than a long-term loan, where fixed interest payments are mandatory annually. Nonetheless, short-term financing carries greater risk for the borrower as it may not be renewed, being repayable on demand (as in the case of an overdraft), or may be renewed under less favorable terms, especially when short-term interest rates rise.

Short-term borrowers also face the risk of interest rate volatility, particularly if floating rates on short-term debt, such as an overdraft, are utilized. Striking a balance between profitability and risk is crucial for a firm when deciding how to allocate funding between long-term and short-term sources for current and non-current assets. The finance manager must optimize the combination of funds from these sources to ensure both profitability and liquidity for the enterprise, avoiding either idle or insufficient cash funds.

5.7 FORECAST/ESTIMATE OF WORKING CAPITAL REQUIREMENTS

"Working capital serves as the vital essence and central control hub of a business." A successful operation necessitates a sufficient amount of working capital, and its shortage must be preemptively addressed. To avert immediate working capital deficiencies, it is crucial to forecast the requirements in advance, allowing for timely arrangements to secure the necessary 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 (Average Relationship between Sales and Working Capital)
3. Cash Forecasting Method
4. Operating Cycle Method 5. Projected Balance Sheet Method

1. Percentage of Sales Method

This approach to forecasting working capital needs relies on the assumption that a firm's working capital is directly linked to its sales value. If historical data demonstrates a consistent correlation between sales and working capital, this method can be employed to project future working capital requirements. For instance, if sales in 2007 were Rs. 30,00,000 and the associated working capital was Rs. 6,00,000, then the estimated working capital requirement for 2008 with projected sales of Rs. 40,00,000 would be Rs. 8,00,000, i.e., 20% of Rs. 40,00,000. While this method is straightforward and user-friendly, it may not be universally applicable, as the direct relationship between sales and working capital may not be consistently established.

2. Regression Analysis Method (Average Relationship between Sales and Working Capital)

This approach to predicting working capital needs relies on a statistical method that involves estimating or forecasting the unknown value of a dependent variable based on the known value

of an independent variable. It quantifies the average connection between two or more variables, such as sales and working capital, in the original units of the data.

The relationships between sales and working capital is represented by the equation:

$$Y = a + bx$$

Where,

y = Working capital (dependent variable)

a = Intercept of the least square

b = Slope of the regression line

x = Sales (independent variable)

For determining the values 'a' and 'b' two normal equations are used which can be solved simultaneously:

$\Sigma y = na + b\Sigma x$

$\Sigma xy = a\Sigma x + b\Sigma x^2$

3. Cash Forecasting Method

This approach to determining working capital needs entails predicting future cash receipts and disbursements. The cash forecast encompasses all potential sources of incoming cash and the avenues through which payments are disbursed, resulting in an overall determination of the consolidated cash position. This method closely resembles the creation of a cash budget. Any surplus of cash, where receipts exceed payments, indicates a surplus of cash, while any deficit of cash, where payments exceed receipts, signifies the amount of working capital needed.

4. Operating Cycle Method

This method of forecasting working capital needs is grounded in the operating cycle concept of working capital, emphasizing the understanding and determination of the operating cycle's duration. The cycle initiates with the procurement of raw materials and other resources and concludes with the realization of cash from the sale of finished goods. It encompasses the acquisition of raw materials and stores, their transformation into a stock of finished goods through work-in-process with a progressive increase in labor and service costs, the conversion of finished stock into sales, debtors, and receivables, the realization of cash, and the cycle restarts from cash to the purchase of raw materials and so forth. The duration required to complete one cycle, commonly referred to as the operating cycle, determines the working capital

requirement—where a longer cycle period corresponds to a larger working capital requirement, and vice versa. The requirements of working capital will be estimated as follows:

Working Capital Required = Cost of goods sold $\times \frac{Operating\ cycle\ (days)}{365} + Desired\ Cash\ Balance$

5. Projected Balance Sheet Method

In this approach, a forecasted balance sheet for a future date is crafted by predicting assets and liabilities using any of the methods mentioned earlier. The surplus of the anticipated total current assets over the projected current liabilities, as presented in the forecasted balance sheet, is calculated to signify the estimated amount of necessary working capital.

Illustration 1. Prepare an estimate of working capital requirement from the following information of a trading concern:

(a) Project annual sales 1,00,000 units
(b) Selling price Rs. 8 per unit
(c) % age of net profit on sales 25%
(d) Average credit period allowed to customers 8 weeks
(e) Average credit period allowed by suppliers 4 weeks
(f) Average stock holding in terms of sales requirement 12 weeks
(g) Allow 10% for contingencies

Solution

Statement of Working Capital Requirements

Particulars	Rs.	Rs.
Current Assets:		
Debtors (8 weeks): 6,00,000 x 8/52 (At Cost)		92,308
Stock (12 weeks): 6,00,000 x 12/52		1,38,462
		2,30,770
Less: Current Liabilities:		
Creditors (4 weeks): 6,00,000 x 4/52		46,154
Net Working Capital		1,84,616
Add: 10% for contingencies (10% of 184616)		18,462
Working Capital Required		2,03,078

Working Notes:

(a) Calculation of Cost of Sales

Sales = 1,00,000 x 8 = Rs. 8,00,000

Less: Profit = 25% of Rs.8,00,000 = Rs. 2,00,000

Cost of Sales = Rs. 6,00,000

(b) Profits have been ignored as funds provided by profits may or may not be used as working capital.

Illustration 2. John Ltd. are engaged in large-scale retail business. From the following information, you are required to forecast their working requirements:

Projected annual sales	Rs. 130 lakhs
Percentage of net profit on cost of sales	25%
Average credit period allowed to debtors	8 weeks
Average credit allowed by creditors	4 weeks
Average stock carrying (in terms of sales requirements)	8 weeks
Add: 10% to computed figures to allow for contingencies	

Solution

Statement of Working Capital Requirements

Particulars	Rs.	Rs.
Current Assets:		
Debtors (8 weeks): 10400000 x 8/52 (At Cost)		1600000
Stock (8 weeks): 10400000x 8/52		1600000
		3200000
Less: Current Liabilities:		
Creditors (4 weeks): 10400000x 4/52		800000
Net Working Capital		2400000
Add: 10% for contingencies (10% of 24,00,000)		240000
Working Capital Required		2640000

Working Notes:

1. **Calculation of % of Profit on Sales**

Let, Cost Price = 100

Add: Profit = 25

Selling Price = 125

% of Profit on Sales $= \frac{\text{Profit}}{\text{Selling Price}} \times 100$

$= \frac{25}{125} \times 100$

$= 20\%$

2. Calculation of Cost of Sales

Sales = Rs. 13000000

Less: Profit = 20% of Rs.13000000 = Rs. 2600000

Cost of Sales = Rs. 10400000

3. Profits have been ignored as funds provided by profits may or may not be used as working capital

Illustration 3. From the following details you are required to make an assessment of the average amount of working capital requirement of AB Ltd.

Items	Average Period of Credit	Estimate for the First Year (Rs.)
Purchase of material	6 weeks	26,00,000
Wages	$1^1/_2$ weeks	19,50,000
Overheads:.		
Rent, rates etc	6 months	1,00,000
Salaries	1 month	8,00,000
Other overheads	2 months	7,50,000
Sales (Cash)	-	2,00,000
Sales (credit)	2 months	60,00,000
Average amount of stock and work-in-progress	-	3,00,000
Average amount of undrawn profit		4,00,000

Solution

Statement of Working Capital Requirements

Particulars	Rs.	Rs.
Current Asset:		
Stock and work-in-progress		4,00,000
Debtors (2 months): (60,00,000 x 2/12)		10,00,000
		14,00,000
Less: Current Liabilities:		
Creditors (6 weeks): (26,00,000 x 6/52)	3,00,000	
Wages outstanding ($1^1/_{2\ Weeks}$): 19,50,000 x 1.5/52)	56,250	
Rent, rates etc. outstanding (6 months): 1,00,000X6/12)	50,000	
Salaries outstanding (1 month):(8,00,000 x 1/12)	66,667	
Other overhead outstanding (2 months):(7,50,000 x 2/12)	1,25,000	5,97,917
Net Working Capital Required		8,02,083

Working Notes:

1. Debtors have been calculated at 2 months sales as cost of sales is not given.
2. Profit has been ignored as it may or may not be used as working capital.

Illustration 4. A proforma cost sheet of a company provides the following particulars:

Elements of Cost	Amount per unit Rs.
Raw Material	80
Direct Labour	30
Overheads	60
Total Cost	170
Profit	30
Selling Price	200

The following further particulars are available:

Raw materials are in stock on an average for one month. Work-in-progress on an average for half a month. Finished goods are in stock on an average for one month.

Credit allowed by suppliers is one month. Credit allowed to customers is two months. Lag in payment of wages is $1^1/2$ weeks. Lag in payment of overhead expenses is one month. One-fourth of the output is sold against cash. Cash in hand and at bank is expected to be Rs. 25,000.

You are required to prepare a statement showing the working capital needed to finance a level of activity of 1,04,000 units of production.

You may assume that production is carried on evenly throughout the year, wages and overheads accrue similarly and a time period of 4 weeks is equivalent to a month.

Solution

Statement of Working Capital Requirements

Particulars	Rs.	Rs.
Current Assets:		
(i) Stock of raw materials (4 weeks)(1,04,000x80x4/52)		6,40,000
(ii) Work-in-progress (2 weeks):		
Raw materials (1,04,000x80x2/52)	3,20,000	
Direct Labour (1,04,000x30x2/52 x 50/100)	60,000	
Overheads (1,04,000x60x2/52 x 50/100)	1,20,000	5,00,000
(iii) Stock Finished Goods (4 Weeks):		
Raw materials (1,04,000x80x4/52)	6,40,000	
Direct Labour (1,04,000x30x4/52)	2,40,000	
Overheads (1,04,000x60x4/52)	4,80,000	13,60,000
(iv) Sundry Debtors (8 Weeks): (1,04,000x3/4x170x8/52)		20,40,000
(v) Cash in hand and at bank		25,000
		45,65,000
Less: **Current Liabilities:**		
(i) Sundry creditors (4 weeks) (1,04,000x80x4/52)	6,40,000	
(ii) Wages outstanding (1.5 weeks)(1,04,000x30x1.5/52)	90,000	

(iii) Overhead expenses outstanding (4 weeks) (1,04,000x60x4/52)	4,80,000	12,10,000
Net working capital		33,55,000

Working Notes:

(i) It has been assumed that a time period of 4 weeks is equivalent to one month.

(ii) Profit has been ignored and debtors have been taken at cost. The profit has been ignored because this may or may not be used as a source of working capital.

(iii) As regards stage of completion of work-in-progress is no not given, It has been assumed to be 100% complete as regards material and 50% for direct labour and overheads.

(iv) Sundry Debtors mean credit sales. In the question ¼ is cash sales. Therefore, Sundry Debtors is (1 - ¼)=3/4

5.8 MEANING OF RECEIVABLES

Receivables refer to asset accounts that represent amounts owed to the company due to the sale of goods and services in the regular course of business. They signify the company's claims against its customers and are reported on the "assets side" of the balance sheet with titles like accounts receivables, customer receivables, or book debts. These receivables result from providing customers with a credit facility, allowing them a reasonable timeframe to pay for the purchased goods.

Accounts receivables emerge from credit sales, aligning their purpose directly with the objective of facilitating such sales. The objectives associated with credit sales include:

1. Achieving Sales Growth:

Selling goods on credit enables the company to sell more products compared to insisting on immediate cash payments. This is beneficial because some customers may not be ready or able to make cash payments at the time of purchase.

2. Increasing Profits:

Credit sales contribute to higher profits, not only due to increased sales volume but also because companies often charge a higher profit margin on credit sales compared to cash sales.

3. Meeting Competitive Challenges:

Companies may opt for providing credit facilities to customers to stay competitive with other firms offering similar credit terms. This helps prevent the loss of sales to competitors who provide expected credit options.

The primary objective of committing funds to accounts receivables is to generate a substantial flow of operating revenue and, consequently, higher profits than what would be achieved in the absence of such commitments. Overall, receivables play a crucial role in supporting a company's financial objectives by facilitating credit sales, fostering growth, and maintaining competitiveness in the market.

5.9 COSTS OF MAINTAINING RECEIVABLES

The costs with respect to maintenance of receivables can be identified as follows:

Capital Costs: The maintenance of accounts receivables leads to the tie-up of the company's financial resources, as there is a delay between the sale of goods to customers and their subsequent payments. Consequently, the company must secure additional funds to meet its ongoing obligations, such as compensating employees and paying suppliers for raw materials, while awaiting customer payments. These additional funds can be acquired either externally, incurring interest payments, or internally from retained business profits. In both scenarios, the company bears a cost: interest payments to external sources or the opportunity cost of forgoing potential earnings by not investing the funds elsewhere.

Administrative Costs: Maintaining accounts receivable necessitates the incurrence of supplementary administrative expenses. These costs manifest in salaries for staff responsible for maintaining accounting records related to customers and in expenses related to investigating the creditworthiness of potential customers.

Collection Costs: The company is obliged to bear costs associated with the collection of payments from credit customers. At times, additional measures may need to be implemented to recover funds from customers who default on their payments.

Defaulting Costs: Despite diligent efforts to collect outstanding payments, the company may encounter situations where it cannot recover overdue amounts due to the financial incapacity of customers. Such unrecoverable debts are deemed as bad debts and must be written off, as they cannot be realized.

5.10 FACTORS AFFECTING THE SIZE OF RECEIVABLES

The size of the receivable is determined by a number of factors. Some of the important factors are as follows:

1. Sales Volume:

The magnitude of sales stands out as a pivotal factor in determining the magnitude of accounts receivable. Typically, within the same industry, a company with substantial sales will exhibit a larger level of receivables compared to a company with modest sales. The level of sales can also serve as a basis for predicting fluctuations in accounts receivable.

2. Credit Policies:

Credit policies encompass decision variables influencing the extent of trade credit, representing the investment in receivables. These variables encompass the quantity of accepted trade accounts, the duration of the credit period extended, the provision of cash discounts, and any special terms based on the unique circumstances of the firm and the customer. A company's credit policy effectively determines the level of risk it is willing to assume in its sales endeavors. A lenient or more permissive credit policy tends to result in higher receivables compared to a company with a stricter or more rigorous credit policy. This is attributed to two factors:

- A lenient credit policy encourages even financially robust customers to delay payments, consequently increasing the size of accounts receivables.
- A lenient credit policy is likely to lead to more payment defaults by financially weaker customers, further contributing to an increase in receivables.

3. Terms of Trade:

The dimensions of receivables are also influenced by the terms of trade or credit terms offered by the company. Key components of credit terms include:

- Credit Period: This denotes the duration for which credit is extended to customers and is typically expressed in terms of "net days."
- Cash Discount: Many companies provide cash discounts to motivate customers to settle their dues before the expiration of the credit period. The terms of cash discounts specify the discount rate and the duration for which the discount is applicable.

5.11 MEANING OF CASH

In a broader sense, cash encompasses assets with high liquidity, such as marketable securities and time deposits in banks. These assets can be easily sold and converted into cash, serving as a reserve pool of liquidity and offering a short-term investment option for surplus cash.

5.12 CASH MANAGEMENT

Cash Management revolves around overseeing the gathering, distribution, and administration of cash to ensure the firm's liquidity is upheld. In simpler terms, it involves supervising the movement of cash within and outside the company, and making choices regarding investing excess cash or securing external funds to address deficits.

5.13 OBJECTIVES OF CASH MANAGEMENT

Why do we need to manage cash flow in the organization? What is the use of cash management in the business?

Following purposes of cash management will resolve the above queries:

Meet Working Capital Needs: To satisfy regular expenditures, the organization must uphold sufficient liquid cash, achievable through adept cash management.

Plan Capital Expenditure: Cash management aids in the strategic planning of capital expenditure, determining the debt-to-equity ratio to secure financing for such purposes.

Address Unplanned Costs: Unexpected events like machinery breakdowns can result in unforeseen costs. Having a surplus of cash becomes invaluable in addressing such unforeseen circumstances.

Initiate Investments: Cash management also involves putting idle funds to work in suitable opportunities and proportions.

Optimize Fund Utilization: By striking a balance between available cash and investments, it ensures the most effective use of funds.

Prevent Insolvency: Efficient cash management is crucial to prevent situations of insolvency, whether stemming from a lack of liquid cash or an inability to generate profits from available funds.

5.14 MOTIVES FOR HOLDING CASH

Majorly there are four motives for which the firm holds cash.

1. **Transaction Motive:**

The transaction motive pertains to the cash needed by a firm for its day-to-day business operations. In the regular course of business, cash is essential for fulfilling obligations such as salaries, wages, interests, dividends, and goods purchases. The firm also receives cash from sales, debtors, and investments. Often, there is a mismatch between the firm's cash inflows and outflows, leading to the holding of cash to meet routine commitments.

2. Precautionary Motive:

The precautionary motive involves a firm holding cash to address contingencies or unforeseen circumstances that may arise during business operations. Due to the inherent uncertainty of the future, firms may encounter situations like a rise in raw material prices, labor strikes, lockouts, or changes in demand. Holding cash helps firms navigate these uncertainties and ensures uninterrupted business operations.

3. Speculative Motive:

Firms maintain cash for speculative purposes, anticipating favorable opportunities for bargain purchases in the future. For instance, if a firm foresees a potential decrease in raw material prices, it holds cash and waits for the prices to actually decline.

4. Compensating Motive:

Another motive for holding cash balances is to compensate banks for providing various services and loans. Banks offer services such as check clearance, credit information supply, and fund transfers. While banks charge a commission or fee for some of these services, for others, they seek indirect compensation. Firms are often required to maintain a minimum cash balance at the bank, which cannot be utilized by the firms for regular transactions. This compensates banks for their services.

In summary, firms hold cash for transactional needs, precautionary measures, speculative opportunities, and to compensate banks for services, ensuring flexibility and adaptability in various business scenarios.

5.15 MEANING OF INVENTORY MANAGEMENT

Inventory management, a facet of supply chain management, encompasses the oversight of non-capitalized assets or inventory and stock items. More precisely, it entails monitoring the movement of goods from manufacturers to warehouses and subsequently to the point of sale. Therefore, inventory management relies on meticulous record-keeping of products or components as they enter and exit warehouses and sales points.

5.16 OBJECTIVES OF INVENTORY MANAGEMENT

Technically the following are the objectives of inventory management:

(i) Making adequate investments in inventories is favorable for ensuring smooth production and sales processes.

(ii) Maintaining an optimal inventory level functions as a safeguard during shortages of raw materials, akin to the protection provided by a raincoat.

(iii) Having a substantial stock of finished goods is advantageous for promoting smooth sales operations.

(iv) The advantages associated with carrying costs can be realized by purchasing a significant inventory.

(v) Inventory management is beneficial in addressing concerns about wastage and obsolescence. It helps mitigate the fear of stock remaining idle for prolonged periods, the impact of adverse weather conditions, and changes in fashion trends.

(vi) In periods of short supply, appropriate and sufficient inventory acts as a safeguard, analogous to the protection offered by a raincoat during emergencies.

5.17 INVENTORY MANAGEMENT PROBLEMS

Inventory management presents a range of challenges for businesses, and effectively addressing these issues is essential for maintaining seamless operations. Here are some common problems associated with inventory management:

1. Excessive Stock:

Holding too much inventory can tie up capital and storage space, leading to increased costs and potential obsolescence.

Employ accurate demand forecasting, use just-in-time inventory systems, and regularly review inventory levels to avoid excess stock.

2. Insufficient Stock:

Inadequate inventory levels can result in stockouts, causing disruptions in production and delays in meeting customer demand.

Utilize accurate demand forecasting, set appropriate reorder points, and use safety stock to mitigate the risk of insufficient stock.

3. Inaccurate Demand Prediction:

Poor predictions of customer demand can result in inefficient inventory levels and increased holding costs.

Use historical data, market research, and advanced forecasting tools to enhance accuracy in predicting demand patterns.

4. Obsolete Inventory:

Products becoming obsolete due to technological changes, shifts in customer preferences, or evolving market trends can lead to financial losses.

Regularly assess product life cycles, implement a first-in, first-out (FIFO) approach, and have a strategy for liquidating or repurposing obsolete inventory.

5. Supply Chain Disruptions:

Disruptions in the supply chain, such as natural disasters, geopolitical events, or supplier issues, can lead to delays and shortages.

Diversify suppliers, maintain strong relationships with key suppliers, and have contingency plans for supply chain disruptions.

6. Inefficient Order Management:

Poor order management processes can lead to errors, delays, and increased administrative costs.

Implement automated order processing systems, leverage barcoding and RFID technology, and regularly train staff on efficient order management practices.

7. High Holding Costs:

The costs associated with holding inventory, including storage, insurance, and depreciation, can significantly impact overall expenses.

Optimize order quantities, use efficient storage systems, and regularly review and renegotiate agreements with suppliers to reduce holding costs.

8. Lack of Technology Integration:

Not leveraging technology for inventory management can lead to manual errors, inefficiencies, and difficulty in tracking inventory in real-time.

Implement inventory management software, utilize barcoding or RFID systems, and integrate technology for accurate and timely data management

Addressing these inventory management challenges requires a comprehensive approach, incorporating advanced technology, precise forecasting, and streamlined processes to optimize inventory levels and ensure a seamless supply chain.

5.18 TOOLS AND TECHNIQUES OF INVENTORY MANAGEMENT

1.Determination of Stock Levels

2.Determination of Safety Stocks

3.Determination Economic Order Quantity (EOQ)

4.ABC Analysis

5.VED Analysis

6.JUST IN TIME (JIT) METHOD

1. DETERMINATION OF STOCK LEVELS

Efficient inventory management necessitates maintaining an optimal inventory level where costs are minimized, and simultaneously avoiding stockouts that could lead to lost sales or production stoppage. Various stock levels are delineated as follows:

(i) **Minimum Stock Level:**

This denotes the minimum amount of stock that should be consistently maintained, with the stock level typically not allowed to fall below this threshold.

The Minimum Stock Level is calculated as: Re-order level – (Normal Consumption x Normal Reorder Period)

(ii) **Maximum Level:**

This signifies the highest quantity of a material item, representing the level beyond which stocks should not surpass. The Maximum Level is determined by: (Re-order Level + Re-order Quantity) – (Minimum Consumption x Minimum Reorder Period)

(iii) **Danger Level:**

Positioned below the minimum level, the Danger Level triggers immediate purchase actions if stock falls below this point.

2. **DETERMINATION OF SAFETY STOCKS**

Safety stock acts as a safeguard to address unforeseen spikes in usage. To mitigate the risk of running out of stock due to fluctuations in usage, businesses typically uphold a safety margin or safety stocks.

3. **ECONOMIC ORDER QUANTITY (EOQ)**

Economic order quantity is the size of the lot to be purchased which is economically viable. This is the quantity of materials which can be purchased at minimum costs.

Economic order quantity (EOQ) can be calculated with the help of the following formula :

$$EOQ = \sqrt{2AS/I}$$

Where

A= Annual consumption in rupee.

S= Cost of placing an order.

I= Inventory carrying an order

4. ABC ANALYSIS

ABC analysis, which stands for Always Better Control Analysis, is a method in inventory management that categorizes inventory items into three groups: A, B, and C. Items in the A category are closely monitored as they represent high-value inventory, albeit in smaller quantities. The B category comprises relatively less expensive inventory compared to category A, with a moderate number of items warranting a moderate level of control. Category C includes a large number of low-investment inventory items, necessitating a minimal level of control.

5. VED ANALYSIS

VED, an acronym for Vital, Essential, and Desirable, is a technique predominantly employed by organizations to manage spare parts in their inventory. In this approach, a greater inventory level is allocated to vital parts, which are both costly and indispensable for the production process. Essential spare parts, critical for preventing disruptions in the production process, also necessitate a significant inventory level. On the other hand, a lower inventory level is maintained for desirable parts, which are infrequently needed for production.

6. JUST IN TIME (JIT) METHOD

The Just-In-Time (JIT) method is an inventory management approach that focuses on optimizing efficiency by receiving goods only as they are needed in the production process. Instead of holding large inventories, JIT aims to minimize storage costs and improve cash flow by acquiring materials, components, or finished goods just in time for use in the manufacturing process or customer delivery. Key features of the JIT method include:

1. On-Demand Production:

Goods are produced or purchased only when there is a specific demand, minimizing the need for excess inventory.

2. Reduced Inventory Holding Costs:

By maintaining minimal inventory levels, businesses can reduce holding costs associated with storage, insurance, and depreciation.

3. Continuous Flow:

JIT promotes a continuous flow of materials through the production process, eliminating bottlenecks and reducing lead times.

4. Tight Supplier Relationships:

Close relationships with reliable suppliers are crucial for timely deliveries, allowing businesses to receive materials just in time for production.

5. Quality Focus:

JIT emphasizes high-quality production by identifying and addressing issues as they arise, reducing the likelihood of defects in the final products.

6. Flexibility:

The JIT method requires a flexible production system that can quickly adapt to changes in demand, allowing for efficient adjustments to production schedules.

7. Pull System:

JIT operates on a pull system, where items are produced or ordered in response to actual demand, eliminating the need for speculative or forecast-based production.

8. Continuous Improvement:

JIT encourages a culture of continuous improvement, where inefficiencies are identified and addressed regularly to enhance overall operational effectiveness.

9. Waste Reduction:

By producing only what is needed and eliminating excess inventory, JIT helps minimize various forms of waste, such as overproduction, excess transportation, and excess processing.

10. Lean Manufacturing:

JIT is often associated with the principles of lean manufacturing, which aims to eliminate waste, improve efficiency, and enhance overall value for the customer.

Implementing JIT requires careful planning, effective communication with suppliers, and a commitment to quality and efficiency throughout the production process. While it offers benefits such as cost savings and improved responsiveness, JIT also demands a high level of coordination and may be sensitive to disruptions in the supply chain.

CHECK YOUR PROGRESS

A. Multiple Choice Questions

Select the most appropriate answer:

1. Which of the following is not an application of working capital?
   (a) day-to-day expenditure of business
   (b) current obligations for payment
   (c) expenditure in the usual course of business
   (d) expenditure to acquire capital

2. Net working capital is the excess of current assets over
   (a) total liabilities
   (b) current liabilities
   (c) intangible liabilities
   (d) None of the following

3. Total of all current assets is called
   (a) gross working capital
   (b) net working capital
   (c) fixed working capital
   (d) None of the following

4. Which is not the long-term source of working capital?
   (a) retained earnings
   (b) long-term debts
   (c) issue of shares
   (d) provision for taxation

5. Which of the following is not a current asset?
   (a) land and building
   (b) bills receivable
   (c) debtors
   (d) None of the above

6. Forecasting technique or working capital include
   (a) cash forecasting method
   (b) projected balance sheet method
   (c) P/L adjustment method
   (d) All of the above

7. Increasing the credit period from 30 to 60 days, in response to a similar action taken by all of our competitors, would likely result in:
   (a) an increase in the average collection period
   (b) a decrease in bad debt losses
   (c) an increase in sales
   (d) higher profits

8. The size or level of debtors is not influenced by:
   (a) Levels of sales
   (b) Collection Policy
   (c) Number of employees in the credit and collection department
   (d) None of the above
9. Scientific inventory management techniques do not include:
   (a) ABC Analysis
   (b) Economic Order Quantity
   (c) Cash Flow Analysis
   (d) Application and mentoring inventory levels

10. EOQ is the order quantity that ____ over our planning horizon.
    (a) minimizes total inventory costs
    (b) minimizes total carrying costs
    (c) minimizes total ordering costs
    (d) the required safety stock

[1(d); 2(b); 3(a); 4(d); 5(a); 6(d); 7(a); 8(c); 9(c); 10(c)]

B. Short Answer Type Questions

1. What is working capital?
2. Name the various kinds of working capital.
3. Mention the sources of working capital.
4. What is the nature of cash?
5. Name various tools of inventory management.
6. What do you mean by receivables?

C. Long Term Type Questions

1. Discuss the concept of working capital?
2. Explain the needs of working capital.
3. Critically explain the factors affecting the requirement of working capital.
4. Discuss various sources of working capital.
5. What is meant by Inventory Management? Why is it essential to a business concern?
6. Explain various inventory control techniques.
7. What do you mean by cash management? Explain the motives of holding cash.
8. What is do you mean by receivables? Discuss various factors influencing the size of receivables.
9. Enumerate the various costs of receivables.

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