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Dr. Babasaheb Ambedkar Open University

(Established by Government of Gujarat)

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BBA
SEMESTER - 4
BBACC401
FINANCIAL MANAGEMENT

Message for the Students

Dr. Babasaheb Ambedkar Open (University is the only state Open University, established by the Government of Gujarat by the Act No. 14 of 1994 passed by the Gujarat State Legislature; in the memory of the creator of Indian Constitution and Bharat Ratna Dr. Babasaheb Ambedkar. We Stand at the seventh position in terms of establishment of the Open Universities in the country. The University provides as many as 54 courses including various Certificate, Diploma, UG, PG as well as Doctoral to strengthen Higher Education across the state.

On the occasion of the birth anniversary of Babasaheb Ambedkar, the Gujarat government secured a quiet place with the latest convenience for University, and created a building with all the modern amenities named 'Jyotirmay' Parisar. The Board of Management of the University has greatly contributed to the making of the University and will continue to this by all the means.

Education is the perceived capital investment. Education can contribute more to improving the quality of the people. Here I remember the educational philosophy laid down by Shri Swami Vivekananda:

> ***"We want the education by which the character is formed, strength of mind is Increased, the intellect is expand and by which one can stand on one's own feet".***

In order to provide students with qualitative, skill and life oriented education at their threshold. Dr. Babaasaheb Ambedkar Open University is dedicated to this very manifestation of education. The university is incessantly working to provide higher education to the wider mass across the state of Gujarat and prepare them to face day to day challenges and lead their lives with all the capacity for the upliftment of the society in general and the nation in particular.

The university following the core motto 'स्वाध्यायः परमं तपः does believe in offering enriched curriculum to the student. The university has come up with lucid material for the better understanding of the students in their concerned subject. With this, the university has widened scope for those students who are not able to continue with their education in regular/conventional mode. In every subject a dedicated term for Self Learning Material comprising of Programme advisory committee members, content writers and content and language reviewers has been formed to cater the needs of the students.

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With all these efforts, Dr. Babasaheb Ambedkar Open University is in the process of being core centre of Knowledge and Education and we invite you to join hands to this pious *Yajna* and bring the dreams of Dr. Babasaheb Ambedkar of Harmonious Society come true.

Prof. Ami Upadhyay
Vice Chancellor,
Dr. Babasaheb Ambedkar Open University,
Ahmedabad.

Dr. Babasaheb Ambedkar Open University

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BBACC401

SEMESTER - 4

FINANCIAL MANAGEMENT

BLOCK-1

BBA SEMESTER-4

Financial Management

BLOCK: 1

Authors' Name: Prof. (Dr.) Manoj Shah, Professor and Director,
School of Commerce and Management,
Dr. Babasaheb Ambedkar Open University, Ahmedabad.

Review (Subject): Dr. Megha K Shah, Associate Professor,
Faculty of Management, GLS University, Ahmedabad.

Review (Language): Dr. Deepak Mashru, Assistant Professor,
National Forensic Sciences University, Gujarat.

Editor's Name: Prof. (Dr.) Manoj Shah,
Professor and Director,
School of Commerce and Management,
Dr. Babasaheb Ambedkar Open University,
Ahmedabad.

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Unit : 1
Introduction of the Financial Management

1.1 Introduction

Financial management is the backbone of any business organization, as it deals with the planning, organizing, directing, and controlling of financial activities to achieve strategic goals. In today's competitive environment, financial management is not just about maintaining accounts or recording transactions; it is a comprehensive process that involves decision-making related to investments, capital structure, risk management, and dividend policies.

An efficient financial management system ensures that every rupee invested in the business is used productively and contributes to profitability and sustainability. The importance of financial management has increased with globalization and technological advancement, as organizations now face complex financial environments that demand strong financial planning and forecasting. By focusing on efficient fund allocation, liquidity management, and financial control, financial management ensures business stability and long-term growth.

Furthermore, financial management also serves as the foundation for corporate strategy, as financial data guide managerial decisions regarding market expansion, cost optimization, and innovation. In essence, sound financial management helps a company grow responsibly, enhance shareholder value, and remain financially viable in a dynamic global economy.

1.2 Definition & Meaning :

❖ Definitions of Financial Management :

Financial management can be defined as the process of planning, organizing, controlling, and monitoring financial resources to achieve an organization's goals effectively and efficiently. It involves making strategic decisions related

to investment, financing, and dividend distribution to maximize the value of the business.

❖ **Definition by Howard & Upton :**

"Financial management is the application of general management principles to the financial resources of the enterprise."

❖ **Meaning :**

The meaning of financial management lies in its focus on the proper utilization of funds. It ensures that an organization maintains the right balance between inflow and outflow of money, minimizes risks, and optimizes profits. In simple terms, financial management is about managing money wisely so that the organization can grow, remain stable, and fulfill its objectives.

In broader terms, financial management encompasses all managerial efforts to procure adequate funds at the lowest possible cost, use them wisely, and control them through proper financial monitoring systems. It is a dynamic process that evolves with changes in economic conditions technology and organizational structure.

1.3 Objectives of Financial Management :

The main objective of financial management is to ensure the effective and efficient use of funds so that the organization can achieve its overall goals in a balanced and sustainable manner. Financial management does not merely deal with the acquisition of funds but also with their proper allocation and utilization to ensure stability, growth, and profitability. Below is a detailed and descriptive explanation of the key objectives of financial management :

1. Wealth Maximization :

The foremost objective of financial management is to maximize the wealth of shareholders. This goal emphasizes increasing the overall value of the organization in the long term by focusing on market value and profitability. Wealth maximization considers the time value of money, risk factors and future cash flows to make sound financial decisions. It aims to increase the company's share price, which reflects its performance, reputation, and ability to generate future income. Unlike short-term profit maximization, wealth maximization ensures that every financial decision contributes to sustainable growth and enhances the confidence of investors.

2. Ensuring Adequate Capital :

Capital is the lifeblood of any organization, and without sufficient funds, a business cannot operate smoothly. Financial management ensures that the firm has an adequate amount of capital for its current and future requirements. This involves determining the right mix of debt and equity, accurately estimating financial needs, and arranging funds at the right time and from the right sources. Adequate capital availability helps meet operational expenses, finance expansion plans, and address unforeseen contingencies. A shortage of capital can hamper business activities, whereas excess capital may lead to inefficiency; hence, maintaining an optimal balance is essential.

3. Efficient Utilization of Funds :

Merely acquiring funds is not enough; using them efficiently is equally important. Financial management focuses on the most productive utilization of available resources to ensure that every investment yields a desirable return. This involves proper budgeting, cost control, and performance analysis. Efficient utilization minimizes wastage, avoids unnecessary expenditure, and directs financial resources toward profitable projects. By doing so, an organization enhances operational efficiency and strengthens its financial stability. It also supports better decision-making and promotes accountability across all levels of management.

4. Profit Maximization :

Another significant objective of financial management is to maximize profits, as profits are essential for business survival and growth. Profit serves as a measure of efficiency, a source of internal financing, and a reward for risk-taking. The goal is to generate maximum returns with minimum cost while maintaining quality and customer satisfaction. However, modern financial management views profit maximization not as an end in itself but as a means to achieve wealth maximization. Ethical practices, innovation, and sustainability are considered alongside profitability to ensure that short-term gains do not compromise long-term success.

5. Maintaining Liquidity :

Liquidity management ensures that the business has enough cash flow to meet its short-term obligations, such as paying salaries, suppliers, and taxes. Financial management involves maintaining an appropriate level of liquid assets to prevent both cash shortages and idle funds. Too little liquidity can disrupt operations and damage credibility, while excessive liquidity can result in low returns. Therefore, maintaining an optimal liquidity position helps the

organization remain financially flexible, meets unexpected expenses, and takes advantage of sudden opportunities without facing financial strain.

6. Risk Management :

Every financial decision carries some degree of risk, whether it relates to investment, financing, or operations. Financial management aims to identify, evaluate, and manage these risks effectively. This involves analyzing market trends, interest rate fluctuations, credit risks, and economic uncertainties. By adopting tools such as diversification, hedging, and insurance, financial managers balance the relationship between risk and return. Effective risk management not only safeguards the organization from potential losses but also ensures stability and investor confidence in the long run.

7. Sustainable Growth :

Sustainable growth is the foundation of long-term business success. Financial management supports steady, ethical, and environmentally responsible growth. It involves reinvesting profits wisely, planning for future expansion, and maintaining financial discipline. Sustainable growth ensures that the company remains competitive while fulfilling its social and environmental responsibilities. Financial managers focus on long-term strategies that strengthen the company's market position, enhance brand value, and contribute positively to the economy and society.

In conclusion, the objectives of financial management revolve around balancing profitability, liquidity, risk, and sustainability. When implemented effectively, these objectives ensure that the organization not only meets its short-term goals but also builds a strong foundation for future prosperity and stakeholder satisfaction.

1.4 Importance of Financial Management :

Financial management plays a crucial and strategic role in determining the success, sustainability, and long-term prosperity of any business organization. It goes beyond the simple act of managing money-it involves analyzing financial performance, planning for future growth, balancing risks, and ensuring that every decision aligns with the organization's overall objectives. A well-managed financial system acts as the backbone of all business operations by ensuring that adequate resources are available, utilized efficiently, and directed toward achieving organizational goals. The following points describe the importance of financial management in detail :

1. Ensures Adequate Funds :

One of the most fundamental roles of financial management is to ensure that sufficient funds are available for the smooth functioning of the organization. Every business, regardless of its size, requires money to operate, invest, and expand. Financial management helps estimate the amount of capital needed for both short-term and long-term purposes and arranges funds from suitable sources such as equity, loans, or retained earnings. Proper financial planning prevents liquidity crises, ensures timely payments, and avoids disruptions in business operations. By forecasting future financial needs and managing available funds effectively, the organization can function efficiently without facing financial bottlenecks.

2. Improves Profitability :

The ultimate goal of any business is to generate profit, and effective financial management directly contributes to improving profitability. It does so by monitoring revenues and expenses, controlling costs, and identifying opportunities to enhance efficiency. Through budgetary control, cost-benefit analysis, and performance evaluation, financial management ensures that resources are used productively. Moreover, by investing in profitable projects and avoiding unproductive expenditures, it helps in maximizing returns on investment. Profitability not only strengthens the financial position of a company but also provides a basis for expansion, innovation, and competitive advantage in the market.

3. Maintains Liquidity :

Liquidity refers to a company's ability to meet its short-term obligations such as paying suppliers, employees, and other operational expenses. Maintaining proper liquidity is essential for business continuity. Financial management ensures that the company has adequate cash flow to meet immediate needs without holding excessive idle funds that could otherwise be invested. Techniques such as working capital management, cash budgeting, and financial forecasting are used to maintain the right balance between liquidity and profitability. Adequate liquidity enhances the company's creditworthiness and financial reputation in the market.

4. Facilitates Decision-Making :

Financial management provides management with accurate, reliable, and up-to-date financial data to support effective decision-making. Financial statements, ratio analysis, and cash flow reports serve as valuable tools for evaluating performance and planning future strategies. Managers can make

informed decisions about investments, product launches, pricing strategies, or cost control measures based on financial insights. This systematic approach reduces uncertainty, promotes transparency, and ensures that every decision contributes positively to the overall goals of the organization. Hence, financial management transforms data into strategic intelligence for long-term planning.

5. Promotes Business Growth :

Sound financial management fosters steady business growth by supporting innovation, expansion, and diversification. It ensures that profits are reinvested wisely into projects that offer sustainable returns. Proper financial planning also helps in securing funds for research, development, and technological upgrades, enabling the business to remain competitive in a dynamic environment. Growth is not merely about increasing size or sales-it also includes improving operational efficiency, market reputation, and customer trust. Financial management provides a roadmap for growth while keeping the organization financially stable and flexible.

6. Balances Risk and Return :

Every business faces financial risks such as market fluctuations, interest rate changes, and credit defaults. Financial management helps in identifying, analyzing, and managing these risks effectively. The concept of balancing risk and return ensures that the organization does not invest in overly risky ventures that could jeopardize its financial health, nor does it miss out on profitable opportunities due to excessive caution. By diversifying investments, choosing the right financing mix, and implementing risk mitigation strategies, financial management maintains equilibrium between security and profitability.

7. Enhances Shareholder Value :

One of the most important objectives of financial management is to maximize shareholder wealth. This is achieved by generating consistent profits, ensuring business sustainability, and maintaining a positive market reputation. Shareholder value increases when a company's share price rises, reflecting investor confidence and strong financial performance. Through prudent investment, dividend, and financing decisions, financial management ensures that shareholders receive fair returns while the company retains enough funds for growth. Enhancing shareholder value not only benefits investors but also strengthens the company's brand image in the capital market.

8. Ensures Business Stability :

Stability is vital for the long-term success of any organization. Financial management helps achieve this stability by maintaining a balanced capital

structure, monitoring financial performance, and preparing for economic uncertainties. It builds financial resilience by creating reserves and adopting flexible budgeting techniques. A business with sound financial management is better equipped to handle crises such as economic downturns, market disruptions, or unexpected losses. Stability also instills confidence among employees, investors, and stakeholders, reinforcing the company's credibility and long-term vision.

1.5 Scope of Financial Management :

The scope of financial management refers to the range of activities and decisions involved in managing the financial resources of an organization. It covers all aspects of acquiring, utilizing, and controlling funds efficiently. The major areas of its scope include :

1. Investment Decisions
   - ⇨ Concerned with selecting the best investment opportunities for the organization's funds.
   - ⇨ Includes capital budgeting (long-term investments) and working capital management (short-term assets and liabilities).
2. Financing Decisions
   - ⇨ Focuses on determining the best capital structure (mix of equity, debt, and other sources).
   - ⇨ Involves decisions related to raising funds from various sources at the lowest cost and minimum risk.
3. Dividend Decisions
   - ⇨ Deals with deciding how much profit should be distributed to shareholders as dividends and how much should be retained for future growth.
4. Liquidity Decisions
   - ⇨ Ensures that the business has enough cash and liquid assets to meet short-term obligations.
   - ⇨ Prevents both shortage (which may stop operations) and excess (which may reduce profitability).
5. Risk Management
   - ⇨ Identifies and manages financial risks such as market risk, credit risk, and interest rate fluctuations.
6. Financial Control and Reporting
   - ⇨ Involves monitoring, analyzing, and reporting financial performance to ensure funds are used effectively.
   - ⇨ Helps management make corrective actions when required.

1.6 Role and Functions of a Finance Manager :

The role of a finance manager in an organization is pivotal, as they are responsible for maintaining the financial health, stability, and sustainability of the business. In the modern corporate environment, financial management has evolved from simple bookkeeping to a strategic function that influences every aspect of business decision-making. A finance manager not only handles the inflow and outflow of money but also plans for the organization's financial future, manages risks, and ensures compliance with laws and policies. The role requires analytical ability, foresight, and leadership to align financial strategies with overall organizational goals. The following are the key roles of a finance manager explained in detail :

❖ **Role of a Finance Manager :**

1. Planner :

One of the most essential roles of a finance manager is to act as a financial planner. The finance manager prepares financial plans, budgets, and forecasts to ensure that all business operations run smoothly without financial disruptions. This involves estimating the organization's capital requirements, analyzing future income and expenditure trends, and allocating funds to different departments or projects. Effective financial planning ensures that the organization always has sufficient resources for its operational and strategic needs. It also helps in anticipating potential financial challenges and creating contingency plans. By forecasting future scenarios and aligning financial goals with organizational objectives, the finance manager ensures long-term stability and efficient resource utilization.

2. Decision-Maker :

The finance manager plays a crucial decision-making role in determining how funds should be raised and utilized. Key financial decisions such as investment selection, capital structure formulation, and dividend distribution fall under their responsibility. For instance, they decide which projects to invest in, how much debt or equity to raise, and what proportion of profits should be distributed as dividends versus retained for growth. Each of these decisions directly affects the business's profitability, risk exposure, and long-term sustainability. Therefore, the finance manager must evaluate various financial alternatives using tools such as cost-benefit analysis, net present value (NPV), and internal rate of return (IRR) to select the best option. Sound decision-making in finance ensures the effective deployment of resources and maximization of shareholder value.

3. Controller :

Another vital role of the finance manager is to act as a controller of financial operations. This function involves monitoring and managing all financial activities to ensure that funds are being used effectively and efficiently. The finance manager maintains strict control over cash flow, expenses, and budgets, ensuring that every financial transaction aligns with the company's policies and objectives. They are also responsible for implementing internal controls, conducting financial audits, and verifying that accounting records are accurate and up-to-date. By identifying deviations between actual performance and planned goals, the finance manager can promptly take corrective action.

4. Advisor :

In addition to planning and controlling, the finance manager acts as a financial advisor to top management and other departments. Their insights are crucial for strategic decision-making, such as mergers and acquisitions, new product launches, pricing strategies, or market expansion. By analyzing financial data, performance trends, and economic indicators, the finance manager provides management with recommendations that support informed and effective decisions. They also interpret financial reports and translate complex figures into actionable insights that non-financial managers can understand. As an advisor, the finance manager helps the leadership team strike a balance between profitability, growth, and risk management, ensuring that all decisions align with the organization's financial objectives.

5. Risk Manager :

Every financial activity carries some level of risk, whether it's related to market fluctuations, credit defaults, or operational inefficiencies. The finance manager serves as a risk manager by identifying, analyzing, and mitigating these financial risks. They employ various tools and techniques such as diversification, hedging, insurance, and financial derivatives to minimize potential losses. A good finance manager continuously monitors economic trends, regulatory changes, and global developments to anticipate and manage risks effectively. Moreover, risk management is not limited to avoiding losses-it also involves taking calculated risks that can lead to higher returns. By maintaining a balance between risk and reward, the finance manager ensures the long-term stability and resilience of the organization.

The role of a finance manager is dynamic, multifaceted, and integral to organizational success. They act as a bridge between management objectives and financial performance, ensuring that the company's resources are managed prudently and strategically..

❖ **Functions of a Finance Manager :**

1. Estimating Financial Requirements - Determines how much capital is needed for short-term and long-term operations.
2. Capital Structure Planning - Decides the proportion of equity, debt, and other sources of funds to minimize cost and risk.
3. Investment Decisions - Selects the most profitable projects and allocates funds to generate maximum returns.
4. Profit Allocation - Decides how much profit should be distributed as dividends and how much should be retained for growth.
5. Maintaining Liquidity - Ensures sufficient working capital to meet day-to-day obligations and avoid financial crises.
6. Cost Control - Implements measures to reduce unnecessary expenses and improve profitability.
7. Financial Reporting & Compliance - Prepares accurate financial statements and ensures compliance with legal and regulatory requirements.
8. Risk Management - Identifies market, credit, and operational risks and uses tools like hedging and insurance to manage them.

1.7 Objectives: Profit Maximization vs. Wealth Maximization :

Financial management has two key objectives - Profit Maximization and Wealth Maximization. Although related, they differ in scope and purpose.

1. Profit Maximization :

Profit maximization is the traditional objective of financial management, which focuses on earning the maximum possible profit for the business.

❖ **Features :**

⇨ Short-term approach.

⇨ Focuses only on increasing earnings.

⇨ Ignores risk factor and timing of returns.

❖ **Merits :**

⇨ Simple to understand and measure.

⇨ Provides a clear target for management.

❖ **Limitations :**

- ⇨ Ignores long-term sustainability.
- ⇨ Does not consider risk and uncertainty.
- ⇨ May lead to unethical practices just to earn more profit.

2. Wealth Maximization :

Wealth maximization is the modern and comprehensive objective of financial management, which focuses on maximizing the value of the organization for its shareholders.

❖ **Features :**

- ⇨ Long-term approach.
- ⇨ Considers risk, return, and time value of money.
- ⇨ Aims to increase share price and overall value of the business.

❖ **Merits :**

- ⇨ Ensures long-term growth and stability.
- ⇨ Balances risk and profitability.
- ⇨ Improves market reputation and investor confidence.

❖ **Limitations :**

- ⇨ Requires complex calculations and future projections.
- ⇨ Depends on market conditions which may be uncertain

❖ **Key Differencel :**

Basis	**Profit Maximization**	**Wealth Maximization**
Focus	Short-term profit	Long-term value creation
Consideration	Ignores risk & time value of money	Considers risk & time value of money
Objective	Earning maximum profit	Maximizing shareholders' wealth
Approach	Narrow and traditional	Broader and modern
Sustainability	May harm future growth	Supports long-term growth

❖ Conclusion :

Financial management is the heart of every business organization, influencing all aspects of operations and strategy. From investment decisions to financial controls, every function contributes to the enterprise's overall efficiency, profitability, and sustainability. In today's volatile global economy, strong financial management ensures business resilience, growth, and shareholder confidence. Hence, mastering financial management principles is essential for every manager aiming to achieve both profitability and long-term success.

❖ Exercise :

A. Short Anser Questions :

1. Define financial management in your own words.
2. Explain any two objectives of financial management.
3. Differentiate between profit maximization and wealth maximization.
4. What is the importance of financial management in an organization?
5. Mention any four functions of a finance manager.

B. Long Answer Questions :

1. Discuss the scope of financial management in detail.
2. Explain the role and responsibilities of a finance manager.
3. Elaborate on profit maximization vs. wealth maximization as objectives of financial management.
4. Describe the importance of financial management in the growth and stability of a business.
5. Explain the major areas of financial decision-making with examples.

C. Multiple Choice Questions (MCQs) :

1. The primary objective of financial management is :
   a) Employees
   b) Wealth maximization

c) Market share maximization

d) Employee satisfaction

2. Capital budgeting is concerned with :

a) Short-term investment decisions

b) Long-term investment decisions

c) Dividend distribution

d) None of the above

3. Maintaining proper liquidity is related to :

a) Investment decisions

b) Financing decisions

c) Working capital management

d) Profit distribution

4. Who is responsible for preparing budgets and forecasts?

a) Production Manager

b) Finance Manager

c) HR Manager

d) Marketing Manager

5. Wealth maximization takes into account :

a) Time value of money

b) Only short-term profits

c) Ignoring risk

6. Which of the following is NOT a function of financial management ?

a) Investment decision

b) Financing decision

c) Dividend decision

d) Production decision

7. Dividend decision affects :

   a) Liquidity

   b) Financing

   c) Wealth of shareholders

   d) Capital structure only

8. Which of the following is NOT an objective of financial management ?

   a) Proper utilization of funds

   b) Ensuring regular supply of funds

   c) Maximizing employee welfare

   d) Increasing shareholders' wealth

9. Financing decision is concerned with

   a) Investment in fixed assets

   b) Distribution of profit

   c) Raising funds from various sources

   d) Management of cash

10. Which of the following is a scope of financial management ?

    a) Capital budgeting

    b) Working capital management

    c) Financial planning

    d) All of the above

11. Financial management is an integral part of :

    a) Marketing management

    b) Production management

    c) Overall management of an organization

    d) Personnel management

12. Which of the following is a limitation of profit mazimization ?

    a) Easy to understand

    b) Simple calculation

    c) Ignores time value of money

    d) Helps decision making

❖ **Answer :**

1. b) Wealth maximization
2. b) Long-term investment decisions
3. c) Working capital management
4. b) Finance Manager
5. a) Time value of money
6. d) Production decision
7. c) Wealth of shareholders
8. c) Maximizing employee welfare
9. c) Raising funds from various sources
10. d) All of the above
11. c) Overall management of an organization
12. c) Ignores time value of money

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Unit : 2
Sources of Finance

2.1 Introduction

Finance is regarded as the lifeblood of business because no organization can operate or expand without adequate funds. It refers to the provision of funds when they are required, ensuring that a business can meet its obligations, manage operations, and invest in future opportunities. Finance not only supports the day-to-day functioning of a business but also acts as a foundation for stability, growth, and long-term survival in a competitive environment.

Every business, whether small or large, needs finance for multiple purposes-such as starting operations, purchasing resources, paying employees, investing in technology, or exploring new markets. Without adequate financial support, even the most promising business ideas may fail to become a reality. Hence, the availability and management of finance determine an enterprise's success.

The funds required by a business are obtained from various sources of finance, which provide money according to the needs and capacity of the organization. These sources can be internal, such as profits retained in the business, or external, such as raising funds from banks, financial institutions, or investors. Choosing the right source is crucial, as it directly influences the cost of capital, the risk, and the enterprise's overall growth prospects.

2.2 Long-term and Short-term Finance :

❖ **The financial needs of a business can broadly be divided into two categories :**

1. Short-Term Financial Requirements :

   Short-term funds are essential to meet the business's working capital needs. These include financing day-to-day expenses such as payment

of wages and salaries, the purchase of raw materials, the payment of electricity bills, or the maintenance of inventory. Generally, these funds are required for up to 1 year. Because of their urgent and recurring nature, short-term finance is raised from sources that can provide funds quickly, conveniently, and at a reasonable cost. Common methods include borrowing short-term loans, using overdraft facilities, or discounting bills of exchange with commercial banks.

2. Long-Term Financial Requirements

Long-term funds are needed to meet the fixed capital requirements of a business, such as the purchase of land, buildings, machinery, or technology. These funds are required for a period exceeding one year, as they finance assets that provide benefits over a long duration. Long-term financial requirements can further be classified into two sub-categories :

Intermediate or Medium-Term Funds: Required for a period of about 3 to 5 years, often used for expansion projects, modernization, or replacing worn-out machinery.

Long-Term Funds: Needed for a period of more than 5 years, usually for large investments such as constructing factories, acquiring advanced technology, or expanding into new markets.

Such funds are raised from sources that provide capital for extended periods without interruption. Typical sources include the issue of shares, debentures, long-term loans from financial institutions, or retained earnings.

In short, while short-term finance ensures the smooth functioning of routine operations, long-term finance enables the business to grow, expand, and achieve stability in the competitive market.

2.3 Importance of Sources of Finance :

1. Ensures Smooth Operations :

Every business, whether small or large, requires a steady flow of funds to carry out its day-to-day activities. Proper sources of finance help in meeting routine needs like paying employee salaries, purchasing raw materials, covering utility bills, and handling other operating expenses. If the business lacks reliable financial sources, even minor disruptions in cash flow can affect production, delivery, and customer satisfaction. Thus, the availability of adequate finance ensures continuity and efficiency in daily operations.

2. Supports Growth and Expansion :

Finance is not just about running the current business but also about building its future. When a company selects the right sources of finance, it can channel funds into launching new products, expanding into different markets, upgrading machinery, and adopting advanced technologies. This financial backing allows businesses to seize new opportunities, remain competitive, and scale their operations over time. Without proper financing options, growth plans remain unrealized.

3. Stability and Risk Management :

A business that depends heavily on a single financial source, such as bank loans or equity, may face difficulties if that channel becomes unavailable. By diversifying its sources of finance-using a mix of equity, debt, and internal reserves-businesses reduce their risks. Such financial stability enables them to withstand economic slowdowns, fluctuating market conditions, or sudden capital requirements without halting operations.

4. Reduces Cost of Capital :

The type of finance a business chooses directly affects its cost of capital. Internal sources like retained earnings or depreciation funds generally cost less than external borrowings, which involve interest payments. Similarly, over-dependence on equity may dilute ownership and profit sharing. By carefully selecting the most suitable and economical source of finance, businesses can minimize costs, increase profitability, and maximize value for stakeholders.

5. Enhances Credibility and Reputation :

Businesses that manage their financing smartly gain the confidence of investors, lenders, suppliers, and customers. For example, companies with a balanced capital structure and a track record of timely repayments are more likely to secure loans and attract investors in the future. Effective financial management not only improves a firm's creditworthiness but also enhances its professional reputation in the market.

6. Long-Term Sustainability :

Finance plays a vital role in ensuring that a business not only survives today but also secures its future. Proper financial planning, supported by appropriate sources, enables companies to maintain liquidity, invest in innovation, and face competition confidently. This long-term financial sustainability helps businesses remain profitable, adaptable, and competitive in changing market environments.

2.4 Difference between Short-term and Long-term Finance :

Basis of Difference	Short-Term Finance	Long-Term Finance
Meaning	Funds arranged for less than one year to meet immediate needs.	Funds arranged for more than one year to meet long-term needs.
Duration	Less than 1 year	More than 1 year (can extend to 5–20 years or more)
Purpose	To finance working capital and day-to-day operations (e.g., wages, raw materials).	To finance fixed assets, expansion, modernization, or large projects.
Sources	Trade credit, bank overdraft, short-term loans, bills of exchange, commercial paper.	Equity shares, preference shares, debentures, term loans, retained earnings.
Cost	Usually lower cost, but may require frequent renewal.	Higher cost due to long commitment and interest/dividend payments.
Risk/Obligation	Creates repayment pressure in the short run but less risky for lenders.	Long-term obligation for the business; lenders face higher risk.
Flexibility	High flexibility as it can be raised and repaid quickly.	Less flexible due to long-term contracts and commitments.

2.5 Types of Long-term Sources of Finance :

A. Issue of Shares :

Issuing shares is one of the most common methods for raising long-term finance. Most companies in India rely on this method due to its accessibility and flexibility.

1. Meaning of Share :

A share represents a unit of a company's share capital. A person who owns a share is called a shareholder. Shareholders may receive dividends as a reward for investing, though dividend payment is not legally mandatory. The power to recommend dividends lies with the Board of Directors.

1. Preference Shares :

- ❖ According to Section 85(1) of the Companies Act, preference shares are those which have :
  - ⇨ Preferential right to dividend during the company's lifetime.
  - ⇨ Preferential right to capital repayment in case of liquidation.
- ❖ Types of Preference Shares :
  - ⇨ Cumulative: Dividend accumulates until fully paid.
  - ⇨ Non-cumulative: Dividend is lost if profits are insufficient in a given year.

- ⇨ Participating: Share in surplus profits after equity dividends are paid.
- ⇨ Non-participating: No rights to surplus profits.
- ⇨ Redeemable: Can be redeemed after a specified period.
- ⇨ Irredeemable: Cannot be redeemed except during liquidation.

❖ Merits :

- ⇨ No fixed maturity (except redeemable), making it a reliable long-term source.
- ⇨ Cheaper compared to loans and debentures.
- ⇨ Lower issuance costs compared to equity shares.
- ⇨ Limited or no voting rights, reducing the risk of losing control.
- ⇨ Attractive to risk-averse investors, offering steady returns.

❖ Demerits :

- ⇨ Compulsory dividend payments may reduce profits for equity shareholders.
- ⇨ Dividends are not tax-deductible, offering no tax advantage.

2. Equity Shares :

Equity shares, or ordinary shares, are issued to raise capital from the public. Unlike preference shares, equity shareholders do not have fixed dividends but enjoy voting rights in company decisions. Equity is generally not refunded until the company is wound up, though shareholders may earn capital gains from share price fluctuations.

❖ Merits :

- ⇨ No obligation to pay dividends if profits are low.
- ⇨ Capital is not repayable during the company's existence.
- ⇨ Retained profits can be reinvested, reducing reliance on external borrowing.

❖ Demerits :

- ⇨ Shareholders may expect higher returns during profitable periods.
- ⇨ Voting rights can shift control away from the board if concentrated in one party.
- ⇨ Lower dividends may affect share price and investor confidence.
- ⇨ Issuing shares incurs promotional, underwriting, and printing costs.

B. Issue of Debentures/Bonds :

Debentures are long-term debt instruments defined under the Companies Act, 1956, which include bonds and other securities. A debenture represents a loan taken by a company, repayable at maturity if applicable, with a fixed interest rate. Interest is payable annually regardless of profits, and tax-deductible.

❖ Types of Debentures :

⇨ On the loasis of Security

❍ Naked Debenture: No charge on assets.

❍ Mortgage Debenture: Secured against company assets.

⇨ On the basis of Redemption

❍ Redeemable: Repayable at maturity.

❍ Irredeemable: Perpetual, not repaid.

⇨ On the loasis of Convertability

❍ Convertible: Can be converted into equity shares.

❍ Non-convertible: Cannot be converted into equity.

❖ Merits :

⇨ Provides funds for a fixed period, enabling optimum utilization.

⇨ Interest is tax-deductible, reducing tax liability.

⇨ Does not dilute management control as debenture holders lack voting rights.

⇨ Enables trading on equity if returns exceed debenture costs.

⇨ Attractive to risk-averse investors due to stable returns.

❖ Demerits :

⇨ High debt increases risk due to mandatory interest payments.

⇨ Interest must be paid even in case of losses.

⇨ Unsuitable for companies without stable income.

⇨ Excessive debentures may make equity shareholders demand higher returns or exit due to perceived risk.

C. Retained Earnings :

Retained earnings refer to the portion of a company's profit that is not distributed as dividends to shareholders but is kept within the business for reinvestment. Initially, a new company starting its operations cannot use this source, as there are no profits yet. In such cases, the business must rely on

external sources of finance. Retained earnings become a useful source of finance once the company starts earning profits over time. These profits are accumulated in the form of reserves, which can later be used to purchase assets, fund investments, or repay loans and other liabilities.

❖ Merits :

⇨ Cost-free source: The firm incurs no interest or charges when using retained earnings.

⇨ Improves liquidity: Helps the business maintain financial stability and better absorb adverse economic or market changes.

⇨ No repayment obligation: Since the funds are generated internally, there is no repayment obligation.

⇨ Reduces risk: By relying on internal funds, the company lowers dependence on external borrowings and associated financial risk.

❖ Demerits :

⇨ Potential misuse: Excess profits may be mismanaged by the company's management.

⇨ Shareholder dissatisfaction: Shareholders may prefer receiving dividends rather than having profits retained in the business.

⇨ Social interest concern: Retaining profits limits shareholders' ability to reinvest their earnings elsewhere, which may be viewed as unfair since they took the initial risk to earn a return.

D. Leasing and Hire-Purchase :

(i) Leasing is a financial arrangement in which a company (the lessee) uses an asset owned by another party (the lessor) for a specified period in exchange for regular lease payments. The lessee does not own the asset but enjoys the benefits of its use, such as machinery, vehicles, or equipment, without making a large upfront investment.

❖ Types of Leasing :

⇨ Operating Lease: Short-term lease where the lessor retains ownership, and the lessee can return the asset after the lease term.

⇨ Finance Lease (Capital Lease): Long-term lease where the lessee bears most of the risks and rewards of ownership, often with an option to purchase at the end of the lease.

❖ Merits :

⇨ No large capital outlay: Firms can use expensive assets without heavy initial investment.

- ⇨ Preserves liquidity: Cash remains available for other business needs.
- ⇨ Flexibility: Assets can be easily upgraded or replaced.
- ⇨ Tax benefits: Lease payments are often tax-deductible as business expenses.

❖ Demerits :

- ⇨ Higher long-term cost: Total lease payments may exceed the asset's cost if used long-term.
- ⇨ No ownership: The company cannot claim the asset as a company-owned property unless under a finance lease with purchase option.
- ⇨ Fixed obligations: Lease payments must be made regularly, regardless of business performance.

(ii) Hire-purchase is a system in which a company acquires ownership of an asset by paying in installments over time. The buyer gets the right to use the asset immediately but becomes the owner only after paying the final installment.

❖ Merits :

- ⇨ Ownership advantage: The company ultimately owns the asset, which can be used as collateral or depreciated for tax purposes.
- ⇨ Spreads cost over time: Reduces the burden of a large initial investment.
- ⇨ Immediate use: The firm can use the asset while paying installments gradually.

❖ Demerits :

- ⇨ Higher overall cost: Interest and finance charges increase the total cost of the asset.
- ⇨ Obligation to pay: Installments must be paid even if the company faces financial difficulties.
- ⇨ Risk of repossession: If payments are not made, the seller can reclaim the asset.

E. Venture Capital :

Venture capital (VC) is a financial capital which is provided to early-stage, high-growth potential, startup companies. It is a form of "risk capital" which is invested in business where there is a substantial element of risk relating to the future creation of profits and cash flows. Risk capital is invested as shares (equity) rather than as a loan and the investor requires a higher "rate of return" to compensate him for his risk. The typical VC investment occurs

after the seed funding has been provided as growth funding.

Venture capital provides long-term, committed share capital, to help unquoted companies grow and succeed. Obtaining VC is substantially different from raising debt or a loan, with repayment of the capital irrespective of a business's success or failure. As a shareholder, the venture capitalist's return depends on the business's growth and profitability. This return is generally earned when the venture capitalist 'exits' by selling its shareholding in the business.

❖ Features of Venture Capital :

1. It provides the Spirit of Partnership
2. It is based on 'Risk - Reward' sharing
3. There is an active participation of venture capitalist firms in the business and value addition in the form of their expertise.
4. It has a long term perspective
5. It is an investment and not assistance
6. Return are linked to performance in this type of funding
7. There is an expectation of high returns due to degree of risk involved

F. Private Equity :

Private equity (PE) is a form of long-term investment made in private companies or in public companies that are intended to be delisted from stock exchanges. Private equity investors provide capital to companies in exchange for ownership stakes, usually to fund expansion, restructuring, or improve operations. Unlike publicly traded shares, private equity is not listed on stock exchanges, making it less liquid but often offering higher potential returns.

Private equity is usually managed by private equity firms or venture capitalists who actively participate in the management of the company to enhance its value before eventually selling their stake for profit.

❖ Merits of Private Equity :

⇨ Access to large funds: Companies can raise substantial capital for growth, expansion, or restructuring.

⇨ Strategic support: Private equity investors often bring managerial expertise, strategic guidance, and industry connections.

⇨ Long-term focus: Investors typically focus on creating value over several years rather than seeking short-term profits.

⇨ Flexibility: Financing through private equity is more flexible compared to traditional loans, with less rigid repayment schedules.

- ⇨ Boosts credibility: Association with reputed private equity firms enhances the company's market reputation and investor confidence.

❖ Demerits of Private Equity :

- ⇨ Loss of control: Investors usually demand significant decision-making rights, which may reduce the original owners' control.
- ⇨ High cost of capital: Returns expected by private equity investors can be higher than traditional debt, making it an expensive source of funds.
- ⇨ Pressure to perform: Companies face intense scrutiny and pressure to meet performance targets, which may affect management decisions.
- ⇨ Limited liquidity: Investments are typically locked in for several years, making it difficult for the company or investor to exit early.

2.6 Conclusion :

Souces of finance are essential for the operation, growth, and sustainability of business. They are categorized into internal sources, like retained earnings, which enhance financial autonomy without repayment obligations, and external sources, such as equity shares and bank loans, which allow for larger capital mobilization. Successful financing requires a careful balance between owned and borrowed funds, with decisions influenced by the business nature, purpose of funds, cost, risk, and control considerations. A well-stuctured capital plan minimizes costs and maximizes returns, while poor financing choices can lead to liquidity issues and a loss of control. Therefore, effective financial management and strategic selection of funding sources are crucial for achieving long-tem profitability and organizational goals.

❖ Exercise :

➢ Multiple Choice Questions (MCQs) :

1. Which of the following is a feature of preference shares?

   A) Dividend rate is not fixed

   B) They carry voting rights in all company matters

   C) Preferential right to dividend and capital repayment

   D) Always redeemable

   Answer : C) Preferential right to dividend and capital repayment

2. Equity shares differ from preference shares because :

   A) Equity shareholders get fixed dividends

   B) Equity shareholders enjoy voting rights

   C) Equity shareholders have preferential claim on assets

   D) Equity shares are always redeemable

   Answer : B) Equity shareholders enjoy voting rights

3. Which of the following is a merit of retained earnings as a source of finance?

   A) It is taxable for the company

   B) It creates repayment obligations

   C) It is cost-free and reduces financial risk

   D) It allows shareholders to receive more dividend

   Answer : C) It is cost-free and reduces financial risk

4. Which type of debenture can be converted into equity shares?

   A) Redeemable debenture

   B) Convertible debenture

   C) Mortgage debenture

   D) Irredeemable debenture

   Answer : B) Convertible debenture

5. A key advantage of private equity is:

   A) Investors have no control rights

   B) It provides strategic support and long-term funding

   C) It is cheaper than debt financing

   D) Returns are guaranteed

   Answer : B) It provides strategic support and long-term funding

6. Which of the following is a disadvantage of leasing?

   A) Provides tax benefits

   B) Does not require large upfront investment

C) Lease payments must be made regardless of business performance

D) Preserves company liquidity

Answer : C) Lease payments must be made regardless of business performance

7. Hire-purchase differs from leasing because :

A) The company never owns the asset

B) The asset is eventually owned after installment payments

C) Payments are only made if the asset is profitable

D) It cannot be used for machinery

Answer : B) The asset is eventually owned after installment payments

8. Which of the following sources is suitable for a new company with no profits yet?

A) Retained earnings

B) Equity shares or external funding

C) Internal reserves

D) Accumulated profits

Answer : B) Equity shares or external funding

9. What is a main disadvantage of raising funds through equity shares?

A) Obligation to pay fixed interest

B) Risk of losing control due to voting rights

C) Cannot raise large capital

D) No possibility of capital gains

Answer : B) Risk of losing control due to voting rights

10. A major benefit of using debentures as a source of finance is :

A) They dilute the ownership of the company

B) Interest payments reduce taxable income

C) Shareholders have a claim on assets before debenture holders

D) Repayment is not required

Answer : B) Interest payments reduce taxable income

11. Which of the following is an internal source of finance ?

    A) Equity shares

    B) Debentures

    C) Retained earnings

    D) Bank loan

    Answer : C) Retained earnings

12. Which source of finance has a fixed rate of return ?

    A) Equity shares

    B) Retained earning

    C) Preference shares

    D) Equity warrants

    Answer : C) Preference shares

13. Funds required for purchasing current assets is an example of :

    A) Long - term Finance

    B) Medium-term finance

    C) Short-term finance

    D) None of the above

    Answer : C) Short-term finance

14. Which source of finance is typically required to be repaid with interest ?

    A) Debentures

    B) Loan

    C) Retained earnings

    D) A and B Both

    Answer : D) A and B Both

15. What are the main characteristics of equity financing ?

    A) Must be repaid

    B) Interest-based

    C) Ownership stake

    D) Government funded

    Answer : C) Ownership stake

16. Venture capital mainly provides finance to :

    A) Large established companies

    B) Government organizations

    C) New and high-risk business ventures

    D) Loss-marking public sector units

    Answer : C) New and high-risk business ventures

17. Which stage of business is most suitable for venture capital funding ?

    A) Declining stage

    B) Maturity stage

    C) Start-up and early growth stage

    D) Luquidation stage

    Answer : C) Start-up and early growth stage

18. Venture capital is different from traditional finance becouse it :

    A) Require collateral security

    B) Is risk-free

    C) Focuses on high-growth potential

    D) Is short-term in nature

    Answer : C) Focuses on high-growth potential

19. Venture capitalists usually participate in decision-making because :

    A) They are employees

    B) They wat fixed returns

    C) They are equity partners

    D) They are government nominees

    Answer : C) They are equity partners

20. Which of the following is a disadvantage of venture capital ?

    A) No repayment obligation

    B) Managerial support

    C) Dilution of ownership

    D) Long-term funds

    Answer : C) Dilution of ownership

➢ **Fill in the Blanks :**

1. A share represents a unit of a company's _____.

   Answer : share capital

2. Dividends paid on preference shares are _____ before equity shareholders receive any dividend.

   Answer : preferential

3. Funds generated from profits that are retained in the business instead of being distributed to shareholders are called _____.

   Answer : retained earnings

4. In a hire-purchase agreement, the buyer becomes the owner of the asset only after paying the _____.

   Answer : final installment

5. Private equity investments are made in companies that are not _____ on a stock exchange.

   Answer : listed

➢ **True or False :**

1. Equity shareholders always have a fixed right to receive dividends.

   Answer : False

2. Interest paid on debentures is tax-deductible for the company.

   Answer : True

3. Leasing allows a company to own the asset immediately after making the lease payment.

   Answer : False

4. Retained earnings are a cost-free source of finance as there is no obligation to repay them.

   Answer : True

5. Convertible debentures cannot be converted into equity shares under any circumstances.

   Answer : False

➢ **Descriptive Questions :**

1. What is the meaning of Finance? Explain importance of source of finance.
2. Explain the difference between short-term finance and long-term finance.
3. Explain the types of long-term sources of finance.

➢ **Short Notes :**

1. Private Equity
2. Venture Capital
3. Leasing and Hire Purchase
4. Preference Share
5. Retained Earnings

****

Unit : 3
Time Value of Money (TVM)

3.1 Introduction

Time value of money indicates the value of money associated with the time. Money at present will worth more than money which we will receive in future. The Time Value of Money (TVM) is one of the most important concepts in business and finance. In other words, money has a 'time value' because it can generate income or returns if invested. This principle forms the foundation of investment decisions, capital budgeting, and personal financial planning.

For example, if you have ₹1,00,000 today and you invest it at an interest rate of 10% per year, after one year it will become ₹1,10,000. Therefore, 1,00,000 today is equivalent to 1,10,000 one year from now. Conversely, 1,10,000 received after one year is equivalent to 1,00,000 today at a 10% discount rate.

3.2 Concept of Time Value of Money :

The Time Value of Money indicates the importance of money available now, which we can use or invest to earn additional income. Hence, the value of money decreases over time due to inflation, risk, and opportunity cost which we will receive in future. This principle helps investors and other stakeholder evaluate future cash flows and determine whether to invest the money or not.

3.3 Reasons for difference in Time Value of Money :

(i) Opportunity Cost :

Money available at present can be invested to earn a return. Hence if we receive money in future it means we are losing the opportunity at present which is also known as sacrificing cost.

(ii) Inflation :

Inflation decreases the purchasing power of money over time. Hence due to inflation the value of money which will in future will be decreased.

(iii) Risk and Uncertainty :

There is potential risk to receive the money in future. Hence it is always possible that money may not be received due to unforeseen circumstances like defaults or market changes.

(iv) Preference for Present Consumption :

People usually prefer to spend or consume now rather than in the future because of immediate satisfaction and uncertainty about future needs or lifespan. It may possible that taste or preference of individual may change over time.

(v) Investment Potential :

Present money can be reinvested to generate returns through interest, dividends, or capital appreciation. Hence if we will have money in future we are losing the investment potential at present.

3.4 Basic formula of Time Value of Money :

$FV = PV (1 + i)^n$

Or $PV = FV / (1 + i)^n$

Where FV = Future value

PV = Present value

I= interest rate

n= duration for which money is invested

3.4.1 Key Components of Time value of money :

1. Present Value (PV) : The current worth of a future sum of money or stream of cash flows, discounted at a given rate of return.
2. Future Value (FV) : The amount to which a present sum will grow after earning interest over a specific period.

3. Interest Rate (i) : The rate of return or cost of capital that measures how much money grows over time.
4. Time Period (n) : The duration for which the money is invested or borrowed.
5. Cash Flow : Represents inflows (receipts) or outflows (payments) of money occurring at different time intervals.

3.4.2 Mathematical Formulas of TVM :

(i) Future Value (FV)

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

Example: If ₹1,000 is invested for 3 years at 10% interest, FV $= 1000 \times (1 + 0.10)^3 =$ ₹1,331.

(ii) Present Value (PV)

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

Example: If ₹1,331 is to be received after 3 years and the discount rate is 10%, $PV = 1331 \div (1 + 0.10)^3 =$ ₹1,000.

(iii) Future Value of an Annuity

$FV = P \times [(1 + r)^n] \div r$

Example: ₹1,000 deposited annually for 3 years at 10% interest gives $FV = 1000 \times [(1.1)^3 - 1] \div 0.1 =$ ₹3,310.

(iv) Present Value of an Annuity

$PV = P \times [1 - (1 + r)^{(-n)}] \div r$

Example: ₹1,000 received annually for 3 years, discount rate 10%: $PV = 1000 \times [1 - (1.1)^{(-3)}] \div 0.1 =$ ₹2,486.85.

3.5 Scope of Time Value of Money :

(i) Capital Budgeting : - Time value of money concept is extensively used for capital budgeting decision. It is used in NPV, IRR and profitability index method to decide the preference for investment. For capital budgeting decision priority is decided on the basis of present value of future cash flow. Hence project with highest amount of NPV, IRR or better profitability index is selected.

(ii) Loan Amortization :- It also assist in determining the periodic payment of loan. Hence it important for fixing the repayment schedule. Accordingly, while advancing loan, the lender charges interest because of the time value

of money as the lender sacrifices current purchasing power for future repayment. Using TVM concept borrowers can easily calculate equal periodic payments (EMIs) and understand how much of each payment goes toward principal and interest. For example, banks use TVM formulas to determine the monthly instalment of a home or car loan.

(iii) **Bond and Stock Valuation :-** This concept is also utilized to find the present value of future cash inflows for bonds and stock valuation. The price of a bond is the present value of its future interest payments and the redemption value discounted at the market rate of return. Similarly, the intrinsic value of equity shares is calculated by discounting expected future dividends. Investors use this to decide whether a security is overvalued or undervalued in the market.

(iv) **Retirement Planning :-** It is also used while making investment in retirement plan. If we know the future value (FV) of regular savings or investments, one can determine how much to invest today or periodically to reach a desired sum in the future. E.g. a person may calculate how much to deposit monthly in a pension fund to accumulate ₹1 Crore by retirement.

(v) **Leasing and Insurance Decisions :-** It compares lump-sum and installment options. When comparing leasing and purchasing an asset, the Time value of money helps determine which alternative is more cost-effective. The present value of lease payments is compared with the cost of purchasing and maintaining the asset. The option with the lower cash outflows is preferred.

(vi) **Personal finance :-** This concept is widely used in personal finance for various decisions, such as: Choosing between receiving a lump sum amount today or an annuity in the future. Evaluating different insurance plans, fixed deposits, or mutual fund investments. Determining how much one should save regularly to achieve a financial target like buying a house or funding education.

(vii) **Valuation of merger :-** In corporate finance, TVM is used to estimate the value of a business or firm. Future cash flows expected from a business are discounted to the present using an appropriate discount rate to determine its present worth. This is crucial in mergers, acquisitions, and restructuring decisions.

(viii) **Determining yield from security:-** TVM concepts are used to compute effective interest rates, compound rates, and yield to maturity (YTM) on investments. It helps investors compare returns from different investment opportunities that have varying compounding frequencies (annual, quarterly, monthly, etc.).

3.6 Importance and benefits of Time Value of Money (TVM) :

The Time Value of Money (TVM) is one of the fundamental principles of financial management and economics. It is based on the idea that a unit of money today is more valuable than the same unit in the future, because of its potential earning capacity. This core principle underlies nearly every financial decision made by individuals, businesses, and governments.

Money has a "time value" because it can earn interest or returns when invested. In other words, today's money can generate more money over time, while money received in the future carries an opportunity cost - the loss of potential income that could have been earned had it been available earlier.

The importance of the Time Value of Money can be understood under various dimensions, which are given below :

1. Foundation of Financial Decision-Making :

The Time Value of Money is the basis of all financial and investment decisions. Every business or investor must compare present costs with future returns, and this comparison is only possible through TVM. Decisions such as whether to invest in a project, purchase an asset, or lend money depend on assessing the present worth of future benefits.

For example, if a firm has to choose between receiving ₹1,00,000 today or ₹1,50,000 after three years, TVM helps to determine which option is financially preferable by discounting the future value to its present worth.

2. Helps in Investment Appraisal :

TVM plays a critical role in capital budgeting and investment appraisal. When businesses plan long-term projects, such as acquiring new asset or purchasing equipment, the expected cash inflows occur over several years. These future cash inflows are discounted to their present value using TVM concepts to determine whether the investment is profitable. Techniques such as Net Present Value (NPV), Internal Rate of Return (IRR), and Profitability Index (PI) are all based on the principle of time value of money. Thus, TVM ensures that investment decisions are made on the basis of sound financial reasoning rather than on arbitrary future values.

3. Basis for Loan and Credit Evaluation :

The concept of TVM is crucial in the lending and borrowing process. When a lender provides a loan, it involves an opportunity cost or sacrificing cost for a period of time. Therefore, they charge interest to compensate for the time value of money. Similarly, borrowers must understand the present and

future value of the amount borrowed and the cost of borrowing in terms of interest. Financial institutions use TVM formulas to compute equated monthly installments (EMIs), interest schedules, and loan amortization tables. Hence by applying TVM, both lenders and borrowers can have advance information to take decisions about the cost and benefit of credit over time.

4. Assist in Retirement and Savings Planning :

For individuals, TVM is indispensable in retirement planning and savings decisions. It helps to determine how much money should be invested today or periodically to achieve a specific future financial goal. For example, if a person wants to accumulate ₹50 lakhs in 25 years, TVM helps calculate how much they need to deposit monthly or annually at a given interest rate. It also enables comparison of different savings or investment plans that offer varying returns and compounding periods. Thus, understanding TVM allows individuals to plan effectively for future needs, ensuring financial security and stability.

5. Facilitates Valuation of Financial Assets :

The value of many financial assets such as bonds, shares, debentures, and mutual funds is determined using the Time Value of Money. The price of a bond equals the present value of all future coupon payments plus the redemption value. Similarly, the intrinsic value of a share is the present value of expected future dividends. Investors use TVM to assess whether an investment is fairly priced or overvalued in the market. Hence, TVM acts as a scientific tool for the valuation of securities, ensuring that investment decisions are based on true worth rather than speculation.

6. Enables Comparison of Alternatives Across Time :

In real-world financial situations, alternative projects or investments often yield benefits at different points in time. The Time Value of Money allows the conversion of all future benefits and costs into a common time frame - the present - for fair comparison. This helps decision-makers identify which alternative yields the highest present value and, therefore, is most profitable. For instance, if one project gives ₹2,00,000 in three years and another gives ₹2,20,000 in five years, TVM helps identify which has a greater present worth and thus should be chosen.

7. Essential for Business Valuation and Mergers :

In mergers, acquisitions, or corporate restructuring, determining the present worth of a business is essential. Future cash flows expected from the business

are discounted to their present value using a required rate of return. This enables accurate valuation and helps in negotiations, ensuring that neither party overpays or underestimates the value of the firm. Therefore, the TVM concept ensures objectivity and fairness in large-scale financial transactions.

8. Helps in Determining Interest Rates and Yields :

TVM assists in computing various rates of return such as: simple and compound interest, effective annual yield, discount rate, and yield to maturity (YTM) for bonds. Understanding these rates is critical for comparing different financial instruments and investment opportunities that have different compounding frequencies or maturities. It helps investors make informed choices based on true comparative returns rather than nominal rates.

9. Supports Risk and Uncertainty Evaluation :

As we know, future cash flows are always uncertain. The Time Value of Money concept incorporates risk by applying a discount rate that reflects both the timing and risk of the cash flows. The more uncertain the future, the higher the discount rate applied. This ensures that the financial evaluation reflects both time preference and risk tolerance. Therefore, TVM supports more realistic, risk-adjusted financial decision-making.

10. Encourages Rational Consumption and Spending Behavior For individuals :-

Understanding the Time value of money promotes rational financial behavior. It discourages overspending in the present and encourages saving and investment for the future. Hence once we got the idea that how money grows over time through compounding, individuals are more likely to make disciplined financial choices that enhance long-term welfare. Thus, TVM serves as an educational and psychological tool that promotes financial literacy and prudence.

3.7 Nominal Interest Rate and Effective Interest Rate

❖ **National Interest Rate(NIR) Meaning:**

The Nominal Interest Rate is the stated or quoted rate of interest on a financial instrument, such as a loan, bond, or investment, without taking compounding. It is the annual rate expressed by lenders or investors before accounting for how many times interest is compounded each year.

- **Formula :**

  If interest is compounded more than once per year :

  I(nominal) = i(periodic) x m

  Where :

  I(nominal) = Nominal annual interest rate

  I(periodic) = Interest rate per compounding period

  m = Number of compounding periods per year

- **Example :**

  A bank offers 12% nominal annual interest compounded monthly.

  i{periodic} = 12% / 12 = 1% per month

  Nominal rate = 1x12= 12%

  The nominal rate does not reflect the real earning potential or cost of borrowing. Two investments with the same nominal rate but different compounding frequencies may yield different actual returns.

- **Example :**

  A bank offers 12% nominal annual interest compounded monthly.

  i{periodic} = 12% / 12 = 1% per month

  Nominal rate = 1x12= 12%

  The nominal rate does not reflect the real earning potential or cost of borrowing. Two investments with the same nominal rate but different compounding frequencies may yield different actual returns.

- **The Effective Interest Rate**

- **The Effective Interest Rate (EIR),** also known as the Effective Annual Rate (EAR), represents the true annual return or cost of borrowing, considering the effects of compounding within the year. It measures how much interest an investor earns or a borrower pays in one year.

- **Formula :**

  EIR = $(1 + i\_\{nominal\} /m)^m - 1$

  Where :

  i_{nominal} = Nominal annual interest rate

  m = Number of compounding periods per year

❖ **Example :**

For a 12% nominal interest rate compounded monthly (m = 12) :

$EIR = (1 + 0.12/12)^{12} - 1$

$EIR = (1 + 0.01)^{12} - 1 = 0.1268$ or 12.68%

Hence EIR provides a true picture of the interest effect over a year. The more frequently interest is compounded, the higher the effective rate. It allows investors or borrowers to compare financial products with different compounding frequencies.

3.8 Technique of Calculation of Time Value of Money :

There are two techniques for calculation of time value of money : -

1. Compounding Technique :

➢ **Meaning :**

The compounding method calculates the future value (FV) from the present value (PV) using compound interest. Hence, Compounding is the process of determining the future value (FV) of a present amount (PV) after a certain period at a given rate of interest. It assumes that interest earned in each period is reinvested to earn additional interest in subsequent periods, which is known as 'interest on interest,' or compound interest.

➢ **Formula for Compounding :**

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

Where :

FV = Future Value

PV = Present Value (initial investment)

r = Rate of interest per period

n = Number of compounding periods

➢ **Example1 :**

Suppose ₹10,000 is invested for 3 years at an annual interest rate of 10%.

$FV = 10,000 \times (1 + 0.10)^3 = 10,000 \times 1.331 = ₹13,310.$

So, the future value after 3 years is ₹13,310.

- **Example 2 :**

  Mr. Ramesh deposits ₹10,000 in a savings account that offers an annual interest rate of 8%, compounded annually, for 5 years. We need to find out how much he will have at the end of 5 years.

- **Formula :**

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

  Where :

  FV = Future Value

  PV = Present Value = ₹10,000

  r = Interest rate per period = 8% = 0.08

  n = Number of periods = 5 years

- **Calculation :**

  $FV = 10,000 \times (1 + 0.08)^5$

  $FV = 10,000 \times 1.4693 = ₹14,693$

  Future Value = ₹14,693

- **Interpretation :**

  The investment of ₹10,000 today will grow to ₹14,693 after 5 years at 8% annual compounding. This shows how money grows over time due to interest on interest concept.

- **Types of Compounding :**

  1. Annual compounding - once a year.
  2. Semi-annual compounding - twice a year.
  3. Quarterly compounding - four times a year.
  4. Monthly compounding - twelve times a year.

- **Significance of Compounding :**

  ⇨ It shows that investment grows over time.

  ⇨ It helps to calculate future returns on savings or investments.

  ⇨ It is useful in long-term financial planning, such as retirement or education funds.

II. Discounting Technique

- **Meaning :**

  In compounding, we calculate the future value using the present value. However, in Discounting, we determine the present value using future cash flows. Hence, it determines the present value (PV) of a future amount to be received or paid at a given rate of interest after a certain period. It converts future cash flows into their equivalent present values by discounting with the suitable rate which is also known as cost of capital.

- **Formula for Discounting :**

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

  Where :

  PV = Present Value

  FV = Future Value

  r = Rate of discount (or interest rate)

  n = Number of periods

- **Example1 :**

  Suppose you will receive ₹13,310 after 3 years, and the discount rate is 10%.

  $PV = 13,310 / (1 + 0.10)^3 = 13,310 / 1.331 = ₹10,000.$

  So, ₹13,310 to be received after 3 years is worth ₹10,000 today at a 10% discount rate.

- **Example 2 :-**

  Ms. Neha will receive ₹20,000 after 4 years. If the discount rate is 10% per annum, what is the present value of that amount today?

- **Formula :**

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

  Where :

  FV = ₹20,000

  r = 10% = 0.10

  n = 4 years

- **Calculation :**

  $PV = 20,000 / (1 + 0.10)^4$

  $PV = 20,000 / 1.4641 = ₹13,657$ Present Value = ₹13,657

- **Significance of Discounting :**

  - ⇨ Helps in determining the current worth of future receipts or payments.
  - ⇨ Essential in investment appraisal methods such as Net Present Value (NPV) and Internal Rate of Return (IRR).
  - ⇨ Useful for evaluating bonds, loans, leases, and capital budgeting decisions.

3.9 Difference between Compounding and Discounting :

Differences	Compounding	Discounting
Method of calculation	It is method of forward calculation where present amount is converted into future amount.	It is method of backward calculation where future value is converted into present value.
Object	Under Compounding method future value is arrived after adding the compound interest. In this method it is assumed that interest earned is reinvested which is also known as interest on interest.	Under discounting method present value of future cash flow is calculated by discounting the future estimated cash flow with cost of capital.
Formula	$FV = PV(1 + r)^n$	$PV = FV / (1 + r)^n$
Application	It is used in saving investment and interest calculation.	It is used in calculation of present value for future cash flow. It is calculated through various method like IRR NPV etc.
Estimation	It is comparatively more accurate as interest rate is given.	Selection of correct discount rate is a bid challenge and hence cent percent accuracy is not possible.

- ❖ **Conclusion :**

Basically, Time Value of Money emphasizes that 'a rupee today is worth more than a rupee tomorrow.' This is because money available today can be invested to earn returns, while future money carries risk and uncertainty. TVM provides the foundation for evaluating all financial decisions, including savings, investment, and financing. Understanding and applying the concept

of TVM allows both individuals and organizations to make rational, informed, and profitable financial choices that lead to long-term wealth creation. Hence time value of money is the core concept of finance.

❖ Exercise :

A. Multiple choice question :

1. The concept of Time Value of Money is based on which principle?

   A) Money today is worth the same as money tomorrow

   B) Money today is worth more than the same amount in the future

   C) Money loses value over time only due to inflation

   D) Money in the future is worth more than money today

   Answer : B

2. Which formula represents the future value of a single sum?

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

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

   C) $FV = PV \times r \times n$

   D) $FV = PV - r \times n$

   Answer : A

3. Present value (PV) of a future cash flow decreases when :

   A) Interest rate decreases

   B) Time period decreases

   C) Interest rate increases

   D) Time period decreases and rate decreases

   Answer : C

4. If Rs 1,000 is invested at 10% per annum compounded annually for 3 years, the future value is :

   A) 1,100

   B) 1,210

   C) 1,331

   D) 1,300

   Answer : C

   Explanation : $FV = 1000 \times (1 + 0.10)^3 = 1331$

5. Which of the following represents the present value of an annuity?

   A) $PV = C \times [(1 + r)^n - 1] / r$

   B) $PV = C \times [1 - (1 + r)^{-n}] / r$

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

   D) $PV = C / (1 + r)^n$

   Answer : B

6. Nominal interest rate differs from effective interest rate because :

   A) Nominal rate considers compounding

   B) Effective rate ignores compounding

   C) Effective rate considers compounding while nominal rate does not

   D) They are always equal

   Answer : C

7. Which of the following increases the future value of an investment?

   A) Lower interest rate

   B) Shorter time period

   C) Higher interest rate

   D) Smaller initial investment

   Answer : C

8. Discounting is the process of :

   A) Converting future cash flows into present value

   B) Converting present cash flows into future value

   C) Calculating compound interest only

   D) Reducing the interest rate

   Answer : A

9. If Rs 5,000 is to be received in 4 years and the discount rate is 8%, the present value is :

   A) Rs 3,680

   B) Rs 3,750

   C) Rs 3,500

   D) Rs 4,000

   Answer : A

   Explanation : $PV = 5000 / (1 + 0.08)^4 = 3,680$

10. The concept of TVM is most commonly applied in :

    A) Inventory management

    B) Capital budgeting decisions

    C) Payroll processing

    D) Supplier negotiations

    Answer : B

B. Short type question :

1. Define the Time Value of Money and explain why money has a time value.
2. What is the difference between simple interest and compound interest?
3. State the formula for calculating the future value (FV) of a single sum.
4. What is discounting in the context of TMV?
5. Mention two key factors that influence the present value (PV) of money.

C. Long type questions : -

1. Explain the concept of Time Value of Money in detail. How does it influence investment and financing decisions?
2. Derive the formula for future value and present value of a single cash flow?
3. A company plans to invest ₹100,000 today in a project expected to return ₹161,000 in 5 years. Calculate the annual compound interest rate, and discuss its significance.
4. Mr. A deposit ₹10,000 in a savings account that pays 8% annual interest, compounded annually. Find the future value (FV) of his investment after 5 years.
5. Mr. B wants to receive ₹50,000 after 4 years. If the discount rate is 10% per annum, what is the present value (PV) he should invest today?
6. Compare the concepts of nominal interest rate, effective annual rate (EAR), and continuous compounding. Show how they are related mathematically and interpret their practical implications.
7. What are the importance of time value of money? Explain in details.

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Unit : 4
The Cost of Capital

4.1 Introduction

Cost of capital is one of the most important concepts in financial management and plays a central role in the financial decision-making process of a firm. It represents the minimum rate of return that a company must earn on its investments to satisfy its investors, repay its creditors, and maintain its market value. In other words, it is the price a firm pays to raise funds from various sources such as equity shares, preference shares, and debt.

Furthermore, the cost of capital is not just a theoretical concept; it has practical implications in areas such as capital budgeting, capital structure decisions, and dividend policies. For instance, when a company evaluates a new project, it compares the expected return of the project with its cost of capital to determine whether the project will create value for shareholders. Similarly, in financing decisions, management must decide the optimal mix of debt and equity to minimize the overall cost of capital, thereby enhancing profitability.

4.2 Meaning & Definition of Cost of Capital :

❖ **Meaning of cost of capital :**

Cost of capital refers to the required rate of return that a company must earn to meet the expectations of its investors and lenders. It is treated as the minimum acceptable rate of return on investment projects.

➢ **Definitions of cost of capital :**

⇨ **James C. Van Horne :** "Cost of capital is the rate of return a firm requires from an investment to increase the value of the firm in the market."

⇨ **Solomon Ezra:** "Cost of capital is the minimum required rate of earning or the cut-off rate of capital expenditure."

4.3 Objectives of Measuring the cost of capital :

Measuring the cost of capital is a fundamental aspect of financial managenment because it provides critical information for decision-making, planning, and performance evaluation. The primary objectives include :

1. Investment Decision (Capital Budgeting) :

Helps in selecting that generat, returns higher than the cost of funds. One of the foremost objectives of measuring the projects cost of capital is to guide investment decisions. When a company considers various projects or investment opportunities, it compares each project's expected rate of return with its cost of capital. Projects expected to generate returns above the cost of capital are considered profitable and value-adding, while those with returns below the cost of capital are rejected. This ensures that resources are allocated efficiently and the firm undertakes only those projects that maximize wealth.

2. Performance Evaluation :

Acts as a benchmark to evaluate the financial performance the financial of projects. Cost of capital serves as a benchmark for evaluating performance of a company or its individual projects. By comparing actualretuo he cost of capital, management can detemine whether the firm is effectively using its funds and achieving the desired level of profitability, If returns exceed the cost of capital, it indicates good financial health; if not, it signals inefficiency or poor investment decisions.

3. Financial Planning :

Assists in determining the best capital structure by comparing costs of different sources of finance. Measuring the cost of capital helps management in financial planning by assessing the cost of raising funds from various sources. It allows the company to determine which combination of debt, equity, and preference shares is the most cost-effective for financing its operations and expansion plans. This assists in planning future financing and ensures that funds are obtained at the lowest possible cost.

4. Optimal Capital Structure :

Helps minimize overall cost of capital by choosing the right mix of debt and equity. Another objective is to identify the optimal capital structure, which minimizes the overall cost of capital. By analyzing the cost of each source of

finance, management can decide the right mix of debt and equity. A balanced capital structure reduces the cost of capital and maximizes the return on investment while maintaining financial stability.

5. Shareholder Value Maximization :

Ensures that investment decisions lead to an increase in firm's market value. Ultimately, measuring the cost of capital helps ensure that investment and financing decisions lead to an increase in the fim's market value. By selecting projects with returns exceeding the cost of capital, the company enhances profitability and creates wealth for shareholders. This aligns the company' s financial strategy to maximize shareholder value.

4.4 Types of Cost :

Cost of capital can be classified into different types based on the source of funds, the timing of costs, or the method of calculation. Understanding these types helps managers make informed financing decisions.

1. Explicit Cost :

Explicit costs are the actual, measurable costs a company incurs in raising funds. Examples include interest paid on debt, dividends paid on preference shares, and issuance costs for equity. These costs are clearly defined and recorded in the financial statements.

2. Implicit Cost :

Implicit costs represent the opportunity cost of using funds for one purpose instead of another. For instance, if funds are invested in a project instead of an alternative investment, the forgone returns from the alternative represent the implicit cost. These costs are not directly measurable but are important for evaluating true profitability.

3. Future Cost :

Future cost refers to the expected cost of funds that will be raised in the future. It is an estimate used for planning new projects or expansions. Companies must consider anticipated interest rates, dividend expectations, and market conditions while calculating future costs.

4. Historical Cost :

Historical cost is the cost of funds that the company has already raised in the past. It is based on actual expenditure incurred on borrowing or issuing shares. While it helps in record-keeping, historical cost may not accurately reflect current financing conditions.

5. Specific Cost :

Specific cost refers to the cost associated with a particular source of capital, such as the cost of equity, cost of preference shares, or cost of debt. It is calculated individually for each component and helps in determining the overall cost of capital.

6. Weighted Average Cost of Capital (WACC) :

WACC is the overall cost of capital for the firm, taking into account the proportion of each source of fund in the total capital structure. It reflects the average rate of return the company must earn on all sources of finance to satisty its investors. WACC is widely used as a discount rate in capital budgeting decisions.

7. Marginal Cost :

Marginal cost is the cost of obtaining one additional unit of capital. It is important for evaluating the impact of raising new funds on the overall cost of capital. Marginal cost may differ from the average cost of capital, espccially when the connpany issues large amounts additional capital.

4.5 Components of cost of capital:

1. Cost of Debt (Cost of Irredeemable Debentures) :

- It is the effective interest rate the company pays on borrowed funds.
- Formula (after-tax) : $K_d = \frac{1}{NP}(1\text{-}t)$
  - Where, K_d = Cost of debt after tax
  - I = Annual Interest Payment
  - NP = Net proceeds of debentures of current market price
  - t = Tax rate

2. Cost of Preference Capital (Kp) :

- Represents the fixed dividend expected by preference shareholders.
- Formula :

  Cost of Redeemable Preference shares (K_p) = $\frac{PD + \frac{(RV - NP)}{n}}{\frac{(RV + NP)}{2}}$

  - PD = Annual Preference dividend
  - RV = Redemption value of preference shares
  - NP = Net Proceeds from issue of preference shares
  - n = Remaining life of preference shares

3. Cost of Equity (Ke) :

- The expected return by equity shareholders.
- Methods :

3.1. Dividend Price Model :

$$\text{Cost of Equity } (K_e) = \frac{D}{P_0}$$

- K_e = Cost of Equity
- D = Expected Dividend (also written as D_1)
- P_0 = Market Price of Equity (Ex - Dividend)

3.2. Dividend Growth Model or Gordon's Model :

$$\text{Cost of Equity } (K_e) = \frac{D}{P_0} + g$$

- $D_1 = [D_0 (1+g)]$ i.e. next expected dividend
- P_0 = Current Market Price per share
- g = Constant Growth Rate of Dividend

4. Cost of Retained Earnings (Kr) :

- Opportunity cost of earnings retained in the business.
- Can be calculated similar to cost of equity, adjusted for personal tax.

4.6 Weighted Average Cost Of Capital (Wacc) :

The Weighted Average Cost of Capital (WACC) represents the firm's average cost of funds from all sources, equity, preference shares, and debt, weighted according to their proportions in the total capital structure. It shows the minimum rate of return a company must earn on its existing asset base to satisfy its investors.

WACC represents the overall cost of capital considering the proportion (weights) of each source of capital in the firm's capital structure.

❖ **Formula :**

$$\textbf{WACC} = \frac{E}{V} \times Ke + \frac{P}{V} \times Kp + \frac{D}{V} \times Kd\,(1 - T)$$

- Where :
  - E = Market value of equity
  - P = Market value of preference shares
  - D = Market value of debt
  - V= E+P+D = Total capital

- ⇨ Ke = Cost of equity
- ⇨ Kp = Cost of preference shares
- ⇨ Kd = Cost of debt
- ⇨ T= Corporate tax rate

❖ **Example 1 : From the following information given below. You are required to calculate the WACC :**

➢ Basic Calculation of WACC :

1. Equity (E) = ₹6,00,000
2. Preference Shares (P) = ₹2,00,000
3. Debt (D) = ₹2,00,000
4. Cost of Equity (Ke) = 12%
5. Cost of Preference Shares (Kp) = 10%
6. Cost of Debt (Kd) = 8%
7. Corporate Tax Rate (T) = 30%

❖ **Solution :**

1. Total Capital (V) = 6,00,000 + 2,00,000 + 2,00,000 = ₹10,00,000
2. Proportion of each source :

   E/V = 6,00,000 / 10,00,000 = 0.6

   P/V = 2,00,000 / 10,00,000 = 0.2

   D/V = 2,00,000 / 10,00,000 = 0.2
3. Substitute in WACC formula :

   WACC = (0.6 × 12%) + (0.2 × 10%) + (0.2 × 8% × (1 - 0.3))

   = (7.2%) + (2%) + (1.12%)

   = 10.32%

   ✓ Final Answer: WACC = 10.32%

❖ **Example 2 : From the following information given below. You are required to calculate the different CoC.**

Source	Amount (₹)	Cost (%)
Equity Shares	5,00,000	12
Preference Shares	2,00,000	10
Debt	3,00,000	8
Tax rate	30%	

Step 1 : Calculate total capital

Total Capital = 5,00,000 + 2,00,000 + 3,00,000 = 10,00,000

Step 2 : Calculate proportion of each source

W/E = {5,00,000}/{10,00,000} = 0.5

W/P = {2,00,000}/{10,00,000} = 0.2

W/D = {3,00,000}/{10,00,000} = 0.3

Step 3 : Adjust cost of debt for tax :

K D (after\ tax) = K D × (1 - {Tax Rate}) = 8% × (1 - 0.3) = 5.6%

Step 4 : Apply WACC formula

WACC = (W E × K E) + (W P × K P) + (W D × K D \ (after tax)

WACC = (0.5 × 12) + (0.2 ×10) + (0.3 × 5.6)

WACC = 6 + 2 + 1.68 = 9.68%

✓ Final Answer : WACC = 9.68%

❖ **Example 3 : From the following information given below. You are required to calculate the** WACC with No Preference Shares.

1. E = ₹7,50,000
2. P = ₹0
3. D = ₹2,50,000
4. Ke = 15%
5. Kp = 0
6. Kd = 10%
7. T = 35%

❖ **Solution :**

1. Total Capital (V) = 7,50,000 + 0 + 2,50,000 = ₹10,00,000
2. Proportions :

   E/V = 0.75

   D/V = 0.25
3. WACC = (0.75 × 15%) + (0.25 × 10% × (1 - 0.35)

   = (11.25%) + (1.625%)

   = 12.875%

✓ Final Answer: WACC = 12.88%

❖ Interpretation :

A higher equity proportion increases WACC because equity is generally more expensive than debt.

❖ **Example 4 : From the following information given below. You are required to calculate the CoC.**

Source	Amount (₹)	Cost (%)
Equity (E)	6,00,000	14
Preference Shares (P)	2,00,000	10
Debt (D)	2,00,000	8
Tax rate (T)	30%	

Step 1 : Calculate total capital (V)

$V = E + P + D = 6,00,000 + 2,00,000 + 2,00,000 = 10,00,000$

Step 2 : Calculate weights

$(E)/(V) = (6,00,000)/(10,00,000) = 0.6$

$(P)/(V) = (2,00,000)/(10,00,000) = 0.2$

$(D)/(V) = (2,00,000)/(10,00,000) = 0.2$

Step 3 : Adjust cost of debt for tax :

K_d (after tax) $= K_d \times (1-T) = 8\% \times (1-0.3) = 5.6\%$

Step 4 : Calculate WACC

$WACC = (0.6 \times 14) + (0.2 \times 10) + (0.2 \times 5.6)$

$WACC = 8.4 + 2 + 1.12 = 11.52\%$

✓ WACC = 11.52%

❖ **Example 5 : From the following information given below. You are required to calculate the different CoC.**

Source	Amount (₹)	Cost (%)
Equity (E)	5,00,000	12
Preference Shares (P)	150,000	11
Debt (D)	3,50,000	9
Tax rate (T)	25%	

Step 1 : Calculate total capital (V)

$V = 5,00,000 + 1,50,000 + 3,50,000 = 10,00,000$

Step 2 : Calculate weights

$\{E\}/\{V\} = (5,00,000)/(10,00,000) = 0.5$

{P}/{V} = (1,50,000)/(10,00,000) = 0.15

(D)/(V) = (3,50,000)/(10,00,000) = 0.35

Step 3 : Adjust cost of debt for tax

K d (after tax) = 9% × (1-0.25) = 6.75%

Step 4 : Calculate WACC :

WACC = (0.5 ×12) + (0.15 × 11) + (0.35 × 6.75)

WACC = 6 + 1.65 + 2.3625 = 10.0125%

✓ WACC = 10.01%

❖ **Example 6 : From the following information given below. You are required to calculate the different CoC.**

➢ A company has the following capital structure :

Source	Amount (₹)
Equity Shares	5,00,000
Preference Shares	5,00,000
Debentures	3,00,000

➢ Additional Information :

⇨ Market price of equity share = ₹ 100

⇨ Dividend just paid (D_0) = ₹ 8

⇨ Growth rate = 5%

⇨ Preference dividend = 10% on ₹ 100 shares

⇨ Market price of preference share = ₹ 95

⇨ Interest on debentures = 10%

⇨ Net proceeds of debentures = ₹ 100

⇨ Tax rate = 30%

1. Cost of Equity (Ke) (Dividend Discount Model)

Ke = D1 / P0 + g

D1 = 8 × (1.05) = ₹ 8.40

Ke = 8.40/ 100 + 0.05 = 0.134

Ke = 13.4%

2. Cost of Preference Shares (Kp)

Kp = Dp/P_O

Kp = 10 /95 = 0.1053

Kp = 10.53%

3. Cost of Debt (Kd) (After Tax)

Kd = I × (1 - T) /NP

Kd = 10 × (1 - 0.30) / 100

Kd = 7/100

Kd = 7%

4. WACC Calculation

Step 1 : Calculate Weights

Source	Amount (₹)	Weight
Equity	5,00,000	0.50
Preference	2,00,000	0.20
Debt	3,00,000	0.30
Total	10,00,000	1.00

Step 2 : Apply WACC Formula

WACC = (Ke × We) + (Kp × Wp) + (Kd × Wd)

WACC = (13.4% × 0.50) + (10.53% × 0.20) + (7% × 0.30)

WACC = 6.70 + 2.11 + 2.10

WACC = 10.91%

❖ **Example 7 : From the following information given below. You are required to Calculate the different CoC.**

➢ Capital Structure of XYZ Ltd. :

Source	Market Value (₹)
Equity Shares	6,00,000
Preference Shares	1,50,000
Debentures	2,50,000

➢ Additional Information :

⇨ Market price of equity share = ₹ 120

⇨ Dividend expected next year = ₹12

⇨ Preference dividend = ₹ 9

⇨ Preference shares redeemable at ₹ 100 after 5 years

⇨ Market price of preference share = ₹ 95

⇨ Debentures redeemable at ₹ 100 after 5 years

⇨ Interest =9%

⇨ Net proceeds = ₹ 95

⇨ Tax rate =30%

1. Cost of Equity (Ke)

Ke = D1/P0

Ke = 12/120 = 0.10

Ke = 10%

2. Cost of Preference Shares (Redeemable)

$$Kp = \frac{D + (RV - P0) / n}{(RV + P0) / 2}$$

$$Kp = \frac{9 + (100 - 95) / 5}{(100 + 95) / 2}$$

Ke = 9 + 1/97.5

Kp = 10.26%

3. Cost of Debt (Redeemable - After Tax)

$$Kp = I \times \frac{(1 - T) + (RV - NP) / n}{(RV + NP) / 2}$$

$$Kd = 9 \times \frac{(0.7) + (100 - 95) / 5}{97.5}$$

Kd = 6.3 + 1/97.5

Kd = 7.49%

4. WACC Calculation

Step 1 : Weights

Source	Amount (₹)	Weight
Equity	6,00,000	0.60
Preference	1,50,000	0.15
Debt	2,50,000	0.25
Total	10,00,000	1.00

Step 2 : WACC Formula

$$WACC = (10\% \times 0.60) + (10.26\% \times 0.15) + (7.49\% \times 0.25)$$

$$WACC = 6.00 + 1.54 + 1.87$$

$$WACC = 9.41\%$$

The WACC helps firms decide whether to proceed with an investment. If the project's expected return is greater than WACC, it adds value to the firm. A lower WACC indicates a cheaper cost of funding and better financial efficiency.

4.7 Conclusion :

The cost of capital is a cornerstone of financial management, serving as a critical benchmark for all major financial decisions within a company. It not only represents the minimum return required to satisfy investors and creditors but also acts as a guiding tool for investment appraisal, financing choices, and dividend policies. By accurately measuring the cost of capital, a firm can identify profitable projects, avoid value-destroying investments, and ensure that resources are allocated efficiently.

In today's dynamic and competitive business environment, effective management of the cost of capital is essential for sustainable growth, financial stability, and long-term profitability. Companies that monitor and control their cost of capital not only strengthen their financial position but also gain a strategic advantage by making informed, value-creating decisions.

❖ Exercise :

A. Short Answer Questions :

1. Define cost of capital and explain its importance.
2. Differentiate between explicit cost and implicit cost.
3. What is WACC? Why is it important for investment decisions?
4. List the main components of the cost of capital.

B. Long Answer Questions :

1. Explain in detail the objectives of measuring the cost of capital.
2. Discuss the different types of cost of capital with examples.
3. Calculate WACC for a firm with a given capital structure (create your own data).
4. Discuss the significance of the cost of capital in financial decision-making.

❖ **MCQs :**

1. Cost of capital refers to :

   a) Total cost of production

   b) Minimum required rate of return

   c) Total assets of the company

   d) Shareholder's equity only

2. Which of the following is not a component of cost of capital?

   a) Cost of debt

   b) Cost of preference shares

   c) Cost of raw materials

   d) Cost of equity

3. Cost of debt is calculated after adjusting for :

   a) Dividend rate

   b) Tax rate

   c) Market price

   d) Depreciation

4. The opportunity cost of retained earnings is considered similar to :

   a) Cost of equity

   b) Cost of debt

   c) Cost of preference capital

   d) Weighted average cost

5. Weighted Average Cost of Capital (WACC) is :

   a) The simple average of all costs

   b) The overall cost of capital considering the proportion of each source

   c) Only the cost of equity

   d) Only the cost of debt

6. Which of the following costs is explicit in nature?

   a) Cost of goodwill

   b) Cost of reputation

   c) Interest on debentures

   d) Opportunity cost

7. If the cost of capital is 12% and a project earns 15%, then the project will:

   a) Decrease firm value

   b) Increase firm value

   c) Have no effect

   d) Reduce shareholder wealth

8. Which method is commonly used to compute cost of equity?

   a) Dividend Price Model

   b) Capital Asset Pricing Model (CAPM)

   c) Dividend Growth Model

   d) All of the above

9. The cost of capital is also known as :

   a) Cut-off rate

   b) Hurdle rate

   c) Minimum required rate of return

   d) All of the above

10. WACC is generally used as :

    a) Discount rate for capital budgeting decisions

    b) Depreciation rate

    c) Dividend payout ratio

    d) Cost of sales

11. WACC Stands For ?

    a) Weighted Average Cost of Capital

    b) Weight Cost and benefit capital

c) Worst Cost of Capital

d) Working Cost of Capital

❖ **Numerical Problems :**

1. Calculate the cost of debt after tax :

   ⇨ Amount of debt = ₹1,00,000

   ⇨ Interest rate = 10%

   ⇨ Tax rate = 30%

2. Calculate cost of equity using the Dividend Growth Model :

   ⇨ Dividend per share = ₹4

   ⇨ Market price per share = ₹40

   ⇨ Growth rate of dividend = 5%

3. Calculate WACC using the data given below :

Source	Amount (₹)	Cost (%)
Equity	6,00,000	14
Debt	4,00,000	9 (Tax rate 25%)

4. A company has the following capital structure :

Source	Amount (₹)
Equity Share Capital	4,00,000
Preference Share Capital	3,00,000
Debentures	3,00,000

❖ **Additional Information :**

⇨ Market price per equity share = ₹ 80

⇨ Dividend just paid (D_0) = ₹ 6

⇨ Growth rate = 4%

⇨ Perference dividend = 12 % on ₹ 100 shares

⇨ Market price of preference share = ₹ 90

⇨ Interest on debentures = 10%

⇨ Net proceeds of debentures = ₹ 100

⇨ Tax rate = 30%

❖ **Required :**

⇨ Calculate Cost of Equity (Ke)

⇨ Calculate Cost of Preference Shares (Kp)

⇨ Calculate Cost of Debt (Kd - after tax)

⇨ Calculate WACC

❖ (Answers : **Cost of Equity (Ke) = 11.80%**

Cost of Preference Shares (Kp) = 13.33%

Cost of Debt (Kd - after tax) = 7.00%

WACC = 10.82%

5. XYZ Ltd. has the following market value capital structure :

Source	Amount (₹)
Equity Shares	5,00,000
Preference Shares	2,00,000
Debentures	3,00,000

❖ **Additional Information :**

⇨ Market price per equity share = ₹100

⇨ Expected dividend next year = ₹10

⇨ Preference dividend = ₹ 9

⇨ Preference shares redeemble at = ₹ 100 after 4 years

⇨ Market price of preference share = ₹ 95

⇨ Debentures redeemble at ₹ 100 after 5 years

⇨ Interest on debentures = 8%

⇨ Net proceeds = ₹ 96

⇨ Tax rate = 30%

❖ **Required :**

1. Compute Cost of Equity (Ke)
2. Compute Cost of Redeemble Preference Shares (Kp)
3. Compute Cost of Redeemble Debt (Kd - after tax)
4. Compute WACC

❖ (Answers : **Cost of Equity (Ke) = 10.00%**

Cost of Redeemble Preference Shares (Kp) = 10.51%

Cost of Redeemble Debt (Kd - after tax) = 6.53%

WACC = 9.06%

6. A firm has the following sources of finance :

Source	Market Value (₹)
Equity	6,00,000
Preference Shares	1,50,000
Debt	2,50,000

❖ **Additional Information :**

⇨ Market price of equity share = ₹ 150

⇨ Dividend just paid = ₹ 12

⇨ Growth rate = 6%

⇨ Preference dividend = 10% on ₹ 100 shares

⇨ Market price of preference share = ₹ 98

⇨ Interest on debt = 9%

⇨ Debt redeemble at ₹ 100 after 6 years

⇨ Net proceeds = ₹ 97

⇨ Tax rate = 35%

❖ **Required**

1. Cost of Equity (Ke)
2. Cost of Preference Shares (Kp)
3. Cost of Debt (Kd - after tax)
4. Weighted Average Cost of Capital (WACC)

❖ (Answers : **Cost of Equity (Ke) = 14.48%**

Cost of Preference Shares (Kp) = 10.20%

Cost of Debt (Kd - after tax) = 6.45%

WACC = 11.83%

❖ **Answers to the MCQs** :

1. **b) Minimum required rate of return**
2. **c) Cost of raw materials**
3. **b) Tax rate**
4. **a) Cost of equity**
5. **b) The overall cost of capital considering the proportion of each source**
6. **c) Interest on debentures**
7. **b) Increase firm value**
8. **d) All of the above**
9. **d) All of the above**
10. **a) Discount rate for capital budgeting decisions**
11. **a) Weighted Average Cost of Capital**

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BBA SEMESTER-4

Financial Management

BLOCK: 2

Authors' Name: Prof. (Dr.) Manoj Shah, Professor and Director,
School of Commerce and Management,
Dr. Babasaheb Ambedkar Open University, Ahmedabad.

Review (Subject): Dr. Megha K Shah, Associate Professor,
Faculty of Management, GLS University, Ahmedabad.

Dr. Narayan Baser, Associate Professor,
Pandit Deendayal Petroleum University, Gandhinagar.

Review (Language): Dr. Deepak Mashru, Assistant Professor,
National Forensic Sciences University, Gujarat.

Editor's Name: Prof. (Dr.) Manoj Shah,
Professor and Director,
School of Commerce and Management,
Dr. Babasaheb Ambedkar Open University,
Ahmedabad.

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Unit : 5
Operating leverage

5.1 Introduction

In all business units, management aims to maximize the return on the owners' capital. The essence of financial management is to strike a balance in the capital structure that enables equity shareholders, who bear the business's risk, to receive the maximum possible return. For this purpose, the funds available at a fixed rate of interest or dividend are used to finance business.

If the rate of return on investments in the business is higher than the rate of interest on the company's debentures, earnings per share rise, and the company can therefore distribute dividends at a higher rate. Using fixed-interest-bearing securities along with equity capital is called "Leverage".

5.2 Meaning and Definition of Leverage :

(1) Solomon, "Leverage is the ratio of the net rate of return on shareholders' equity and the net rate of return on capitalization."

(2) Walter, "Leverage may be defined as the Percentage return on equity to the Percentage return on capitalization."

(3) In the words of J.C. Van Horne. "Leverage may be defined as the employment of an asset or fund for which the firm pays a fixed rate or fixed return."

From the above definitions, it becomes clear that the fixed cost or return is the support of leverage. If the company is not required to pay a fixed cost or return, there will be no leverage. Leverage is the result of the use of funds carrying fixed costs or fixed returns. In other words, leverage is the use of funds having a fixed cost in order to raise the return available to owners.

The decision regarding capital structure is the most important financial decision. The decision concerning whether debentures or preference shares carrying a fixed burden, along with equity shares, impose an uncertain and unstable burden on the company, is known as the Capital Structure Decision. This decision can have a significant impact on the rate of return available to the equity shareholders as well as on the degree of risks they bear. The management must work out a proper capital structure when the company is set up and also when additional investment is to be made; its significant effects, capital structure must be so framed that balance may be achieved and maintained between the return on equity shares on the and hand, and the degree of risks they impose on the other.

5.3 Types of Leverage :

There were three types of leverage: (i) Operating Leverage, (ii) Financial Leverage (iii) Combined or Mixed Leverage.

(1) Operating Leverage :

In devising a proper capital structure, however, it is not enough to consider the financial leverage only. It is also necessary to ascertain the extent of operating leverage in the business. There are certain fixed expenses in the business that do not change with the level of output or sales. They remain constant in the short run. Due to these expenses, Operating Profit increases more rapidly than sales volume. This situation is known as Operating Leverage.

(2) Financial Leverage :

Financial leverage refers to the inclusion of securities carrying fixed financial burdens, such as debentures and preference shares, alongside equity shares in a company's capital structure. A company can raise the funds from different sources to finance in business. It can obtain funds either through the issue of equity shares or through the issue of preference shares or debentures along with equity shares.

A company has to pay a fixed rate of interest on its debentures irrespective of whether it makes a profit or not. Hence, debentures are described as securities carrying a fixed financial charge on preference shares also.

The rate of dividend to be paid is fixed. Though it is to be paid only when the company makes a profit. But it is a fixed charge, and must be paid before anything is paid to the ordinary shareholders.

When a company includes in its capital structure debentures and preference shares in addition to equity shares, Financial Leverage is said to be used. The objective of financial leverage is to increase the returns on equity shares by earning a profit greater than the total amount of fixed charges on debentures and preference shares.

Thus, financial leverage is a double-edged sword. If the circumstances are favorable, it will raise the rate of dividend on equity shares; but if the circumstances are unfavorable, it will reduce the return on equity shares.

❖ **Degree of Financial Leverage :**

The following formula is used to find out the ratio of financial leverage in a firm :

$$DFL = \frac{\text{Operating Profit (EBIT)}}{EBT} = \frac{EBIT}{EBT}$$

DFL = Degree of Financial Leverage

EBIT = Earnings Before Interest and Tax

EBT = Earnings Before Tax and After Interest

(3) Combined Leverage : It is also known as a mixture of operating leverage and financial leverage. The policy regarding capital structure should be framed keeping in view the combined effect of operating leverage and financial leverage. The formula to ascertain both leverage is :

$$= \frac{C}{EBIT} \times \frac{EBIT}{EBT} = \frac{C}{EBT}$$

Where, C = Total contribution.

Considering the combined effect of both leverages, we feel that if the degree of both leverages is very high business will become more risky. Because a high degree of these leverages implies a greater amount of fixed cost and

also a high proportion of funds imposing a fixed burden of financial charges on the total amount of funds with the company.

On the other hand, too low a degree of both leverages is also undesirable. A low degree of these leverages suggests that the fixed costs are too small and that the proportion of debt to the company's total capital is also extremely low. As a result of such a policy, the management will be deprived of a large number of profitable opportunities of investment.

If operating leverage is high and financial leverage is low, it means that the management has adopted a very careful approach in connection with debt capital. But the optimum solution is that in which operating leverage is high and financial leverage is low.

Many companies in India are carelessly raising the proportion of debt capital. This is risky as the amount of fixed expenses is large in their business because the degree of both leverage will move up as a result of this policy. The conclusion is that if the financial leverage is to be kept high. i.e., if funds are to be obtained mainly through preference shares, debentures, and other long-term debts, then the base should be strengthened by keeping operating leverage low.

5.4 Meaning of Operating Leverage :

Operating leverage measures how sensitive a company's operating income (profit) is to a change in sales. It arises due to the presence of fixed operating costs in the cost structure.

In simple terms, we can say that high fixed cost + low variable cost = high operating leverage. Small change in sales $\rightarrow$ large change in operating income

5.5 Formula of Operating Leverage :

The degree of Operating leverage is defined as the percentage change in earnings before interest and tax relative to a given Percentage change in sales. Symbolically, it is represented as DOL, which is known as Contribution divided by Operating Income.

$$\text{Operating leverage (DOL)} = \frac{\% \text{ change in EBIT}}{\% \text{ change in sales}}$$

Wherever operating leverage exists, profit rises by more than sales. Operating leverage indicates the ratio of the change in profit to the change in sales.

$$\text{Operating leverage (DOL)} = \frac{\text{Unit x (P-V)}}{\text{Unit x (P-V) - F}}$$

Unit = Volume of sales

P = Per unit price

V = Variable cost per unit

F = Fixed cost

OL = Operating Leverage

$$\text{DOL} = \frac{\text{Total Contribution}}{\text{Operating profit}}$$

OR

$$\text{DOL} = \text{C / EBIT}$$

5.6 Importance of Operating Leverage :

1. Operating leverage Shows Profit Sensitivity: It helps the managers to understand how profit will react to changes in sales volume.
2. Operating leverage helps in Planning and Decision-Making: It is useful in pricing, cost control, expansion decisions, and break-even analysis.
3. Operating leverage Indicates Business Risk Level: It suggests that higher operating leverage means higher business risk due to high fixed costs.
4. Operating leverage Forecast Profit: It helps in estimating how much profit will change with different sales levels.
5. Operating leverage helps in choosing the Optimal Cost Structure: Firms can decide whether to use automation (high fixed cost) or labor (higher variable cost).

5.7 Advantages of Operating Leverage :

1. Operating leverage makes for Higher Profit Potential: When sales increase, companies with high operating leverage earn disproportionately higher profits because fixed costs remain constant.
2. Better Utilization of Fixed Costs: If the firm operates near or above break-even, fixed assets generate higher returns.

3. Encourages Efficiency: Pushes firms to optimize capacity and reduce costs since fixed costs must be covered.
4. Helps in Long-Term Planning: Useful for predicting future earnings and choosing between investment alternatives.
5. Useful for Comparing Firms: Investors use operating leverage to analyze risk and return profiles across companies.

5.8 Limitations of Operating Leverage :

1. Higher Risk During Low Sales: High operating leverage becomes dangerous when sales drop because large fixed costs still need to be paid.
2. Difficult to Change Cost Structure Quickly: Fixed costs (rent, salaries, depreciation) cannot be reduced easily, increasing financial strain.
3. Overestimation of Profit: If market conditions change, assumed sales may not be achieved, causing heavy losses.
4. Sensitive to Incorrect Estimates: Errors in forecasting sales, variable costs, or fixed costs can make DOL figures misleading.
5. Not Suitable for All Industries: High operating leverage works well in capital-intensive industries, not in labor-intensive or seasonal ones.

5.9 Illustration of Operating Leverage :

Illustration-1 The balance sheet of Star Co. Ltd as on 30-6-'25 is as follows :

Balance Sheet

Liabilities	Rs	Assets	Rs
Equity share capital Rs 10 per share	1,00,000	Net Fixed Assets	2,50,000
12% Debenture	1,20,000	Current Assets	80,000
Reserve & surplus	40,000		
Current Liabilities	70,000		
	3,30,000		3,30,000

During 2024-'25 company's sale is Rs. 8,00,000. Fixed expenses are Rs. 1,60,000 while variable cost is 45% of sales. The income tax rate is 50%.

Calculate the Operating Leverage.

Ans :

Income Statement of the Company

	Rs.
Sales	8,00,000
Less: Variable Cost (45% of sales)	3,60,000
Contribution	4,40,000
Less: Fixed cost	1,60,000
EBIT	2,80,000
Less: Interest	14,400
PBT	2,65,600
Less: 50% Tax	1,32,800
PAT	1,32,800

1) Operating Leverage : $= \frac{\text{Contribution}}{\text{EBIT}} = \frac{4,40,000}{2,80,000} = 1.57$

Illustration 2: The Gujarat Trading Co. Ltd. has the following Balance Sheet and Income Statement information.

Balance Sheet as on 31-3-2025

Liability	Rs.	Assets	Rs.
Equity share capital (Rs 10 per share)	10,00,000	Fixed assets	14,00,000
		Current assets	11,00,000
10% Debenture	8,00,000		
Research & Surplus	5,00,000		
Current Liability	2,00,000		
	25,00,000		25,00,000

Income statement for the year ended 31-03-2025

	Rs.
Sales	4,50,000
Operating expenses (including Rs. 90,000 depreciation)	1,50,000
EBIT	3,00,000
Less : Interest	80,000
EBT	2,20,000
Less : 50% Tax	1,10,000
Net Profit	1,10,000

(A) Determine the degree of operating leverage at the current sales level if all operating expenses, other than depreciation, are variable costs.

(B) If total Assets remain at the same level but sales increase or decrease by 25%, what will be the impact on operating leverage?

Ans :

Calculation of Operating Leverage $= \frac{\text{Contribution}}{\text{EBIT}}$

$= \frac{\text{Sales - Variable cost}}{\text{EBIT}}$

$= \frac{4,50,000 - 60,000}{3,00,000}$

$= \frac{3,90,000}{3,00,000}$

$= 1.30$

(B) Increase or Decrease in sales by 25%

	Increase 25%	Decrease 25%
Sales	5,62,500	3,37,500
Less: Variable Costs	75,000	45,000
Contribution	4,87,500	2,92,500
Less: Fixed Exp. (Depreciation)	90,000	90,000
EBIT	3,97,500	2,02,500
= Contribution / EBIT	4,87,500/ 3,97,500	2,92,500/2,02,500
Operating Leverage	1.23	1.44
Impact	Decrease	Increase

Illustration-3 The Capital structure of the Progressive Corporation consists of an equity share capital of Rs. 10,00,000 (Shares of Rs. 100 per value) and Rs. 10,00,000 of 10% debentures. Sales increased by 20% from 1,00,000 units to 1,20,000 units. The selling price is Rs. 10 per unit, variable costs amount to Rs 6 per unit, and fixed expenses amount to Rs 2,00,000. The income tax rate is assumed to be 50%.

(a) You are required to calculate the degree of operating leverage at 1,00,000 units and 1,20,000 units.

(b) Comment on the behavior of operating leverage in relation to increasing Production from 1,00,000 units to 1,20,000 units.

Ans :

	1,00,000 units (Rs.)	1,20,000 units (Rs.)
Sales (Rs. 10 Per Unit)	10,00,000	12,00,000
Less: Variable Costs (Rs. 6 per unit)	6,00,000	7,20,000
Contribution	4,00,000	4,80,000
Less: Fixed Costs	2,00,000	2,00,000
EBIT	2,00,000	2,80,000
= Contribution / EBIT	4,00,000/ 2,00,000	4,80,000/2,80,000
Operating Leverage	2	1.71
Impact	Decrease	Increase

(b) As production and sales have increased from 1,00,000 units to 1,20,000 units. The type of operating has also as have gone down, suggesting a decline in the total risk of the company. The net income increased by Rs 40,000 as a result of the increase in sales levels. It can be attributed to the fact that there has been no increase in either fixed overhead or fixed interest cost.

Illustration 4 The selected financial data for A company for the current year ended 31-3-2025 are as follows.

	A
Variable expenses as a % of sales	75
Interest expenses	Rs. 300
Degree of Operating Leverage	6
Degree of Financial. Leverage	4
Income tax rate	0.50

(a) Prepare income statements for A company.

(b) Comment on the financial position and structure of these companies.

Ans. :

➢ Company -A :

Financial Leverage :

$$= \frac{EBIT}{EBIT- I} = \frac{x}{x-I}$$

$$\therefore 4 = \frac{x}{x-1}$$

$\therefore 4 (x-300) = x$

$\therefore 3x = 1200$

$\therefore x =$ Rs. 400

➢ Operating Leverage :

$$= \frac{C}{EBIT} = \frac{\text{sales - variable cost}}{EBIT (x)}$$

$$\therefore 6 = \frac{y- 3/4y}{400}$$

$\therefore 2400 = y- 3/4y$

$$\therefore 2400 = \frac{4y- 3y}{4}$$

$\therefore y =$ Rs. 9600

$\therefore$ Variable cost = 9600 × 3/4 = Rs.7,200

$\therefore$ Fixed cost = 9600 - 7200 - 400 = Rs. 2,000

Income Statement

Particulars	A Co.
Sales	9600
Less: Variable Cost	7200
Contribution	2400
Less: Fixed Expense	2000
EBIT	400
Less: Interest	300
PBT	100
Less: 50% Tax	50
PAT	50

Illustration 5 Information regarding Sunrise Co. Limited is as under :

Sales Rs. 10,00,000

Variable cost Rs. 7,00,000

Fixed cost Rs. 2,00,000

Find out the Degree of Operating Leverage

Ans. :

	Rs.
Sales	10,00,000
Less: Variable cost	7,00,000
Contribution	3,00,000
Less: Fixed Cost	2,00,000
EBIT	1,00,000
= Contribution / EBIT	3,00,000 /1,00,000
Operating Leverage	3

Illustration 6 The following is the balance sheet of a company :

Liability	Rs.	Assets	Rs.
Share capital Rs. 10 per shares	1,50,000	Fixed Assets	2,60,000
10% Debenture	1,20,000	Current Assets	70,000
Reserves & Surplus	30,000		
creditors	30,000		
	3,30,000		3,30,000

During the year 2024-25, the company's sale is Rs 9,00,000. Fixed expenses are Rs. 1,60,000 while variable cost is 60% of sales. The income tax rate is 50%. Calculate the operating leverage.

Ans. :

	Rs.
Sales	9,00,000
Less: Variable cost (9,00,000 × 60%)	5,40,000
Contribution	3,60,000
Less: Fixed Cost	1,60,000
EBIT	2,00,000

- Operating Leverage :

$$\therefore \quad = \frac{C}{EBIT} = \frac{3,60,000}{2,00,000} = 1.8$$

Illustration 7 A company sells a product for Rs.50. Its Variable cost per unit is Rs.30, and the fixed costs are Rs.40,000. The company sells 5,000 units. From the above given information, find out the Degree of Operating Leverage (DOL).

Ans. :

Particulars	Rs. (5000 units)
Sales (Rs. 50 per unit)	2,50,000
Less : Variable Cost (Rs.30 per unit)	1,50,000
Contribution	1,00,000
Less : Fixed Cost	40,000
EBIT	60,000
Dol = C / EBIT	1,00,000 / 60,000 = **1.67**

Illustration 8 A business has sales of Rs.200,000, and its Variable costs are 60% of sales, and Fixed costs are Rs.50,000. From the following information, find out: Degree of Operating Leverage.

Answer :

Particulars	Rs.
Sales	2,00,000
Less : Variable Cost (2,00,000 × 60%)	1,20,000
Contribution	80,000
Less : Fixed Cost	50,000
EBIT	30,000
Dol = C / EBIT	80,000 / 30,000 = **2.67**

❖ Exercises :

1. Multiple Choice Questions (MCQ) :

1. When sales increase by 10%, operating income increases by 30%. What is the Degree of Operating Leverage (DOL)?

   A. 2 B. 3 C. 10 D. 0.33

   Answer : B. 3

2. The degree of operating leverage is highest when the company is:

   A. At the break-even point

   B. Above break-even

   C. Producing at full capacity

   D. At a margin of safety of 50%

   Answer : A. At the break-even point

3. If a firm's DOL = 4, a 5% increase in sales will cause operating income to:

   A. Increase by 5% B. Increase by 10%

   C. Increase by 20% D. Increase by 4%

   Answer : C. Increase by 20%

4. Which of the following is true about operating leverage?

   A. It measures the sensitivity of sales to profit

   B. It increases when variable costs decrease

   C. It decreases when fixed costs increase

   D. It is unaffected by sales volume

   Answer : B. It increases when variable costs decrease

5. Contribution Margin = 120,000

   Operating Income = 30,000

   Find DOL.

   A. 0.25 B. 1 C. 3 D. 4

   Answer : D. 4

6. A company with high operating leverage typically has :

   A. High variable cost, low fixed cost

   B. Low variable cost, high fixed cost

   C. Low contribution margin

   D. No fixed cost

   Answer : B. Low variable cost, high fixed cost

7. If DOL = 2, and CM = 200,000, then operating income is :

   A. 50,000 B. 100,000 C. 200,000 D. 400,000

   Answer : B. 100,000

8. A firm's DOL decreases when :

   A. Sales increase B. Fixed costs increase

   C. Variable costs decrease D. Sales decrease

   Answer : A. Sales increase

9. Which statement is false ?

   A. High DOL increases profit volatility

   B. At break-even, DOL is infinite

   C. DOL is Contribution / Operating Income

   D. DOL increases as sales rise

   Answer : D. DOL increases as sales rise

10. If selling price and fixed costs remain constant, but variable cost per unit increases, DOL will :

    A. Increase B. Decrease

    C. Remain constant D. Become zero

    Answer : B. Decrease

2. Short and long questions :

1. Explain the Meaning and Definition of Leverage.
2. Explain the Types of leverage.
3. Explain the Meaning of operating leverage.
4. Give the Formula of operating leverage.
5. Explain the Importance of operating leverage.
6. Explain the Advantages of operating leverage.
7. Explain the Limitations of operating leverage.
8. Write a short note on operating leverage.
9. Write a short note on Financial Leverage.
10. Write a short note on Combined leverage.

3. Practical Questions :

Question 1 : A firm has a DOL of 4 at a given level of sales. If sales increase by 5%, what is the percentage change in operating income ?

Solution

(ΔOI = DOL $\times$ ΔSales = 4 times $\times$ 5% = 20%, Operating income increases by 20%)

Question-2 : From the following information of product A, the Selling price per unit is Rs.100, its Variable cost per unit is Rs.6, and the fixed costs = Rs.150,000. The number of units sold = 6,000. Compute the DOL from the above given information.

Solution : (1) Contribution Margin per unit CM (unit) = Rs.100 - Rs.60 = Rs.40, (2) Total CM = 6,000 Units $\times$ Rs.40 = 240,000, (3) Operating Income OI = Rs.240,000 - Rs.150,000 = Rs.90,000, (4) DOL = CM / OI = Rs.240,000 / Rs.90,000 = 2.67. Answer : DOL = 2.67

Question - 3 A company's DOL is 3.5. If operating income increased by 21%, estimate the increase in sales.

Solution (% ΔOI = DOL $\times$ % ΔSales, Rearrange: % ΔSales = 21% / 3.5 = 6%). Answer: Sales increased by approximately 6%

Question 4 : A company sells two products :

Product	Selling Price (Rs.)	Variable Cost (Rs.)	Units Sold
A	40	20	3,000
B	30	10	2,000

Fixed costs is Rs.80,000, and find out the DOL at the current sales level.

Answer: DOL = 5

Question-5 : From the following information available on product A, the Selling price is Rs.75, its Variable cost = Rs.45, and its fixed cost = Rs.120,000. The number of units sold is 4,000. Find out DOL.

Answer : (DOL is infinite (company at break-even). This happens when the company is at break-even, so even a tiny change in sales huge $\rightarrow$ change in profit)

Question - 6 : At a particular sales level, a company's sales are Rs.400,000, its Variable cost is Rs.260,000, and its Fixed cost is Rs.100,000. Sales are expected to increase by 12%. From the following information, find out the percentage change in operating income.

Solution : (OI= 3.5 $\times$ 12% = 42%, Profit will increase by 42%)

Question - 7 : A company has fixed costs of Rs. 150,000, and the CM ratio is 40% whereas DOL is 2.5. Find the sales level at which DOL = 2.5.

Answer : (Sales = Rs.625,000)

Question - 8 : A company sells a product at Rs.50 per unit, VC per unit Rs.35, and a fixed cost of Rs.90,000. Current sales are 12,000 units. The company is planning to reduce the price to Rs.48. This is expected to increase sales volume by 15%.

From the following information available, Find out the :

1. Current operating income
2. New operating income
3. DOL at current level
4. % change in profit

Answers

1. OI (current) = **Rs.90,000**
2. OI (new) = **Rs.89,400**
3. DOL = **2**
4. % change in profit = **-0.67%**

4. Fill in the blanks :

1. _____ measures how sensitive a firm's Operating income (EBIT) is to changes in Sales. (Operating Leverage)
2. A company with a higher proportion of fixed costs relative to variable costs has _____ operating leverage. (Higher)
3. When sales increase, a firm with hight operating leverage will experience a _____ change in operating income. (Larger)
4. If a company has zero fixed costs, the operating leverage of the firm is _____. (zero)
5. Operating leverage indicates the effect of changes in sales on ____. (operating income (EBIT))
6. Operating leverage does not arise from _____ costs. (variable)
7. As fixed costs increase while sales remain constant, operating leverage will _____. (increase)
8. The degree of operating leverage can be calculated as :

   DOL = Contribution ÷ _____. (Operating Income (EBIT)).

****

Unit : 6
Financial and Combined Leverage

6.1 Introduction

Financial leverage refers to inclusion of securities carrying fixed financial burden such as debentures and preference shares along with equity shares in capital structure of a company. A company can raise the funds from different sources to finance in business. It can obtain funds either by issuing equity shares or by issuing Preference shares or debentures along with equity shares.

A company has to pay a fixed rate of interest on its debentures irrespective of whether it makes profit or not. Hence, debentures are described as securities carrying a fixed financial charge on preference share also. The rate of dividend is to be paid is fixed. Though it is to be paid only when the company makes profit. But it is a fixed charge, and must be paid before anything is paid to the ordinary shareholders.

When a company includes in its capital structure debentures and preference shares in addition to equity shares, Financial Leverage is said to be used. The objective of financial leverage is to increase the returns on equity shares by earning a profit greater than the total amount of fixed charges on debentures and Preference shares.

Thus, financial leverage is a double edged sword. If the circumstances favorable, it will raise the rate of dividend on equity shares; but if the circumstances are unfavorable, it will reduce return equity shares.

6.2 Meaning of Financial and Combined Leverage :

❖ Meaning of Financial Leverage :

Financial leverage refers to the use of fixed cost funds mainly debt and preference share capital in the capital structure of a firm with the objective of increasing the return to equity shareholders. These fixed-cost funds come with mandatory financial charges such as interest and preference dividends. When a company uses such funds, even small changes in its operating income (EBIT) lead to proportionately larger changes in Earnings Per Share (EPS).

In simple words, financial leverage shows how much a company depends on borrowed funds and how effectively those borrowed funds help in magnifying the profits of equity shareholders. It is based on the principle that if the rate of return on investment (ROI) is greater than the cost of debt, the use of debt increases shareholder returns. However, if ROI is lower than the cost of debt, financial leverage becomes unfavourable.

Traditional Definition :

"The use of fixed-cost financing sources such as debt and preference capital to magnify the returns available to equity shareholders."

Modern Definition :

"The sensitivity of a firm's earnings per share (EPS) to changes in its operating income (EBIT), caused by the presence of fixed financial charges."

According to Solomon, "Financial leverage arises when a firm uses debt capital to increase the expected return on equity capital."

❖ Meaning of Combined Leverage :

Combined Leverage refers to the overall impact of both operating leverage and financial leverage on a company's earnings. It shows how changes in sales affect the firm's Earnings Before Tax (EBT) or Earnings Per Share (EPS). In simple terms, combined leverage indicates the total risk a firm faces due to fixed operating costs (such as rent, salaries, and depreciation) and fixed financial costs (such as interest on debt).

When a company has high combined leverage, even a small change in sales can lead to a much larger change in profits. This means the company has both high operating risk and high financial risk. Combined leverage helps management understand the total effect of cost structure and financing decisions on the firm's profitability.

Traditional Definition :

"Combined leverage is defined as the measure of how sensitive a firm's earnings before tax (EBT) are to changes in sales due to the presence of both fixed operating costs and fixed financial costs. It represents the combined effect of operating leverage and financial leverage on profits."

Modern Definition :

"Combined leverage is the product of operating leverage and financial leverage, showing the percentage change in earnings before tax (EBT) resulting from a percentage change in sales."

6.3 Advantages of Financial Leverage :

1. Increases Earnings for Shareholders :

When a company earns more profit than the interest it pays on loans, the extra profit goes to shareholders. This helps increase Earnings Per Share (EPS) and makes shareholders wealthier.

2. Helps Company Grow Without Losing Ownership :

By using loans instead of issuing new shares, the company can expand without giving away ownership. This allows existing owners to keep control of the business.

3. Interest Reduces Tax :

Interest paid on loans is deducted before paying tax. This means the company pays less tax, which increases its overall profit. This makes debt a cheaper source of finance.

4. Lower Cost Compared to Equity :

Borrowing money (debt) is usually cheaper than issuing shares. So using some amount of debt helps reduce the overall cost of capital and improves profitability.

5. Improves Return on Equity (ROE) :

When financial leverage works positively, it increases the return that owners earn on their investment. This helps improve the company's financial performance.

6.4 Limitations/Risk of Financial Leverage :

1. Increases Financial Risk :

Using too much debt increases the risk of not being able to pay interest or repay loans. If profits fall, the company may face financial trouble or bankruptcy.

2. Reduces Flexibility of the Business :

Because interest must be paid regularly, a highly leveraged company has less freedom to invest in new projects or handle emergencies. This limits management decisions.

3. Can Reduce EPS when Profits Fall :

Financial leverage works both ways. If the company's earnings are low, fixed interest costs still have to be paid, causing EPS to fall sharply.

4. May Damage Credit Rating :

Too much borrowing makes the company look risky to lenders. This can reduce the company's credit rating, making future loans more expensive or harder to get.

5. Comes With Restrictions from Lenders :

Banks often put conditions on companies that borrow money. These restrictions may limit dividend payments, new borrowing, or expansion plans, reducing business freedom.

6.5 Formula/Degree of Financial and Combined Leverage :

❖ **Degree of Financial Leverage :**

Following formula is used to find out the ratio of financial leverage in a firm :

$$DFL = \frac{\text{Operating Profit (EBIT)}}{\text{Profit Before Tax (EBT)}} = \frac{EBIT}{EBT}$$

Where, DFL = Degree of Financial Leverage

EBIT = Earning Before Interest and Tax

EBT = Earning Before Tax but After Interest

❖ **Degree of Combined Leverage :**

The policy regarding capital structure should be framed keeping in view the combined effect of operating leverage and financial leverage both. Formula to ascertain both leverage is :

$$DCL = \frac{C}{EBIT} \times \frac{EBIT}{EBT} = \frac{C}{EBT}$$

Where, C = Total contribution.

❖ **Combined Effect of Operating Leverage and Financial Leverage :**

Considering the combined effect of both leverages, we feel that if the degree of both leverages is very high business will become more risky. Because a high degree of these leverages implies a greater amount of fixed cost and also a high proportion of funds imposing a fixed burden of financial charges in the total amount of funds with the company.

On the other hand, too low a degree of both leverages is also is undesirable. Because low degree of these leverages suggests that the amount of fixed costs is too small and the Proportion of debts is total capital of the company is also extremely low. As the result of such a policy, the management will be deprived of a large number of profitable opportunities of investment.

If operating leverage is high and financial leverage is low, it means that the management has adopted a very that the careful approach in connection with debt capital. But the optimum solution is that in which operating leverage is high and financial leverage is low.

Many companies in India carelessly raising the proportion of debt capital. This is risky as the amount of fixed expenses is large in their business because the degree of both leverages till move up as the result of this Policy. The conclusion is that if the financial leverage is to be kept high, i.e., if funds are to be obtained mainly through preference shares, debentures and other long term debts, then the base should be strengthened by keeping operating leverage low.

6.6 Indicators of Financial Leverage :

1. Debt-Equity Ratio :

This ratio compares the amount of money the company has borrowed (debt) with the amount the owners have invested (equity). A high ratio means the company depends more on loans and has higher risk. A low ratio means the company uses more of its own money and is safer.

2. Interest Coverage Ratio :

This ratio shows how easily the company can pay interest from its operating profit. If the ratio is high, the company can comfortably pay interest. If it is low, the company may struggle to meet its interest payments, which increases financial risk.

3. Degree of Financial Leverage (DFL)

DFL shows how much the company's earnings per share (EPS) will change when its profit (EBIT) changes. If DFL is high, even a small drop in profit can sharply reduce EPS. If DFL is low, EPS is more stable. It indicates the company's financial risk level.

4. Debt Ratio (Debt to Total Assets)

This ratio shows what portion of the company's total assets is financed through debt. A high ratio means the company depends heavily on borrowed funds, which increases risk. A low ratio means the company uses more equity and is financially stronger.

5. Equity Multiplier

The equity multiplier shows how much of the company's assets are supported by equity versus debt. A high equity multiplier means the company uses more debt, increasing leverage. A low multiplier means the company relies more on owner's funds and is safer.

6. Fixed Charge Coverage Ratio

This ratio shows whether the company can pay all fixed financial commitments like interest and lease payments. A high ratio means the company can easily meet these payments. A low ratio shows difficulty in paying fixed charges, increasing risk.

7. Proprietary Ratio

This ratio shows how much of the total assets are financed by the owners' equity. A high ratio indicates strong financial stability and less dependence on debt. A low ratio means more reliance on loans, making the company riskier.

8. Leverage Effect on ROE

This shows how debt affects the return earned by shareholders. If used properly, debt can increase ROE when profits are high. But when profits fall, ROE decreases sharply. This indicator highlights both the benefit and danger of leverage.

6.7 Earning Per Share (EPS) :

While taking financial decisions, management's main concern is generally earnings per share. Hence, the decision on the degree of financial leverage always aims to maximise earnings per share. To obtain the earning per share, profit of the company and interest is divided by the total number of its equity shares.

$$EPS = \frac{(X - R)(1 - t)}{N}$$

Where, X = Earning before interest and tax (EBIT)

R = Interest

T = Rate of Tax

N = No. of Equity Shares

❖ **For example :** If the profit before interest and tax is Rs.1,00,000 the number of equity shares of Rs.100 each is 3000 and 10% debentures are worth Rs.2,00,000 and tax rate is 50% the earning Per share can be ascertained as follows :

Earning Per Shares = Rs.1,00,000 - Rs.20,000 (Interest)

= Rs.80,000 - Rs.40,000 (Tax)

= Rs.40,000 ÷ 3000 Shares

= Rs.13.33

OR

$$EPS = \frac{(X-R)(1-t)}{N}$$

$$= \frac{(1,00,000 - 20,000)(1-0.5)}{3,000}$$

$$= \frac{80,000 \times 0.5}{3,000}$$

$$= \frac{40,000}{3,000}$$

$$= \text{Rs.}13.33$$

If financial leverage is determined keeping in view EPS only, it would favour the use of Debt capital only when the rate of interest on debentures is lower than the rate of return in business, the EPS will go in increasing with the increase debts, i.e. financial leverage. Thus, if the decision is based only on the consideration of EPS, the emphasis will be on debts without any indication of the risks it involves. The concept of EPS is very deceptive. It is misleading It induces the management to put their business in Jeopardy by relying too much on the debentures. In short, EPS is not a sufficient basis for determining the degree of financial leverage.

❖ Illustrations :

Ex-1 A company intends to start a new manufacturing unit for which it needs Rs.15,00,000. The new factory is expected to yield an annual EBIT of Rs.2,50,000. In choosing a financial plan, the company has an objective of maximizing earning per share (EPS). It has three alternatives of issuing debentures Rs.1,50,000 or Rs.6,00,000 or Rs.9,00,000. The rate of interest in each case would be (i) up to Rs.2,00,000 at 10% (ii) over Rs.2,00,000 up to Rs.8,00,000 at 11% and (iii) over Rs.8,00,000 at 18%.

The current market price per share is Rs.30 and it is expected to drop to Rs.24, if the funds are borrowed of Rs.7,00,000, Assume tax rate to be 50%. Give your opinion on all these alternatives On the basis of Earnings Per share.

❖ **Solution :**

(1) Interest :

		Rs.
First alternative Rs.1,50,000 x 10%		15,000
(on debentures of Rs 1,50,000)		
Second alternative :		
(on debentures of Rs.6,00,000)	2,00,000 × 10%	20,000
	4,00,000 × 11%	44,000
		64,000
Third alternative :		
(on debentures of Rs.9,00,000)	2,00,000 × 10%	20,000
	6,00,000 × 11%	66,000
	1,00,000 × 18%	18,000
		1,04,000

(2) If the First Alternative is adopted, then Rs.1,50,000 will be raised by issue of debentures and Rs.13,50,000 will have to be raised Rs.13,50,000 / 30 = 45,000 Equity Shares are to be issued.

If the Second Alternative is accepted, then out of Rs.15,00,000, debentures of Rs 6,00,000 will be issued and the remaining amount of Rs.9,00,000 will be issued through issue of equity shares and number of shares to be issued at market price will be Rs.9,00,000 / 30 = 30,000 Equity Shares.

In case, the Third Alternative is allotted the Rs 9,00,000 will be raised through issue of debentures and Rs.6,00,000 will be raised by issue of equity shares. The number of equity shares issued at a market of 24 will be 6,00,000 / 24 = 25,000 Equity Shares.

Particulars	First Alternative (Rs.1,50,000 Deb.)	Second Alternative (Rs.6,00,000 Deb.)	Third Alternative (Rs.9,00,000 Deb.)
EBIT	2,50,000	2,50,000	2,50,000
Less: Interest	15,000	64,000	1,04,000
PBT/EBT	2,35,000	1,86,000	1,46,000
Less : 50% Tax	1,17,500	93,000	73,000
PAT	1,17,500	93,000	73,000
No. of Equity Shares	45,000	30,000	25,000
Earning Per Share (EPS) = $\frac{\text{PAT}}{\text{No. of Shares}}$	**Rs.2.61**	**Rs.3.10**	**Rs.2.92**

Ex-2 A company intends to establish a new factory for which an investment of Rs.20,00,000 required. The company is considering two alternatives :

a) Proportion of Equity shares and Debentures to be maintained at 70:30 and

b) Proportion of Equity shares and Debentures to be kept 50:50.

If the first alternative is accepted, then equity shares can be sold at Rs.40 per share and debentures can be issued at an interest rate of 10% p.a. If however, second alternative is adopted equity shares are sold for Rs.25 per share and debentures can be issued at 12% interest p.a. The factory is expected to earn Rs.3,20,000 before interest & taxes. If the tax rate is 50%, which alternative should be accepted on the basis of earnings per share? In both cases, compute the Financial Leverage.

❖ **Solution :**

1) First Alternative :

Total Capital = Rs.20,00,000

Ratio between Owners & Borrowed Capital is 70:30.

Equity Share Capital	Rs.14,00,000
Debentures	Rs.6,00,000

No. of Equity Shares = 14,00,000 / 40 = 35,000 shares

Interest on Debentures = 6,00,000 x 10% = Rs.60,000

2) Second Alternative :

Total Capital = Rs.20,00,000

Ratio between Owners & Borrowed Capital is 50:50.

Equity Share Capital	Rs.10,00,000
Debentures	Rs.10,00,000

No. of Equity Shares = 10,00,000 / 25 = 40,000 shares

Interest on Debentures = 10,00,000 x 12% = Rs.1,20,000

Particulars	First Alternative 70 : 30	Second Alternative 50 : 50
Earning Before Interest and Tax (EBIT)	3,20,000	3,20,000
Less : Interest	60,000	1,20,000
PBT/EBT	2,60,000	2,00,000
Less : 50 % Tax	1,30,000	1,00,000
PAT	1,30,000	1,00,000
No. of Shares	35,000	40,000
EPS (PAT/No. of Shares)	**3.71**	**2.50**

$$\text{Financial Leverage (DFL)} = \frac{\text{EBIT}}{\text{EBIT}}$$

$$\text{First Alternative} = \frac{3,20,000}{2,60,000} = 1.23$$

$$\text{Second Alternative} = \frac{3,20,000}{2,00,000} = 1.60$$

Ex-3 A company needs Rs.8,00,000 for Purchase of a new machinery. The following three financial plans are feasible.

1) The company may issue 80,000 Equity shares at Rs.10 per share.
2) The company may issue 40,000 Equity shares at Rs.10 per share and 10% 4,000 debentures at Rs.100.
3) The company may issue 40,000 Equity shares at Rs.10 per share and 10% 4,000 Preference shares at Rs.100 per share.

If the company's earning before interest and taxes are Rs.16,000, Rs.32,000, Rs.64,000, Rs.96,000 and Rs.1,60,000 respectively. What the Earning Per Share under each of three financial plans? Ássume that corporate tax is 50%.

Solution :

1) First Alternative :

Particulars	Rs.	Rs.	Rs.	Rs.	Rs.
EBIT	16,000	32,000	64,000	96,000	1,60,000
Less: Interest	-	-	-	-	-
EBT	16,000	32,000	64,000	96,000	1,60,000
Less: 50% Tax	8,000	16,000	32,000	48,000	80,000
PAT	8,000	16,000	32,000	48,000	80,000
Number of equity shares	80,000	80,000	80,000	80,000	80,000
EPS	**0.10**	**0.20**	**0.40**	**0.60**	**1.00**

2) Second Alternative :

Particulars	Rs.	Rs.	Rs.	Rs.	Rs.
EBIT	16,000	32,000	64,000	96,000	1,60,000
Less: Interest	40,000	40,000	40,000	40,000	40,000
EBT	-24,000	-8,000	24,000	56,000	1,20,000
Less: 50% Tax	-	-	12,000	28,000	60,000
PAT	-24,000	-8,000	12,000	28,000	60,000
Number of equity shares	40,000	40,000	40,000	40,000	40,000
EPS	**-0.60**	**-0.20**	**0.30**	**0.70**	**1.50**

3) Third Alternative :

Particulars	Rs.	Rs.	Rs.	Rs.	Rs.
EBIT	16,000	32,000	64,000	96,000	1,60,000
Less: Interest	-	-	-	-	-
EBT	16,000	32,000	64,000	96,000	1,60,000
Less: 50% Tax	8,000	16,000	32,000	48,000	80,000
PAT	8,000	16,000	32,000	48,000	80,000
Less: Pref. Dividend	40,000	40,000	40,000	40,000	40,000
Profit for Equity Shares	-32,000	-24,000	-8,000	8,000	40,000
Number of equity shares	40,000	40,000	40,000	40,000	40,000
EPS	**-0.80**	**-0.60**	**-0.20**	**0.20**	**1.00**

Ex-4 The Financial manager of a company expects that its EBIT in the current year would amount to Rs.25,000. The capital structure of the company includes 1,000 Equity Shares, 5% Debenture of Rs.1,00,000 and 10% Preference Shares of Rs.50,000. Calculate EPS. Also calculate degree of financial leverage.

If the profits are Rs.15,000 and Rs.35,000. How would the EPS be affected? The firm can be assumed to be 50% tax bracket.

Solution :

1) First Alternative :

Particulars	Original	Alternative 1	Alternative 2
EBIT	25,000	15,000	35,000
Less: Interest	5,000	5,000	5,000
PBT	20,000	10,000	30,000
Less: 50% Tax	10,000	5,000	15,000
PAT	10,000	5,000	15,000
Less: Pref. Dividend	5,000	5,000	5,000
Profit for Equity Shareholders	5,000	0	10,000
No. of equity shares	1,000	1,000	1,000
Earning per Share (EPS)	**5.00**	**0**	**10.00**
DFL = $\frac{\text{EBIT}}{\text{EBT}}$	25,000 / 20,000	15,000 / 10,000	35,000 / 30,000
DFL	**1.25**	**1.50**	**1.16**

Ex-5 The Gujarat Trading Co. Ltd. has the following Balance Sheet and income Statement information.

Balance Sheet as on 31-3-2025

Liabilities	Rs.	Assets	Rs.
Equity Share Capital (Rs.10 per share)	10,00,000	Fixed Assets	14,00,000
10% Debentures	8,00,000	Current Assets	11,00,000
Reserves & Surplus	5,00,000		
Current Liabilities	2,00,000		
	25,00,000		**25,00,000**

Income statement for the year ended 31-03-2025

	Rs.
Sales	4,50,000
Less : Operating Expenses (including Rs.90,000 depreciation)	1,50,000
EBIT	3,00,000
Less : Interest	80,000
EBT	2,20,000
Less : 50% Tax	1,10,000
Net Profit (PAT)	1,10,000

(A) Determine the degree of financial and combined leverages at the current sales level. If all operating expenses, other than depreciation are variable costs.

(B) If total assets remain at the same level but sales increase or decrease by 25%, what will be the earnings per share?

Solution :

(1) Calculation of Leverages : $= \frac{EBIT}{EBT} = \frac{3,00,000}{2,20,000} = 1.36$

(2) Combined Leverage $= \frac{Contribution}{EBT}$

$= \frac{Sales\text{-}Variable\ Cost}{EBT}$

$= \frac{4,50,000\text{-}60,000}{2,20,000}$

$= \frac{3,90,000}{2,20,000} = 1.77$

(B) Increase or Decrease in sales by 25%

Particulars	Increase 25%	Decrease 25%
Sales	5,62,500	3,37,500
Less: Variable Costs	75,000	45,000
Contribution	4,87,500	2,92,500
Less: Fixed Exp. (Depreciation)	90,000	90,000
EBIT	3,97,500	2,02,500
Less : Interest	80,000	80,000
EBT	3,17,500	1,22,500
Less: 50% Tax	1,58,750	61,250
Net profit	1,58,750	61,250
Number of Equity shares	1,00,000	1,00,000
Earning per Share (EPS)	**1.59**	**0.61**

Ex-6 Information regarding Sunrise Co. Limited is as under :

Sales	10,00,000
Variable cost	7,00,000
Fixed cost	2,00,000
10% Debentures	80,000
Equity shares in numbers	1,000
Tax Rate	50 %

Find out Degree of Financial Leverage (Sau. Uni. March '06)

Solution :

Particulars	Rs.
Sales	10,00,000
Less: Variable cost	7,00,000
Contribution	3,00,000
Less: Fixed Cost	2,00,000
EBIT	1,00,000
Less: Interest (80,000 × 10%)	8,000
EBT / PBT	92,000
Less: 50% Tax	46,000
EAT / PAT	46,000

Degree of Financial Leverage :

$$DCL = \frac{EBIT}{EBT} = \frac{1,00,000}{92,000} = \mathbf{1.087}$$

❖ Exercise :

➢ Answer the following questions :

(1) Explain the meaning and definition of financial leverage.

(2) Explain the meaning and definition of combined leverage.

(3) Discuss the advantages and limitations of financial leverage.

(4) Write a note on degree of financial leverage and degree of combined leverage.

(5) Write about indicators of financial leverage.

(6) Write a note on Earning Per Share (EPS) with illustration.

❖ Practical Problems :

Ex-1 A company has a capital structure of 6000 Equity shares of Rs.100 each. The company now wishes to raise additional Rs.6,00,000 for

expansion. The company has four alternative financial plans :

(A) It can issue 6,000 new Equity Shares of Rs.100 each.

(B) It can raise 50% as Equity Shares and 50% as 8% Debentures.

(C) It can raise the entire amount as 8% Debentures.

(D) It can raise as 3000 Equity Shares of Rs.100 each and 10% 3000 Preference Shares at Rs.100 each.

If the company's Profit before interest and taxes are Rs.90,000 and tax rate is 50%, then which alternative is acceptable to maximize earning per share?

[Ans.: EPS = Rs.3.75, Rs.3.67, Rs.3.50, Rs.1.67]

Ex-2 The Financial manager of the Hypothetical Ltd. expects that its EBIT in the Current year would amount to Rs.10,00,000. The firm has 5% bonds aggregating to Rs.40,00,000, while 10% Preference shares amount to Rs.20,00,000. What would be the EPS? Assuming the EBIT being (i) Rs.6,00,000 and ii) Rs.14,00,000. How would the EPS be affected? The firm can be assumed to be in 50% tax bracket. The number of outstanding ordinary shares is 1,00,000.

[Ans. : EPS = Rs.2, Rs.0, Rs.4]

Ex-3 M, N, R and T are 4 companies falling in same financial plans. Following data are extracted from the respective financial statement for the year ended 31-03-2006.

	M	N	R	P
Equity capital (Rs.10 each)	4,00,000	3,00,000	2,00,000	1,00,000
10% Debentures	-	1,00,000	2,00,000	3,00,000
EBIT	90,000	90,000	90,000	90,000

All the companies fall under 50% tax bracket. Answer the following :

1) Calculate EPS for each of the company.
2) Explain why EPS differs despite the identical capital employed and EBIT.

(Sau. Uni. March '07)

[Ans.: EPS = Rs.1.125, Rs.1.333, Rs.1.75, Rs.3.00]

Ex-4 The following is the balance sheet of a company :

Liabilities	Rs.	Assets	Rs.
Share capital Rs.10 per share	1,50,000	Fixed Assets	2,60,000
10% Debentures	1,20,000	Current Assets	70,000
Reserves & Surplus	30,000		
Creditors	30,000		
	3,30,000		3,30,000

During the year 2005'06, company's sale is Rs.9,00,000. Fixed expenses are Rs.1,60,000 while variable cost is 60% of sales. Income tax rate is 50%.

Calculate financial and combined leverage. (Sau. Uni. March '07)

[Ans.: DFL = 1.064, DCL = 1.915]

❖ **Multiple Choice Questions (MCQs) :**

1) Financial leverage is related to :

A. Fixed operating costs B. Fixed financial costs

C. Variable costs D. Selling expenses

Answer : B

2) Degree of financial leverage measures the relationship between :

A. EBIT and EPS B. Sales and EBIT

C. Variable cost and sales D. EPS and DPS

Answer : A

3) Financial leverage arises due to the presence of :

A. Equity capital B. Preference shares only

C. Debt capital D. Retained earnings

Answer : C

4) Trading on equity is possible only when :

A. ROI > Cost of debt B. ROI < Cost of debt

C. ROI = Cost of debt D. None of the above

Answer : A

5) High financial leverage indicates :

A. High financial risk B. Low financial risk

C. High tax rate D. None

Answer : A

6) Financial leverage directly affects :

A. EBIT B. EPS C. Sales D. Gross Profit

Answer : B

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Unit : 7
Capital Structure Theories

7.1 Introduction

In simple terms, capital structure refers to the composition of a firm's long-term capital in terms of debt and equity. Before we explore the concept in detail, it is essential to understand what debt and equity mean.

Debt is the borrowed portion of a firm's capital. It represents funds raised through loans, bonds, or debentures, for which the firm pays a fixed rate of interest and repays the principal amount upon maturity. Equity, on the other hand, represents ownership capital funds raised by issuing shares to the public or private investors. Shareholders are the real owners of the company, and their return, known as dividends, is neither fixed nor guaranteed, both in terms of amount and timing. Likewise, equity capital does not have a redemption commitment.

Now, defining capital structure-it is the proportion of debt and equity (or borrowed and ownership funds) within the company's total capital. Interestingly, the mix between debt and equity can significantly influence a company's earnings. An inappropriate combination may lead to financial instability, whereas a well-balanced one ensures smooth operations. Hence, it is the finance manager's responsibility to determine and maintain an optimal balance between debt and equity to ensure financial efficiency and stability.

The primary objective of every company, regardless of industry, is to generate profits and enhance shareholder value. Therefore, a firm must choose a debt and equity composition that effectively contributes to this goal. Although determining the precise mix that maximizes shareholders' wealth is challenging, companies must

strive to identify an optimal structure that supports this aim.

According to Gerstenberg, "Capital structure refers to the makeup of a firm's capitalization." In other words, it represents the combination of various long-term financing sources such as bonds, debentures, loans, preference shares, and equity shares.

❖ Example :

Total Capital = ₹5,00,000

Sources :

Debentures = ₹3,00,000

Equity Shares = ₹2,00,000

In this case, the capital structure ratio is 3:2, indicating that 60% of the firm's capital is financed through debt, while 40% is financed through equity.

The importance of capital structure lies in its impact on a firm's value. Many financial experts believe that an appropriate blend of debt and equity can increase the firm's overall value. This is because capital structure influences both earnings and the cost of capital. Since long-term funds are primarily invested in fixed assets-the firm's real earning assets-capital structure directly affects profitability and, consequently, firm value.

However, there are two contrasting viewpoints regarding the relevance of capital structure. One school of thought argues that the composition of debt and equity significantly affects a firm's value and cost of capital. A well-designed capital structure can reduce the overall cost of funds and enhance the company's market value. Conversely, the other viewpoint suggests that the capital mix has no real impact on shareholders' wealth, implying that the capital structure decision is irrelevant and that an "optimum" structure does not exist.

Another reason for analyzing capital structure lies in the economic environment. Factors such as inflation, recessions, or changes in interest rates directly affect a firm's financial performance. During such periods, an efficient and well-balanced capital structure can protect the company from adverse effects on profitability and shareholder wealth. For instance, inflation and recession influence interest rates, which alter the cost of debt and, in turn, the firm's overall cost of capital. Therefore, maintaining an effective capital structure is crucial for the firm's stability and long-term success.

7.2 Factors affecting Capital Structure :

1. Size of the Company :

The size and scale of a company's operations play a vital role in determining how it raises funds. Smaller firms are generally perceived as riskier by investors and financial institutions; hence, they often depend more on owners' capital. As a firm grows and establishes itself in the market, its credibility improves, and it becomes eligible to access a wider range of long-term financing sources. Larger companies are viewed as more stable and less risky, allowing them to attract funds through multiple avenues at better terms.

2. Age of the Firm :

The age of a business reflects its experience and reputation in the market. Older and well-established firms generally enjoy higher goodwill and credibility, which makes it easier for them to raise funds, especially debt. According to Mahmoud Ibrahim (2017), the longer a company has been in existence, the stronger its reputation and the higher its creditworthiness in capital markets.

3. Nature of Industry :

The nature of the industry in which a company operates significantly affects its capital structure decisions. Firms in industries with fluctuating or seasonal sales (e.g., refrigerators, televisions, or winter clothing) should rely more on equity financing, as their uncertain cash flows make it difficult to meet regular interest payments. Conversely, firms producing essential goods such as dairy products or agricultural items experience stable demand and can therefore afford to use debt financing more comfortably.

4. Control Considerations :

Control is an important long-term factor in financing decisions. Existing shareholders are often reluctant to issue additional equity shares because it dilutes their ownership and voting power. Issuing new shares increases the number of shareholders, thereby reducing existing owners' control over management decisions. Raising funds through debt, however, does not affect ownership control, since creditors do not have voting rights or influence over company operations.

5. Regularity of Cash Flows :

The stability of a company's cash inflows determines its ability to meet fixed financial obligations. If funds are required to purchase productive fixed assets

such as machinery or equipment that directly generate revenue, debt financing is appropriate since these assets ensure regular cash inflows for paying interest. However, if funds are used for projects that do not immediately generate income, debt financing becomes risky, as irregular cash flows may make it difficult to service interest payments.

6. Cost of Debt :

Every financing option involves a cost, including retained earnings (which carry an opportunity cost). Firms should carefully evaluate the cost of each source, particularly the cost of debt. When debt is cheaper than equity, companies may prefer borrowing since it offers two benefits: interest payments are tax-deductible, and debt generally lowers the firm's overall cost of capital. However, this advantage must be weighed against the associated risk of leverage.

7. Taxation :

Tax considerations significantly influence capital structure decisions. Interest paid on debt, such as loans, bonds, or debentures, is treated as a tax-deductible expense under the Income Tax Act, reducing the company's taxable income. In contrast, dividends paid on equity shares are not deductible. Hence, debt financing provides a "tax shield" benefit. Although taxation is not the sole deciding factor, it plays a crucial role in determining the optimal financing mix.

8. Trading on Equity :

"Trading on Equity" refers to the practice of using borrowed funds to increase the return available to equity shareholders. If a company earns a return on investment higher than the cost of debt, shareholders gain additional earnings even though their contribution to total capital is smaller. This leverage effect can enhance earnings per share, but it only works when the rate of return exceeds the cost of borrowing.

9. Market Sentiments :

Investor sentiment and market perception often influence financing decisions. If investors are risk-averse and prefer safety, companies may choose to issue debentures or bonds that provide fixed interest and assured repayment. Conversely, when investors are optimistic and willing to take moderate risks for potentially higher returns, companies may issue equity shares to raise funds. Thus, market mood and investor confidence can significantly affect the firm's choice of financing instruments.

10. Government Policy :

Government policies-especially monetary and fiscal measures-play a major role in shaping financing strategies. For instance, if the Reserve Bank of India (RBI) adopts a cheap money policy, loans become less expensive, encouraging firms to increase the debt component in their capital structure. Conversely, a dear money policy that raises interest rates discourages borrowing. Fiscal policy also impacts financing decisions; for example, a reduction in capital gains tax may attract investors toward equity, whereas higher tax rates can reduce interest in the stock market.

7.3 Capital Structure Theories :

7.3.1 Net Income (NI) Approach :

The Net Income Approach, proposed by Durand, asserts that the capital structure of a firm has a direct and significant impact on its overall valuation and cost of capital. According to this theory, the way a company chooses to finance its operations-whether through debt or equity-can influence its market value.

In simple terms, the NI approach argues that an increase in the proportion of debt in the capital structure, as long as it remains within reasonable limits, will reduce the overall cost of capital and increase the total value of the firm. This happens because debt is generally a cheaper source of finance compared to equity. Lenders expect a fixed rate of return, while equity shareholders demand a higher rate due to greater risk exposure. Therefore, by substituting expensive equity with relatively cheaper debt, a firm can lower its weighted average cost of capital (WACC).

The NI approach assumes that the cost of debt (Kd) and the cost of equity (Ke) remain constant with changes in the financial leverage (the ratio of debt to equity). It also assumes that there are no taxes and no increase in financial risk perceived by shareholders with higher leverage. As a result, when a company increases the use of debt, the overall cost of capital decreases, and the total market value of the firm ($V = D + E$) rises.

The theory suggests that the optimal capital structure is achieved at the point where the cost of capital is minimized and the value of the firm is maximized. Managers should, therefore, should increase the proportion of debt until this optimal level is reached.

For example, if a firm replaces a portion of its equity with debt, the total earnings available for equity shareholders will rise because of lower interest costs. This increases the market price of equity shares, leading to a higher firm valuation.

However, critics argue that this theory is overly simplistic. In reality, the cost of equity rises with higher debt due to the increased financial risk borne by shareholders. Moreover, practical factors like taxation, bankruptcy risk, and investor perception play a major role in determining the cost of capital.Despite these limitations, the NI approach remains important because it highlights that capital structure decisions can influence the value of a firm, especially when debt is used efficiently to lower financing costs.

7.3.2. Net Operating Income (NOI) Approach :

The Net Operating Income Approach, also developed by Durand, presents an entirely opposite view to the Net Income Approach. It argues that capital structure is irrelevant to the valuation of the firm. In other words, changing the mix of debt and equity has no effect on the overall cost of capital or the total market value of the firm.

The NOI approach assumes that the overall capitalization rate (Ko)-the weighted average cost of capital-remains constant regardless of the level of financial leverage. Even if a firm increases its debt proportion, the cost of equity (Ke) rises proportionately to offset the benefit of cheaper debt. This adjustment occurs because as debt increases, the financial risk to shareholders also rises. Equity investors demand a higher return to compensate for the increased risk of insolvency or volatility in earnings.

Therefore, any potential advantage gained from using low-cost debt financing is exactly cancelled out by the higher cost of equity, keeping the total cost of capital unchanged. Consequently, the market value of the firm (V)-which is the sum of the market value of debt (D) and equity (E)-remains constant at all levels of leverage.

According to the NOI approach, the value of the firm is determined solely by its net operating income (EBIT) and the overall cost of capital, not by how it is financed. The firm's financing pattern-whether it uses more debt or equity-has no influence on its market worth.

This theory can be mathematically expressed as :

V = EBIT / Ko

Where,

EBIT = Earnings before interest and tax

Ko = Constant

The NOI approach forms the basis of the irrelevance theory of capital structure, later expanded by Modigliani and Miller. Although it is theoretically elegant, it assumes away real-world complexities like taxes, bankruptcy costs, and investor behavior. In practice, higher leverage usually increases financial risk, which can affect both investor confidence and the firm's market value.

Nonetheless, the NOI approach plays a crucial role in understanding that the firm's value depends more on its earning capacity and business risk rather than on how it is financed.

7.3.3. Modigliani and Miller (MM) Hypothesis :

The Modigliani and Miller (MM) Hypothesis, introduced by Franco Modigliani and Merton Miller in 1958, is one of the most influential theories in corporate finance. It builds on the ideas of the NOI approach and provides a more formal, mathematical explanation of the relationship between capital structure and firm value.

In their Proposition I (1958), M&M argued that under perfect market conditions, the value of a firm is independent of its capital structure. This means that whether a firm is financed entirely by equity, entirely by debt, or by a mix of both, its total market value remains the same. Their conclusion was based on several key assumptions, including :

- ⇨ Perfect capital markets (no transaction costs, no taxes, and free flow of information)
- ⇨ Investors and firms can borrow and lend at the same rate
- ⇨ There are no bankruptcy or financial distress costs
- ⇨ Investors act rationally and have homogeneous expectations

Under these conditions, the value of the firm is determined solely by its earning power and the risk of its underlying assets-not by its financing mix. Investors can replicate any capital structure on their

own by "homemade leverage", meaning that they can borrow or lend personally to achieve the same returns that the firm offers through its leverage.

However, in 1963, Modigliani and Miller revised their theory by incorporating corporate taxes. In this Proposition II, they acknowledged that interest payments on debt are tax-deductible, which creates a tax shield. As a result, a levered firm (using debt) has a higher value than an unlevered firm because of the savings from tax deductions.

Mathematically,

$VL = VU + (Tc \times D)$

Where,

(VL) = value of levered firm,

(VU) = value of unlevered firm,

(Tc) = corporate tax rate, and

(D) = amount of debt.

However, as debt increases, the cost of equity also rises because shareholders perceive higher financial risk. Thus, while the cost of debt remains low due to tax benefits, the overall cost of capital tends to stabilize as increased risk offsets the benefits.

In essence, M&M's theory shows that, in a world with taxes, an optimal capital structure exists in which the benefits of tax shields are balanced against the costs of financial distress. Despite its idealized assumptions, this hypothesis remains a foundation of modern financial theory and is the starting point for all later refinements, such as the Trade-Off and Pecking Order theories.

7.3.4. Trade-Off Theory :

The Trade-Off Theory of Capital Structure, developed through the works of Kraus and Litzenberger (1973) and later formalized by Jensen and Meckling (1976), provides a more realistic explanation of how firms determine their financing mix. Unlike earlier theories that viewed capital structure as either entirely relevant or irrelevant, this theory recognizes the balance between the benefits and costs of using debt.

According to the Trade-Off Theory, firms aim to achieve an optimal capital structure where the marginal benefit of debt equals its marginal cost. The primary benefit of using debt arises from the tax shield-since interest payments on debt are tax-deductible, they reduce the firm's taxable income and thus enhance value. However, excessive use of debt introduces financial distress costs (such as bankruptcy risk, loss of reputation, and higher borrowing costs).

- Thus, firms face a trade-off :
  - ⇨ On one hand, increasing debt lowers taxes and boosts firm value.
  - ⇨ On the other hand, too much debt increases the risk of default and raises the cost of capital.
  - ⇨ The optimal point is achieved when these two effects are balanced, minimizing the overall cost of capital and maximizing the firm's value.
  - ⇨ Jensen and Meckling (1976) further added an agency perspective, arguing that managers may not always act in the best interests of shareholders. Debt can act as a disciplinary tool, forcing managers to generate sufficient cash flows to meet fixed obligations, thereby reducing the agency problem.
- Later refinements introduced two versions of this theory :
  - ⇨ Static Trade-Off Theory (Bradley et al., 1984): Suggests that firms target a specific debt ratio based on a one-time calculation of tax benefits versus bankruptcy costs.
  - ⇨ Dynamic Trade-Off Theory (Kane et al., 1984): Recognizes that firms adjust their capital structure gradually over time, considering market conditions, profits, and growth opportunities.

In practice, the Trade-Off Theory explains why most firms use moderate levels of debt-enough to gain tax advantages but not so much as to risk financial instability.

Ultimately, this theory provides a more realistic and balanced framework for decision-making, acknowledging that capital

structure decisions involve both benefits and risks, and firms must carefully weigh these factors to achieve financial stability and maximize shareholder wealth.

❖ Exercise :

➢ Multiple Choice Questions :

1. According to the Net Income (NI) Approach, what happens when a firm increases the proportion of debt in its capital structure?

   A) The overall cost of capital increases and firm value decreases

   B) The overall cost of capital remains constant and firm value remains unchanged

   C) The overall cost of capital decreases and firm value increases

   D) Both cost of debt and cost of equity decrease

   Correct Answer : C) The overall cost of capital decreases and firm value increases

   ❖ **Explanation :**

   The NI Approach suggests that using more low-cost debt financing reduces the firm's weighted average cost of capital (WACC), thereby increasing the total value of the firm.

2. Which of the following best represents the main assumption of the Net Operating Income (NOI) Approach?

   A) Cost of equity and cost of debt both remain constant with changes in leverage

   B) Overall cost of capital changes with capital structure

   C) Cost of equity rises with leverage, keeping overall cost of capital constant

   D) Debt is always risk-free

   Correct Answer : C) Cost of equity rises with leverage, keeping overall cost of capital constant

   ❖ **Explanation :**

   The NOI approach states that any increase in cheap debt is offset by an equal rise in the cost of equity, making the overall cost of capital and firm value constant regardless of the debt-equity ratio.

3. What was the key conclusion of Modigliani and Miller's (1958) Proposition I under perfect market conditions?

   A) The value of a firm depends on its debt-equity ratio

   B) Firms should maximize the use of equity financing

   C) The value of the firm is independent of its capital structure

   D) The cost of capital declines indefinitely with higher leverage

   Correct Answer : C) The value of the firm is independent of its capital structure

   ❖ **Explanation :**

   Under M&M Proposition I, in a world with no taxes or market imperfections, capital structure decisions are irrelevant - the firm's value depends only on its earning power and business risk.

4. What is the major modification Modigliani and Miller made in their 1963 Proposition II?

   A) They introduced corporate taxes and the concept of tax shield on debt

   B) They assumed all investors are irrational

   C) They concluded equity financing is always superior

   D) They introduced transaction costs and market imperfections

   Correct Answer: A) They introduced corporate taxes and the concept of tax shield on debt

   ❖ **Explanation :**

   In 1963, M&M revised their theory by including taxes. They showed that interest payments on debt create a tax shield, making levered firms more valuable than unlevered ones.

5. According to the Trade-Off Theory, the optimal capital structure is achieved when :

   A) The firm uses no debt at all

   B) The marginal tax benefit equals the marginal cost of financial distress

C) The cost of debt equals the cost of equity

D) The firm's market value is independent of leverage

Correct Answer: B) The marginal tax benefit equals the marginal cost of financial distress

6. Which of the following statements best describes the relationship between the size of a company and its capital structure?

A) Smaller firms are considered less risky and can easily access debt financing.

B) Larger firms face more difficulty in raising funds from the market.

C) Smaller firms often depend on owners' funds, while larger firms can access multiple long-term financing sources.

D) The size of a company has no influence on its financing decisions.

Correct Answer: C) Smaller firms often depend on owners' funds, while larger firms can access multiple long-term financing sources.

7. According to the determinant 'Nature of Industry', companies with fluctuating sales should prefer :

A) Debt financing, as it ensures regular interest payments.

B) Equity financing, since it avoids fixed financial obligations.

C) Preference shares, because they guarantee fixed dividends.

D) Short-term loans, as they are easier to repay.

Correct Answer: B) Equity financing, since it avoids fixed financial obligations.

8. Which of the following best explains the concept of "Trading on Equity"?

A) Using equity funds to buy government securities.

B) Increasing shareholders' returns by using borrowed funds profitably.

C) Reducing the number of shareholders to increase control.

D) Financing all operations solely through equity capital.

Correct Answer: B) Increasing shareholders' returns by using borrowed funds profitably.

9. The advantage of debt financing in relation to taxation is that :

   A) Interest payments on debt are not deductible from taxable income.

   B) Dividends paid to shareholders reduce taxable income.

   C) Interest payments on debt are tax-deductible, reducing the firm's tax liability.

   D) Both interest and dividend payments are tax-deductible.

   Correct Answer: C) Interest payments on debt are tax-deductible, reducing the firm's tax liability.

10. Which of the following government actions is most likely to encourage companies to increase debt financing?

    A) Implementation of a dear money policy by the RBI.

    B) Increase in capital gains tax rates.

    C) Adoption of a cheap money policy by the RBI.

    D) Reduction in corporate tax benefits on interest payments.

    Correct Answer: C) Adoption of a cheap money policy by the RBI.

➢ **Descriptive Questions :**

1. Explain how the size and age of a company influence its capital structure decisions.
2. Discuss the role of industry characteristics and regularity of cash flows in determining an appropriate mix of debt and equity.
3. Describe the impact of taxation and cost of debt on a company's choice of financing sources.
4. What is "Trading on Equity"? Explain the conditions under which it benefits equity shareholders.
5. Analyze how government policies and market sentiments affect the capital structure decisions of business firms.
6. Explain the Net Income (NI) Approach to capital structure. How does it establish the relationship between leverage, cost of capital, and the value of the firm?

7. Discuss the assumptions and implications of the Net Operating Income (NOI) Approach. Why is capital structure considered irrelevant under this theory?
8. Describe Modigliani and Miller's (MM) Hypothesis on capital structure. How did the inclusion of taxes in their 1963 revision alter their original conclusion?
9. Examine the key concepts of the Trade-Off Theory of capital structure. How does this theory balance the benefits of debt financing against the costs of financial distress?
10. Compare and contrast the Net Income Approach, Net Operating Income Approach, Modigliani-Miller Hypothesis, and the Trade-Off Theory in terms of their assumptions and practical relevance.

➢ **Fill in the Blanks :**

1. Smaller firms are generally considered _____ by investors and therefore rely more on owners' funds than on borrowed capital.

   Answer : risky

2. The longer a firm has been in existence, the higher is its _____ in the market, making it easier to raise debt.

   Answer : goodwill

3. Industries with seasonal or unstable sales should prefer _____ financing instead of debt financing.

   Answer : equity

4. The use of borrowed funds to increase the return available to equity shareholders is known as _____.

   Answer : Trading on Equity

5. Interest paid on debt is considered a _____ expense for tax purposes, reducing the overall tax liability of the firm.

   Answer : tax-deductible

➢ **True or False :**

1. Larger companies are generally perceived as more stable and can raise funds more easily from various sources.

   Answer : True

2. Firms operating in industries with stable and regular demand should avoid using debt in their capital structure.

   Answer : False

   (Such firms can safely use more debt because their cash flows are stable.)

3. Raising funds through debt affects the ownership control of existing shareholders.

   Answer : False

   (Debt holders do not have voting rights, so ownership control remains unaffected.)

4. Interest on borrowed funds is tax-deductible, whereas dividends on equity shares are not.

   Answer : True

5. A dear money policy by the Reserve Bank of India encourages firms to increase debt in their capital structure.

   Answer : False

   (A dear money policy makes borrowing costlier, discouraging the use of debt.)

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Unit : 8
Capital budgeting

8.1 Introduction

Capital budgeting is the process in which decision regarding the investment of the firm is based on evaluation and appraisal. Here investment indicates long term investment in projects, assets, or any other venture. Capital Budgeting is the art of finding assets that are worth more than they cost to achieve a predetermined goal i.e . maximization of shareholder wealth and profit Hence it is process under which capital decision of the company is taken by the management. The existence and success of any organization is associated with how efficiently they employ their fund which will provide them earning over the cost of capital. It includes investment in new machinery expansion projects, launching new products, acquiring new business, or setting up new plants.

8.2 Features of Capital Budgeting :

1. **It is associated with huge investment :** Projects require significant investment compared to routine expenses.
2. **Deals with long term projects or capital investment :** Decisions impact the firm for several years into the future.
3. **Irreversibility :** Once a project is undertaken, reversing the decision is often costly or impossible. Hence lots of evaluation and analysis is needed before such investment.
4. **Risk and Uncertainty :** As capital budgeting is associated with a larger period, it increases the exposure to risks such as market changes, inflation, and technological shifts.

5. **Evaluation of Cash Flows :** In this decision focus is on estimating cash inflows and outflows rather than accounting profits.

6. **Strategic Importance :** Capital budgeting decisions shape the firm's growth, profitability, and competitiveness in the market.

8.3 Objectives of Capital Budgeting :

- ⇨ To allocate scarce resources effectively among competing projects and achieve the optimum result.
- ⇨ To evaluate investment opportunities in terms of profitability and risk.
- ⇨ To achieve long-term growth and maximize shareholder value.
- ⇨ To maintain an optimal balance between risk and return.
- ⇨ To ensure efficient replacement, modernization, or expansion of assets.

8.4 Process of Capital Budgeting

Capital budgeting is a systematic procedure that generally involves the following steps :

1. Identification of Investment Opportunities

The first step for a capital investment decision is to assess the market potential. Management identifies potential projects, e.g., entering new markets, purchasing new machinery, or adopting new technology.

2. Screening of Projects

The next step is to accept the suitable project only. Hence Preliminary assessment ensures only feasible projects, aligned with corporate strategy, are taken forward.

3. Estimation of Cash Flows

Forecasting the expected costs (outflows) and returns (inflows) over the project's life. It is done either with the help of discounted cash flow method or traditional method.

4. Evaluation of Alternatives

Now next step is the evaluation of the project. Hence, we apply various quantitative techniques like NPV, IRR, Payback Period, etc., to judge profitability and feasibility. Accordingly ranking of the projects are assigned.

5. Selection of the Project

Now next step is to choose the project with more profitability. Now project with high ranking will be selected for the investment. Suppose project to be

selected on the basis of payback period then project with shortest recovery period will be selected. However, if it is to be selected on the basis of NPV method then project with higher NPV will be selected for investment.

6. Implementation

Now selected project is to be implemented. Hence, investment in the project is made by allocating the resources.

7. Performance Review

Now next step is the periodic review of the project at regular interval. Accordingly, Comparisons is made with actual results to improve future decision-making.

8.5 Techniques of Capital Budgeting

Capital budgeting techniques can be classified into **traditional methods** and **discounted cash flow (DCF) methods.**

1. Traditional (Non-Discounted) Methods :

(I) Payback period method: - Under this method, we used to calculate the period within which initial investment or capital outlay can be recovered. It is also known as recovery period. Accordingly, investment with smallest payback period is preferred.

- **Example :** Initial Investment = Rs. 2,00,000 in a project. Expected future cash inflows during the first four years are Rs. 40,000, Rs. 80,000, Rs. 1,20,000, Rs. 1,40, 000.Calculate the Pay Back period.

- **Solutions : -** The cash inflow and cumulative cash flow are as follows: -

Year	Cash inflow	Cumulative cash inflow
01	40,000	40,000
02	80,000	1,20,000
03	1,20,000	2,40,000
04	1,40,000	3,80,000

From the above table it is observed that initial investment or expenditure of Rs 2,00,000 can be recovered between 2 to 3rd year.

Hence payback period = 2 year + Balance of initial investment to be recovered/Cash inflow during the year ×12

2 year + Initial investment or expenditure - Cash inflow at the end of the year /Cash inflow of the 3rd year ×12

2 + 2,00,000-1,20,000/1,20,000 × 12= 2+ 80,000/1,20,000 × 12= 2 years 8 months.

❖ **Advantages of the method :-**

(i) This method is the most appropriate method in case of uncertainty.

(ii) Ranking as per the lowest recovery period is always better for solvency decision.

(iii) It is easy to calculate

❖ Disadvantage: It ignores the concept of the time value of money.

(II) Accounting rate of return : Under this method we measure profitability by comparing average accounting profit to the initial investment.

Hence accounting rate of return = Average Annual Profit After Tax / Average or Initial Investment x 100.

❖ **Example :** Suppose initial investment = 100000

Scrap value at the end of 5 year = 40,000

Average annual accounting profit = 18000 and we have to calculate ARR.

❖ **Solution :** Average investment= 1,00,000 + 40,000/2 = 70,000

Accounting rate of return= 18,000/70,000 ×100 = 25.71%

In this method base can be taken as average investment or initial investment.

❖ **Advantages : -**

(i) This method considers the profit which is easier to calculate

(ii) In this method quick decision can be taken in case of multiple projects.

❖ **Disadvantage : -**

(i) This method doesn't consider the time value of money

(ii) it is difficult to implement for short term period

2. Discounted Cash Flow (DCF) Methods :

Unlike traditional method this method considered the time value of money. It is based on simple concept that value of money today is better than value to be received in future. Hence suppose we got Rs 1000 today is always greater than if it is to be received after one year. Hence future earning is always subject to inflation risk element and present forgoing value of rate of interest. Hence future cash flow is to be discounted with the suitable rate to cover the risk elements, loss of interest and inflation. Accordingly in this method we

used to discount the future cash flow with certain predetermine rates. There are the following method on the basis of discounted cash flow concept.

(I) Net Present Value (NPV) : Under this method we deduct the outflow or expenditure with present value of future cash inflow. Hence in other words, Net Present value of the investment = cash inflows minus present value of outflows, discounted at the cost of capital.

As we know for calculation of amount under compound interest $A = P(1+r/100)^n$

In the same manner present value of cash flow after deducting the initial investment i.e $NPV = -C_o + C_1/(1+r)^1 + C_2/(1+r)^2 + \ldots + C_n/(1+r)^n$

In other word $NPV = -C_o + \Sigma [C_t / (1 + r)^t]$, $t = 1$ to n

- Decision criteria under NPV method
  - (i) Accept project if NPV > 0 (When present value of future cash flow is more)
  - (ii) Reject Project if NPV< 0 (When present value of future cash flow is less)
  - (iv) Accept or reject if NPV= 0
- Advantages : -
  - (i) As it considers the time value of money hence it is more scientific.
  - (ii) It considers total cash flow during the lift period of asset.
  - (iii) It is used for mutually exclusive project also.
- Disadvantages : -
  - (i) It is difficult to estimate accurate discount rate
  - (ii) In case of disparity in economic life of the asset it is not successful.
- Example : A Limited, has under review a project involving the outlay of Rs. 50,000 and expected to yield the following net cash savings in current terms :

Year	1	2	3	4
Amount of Cash inflow(in Rs)	10,000	20,000	30,000	40,000

The company's cost of capital, incorporating a requirement for growth in dividends to keep pace with cost inflation is 20%, and this is used for the purpose of investment appraisal. On the basis of above

information please give your recommendation whether to accept or reject the investment proposal by using NPV method.

(Discounting figures at 20% are 0.833, 0.694, 0.579 and 0.482 respectively for year 1 to year 4.)

❖ Solution : -

Year	Cash inflow	Discount factor	Present value
01	10,000	0.833	8330
02	20,000	0.694	13880
03	30,000	0.579	17370
04	40,000	0.482	19280
		P.V. of cash inflow	58860
		Initial investment (outflow)	50000
		Net Present value	8860

Hence this project should be accepted by the management as it is providing positive Net present Value.

(II) Internal Rate of Return (IRR) : It is the rate of return which equates the cash inflow with the cash outflow. Hence in this situation as present value of cash inflow equals to the cash outflow hence NPV equal to Zero. In other word The Internal Rate of Return (IRR) is the discount rate that makes the Net Present Value (NPV) of all future cash flows (inflows and outflows) equal to zero.

Discount rate at which NPV = 0.

❖ Formula for IRR which makes NPV = 0 = $-C_o + \Sigma [C_t / (1 + IRR)^t]$, t = 1 to n

❖ Where :

Ct = Cash flow at time (C_o is usually the initial investment and negative)

t = Time period (0, 1, 2, …, n)

IRR = Internal Rate of Return to be calculated

n = Number of periods

To calculate the internal rate of return interpolation method between lower and higher rate is used.

❖ Example : For project A suppose the project cost is Rs 1,10,000 and project cash inflow are as follows : -

Year	1	2	3	4
Cash inflow in Rs	60,000	20,000	10,000	50,000

Now we have to calculate internal rate of return.

❖ Solution :- In this method we will use the estimate for internal rate of return. Now the average cash inflow is Rs 35,000 (1,40,000/4) and initial cash outflow is Rs 1,10,000. Accordingly factor for the period is = 1,10,000/35,000= 3.14

Now the approximate value of annuity for Rs 1 with 3.14 is 10% for 4 years. Hene interpolation method with 10% to 12% will be used to get the internal rate of return.

Year	Cash inflow	PV @ 10%	Cash inflow	PV@12%	Cash inflow
1	60,000	0.909	54,540	0.893	53,580
2	20,000	0.826	16,520	0.797	15,940
3	10,000	0.751	7,510	0.712	7,120
4	50,000	0.683	34,150	0.636	31,800
			1,12,720		1,08,440
	Initial investment		(1,10,000)		(1,10,000)
	NPV		2,720		(1,560)
	Difference in NPV for 2%		1,560		

Accordingly, IRR = 10% + NPV at 10% / Total difference × difference in rate

10%+ 2720/4280 × 2 = 10% + 1.27 = 11.27% It is known as forward method as we are adding with the lower value by using interpolation method.

It can also be calculated through backward method as follows:-

12%- NPV at 12%/ Total difference x difference in rate

12- (1560)/4280 × 2%= 12-0.73= 11.27%

❖ **Decision criteria under this method :**

(i) Accept project if IRR > cost of capital.

(ii) Reject the project of IRR< Cost of capital

(iii) IRR= Cost of Capital May be accepted

❖ **Advantages : -**

(i) It is also based on the time value of money

(ii) It assumes that amount is reinvestment in the business which is superior concept to the NPV

❖ **Disadvantages : -**

(i) There is a possibility of multiple IRR in case of irregular cash flow.

(ii) In case of two projects with different pattern of inflow or outflow, it is difficult to apply this method.

(III) Meaning of Modified Internal Rate of Return (MIRR) : Internal rate of return is calculated for regular cash flow. However, in case of irregular cash flow it provides multiple IRR and creates confusion. To solve this problem modified internal rate method is used. The Modified Internal Rate of Return (MIRR) is an improved version of the Internal Rate of Return (IRR). While IRR assumes that all intermediate cash inflows are reinvested at the project's IRR, MIRR assumes reinvestment at the project's cost of capital (or a specified reinvestment rate), which is more realistic. Hence MIRR uses cost of capital for reinvestment and financing cost for discounting outflows, giving a single, realistic rate of return.

Formula for MIRR

$MIRR = (FV \text{ of inflows} / PV \text{ of outflows})^{(1/n)} - 1$

❖ Where :

FV of inflows = Future value of all positive cash inflows compounded at the reinvestment rate.

PV of outflows = Present value of all negative cash outflows discounted at the finance rate.

n = Number of years.

❖ **Disadvantages : -**

➢ **Steps to Calculate MIRR**

1. Identify all cash flows (outflows and inflows) for each period.
2. Calculate the PV of all outflows at the finance rate.
3. Calculate the FV of all inflows at the reinvestment rate.
4. Apply the MIRR formula to find the rate that equates PV of outflows and FV of inflows.

❖ **Example of MIRR Calculation: -** The cash flow of the project are as follows :-

Year	Cash flow
0	-10000
1	2000
2	-1000
3	4000
4	8000

Finance rate (cost of capital) : 8%, Reinvestment rate: 10% Calculate MIRR.

❖ Step 1 : Find the Present Value (PV) of All Negative Cash Flows

We discount negative cash flows back to Year 0 using the finance rate (8%).

PV of outflows = $10,000 + 1,000 / (1+0.08)^2 = 10,000 + 857.34 = 10,857.34$

❖ Step 2 : Find the Future Value (FV) of All Positive Cash Flows

We compound positive cash flows forward to the final year (Year 5) using the reinvestment rate (10%). FV of inflows = $2,000(1+0.10)4 + 4,000(1+0.10)^2 + 8,000$

FV of inflows = 2,928.2 + 4,840 + 8,000 = 15,768.2

❖ Step 3 : Compute the MIRR

MIRR = (FV of inflows / PV of outflows) $^{(1/n)}$ - 1, where n = 5 years

MIRR = (15,768.2 / 10,857.34) $^{(1/5)}$) - 1 = 7.76%

Answer : MIRR = 7.76%

❖ **Difference between IRR and MIRR :**

Basis	Internal rate of return	Modified internal return
Nature of cash inflow	It works with regular cash inflow only. In case of irregular cash inflow, it gives multiple IRR.	It can work with all types of cash inflow whether regular or irregular.
Reinvestment assumption	At IRR	At Cost of Capital
Multiple IRR	In case of irregular cash flow, we got multiple IRR	There will be single IRR for any kind of cash inflow.
Interpretation or usefulness	Less reliable and sometimes confusing.	More reliable.

❖ **Benefits of MIRR :-** The Modified Internal Rate of Return (MIRR) refines the traditional IRR by using realistic assumptions regarding reinvestment and financing. It provides a better measure of project profitability and is widely used in capital budgeting decisions where accuracy is important.

NPV vs IRR :- If we analyse the NPV and IRR; both are used extensively for selection of the project. Under NPV **amount** is the decision criteria whereas in IRR rate is decision criteria. Hence In case of mutually exclusive projects NPV is preferred over IRR. NPV is generally considered superior because it directly measures

the increase in firm value, has a single reliable decision rule, and avoids reinvestment assumption issues and multiple-IRR problems. It directly measures the increase in shareholder wealth, which is the primary goal of financial management.

❖ **Conclusion :-** NPV is superior to IRR for capital budgeting decisions because it :

1. It accurately measures value addition.
2. In case of irregular cash inflow it Avoids multiple IRR issues,
3. Makes realistic reinvestment assumptions, and
4. Provides more consistent results for mutually exclusive projects.

(IV) Profitability Index (PI) : Under this method we calculate the ratio of present value of cash inflow with cash outflow. If the ratio is more than 1 then the capital budgeting decision is profitable.

Decision criteria under this method

(i) Accept if PI > 1.

(ii) Reject if PI < 1

❖ **Example :** Initial investment Rs. 40 lacs. Expected annual cash flows Rs. 12 lacs for 10 years. The cost of Capital @ 15%. Calculate Profitability Index.

As we know commuted value of 15% for 10 year = 5.019

Cash inflow = 5.019x 12,00,000= 60,22,800

Profitability index= 60,22,800/40,00,000 = 1.50

As the value is more than 1 hence project need to be accepted.

Suppose initial investment of the project is 70 lakh. Then profitability index = 60,22,800/70,00,000= 0.86 which is less than 1. Hence project need to be rejected.

❖ Advantage : -

(i) This method considers the time value of money and present value of future cash flow is calculated.

(ii) It can be ranked as per the profitability in a simple manner

(iii) It can be used for capital rationing situation also.

(V) Payback period by using discounted cash flow technique:- Payback period method can be used with discounted cash flow approach.

❖ **Example:-** Suppose company A has to make investment of Rs 1,00,000 lakh and cash inflow is likely to generate at cost of capital of 10%. Calculate the payback period

Year	1	2	3	4	5
Cash flow	30,000	40,000	50,000	20,000	30,000

❖ **Solution :-** The cash inflow after considering the 10% discounted rate are as follows :-

Year	Cash inflow	PV @10%	Discounted cash flow	Cumulative discounted cash flow
01	30,000	0.909	27,270	27,270
02	40,000	0.826	33,040	60,310
03	50,000	0.751	37,550	97,860
04	20,000	0.683	13,660	1,11,520
05	30,000	0.621	18,630	1,30,150

Initial Investment = **₹ 100,000**

At the end of **Year 3**, cumulative = **₹ 97,860** (not yet recovered)

Where At the end of **Year 4,** cumulative = **₹1,11,520** (exceeds ₹1,00,000 → investment recovered during Year 4)

Amount still needed after Year 3:

100,000 - 97,860 = 2,140

Discounted inflow in Year 4 = 13,660

Fraction of Year 4 required:

2,140/13,660 = 0.16 year

Hence payback period will be 3.16 year or 3 year 2 months.

8.6 Factors Affecting Capital Budgeting Decisions :

Capital budgeting techniques can be classified into **traditional methods** and **discounted cash flow (DCF) methods.**

1. **Cost of Capital :** Cost of the capital is the key indicator for Capital budgeting decision. The investment must cover the profit above the cost of capital for a sustainable business. Hence Projects must yield returns above the cost of funds.
2. **Cash Flow Projections :** The estimation if cash inflow and outflow is very important for capital budgeting decision. Accuracy of inflows and outflows forecast impacts decisions.

3. **Risk and Uncertainty :** There are a number of factors which may cause risk and uncertainty like Market demand, technology, regulatory environment etc.

4. **Availability of Funds :** There may be situation of capital rationing. Hence it may possible that we have to leave certain project due to shortage of fund or financial constraints.

5. **Strategic Considerations :** Alignment with organizational goals and competitive advantage is very important. Strategy is set for long period of time hence capital budget must align with it as it is irreversible.

6. **Taxation and Legal Environment :** While taking capital budgeting decision Depreciation, tax benefits, and government incentive are to be considered. In asset acquisition lease or other method may be adopted to reduce the finance risk.

8.7 Importance of Capital Budgeting :

- **Wealth Maximization :** Capital budgeting decision enhances the earing capability of the firm. It ensures that basic object of the finance is achieved by maximising the shareholders' value.
- **Long-Term Growth :** It is aligned with the strategic goal of the firm. Hence, it determines the future direction and competitiveness of the firm.
- **Efficient Resource Allocation :** Capital budgeting ensures optimal allocation of resources to maximise the profit. Hence, under-utilised resources are also applied in a proper way to enhance the efficiency.
- **Risk Management :** It also ensures risk management of the firm as risk sensitives factor are considered while calculating the future cash flow.
- **Operational Efficiency :** It informs the management regarding decisions on replacement and modernization of equipment. Hence, it increases the operational efficiency of the business.
- **It encourages innovation and growth :-** Capital budgeting ensures firms can invest in modernization, research, and new technologies. This promotes innovation, efficiency, and expansion of business operations.
- **Ensures Financial discipline :** Capital budgeting imposes financial discipline on the management, as every investment proposal must be analyzed and justified before approval. This leads to better control and accountability in financial management.

❖ **Limitations of Capital Budgeting :**

- **Uncertainty of Projections :** Estimation of Cash flow estimates are subject to error. Hence, we cent percent accuracy under capital budgeting decision is not possible.

- **Complexity of Techniques :** Some methods (like IRR) can be difficult for non-specialists as it is calculated through trial-and-error method.
- **Qualitative Factors Ignored :** In this method we focus on quantitative aspects only. Hence Strategic or social benefits may be overlooked.
- **Capital Rationing :** As we know we cannot park our fund in all profitable project or projects with better NPV due to financial constraints. Hence all profitable projects can be undertaken due to Capital rationing. Accordingly, project ranked higher in terms of profit is accepted and other projects are left due to shortage of capital.

❖ **Conclusion :**

Capital budgeting is the foundation of long-term financial planning. It deals with first and foremost decision of the firm that where to park our fund so that it will cover and cost of capital and profit. It ensures that scarce capital resources are invested in projects that provide maximum returns while aligning with organizational strategy. By applying rigorous evaluation methods such as NPV and IRR, firms can reduce risks, optimize resources, and secure sustainable growth. Although challenges like uncertainty and estimation errors remain, sound capital budgeting practices form the foundation for financial success and wealth creation. The success of today business is directly associated with the capital budgeting decision.

❖ **Exercise :**

A. MCQ (Multiple Choice Questions) :

1. Capital budgeting is primarily concerned with :

   A) Short-term financing decisions

   B) Long-term investment decisions

   C) Dividend policy

   D) Cash management

   Answer : B

2. Which of the following is NOT a capital budgeting technique?

   A) Net Present Value (NPV)

   B) Internal Rate of Return (IRR)

   C) Payback Period

   D) Current Ratio

   Answer : D

3. The Net Present Value (NPV) of a project is calculated by:

   A) Summing up all future cash inflows without discounting

   B) Discounting all future cash inflows and outflows to present value

   C) Subtracting fixed costs from sales revenue

   D) Calculating the accounting profit

   Answer : B

4. A project is considered acceptable under NPV criterion if :

   A) NPV > 0

   B) NPV < 0

   C) NPV = 0

   D) NPV < cost of capital

   Answer : A

5. The Internal Rate of Return (IRR) is :

   A) The discount rate that makes NPV zero

   B) The rate at which future cash flows are ignored

   C) Always equal to the cost of capital

   D) The accounting rate of return

   Answer : A

6. Payback period method measures :

   A) Profitability of a project

   B) Liquidity and risk of a project

   C) Cost of capital

   D) Accounting rate of return

   Answer : B

7. Which capital budgeting method considers the time value of money?

   A) Payback Period

   B) Accounting Rate of Return

C) NPV and IRR

D) Book Value Method

Answer : C

8. Profitability Index (PI) is calculated as :

A) PV of inflows / Initial investment

B) Initial investment / PV of inflows

C) NPV × 100

D) Future Value / Initial investment

Answer : A

9. A project with multiple IRRs occurs when :

A) Cash flows are all negative

B) Cash flows change sign more than once

C) NPV is negative

D) Cost of capital is zero

Answer : B

10. Capital budgeting decisions are important because they :

A) Affect short-term liquidity only

B) Affect long-term profitability and risk

C) Determine daily cash requirements

D) Do not involve risk

Answer : B

B. Short questions :

1. What is capital budgeting?
2. Mention any two techniques used for evaluating investment proposals.
3. Define the term "Payback Period."
4. What is the difference between NPV and IRR methods? Which method is better ? Explain.
5. State limitation of IRR method.

C. Long type questions :

1 Explain the importance and objectives of capital budgeting in financial management.

2. Discuss in detail the various methods of evaluating investment proposals under capital budgeting.

3. Compare and contrast the Net Present Value (NPV) and Internal Rate of Return (IRR) methods. Which one do you consider superior and why?

4. What is Modified internal rate of return. How it is superior from internal rate of return?

5. Describe the steps involved in the capital budgeting process and explain the factors influencing capital budgeting decisions.

6. A company is considering two mutually exclusive projects. Cash inflows are as follows :

Year	Project A	Project B
2017	20,000	10,000
2018	25,000	35,000
2019	30,000	20,000
2020	35,000	25,000
2021	40,000	50,000

Initial investment is Rs 80,000 and the cost of capital is 10%. Calculates which project will be beneficial by using NPV and IRR method.

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BBA SEMESTER-4

Financial Management

BLOCK: 3

Authors' Name: Prof. (Dr.) Manoj Shah, Professor and Director,
School of Commerce and Management,
Dr. Babasaheb Ambedkar Open University, Ahmedabad.

Review (Subject): Dr. Narayan Baser, Associate Professor,
Pandit Deendayal Petroleum University, Gandhinagar.

Review (Language): Dr. Deepak Mashru, Assistant Professor,
National Forensic Sciences University, Gujarat.

Editor's Name: Prof. (Dr.) Manoj Shah,
Professor and Director,
School of Commerce and Management,
Dr. Babasaheb Ambedkar Open University,
Ahmedabad.

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Unit : 9
Principles of Working Capital Management

9.1 Introduction

Think of a business like a living person its buildings and machines are like the bones, but the working capital is like the blood that keeps everything running. Without enough working capital, even a big and strong business can stop working properly. In the business, there are two types of capital long-term capital & short-term (working) capital.

a) Long-term capital refers to the funds invested in such fixed or permanent assets as land, buildings, machinery, etc.

b) Working capital refers to the funds locked up in materials, work-in-progress, finished goods, receivables & cash, etc. Since these assets are known as current assets.

Every business, whether small or large, needs money to handle its day-to-day activities like buying raw materials, paying salaries, paying electricity bills, and other regular expenses.

This money, used for daily operations, is called **working capital**, and it helps the business run smoothly without any breaks.

In simple words,

❖ Working Capital = Current Assets - Current Liabilities

In this case, current liabilities comprise creditors, bills payable, and short-term borrowings, whereas current assets include cash, receivables, bills, inventory, and short-term investments. A company's liquidity and financial health are determined by how well these two are balanced.Working capital

is just like the fuel that keeps a business running. No matter how well a company is built or how big it is, without enough working capital, it cannot move forward just like a car cannot run without fuel. For example, a small grocery store needs money every day to buy vegetables and other stock, pay salaries to helpers, and cover rent or electricity bills. If the shopkeeper doesn't have enough money, he won't be able to restock items or pay expenses, and his business will slow down. But if he keeps too much cash or buys more stock than needed, some goods might expire or remain unsold, which means his money gets blocked unnecessarily. Therefore, it is important for every business to maintain the right balance of working capital not too much and not too little to ensure smooth and continuous operations.

❖ **Nature and Importance :**

Working capital is often called circulating capital or floating capital because it constantly changes its form -

Cash → Raw Material → Work-in-Progress → Finished Goods → Debtors → Cash Again

This circular flow of funds keeps the business cycle alive. A well-managed working capital ensures that :

- ⇨ There is **liquidity** to meet short-term obligations.
- ⇨ The firm maintains a **steady production cycle** without interruptions.
- ⇨ Payments to suppliers and employees are made **on time**, maintaining goodwill.
- ⇨ Excess cash is **minimized**, ensuring funds are not lying idle.
- ⇨ Profitability is **enhanced** through efficient use of resources.

9.2 Concepts of Working Capital :

Understanding the concept of **working capital** is the first and most important step toward managing it effectively. Every business whether it is a small retail shop or a large manufacturing company must know **how much working capital it has and how efficiently it is being used.** Proper management of working capital helps a business run its daily operations smoothly, meet short-term obligations on time, and maintain a steady cash flow. Working Capital is broadly understood from two perspectives.

1. Gross Working Capital
2. Net Working Capital

Let's explore these two in detail

9.2.1 Gross Working Capital (GWC) :

Gross Working Capital refers to the total investment made in current assets of a business.

It includes all those resources that can be quickly converted into cash within a short period usually a year. According to gross concept, working capital refers to organization's investment in total current assets like cash, marketable securities, inventory etc. It is also known as circulating capital.

Gross Working Capital (GWC) = Current Assets

❖ **Example :**

If a company has cash ₹2,00,000, stock ₹3,00,000, and debtors ₹1,00,000, then **Gross Working Capital = ₹6,00,000.**

❖ **Importance :**

Gross working capital helps in understanding the **total liquidity position** of the firm and plays a crucial role in determining short-term financial strategies.

9.2.2 Net Working Capital (NWC) :

Net Working Capital refers to the **difference between current assets and current liabilities.**

It measures the real liquidity available to the business after meeting all its short-term obligations. According to the net concept, net working capital refers to the difference between current assets & current liabilities.

❖ **Formula :**

Net Working Capital (NWC) = Current Assets - Current Liabilities.

❖ **For Example :**

If a firm has current assets worth ₹6,00,000 and current liabilities worth ₹4,00,000,

then **Net Working Capital = ₹2,00,000.**

This means the company has ₹ 2,00,000 available after paying all its short term dues a sign of sound financial health.

9.2.3 Positive vs Negative Working Capital :

Type	Condition	Meaning	Impact
Positive NWC	Current Assets > Current Liabilities	The firm can easily pay its short-term obligations.	Indicates strong liquidity & financial stability.
Negative NWC	Current Assets < Current Liabilities	The firm may face difficulty in meeting its short-term dues.	Signals liquidity risk & poor financial management.

9.3 Operating & Cash Conversion Cycle :

Have you ever thought about how money actually moves within a business - from the moment it spends on raw materials until it finally collects cash from customers? This entire journey of money is known as the **Operating Cycle**. It shows how efficiently a business can convert its investments in materials and labor into cash. In simple words, the operating cycle is like the **heartbeat of a company's short-term financial health** the faster and smoother it beats, the healthier the business is.

9.3.1 Operating Cycle - Meaning :

The **Operating Cycle** is the time taken to convert **cash into inventory**, then into **sales**, and back into **cash** again. In other words, it is the **time gap between the purchase of raw materials and the collection of cash from sales.** The firm begins with the purchase of raw materials which are paid for after a delay which represents the accounts payable period. The firm converts the raw materials into finished goods and then sells the same. The time lag between the purchase of raw materials and the sale of finished goods is the inventory period. Customers pay their bills some time after the sale. The period that elapses between the date of sales and the date of collection of receivables is the accounts payable period.

The time that elapses between the purchase of raw materials and the collection of cash for sales is referred to as the Operating Cycle, whereas the time length between the payment for raw material purchases and the collection of cash for sales is referred to as the Cash Cycle.

The Operating Cycle is the sum of the inventory period and the accounts receivable period, the **Operating Cycle = Time taken for cash to complete one full round within the business.**

It represents how efficiently a company manages its working capital. A shorter cycle means faster cash flow and higher efficiency.

❖ **Stages of Operating Cycle :**

1. Purchase of Raw Materials : The cycle begins when a company buys raw materials for production.
2. Production Process (Work-in-Progress) : The raw materials are then converted into finished goods.
3. Finished Goods Inventory : Completed goods are stored until sold to customers.
4. Credit Sales (Accounts Receivable) : Goods are sold often on credit and the company waits for payment.
5. Collection of Cash : When the customer pays, the cash returns to the business completing one full cycle.

❖ **Formula :**

Operating Cycle = Inventory Period + Accounts Receivable Period

9.3.2 Cash Conversion Cycle (CCC) :

The **Cash Conversion Cycle** refines the operating cycle by also considering the **time delay in paying suppliers** (Accounts Payable Period). Cash Cycle is equal to the operating cycle less the accounts payable period.

It shows how long the company's own funds remain blocked in the business before cash is recovered.

Cash Conversion Cycle = Operating Cycle - Accounts Payable Period

In simple terms, it's the **net time** between **cash outflow (payments made)** and **cash inflow (payments received).**

9.4 Permanent and Variable Working Capital :

Every business needs funds to run its daily operations but not all working capital remains constant. Some part of it stays fixed throughout the year, while another part fluctuates with changes in business activities. To understand this better, let's explore the two important types of working capital.

9.4.1 Permanent Working Capital (Fixed Working Capital) :

Permanent Working Capital refers to the **minimum amount of current assets** that a business must maintain at all times to carry on its operations smoothly. It remains permanently invested in the business just like the foundation of a building that never changes, even if the upper structure does. The permanent working capital refers to that part of the working capital which is necessary for maintaining stocks of raw materials and finished goods at their normal level and for paying wages and salaries regularly. It is the minimum amount of current assets which is needed for the smooth running of business. Permanent working capital is of two kinds

❖ **Definition :**

Permanent working capital is the level of current assets that is constantly required for day-to-day operations.

It includes regular investment in stock, bills receivable, and cash required to meet the firm's continuous operational needs such as wages, salaries, and utility expenses.

❖ **Features of Permanent Working Capital :**

⇨ It remains **constant and stable** irrespective of business fluctuations.

⇨ It is **not affected by seasonal demand.**

⇨ It represents the **core investment** in current assets.

⇨ It is financed mostly through **long-term funds** like equity or long-term debt.

❖ **Types of Permanent Working Capital :**

1. Initial Working Capital :

⇨ Required at the time of starting a business.

⇨ Used to meet expenses like setting up operations, paying wages, and purchasing initial stock.

⇨ Usually financed by the owners themselves since new businesses have limited access to credit.

⇨ In the initial period of its operation, a company must have enough money to pay certain expenses. This amount will have to be supplied by the owners themselves because in

the initial years, credit facilities may not be available from creditors, banks do not grant loans and credit sales will have to be made.

2. Regular Working Capital :

   ⇨ Required continuously during the normal course of business operations.

   ⇨ Helps maintain steady inventory, pay bills, and manage receivables on a regular basis.

   ⇨ It is the working capital required to continue the regular business operations. It is required for maintaining regular stock of finished goods to meet the customers' demands, to pay regular business expenses etc. Regular working capital is the excess of current assets over current liabilities.

9.4.2 Variable Working Capital (Temporary Working Capital) :

While the permanent portion stays fixed, some amount of working capital changes according to business needs. This fluctuating portion is known as **Variable or Temporary Working Capital.** It is that part of working capital which is needed to meet the seasonal demand and special needs. This is called variable working capital because its amount varies according to the extent of extra demand.

❖ **Definition :**

Variable working capital is the **additional working capital** required to meet **seasonal or special demands** of the business.

It keeps changing with business activity levels increasing during busy seasons and reducing during slow periods.

❖ **Features of Variable Working Capital :**

⇨ It varies with production volume and sales level.

⇨ It depends on **seasonal demand** and **market conditions.**

⇨ It is financed mainly through **short-term sources** like bank overdrafts, trade credit, or short-term loans.

⇨ It is **temporary in nature** and reduces once the special requirement is over.

❖ **Types of Variable Working Capital :**

1. Seasonal Working Capital : Some businesses need extra working capital only during specific seasons when demand increases. For example, ice cream factories require more stock and raw materials during the summer season, as the demand for ice cream rises sharply. Similarly, sugar mills need more funds during the crushing season.

2. Special Working Capital : Sometimes, businesses need extra working capital to handle unexpected or one-time situations such as sudden price hikes, strikes, inflation, or the launch of a new product. For example, a textile company may require additional funds during a festival sale to produce and stock more garments or to purchase raw materials in bulk at discounted prices. Similarly, during a depression, when prices and sales drop sharply, businesses may need extra money to maintain their operations. On the other hand, during inflation, the cost of raw materials and finished goods increases, which means more funds are needed to keep the same level of inventory. Unforeseen events like strikes, lockouts, or fire can also create a sudden need for extra working capital. This type of need is called special working capital, which helps the business deal with unexpected situations and continue running smoothly.

9.5 Balanced Working Capital :

A balanced working capital means maintaining an optimum level of current assets and current liabilities neither too high nor too low. It ensures that the business has enough liquidity to meet its short-term obligations while also making efficient use of available funds.

If working capital is too high, it indicates that excess funds are tied up in idle assets, reducing profitability. If it is too low, the firm may face difficulties in paying its bills, purchasing raw materials, or meeting operational expenses, which can harm its reputation and disrupt operations. Hence, balanced working capital is the golden midpoint where liquidity and profitability move hand in hand.

❖ Features of Balanced Working Capital :

⇨ Ensures smooth business operations without financial stress.

⇨ Maintains liquidity and solvency by meeting obligations on time.

- ⇨ Promotes efficient utilization of resources and prevents idle funds.
- ⇨ Enhances profitability by minimizing unnecessary investments in current assets.
- ⇨ Builds financial stability and business credibility.

❖ **Consequences of Imbalance :**

Situation	Effect on Business
Excess Working Capital	Funds remain idle, low profitability, careless use of resources.
Inadequate Working Capital	Difficulty in meeting expenses, loss of creditworthiness, production interruptions.

9.6 Determinants of Working Capital :

The amount of working capital required by a business is influenced by several internal and external factors known as **determinants of working capital.**

1. Nature of Business :

The **working capital requirements** of a business mainly depend on the **nature of its operations**. For instance, **public utility services** such as railways, electricity boards, or transport companies generally need **less working capital** because they deal mostly in **cash transactions** and do not need to maintain large stocks of raw materials or finished goods.On the other hand, **trading businesses** require **more working capital** since they have to buy goods in bulk, maintain large inventories, and often sell products on credit. Similarly, **manufacturing companies** also need a substantial amount of working capital because they have to purchase raw materials, pay for labor and production costs, and hold finished goods until they are sold In simple terms, **manufacturing and trading firms** need more working capital as their money stays tied up in inventory and credit sales, whereas **service-based industries** like electricity or transport need less because their operations are mainly **cash-based** and they don't have to maintain physical stock.

2. **Size of Business :** The size of business also affects the working capital needs. Size may be measured in terms of the scale of operations. Larger firms need more working capital due to higher production and sales levels, while smaller firms can manage with lesser funds.

- **Example : Reliance Industries**, being a large conglomerate, requires massive working capital compared to a **local textile shop**, which operates at a smaller scale with limited stock and turnover.

3. **Nature of Production Cycle :** Manufacturing cycle also affects the working capital needs. Manufacturing cycle refers to the time gap between the purchase of raw materials and the production of finished goods. Larger the manufacturing cycle, larger will be the firm's working capital requirements. Shorter the manufacturing cycle, smaller will be the firm's working capital requirements.

   Example : A ship building company may take months or years to complete one vessel, hence requiring high working capital. On the other hand, a **bakery** completes production daily and sells immediately, so its working capital need is lower.

4. **Terms of Purchase and Sale :** When a business can buy its raw materials on credit but sells its finished goods for cash, it does not need much working capital because there's less immediate cash outflow and faster inflow of money. However, if the situation is reversed where the business must pay cash upfront to suppliers but allows customers to buy on credit it will need a larger amount of working capital. This is because money gets tied up in credit sales while cash is already spent on purchases, creating a gap between payments made and cash received.

   Example : A **mobile retailer** buying stock from suppliers on 60-day credit but selling phones for immediate cash will need less working capital.

5. **Credit Policy :** A company's **credit policy** plays a major role in determining its **working capital needs**, as it directly affects the amount of money tied up in **debtors or book debts.** The nature of this policy often depends on factors like **industry norms, economic conditions**, and the **management's approach** toward granting credit. For instance, if a business follows a **liberal credit policy** and allows customers more time to pay, it will have higher credit sales and more money locked in receivables, thereby increasing the need for working capital. In contrast, a company with a **strict credit policy**, where payments are collected quickly, will require less working capital since cash comes in faster.

   Example : Maruti Suzuki offers its dealers a credit period of 30-60 days, leading to higher receivables, whereas a local garage taking instant payments needs less working capital.

6. **Business Cycle :** The **working capital requirement** of a business largely depends on the **demand and sales of its products.** When the economy is in a **boom phase**, people have higher purchasing power, leading to increased demand and sales. To meet this rising demand, a firm needs to invest more in **inventory and receivables**, which results in a **higher need for working capital.** On the other hand, during a **recession**, demand and sales generally decline. As a result, the firm produces and sells less, leading to a reduction in inventory levels and receivables. In such conditions, the business requires a **smaller amount of working capital.**

7. **Operating Efficiency : Operating efficiency** refers to how effectively a business uses its resources to achieve maximum output at the lowest possible cost. The efficiency of management in running operations has a direct impact on the firm's **working capital needs.** When a company operates efficiently, it makes better use of its available resources such as labor, materials, and machinery which helps lower operating costs and improve profitability. As profits increase and costs are controlled, the pressure on working capital decreases because the business can generate sufficient internal funds to support its day-to-day operations. In short, **higher operating efficiency means smoother cash flow and less dependency on additional working capital.**

   Example : Toyota's lean production system ensures minimal waste and faster inventory turnover, reducing its working capital needs compared to less efficient competitors.

8. **Price Level Changes: Changes in price levels** directly influence a firm's **working capital needs.** When prices rise, businesses need more funds to maintain the same level of current assets, leading to higher working capital requirements. However, firms that can quickly increase the prices of their products may not face major working capital issues during inflation.

   Example : During periods of **fuel price hikes**, a logistics company needs more working capital to cover higher operational costs.

9. **Availability of Credit from Suppliers :** Easy and liberal credit terms from suppliers reduce the need for working capital; strict terms increase it.

   Example : A **pharmaceutical distributor** getting a 90-day credit from manufacturers can operate smoothly with lesser own funds, whereas cash-only terms increase working capital pressure.

10. **Market Conditions :** The **level of competition** in the market greatly affects a firm's **working capital needs.** In a highly competitive market, businesses must maintain larger stocks of finished goods to meet customer demand quickly and may also offer easier credit terms to attract buyers. As a result, more money gets tied up in inventory and receivables, increasing the overall need for working capital.

    Example : In the **FMCG sector**, brands like **HUL** maintain large inventories and extend credit to retailers to stay competitive, increasing their working capital needs.

11. **Conditions of Supply :** Regular and stable supply allows smaller inventory levels; irregular supply requires larger stocks, increasing working capital.

    Example : A **sugar factory** buys sugarcane during the harvest season and stores it in bulk to ensure continuous production, resulting in higher working capital needs.

12. **Dividend Policy :** High dividend payments reduce internal funds and increase dependence on external working capital; low dividend payments conserve funds.

    Example : A company like **Infosys**, if it declares high dividends, may have less internal cash available for day-to-day operations.

13. **Taxation Policy :** Higher taxes and advance tax payments increase working capital needs, while efficient tax planning helps reduce it.

    Example : When **corporate tax rates rise**, companies like **ITC** must set aside more funds for taxes, increasing their working capital requirement.

14. **Profitability :** Firms with high profits can generate internal funds and need less external working capital, whereas low-profit firms require more.

    Example : Apple Inc., with high profitability, easily meets working capital needs internally, while a small start-up might rely on bank overdrafts or short-term loans.

    ❖ **Formula :**

    Estimation of Working Capital Requirement

    Working Capital= Current Assets - Current Liability

    Current Asset = Cash, Raw Material, Work in Progress, Finished Goods, Debtors, Advance Payments.

Current Liability = Creditors, Bank Overdraft, Outstanding Expenses, Advance Received from customer.

Statement of Estimation of Working Capital Requirement

	Particular	Amount	Amount
[A]	Current Assets		
	Cash Balance	XXXX	
	Raw Material Inventory	XXXX	
	Work in Progress	XXXX	
	Finished Good	XXXX	
	Debtors	XXXX	
	Advance Payments	XXXX	
	Total Current Assets		XXXX
[B]	Current Liability		
	Creditors	XXXX	
	Outstanding Wages & Outstanding Overheads	XXXX	
	Advance Received from Customer	XXXX	
	Total Current Liability		XXXX
	Working Capital Requirement [A-B]		XXXX
	Add: Contingencies		XXXX
	Net Working Capital Requirement		XXX

Note : Depreciation is a non-cash expense that does not involve any actual outflow of funds. Hence, no funds are tied up in depreciation, and it is therefore excluded while calculating the working capital requirement.

❖ **Cost Sheet Format :**

Particular	Amount
Opening stock of Raw Material	xxxx
(+) Purchase of Raw Material	xxxx
(+) Purchase Expense	xxxx
(-) Closing Stock of Raw Material	xxxx
RAW MATERIAL CONSUMED	XXXX
(+) Direct Expenses	xxxx
(+) Direct Labour/ Wages	xxxx
(+) Overheads	xxxx
(+) Opening stock of Work in Progress	xxxx
(-) Closing Stock of Work in Progress	xxxx
PRIME COST	XXXX
(+) Factory Expense	xxxx
FACTORY COST	XXXX
(+) Office Expense	xxxx
COST OF PRODUCTION	XXXX
(+) Opening Stock of Finished Goods	xxxx
(-) Closing Stock of Finished Goods	xxxx
COST OF GOODS SOLD	XXXX
(+) Selling Expense	xxxx
TOTAL COST/COST OF SALES	XXXX
(+) Profit	xxxx
SALES/ SELLING PRICE	XXXX

❖ **FORMULAS :**

$$\text{Raw Material Inventory} = \frac{(\text{Raw Material Consumption} \times \text{Raw Material Storage Period})}{(\text{Time Period})}$$

$$\text{Work in Progress} = \frac{(\text{cost of Production} \times \text{Work in Progress Storage Period})}{(\text{Time Period})}$$

$$\text{Finished Goods} = \frac{(\text{Cost of Good Sold} \times \text{Finished Goods Storage Period})}{(\text{Time Period})}$$

$$\text{Debtors} = \frac{(\text{Annual Credit Sales} \times \text{Debtors Collection Period})}{(\text{Time Period})}$$

$$\text{Creditors} = \frac{(\text{Annual Credit Purchase} \times \text{Creditors Payment Period})}{(\text{Time Period})}$$

$$\text{Outstanding Overheads} = \frac{(\text{Overheads} \times \text{Time Lad in payment})}{(\text{Time Period})}$$

- **Note : Time Period can be 360/365 days, 12 Months, 52 Weeks**
- **Illustration no : 1**

The cost sheet of **XYZ Ltd.** provides the following information :

Particulars	**₹ per Unit**
Raw Material	60
Direct Labour	25
Overheads (including depreciation of ₹ 10)	45
Total Cost	130
Profit	20
Selling Price	150

- Additional information :
  - ⇨ Average raw material in stock: 1 month
  - ⇨ Average material in process: ½ month
  - ⇨ Finished goods remain in warehouse: 1 month
  - ⇨ Credit allowed by suppliers: 1 month
  - ⇨ Credit allowed to debtors: 1 month
  - ⇨ Average time lag in payment of wages: 12 days
  - ⇨ Average time lag in payment of overheads: 30 days
  - ⇨ **20% of sales are on cash basis**

- ⇨ **Cash balance expected = ₹1,20,000**
- ⇨ Annual level of activity = **60,000 units**
- ⇨ Production is **evenly carried out throughout the year** (12 months = 360 days)

You are required to **prepare a statement showing the working capital required** to finance the given level of activity.

❖ **Solution :**

Step 1 : Calculate Monthly Production

60,000 / 12 = 5,000 units per month

Step 2 : Estimation of Working Capital Requirement

I. Current Assets

Particulars	**Calculation**	**₹**
Minimum Cash Balance	Given	**1,20,000**
Inventories:		
Raw Materials	5,000 × ₹60	3,00,000
Work-in-Progress:		
– Materials	(5,000 × ₹60)/2	1,50,000
– Wages	50% of (5,000 × ₹25)/2 = 31,250	31,250
– Overheads	50% of (5,000 × ₹35)/2 = 43,750	43,750
Finished Goods	5,000 × ₹120	6,00,000
Debtors (80% on credit)	5,000 × ₹120 × 80%	4,80,000

Gross Working Capital (Total Current Assets) = ₹16,25,000

II. Current Liabilities

Particulars	Calculation	₹
Creditors for Raw Materials	5,000 × ₹60	3,00,000
Creditors for Wages	(5,000 × ₹25)/2.5	50,000
Creditors for Overheads	5,000 × ₹35	1,75,000

Total Current Liabilities = ₹5,25,000

Step 3 : Net Working Capital

Net Working Capital = Current Assets - Current Liabilities

= 16,25,000 - 5,25,000 = ₹ 11,00,000

❖ **Working Notes :**

1. **Overheads adjustment :**

   Overheads include depreciation ₹ 10 (non-cash), hence only ₹ 35 considered for valuation in WIP, Finished Goods, and Debtors.

2. **Work-in-Progress valuation assumptions:**

   ⇨ Raw Material = 100% complete

   ⇨ Wages = 50% complete

   ⇨ Overheads = 50% complete

3. **Wages time lag (12 days) :**

   12 days ≈ 0.4 month (≈ 1/2.5 month), so creditors for wages = 5,000 × ₹ 25 ÷ 2.5 = ₹ 50,000.

4. **Debtors taken at cash cost :**

   Only 80% credit sales considered (since 20% are cash).

❖ **Final Answer :**

Particulars	Amount (₹)
Total Current Assets	16,25,000
Total Current Liabilities	5,25,000
Net Working Capital Required	**11,00,000**

❖ **Notes :**

⇨ Depreciation excluded (non-cash).

⇨ Debtors valued at the cost of production (₹120).

⇨ Cash balance directly added.

⇨ This amount of ₹11,00,000 is the net working capital required to maintain smooth operations for 60,000 units annually.

❖ **Exercise :**

1. Short Answer Questions :

1. Define working capital and explain its importance in business.
2. Why is working capital known as circulating or floating capital?
3. Distinguish between gross working capital and net working capital.
4. What is meant by permanent working capital?
5. Explain the term variable working capital with one example.
6. What do you understand by the term balanced working capital?
7. What is meant by the operating cycle in working capital management?
8. Define the cash conversion cycle and state its significance.
9. List any four major determinants of working capital.
10. How does the nature of business affect the requirement of working capital?

2. Short Notes on :

1. Explain the concept and significance of working capital in business management.
2. Discuss in detail the difference between gross working capital and net working capital with suitable examples.
3. Describe the stages involved in the operating cycle and explain how it helps in determining working capital requirements.
4. What is the cash conversion cycle? Explain its components and importance in managing liquidity.
5. Distinguish between permanent working capital and variable working capital. How should each be financed?

6. What do you mean by balanced working capital? Explain the consequences of excessive and inadequate working capital.

7. Explain the factors determining the working capital requirement of a business.

3. Calculate the Following question :

The cost sheet of Asha Industries provides the following per unit data :

- ⇨ Raw material = ₹ 55
- ⇨ Direct labour = ₹ 22
- ⇨ Overheads (including depreciation ₹ 8) = ₹ 38

Total cost and profit: assume profit per unit = ₹ 25, so selling price = ₹ 140.

❖ **Additional information :**

- ⇨ Annual production = 72,000 units (production evenly spread through the year)
- ⇨ Average raw material in stock = 1.5 months
- ⇨ Average material in work-in-progress = ½ month (assume WIP is 50% complete for wages & overheads)
- ⇨ Finished goods in warehouse = 1 month
- ⇨ Credit allowed by suppliers = 1 month
- ⇨ Credit allowed to debtors = 1.5 months
- ⇨ Average time lag in payment of wages = 9 days
- ⇨ Average time lag in payment of overheads = 20 days
- ⇨ 30% of sales are for cash (rest on credit)
- ⇨ Desired minimum cash balance = ₹1,50,000
- ⇨ Use a 30-day month for time-lag conversions.
- ⇨ Ignore depreciation (treat working capital on cash-cost basis).

Prepare a statement showing the working capital required to finance this level of activity.

Final Answer (Net Working Capital Required)

Net Working Capital required = ₹ 17,14,500

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Unit : 10
Cash Management

10.1 Introduction

Cash is one of the most essential resources for every business organization. It is the most liquid form of asset and is required for carrying out day-to-day operations smoothly. Even a profitable business can face serious problems if it fails to manage its cash properly. Hence, maintaining a proper balance between cash inflows and outflows is crucial for financial stability and business growth.

Cash management refers to the process of planning, organizing, and controlling cash resources to ensure that the firm has sufficient liquidity to meet its short-term obligations while avoiding excess idle funds. It involves forecasting cash requirements, monitoring cash flow, and making efficient use of surplus funds.

The main objective of cash management is to ensure that cash is available whenever needed and that any surplus is invested profitably without affecting the firm's liquidity position. In short, cash management aims to maintain the right balance between **liquidity and profitability** ensuring neither shortage nor surplus of cash.

Effective cash management is vital for :

⇨ Meeting operational expenses such as wages, bills, and raw materials.

⇨ Maintaining business reputation and creditworthiness.

⇨ Ensuring smooth functioning of production and sales activities.

⇨ Avoiding unnecessary borrowing and interest costs.

Thus, cash management forms the foundation of sound financial management, helping a business remain solvent, stable, and ready to seize new opportunities when they arise.

❖ **Definition :**

Cash Management refers to the efficient collection, disbursement, and investment of cash to maintain the right balance between liquidity and profitability.

Cash Management refers to the **planning, controlling, and optimizing of cash inflows** and outflows in an organization to ensure that there is always sufficient liquidity for day-to-day operations while avoiding excessive idle funds.

In simple terms, it means **managing the company's cash efficiently** - collecting money quickly, paying obligations on time, and investing surplus cash wisely to maintain the **right balance between liquidity, profitability, and financial stability.**

Cash Management means **handling and controlling cash efficiently** so that a business has enough money available to pay its bills, meet expenses, and invest any surplus wisely.

According to financial management principles, Cash Management is the process of forecasting, monitoring, and regulating cash flows to ensure that the firm maintains optimum liquidity while maximizing returns on idle funds.

Cash Management is the **art of balancing cash inflows and outflows** in such a way that a business neither suffers from a cash shortage nor keeps excess cash lying idle.

It refers to the **systematic planning and administration of cash resources** to maintain adequate liquidity for operations, settle liabilities promptly, and ensure profitable utilization of available funds.

From a working capital viewpoint, **Cash Management** is a part of short-term financial **management that deals with managing cash, bank balances, and short-term investments** to achieve smooth financial functioning.

10.2 Objectives of Cash Management :

Cash management serves two primary objectives :

1. To meet the payment schedule in time
2. To minimize the funds held as idle cash balances

Both objectives are essential for maintaining financial stability and ensuring efficient business operations.

1. Meeting the Payment Schedule :

One of the main objectives of cash management is to ensure that **all payments are made on time.** In the normal course of business, a firm is required to make various payments such as salaries and wages to employees, payments to suppliers, and settlement of utility bills. At the same time, the firm receives cash from customers through sales and collections from debtors. However, cash inflows and outflows do not always occur simultaneously.

To maintain smooth operations, a firm must have sufficient cash available to meet its obligations when they become due. **Timely payments** help the firm maintain its **creditworthiness** in the market and build strong relationships with **creditors and suppliers.**

Another advantage of timely payments is that the firm can **avail cash discounts** offered by suppliers. For instance, under credit terms like 2/10, net 30, the firm can receive a 2% discount if payment is made within 10 days; otherwise, the full amount is due within 30 days. Not availing this discount effectively means paying an extra 2% for a 20-day period an implicit cost to the firm.

Ensuring timely payments also prevents **financial distress or bankruptcy**, which can occur if the firm fails to honor its commitments.

2) Minimizing Funds Held in Cash Balances :

The second major objective of cash management is to **minimize the amount of idle cash** held by the firm. Achieving this balance is challenging because :

- ⇨ Maintaining **high cash balances** ensures that the firm can meet its obligations on time, but it also leads to **idle funds**, which do not earn any return.
- ⇨ Maintaining **low cash balances** may lead to a shortage of funds and result in **delayed payments** or financial problems.

Therefore, the goal is to maintain an **optimal level of cash** enough to meet payment needs without keeping excessive idle funds. This can be done by synchronizing **cash inflows and outflows** and analyzing the reasons for **cash surpluses or shortages.**

Efficient cash management can be improved by focusing on the following points :

(a) Prompt Billing and Mailing

Delays often occur between the dispatch of goods and the preparation of invoices. By reducing this gap, firms can ensure **faster billing** and **quicker remittances** from customers.

(b) Quick Collection and Deposit of Cash

Delays in the **receipt and deposit of cheques** or cash collections are common. Such delays can be minimized by **speeding up the collection process** and ensuring prompt deposits into bank accounts.

10.3 Importance of Cash Management :

Let's talk about something that decides whether a business **survives or struggles Cash Management.** You might have heard the saying, "Profit is opinion, but cash is fact." Even a company making good profits on paper can **go bankrupt** if it doesn't have enough cash to pay its bills. So, why exactly is cash management such a big deal? Let's understand it in a simple and interactive way

1. Keeps Business Operations Running Smoothly

Think of cash as the fuel that keeps your business engine running. Without it, even the most efficient machine stops. Cash ensures that you can pay your employees on time, buy raw materials, pay rent, electricity, and transport bills, basically, handle all **day-to-day expenses** without stress.A business with proper cash management never has to pause production or delay payments. In short, Cash management keeps the heartbeat of the business steady.

2. Helps During Crises and Unplanned Situations

Every business faces tough times may be a sudden drop in sales, a machine breakdown, or an unexpected expense. When that happens, having **cashreserves** is like having an umbrella in a storm. It protects the business from panic decisions like borrowing at high interest or selling assets in a hurry.Proper cash management ensures the company always has a **financial cushion** to handle emergencies smoothly. Cash in hand gives confidence, not fear.

3. Builds Strong Credit Reputation

Imagine you always pay your bills before the due date. What happens? People start trusting you more. The same logic applies to businesses. When a company manages its cash well, it pays its suppliers, employees, and lenders on time this builds **trust and credibility**. Banks, investors, and suppliers view such a company as reliable, which improves its **credit rating** and makes it easier to get loans or discounts in the future. A good cash flow is your silent business advertisement it tells the world, "We're financially sound"

4. Reduces the Cost of Borrowing

If you plan your cash smartly, you won't need to borrow at the last minute. Companies that lack planning often rush to banks for short-term loans or overdrafts which means **extra interest**. By forecasting cash inflows and outflows correctly, you can use your own funds efficiently and **avoid unnecessary borrowing costs.** Good cash management saves you from paying for poor planning.

5. Improves Financial Planning and Control

Cash management isn't just about counting money, it's about predicting and preparing. When a business prepares **cash budgets** and **cash flow forecasts**, it gains better control over finances. You can easily identify when cash will be surplus or when a shortage might occur. This helps in making smart decisions like investing at the right time, delaying non-essential expenses, or arranging short-term funds in advance. Planning your cash is planning your peace of mind.

6. Boosts Profitability and Growth

Idle cash lying in the bank earns nothing it's like keeping seeds in a jar instead of planting them. Efficient cash managers invest surplus funds in short-term deposits, marketable securities, or other safe instruments that earn returns. This not only adds to profits but also ensures that money keeps working for the business, even when it's not immediately needed. Let your cash work as hard as your employees do.

7. Supports Long-Term Business Stability :

A business that handles its cash flow properly can easily survive tough phases and expand during good times. Strong cash management ensures **liquidity,**

stability, and sustainability the three pillars of a healthy business. It creates a sense of discipline and responsibility in financial decisions, making growth steady rather than risky. Cash management turns business survival into long-term success.

10.4 Motives for Holding Cash :

Firms maintain cash balances for several reasons. The need to hold cash arises because of the difference in timing between cash inflows and outflows, as well as to ensure financial stability and flexibility. According to economist **John Maynard Keynes**, businesses hold cash for four main reasons. Let's explore them :

1) Transaction Motive :

Under the **transaction motive**, cash is held to meet the **day-to-day operating expenses** of the business. These expenses include payments for raw materials, wages and salaries, rent, utilities, taxes, and dividends.

Since cash inflows (such as sales collections or investment income) and cash outflows (such as supplier payments or expenses) do not always occur at the same time, it becomes necessary to maintain a **minimum level of cash balance.** This ensures that the business can meet its routine obligations smoothly, even when inflows are delayed.

2) Precautionary Motive :

The **precautionary motive** involves holding cash as a **safeguard against unexpected events or emergencies**. Businesses maintain cash reserves to deal with unforeseen situations such as strikes, natural disasters (like floods or earthquakes), sudden increases in the cost of raw materials or labour, or unexpected delays in the collection of receivables.

The more unpredictable the business environment, the larger the precautionary cash balance required. However, with **careful financial planning and forecasting**, this requirement can be minimized.

3) Speculative Motive

The **speculative motive** refers to keeping cash on hand to **take advantage of profitable opportunities** that may arise unexpectedly. Firms may hold cash to benefit from favorable market conditions for example :

- ⇨ Purchasing raw materials at discounted prices through immediate cash payment.
- ⇨ Investing in securities when their market prices decline, with the expectation of future gains.

Thus, cash held for speculative purposes enables the firm to act quickly when advantageous situations occur.

4) Compensating Motive

Under the **compensating motive**, cash is maintained to **satisfy the requirements of banks** and other financial institutions. Banks often provide valuable services such as cheque clearance, fund transfers, and credit facilities.

In return, clients (firms) are required to keep a **minimum cash balance** in their bank accounts, known as the **compensating balance**. This amount cannot be used for regular transactions. It serves as compensation for the free or low-cost services offered by the bank to the firm.

10.5 Cash Management Techniques :

Efficient cash management ensures that a business always maintains the right amount of liquidity neither too little to create a shortage nor too much to remain idle. Let's explore some effective techniques for managing both **cash inflows** and **cash outflows** in a practical and easy-to-understand manner.

A) Managing Cash Inflows (Monitoring Collection of Cash)

A business must ensure that the money due from customers is collected quickly and efficiently. The following are the major techniques used for managing and monitoring cash inflows :

1. Concentration Banking

When a company operates across multiple locations, it can speed up collections by using a concentration banking system.

Under this system :

- ⇨ The company opens **collection centers** in key regions where it conducts business.
- ⇨ Each collection center has an account in a local bank.
- ⇨ Customers send their payments (usually by cheque) to these local centers.

⇨ The local banks are then instructed to transfer the collected funds to the company's main bank account at the head office.

Advantages :

⇨ Reduces mailing time for bills and payments.

⇨ Speeds up the clearing of cheques as they are deposited locally.

⇨ Ensures faster availability of funds for business use.

1. Lock Box System

The Lock Box System is an improved method then concentration banking, designed to further reduce collection delays from the customer

In this system :

⇨ The company rents a **post office box** (lock box) in the city where its customers are located.

⇨ Customers mail their cheques directly to this box.

⇨ The company's **bank** is authorized to open the box several times a day, collect the payments, and deposit them immediately into the company's account.

⇨ The bank transfers the funds to the company's main account once they exceed a specific amount.

Advantages :

⇨ Payments are processed quickly and securely by the bank.

⇨ Cheques are deposited immediately upon receipt, reducing delays.

⇨ The system minimizes manual handling and administrative costs.

3. Payment by Electronic Means

In the modern business environment, electronic payments have become the fastest and most efficient method of transferring funds. Systems like **NEFT, RTGS, and Internet Banking** enable instant transfer of money between accounts.

Advantages :

⇨ Accounts are updated instantly, improving accuracy and control.

⇨ Transfers occur quickly and efficiently across any part of the country.

- ⇨ Reduces paperwork and the risk of delays or errors associated with physical cheques.

Example :

A supplier in Mumbai can receive payment from a customer in Delhi within seconds through an online transfer.

4. Prompt Billing and Cash Discounts

Timely billing is essential for faster collection of payments. When invoices are prepared and dispatched promptly :

- ⇨ Customers are informed about the exact amount and due date.
- ⇨ This clarity encourages timely payment.

Offering **cash discounts** also motivates customers to make early payments.

Example :

A firm offering a 2% discount for payment within 10 days encourages customers to pay early, improving the firm's cash flow position.

B) Managing Cash Outflows (Monitoring Disbursement of Cash)

While quick cash collection is important, managing how and when cash is disbursed is equally vital. The aim is to delay payments sensibly without harming the firm's creditworthiness or reputation.

1. Centralized Disbursements

All payments are made from a single account at the head office.

This system provides :

- ⇨ Better control over outgoing funds.
- ⇨ Slight delays in cheque presentation for payments to suppliers located in distant areas, thereby improving liquidity.

However, the firm must ensure that such delays do not damage supplier relationships.

2. Paying on the Last Date

A firm should always make payments **only when they are due**, according to the agreed terms with suppliers.

If there is no benefit such as a discount for early payment, it is not financially wise to pay before the due date.

Points to Remember :

- ⇨ Payments should be made exactly on the due date to optimize cash use.
- ⇨ Delaying beyond the credit period can harm the firm's goodwill and trade relations.

3. Playing with 'Float'

The term '**Float**' refers to the time lag between issuing a cheque and its actual clearance by the bank. During this period, the funds remain in the company's account and can be used temporarily for other short-term needs.

Types of Payment Float

a) Paying from a distant bank: Cheques are issued from a bank located far from the supplier's area, increasing the time required for clearance.

b) Cheque Encashment Analysis: The company can analyze the average time it takes for cheques to be presented and plan payments accordingly.

Example :

If cheques typically take three days to clear, the company effectively gains three additional days to use the funds.

10.6 Summary :

Cash management is an important part of working capital management. It deals with organizing, planning, and managing cash to make sure the firm has enough liquidity to meet its short-term obligations while avoiding excess idle cash. To mantain an optimum cash balace is the primary goal of cash management. Companies hold cash for various motives, like transaction motive, precautionary motive, speculative motive, and compensating motive. Cash forecasting, cash budgeting, managing cash inflow and outflow, determining minimum and maximum cash levels, and investing surplus cash in liquid and safe marketable securities are the key activities of cash management. Efficient cash management improves liquidity, reduces business and financial risk, and support smooth business operations.

❖ Exercise :

❖ Short Answer Questions :

1. Define cash management.
2. What are the objectives of cash management?
3. List the motives for holding cash.
4. What is the transaction motive for holding cash?
5. Write a short note on the importance of cash management.
6. Define optimum cash balance.
7. Why is liquidity important in cash management?
8. What is compensating balance?

❖ Long Answer Questions :

1. Explain the objectives and importance of cash management.
2. Describe the four motives for holding cash with suitable examples.
3. Explain the role of effective cash management in business success.
4. Prepare a cash management plan for a small-scale manufacturing firm.

❖ Fill in the Blanks :

1. Cash management refers to the process of _____, _____, and _____ cash resources to ensure that the firm has sufficient liquidity to meet its short-term obligations.
2. Cash is considered the most _____ form of asset and is essential for the smooth functioning of day-to-day operations.
3. The main objective of cash management is to maintain the right balance between _____ and _____.
4. Holding too much cash results in _____ funds, while holding too little cash may cause _____ of payments.
5. According to economist John Maynard Keynes, firms hold cash for four motives: _____, _____, _____, and _____ motives.
6. Under the precautionary motive, cash is maintained as a safeguard against _____ or unexpected financial emergencies.
7. Efficient cash management helps in reducing the cost of borrowing by minimizing the need for _____ or _____.

8. The Lock Box System is designed to reduce delays in the _____ and _____ of customer payments.
9. In cash management, the term "float" refers to the time lag between the _____ of a cheque and its actual _____ by the bank.
10. The main purpose of cash management techniques is to maintain the right amount of _____ - neither too much to remain idle nor too little to create a shortage.
11. One of the key objectives of cash management is to ensure that all _____ are made on time to maintain the firm's creditworthiness.
12. Maintaining a proper balance between cash inflows and outflows is crucial for financial _____ and business _____.
13. Under the speculative motive, firms hold cash to take advantage of unexpected _____ opportunities.
14. The Compensating Motive refers to maintaining a minimum cash balance with the _____ as a requirement for receiving certain financial services.
15. Techniques like **Concentration Banking** and **Lock Box System** are mainly used to speed up cash _____ and improve overall cash _____.
16. Under the _____ motive ash is held to meet the day to day operating experting expenses of the business.

❖ **Answers :**

1. planning, organizing, and controlling
2. liquid
3. liquidity and profitability
4. idle, delay
5. transaction, precautionary, speculative, compensating
6. emergencies
7. short-term loans, overdrafts
8. collection, deposit
9. issue, clearance
10. liquidity

11. payments
12. stability, growth
13. investment
14. bank
15. collections, inflow
16. Transaction motive

Q-4 Multiple Choice Question (MCQs) :

1. Cash Management primarily deals with the management of_____.
   a. Fixed Assets
   b. Current Assets
   c. Long-term liabilities
   d. Shareholders' Equity
2. The main objetive of cash management is _____.
   a. To maximize sales
   b. To minimize costs
   c. To maintain optimum cash balance
   d. To increase fixed assets
3. From the following, which is considered a motive for holding cash ?
   a. Hedging Motive
   b. Transaction Motive
   c. Profit Motive
   d. Expansion Motive
4. The precautionary motive for holding cash is related with _____.
   a. Cash needed for daily operations
   b. Cash kept for emergences
   c. Cash invested for profit
   d. Cas used for dividend payment
5. _____ involves pooling cash from various branches into a central account.
   a. Lock-box system
   b. Zero balance account
   c. Concentration banking
   d. Factoring

6. Lock-Box system is used to_____.
   a. Delay cash receipts
   b. Speed up collection of receivables
   c. Increase credit sales
   d. Control inventory
7. From the following, _____ is not a function of cash management.
   a. Planning cash needs
   b. Controlling Cash flows
   c. Investing Surplus cash
   d. Issuing equity shares
8. Marketable securities are held with a view to _____.
   a. Increase fixed assets
   b. Earn high long-term returns
   c. Provide liquidity for cash needs
   d. Avoid taxation
9. From the following, _____ is a tool of cash management.
   a. Cash Budget
   b. Balance sheet
   c. Income Statement
   d. Trial Balance
10. The speculative motive for holding cash is related to _____.
    a. Meet regular expenses
    b. Take advantage of unexpected opportunities
    c. Pay taxes
    d. Pay wages
11. Cash management is concerned with _____.
    a. Profit Planning
    b. Managing inflow and outflow of cash
    c. Capital Budgeting
    d. Capital structure

12. From the following, which one increases the need for precautionary cash balance ?

    a. Stable business conditions

    b. Easy access to bank overdraft

    c. Uncertain cash flows

    d. High profitability

13. From the following,_____ reduces cash holding requirements.

    a. Longer Operating cycle

    b. High Fixed Costs

    c. Efficient Cash Forecasting

    d. Uncertain Sales

14. NEFT stands for _____.

    a. National Electronic Fund Transfer

    b. Network Electronic Fund Transfer

    c. National Express fund Transfer

    d. New Electronic Fund Transfer

15. RTGS stands for _____.

    a. Real Time Global Settlement

    b. Rapid Transfer Gross System

    c. Real Time Gross Settlement

    d. Reserve Transfer Gross System

16. Under the _____, cash is maintained to satisfy the requirements of banks and other financial institutions.

    a. compensating motive

    b. Transaction Motive

    c. Profit Motive

    d. Expansion Motive

❖ **Answers :**

1. b. Current Assets
2. c. Maintain optimum cash balance
3. b. Transaction Motive
4. b. Cash kept for emergences
5. c. Concentration banking
6. b. Speed up collection of receivables
7. d. Issuing equity shares
8. c. Provide liquidity for cash needs
9. a. Cash Budget
10. b. Take advantage of unexpected opportunities
11. b. Managing inflow and outflow of cash
12. c. Uncertain cash flows
13. c. Efficient Cash Forecasting
14. a. National Electronic Fund Transfer
15. c. Real Time Gross Settlement
16. a. Compensating motive

****

Unit : 11
Inventory Management

11.1 Introduction

Inventory refers to the stock of products a business intends to sell, as well as the various components used to produce those products. It is classified as a current asset, expected to be sold or consumed in the ordinary course of business. A firm's inventory generally consists of :

1. Raw materials - items purchased from suppliers that are used as inputs in the production process.
2. Work-in-progress (WIP) - partially completed products that are in different stages of production.
3. Finished goods - completed products ready for sale to consumers.

In simple terms, inventory encompasses all tangible assets held for sale, in production, or intended for consumption in the market.

Raw materials serve as inputs that are transformed into finished goods through manufacturing processes. Work-in-progress includes items that are partly completed, representing intermediate stages of production in a multi-stage manufacturing system. Finished goods are the final products made available in the market, generating revenue when sold. Together, these three categories constitute the complete inventory of an organization, which managers must effectively plan, organize, direct, and control to ensure operational efficiency.

Since inventory is a major current asset, its management involves coordination across multiple departments, including production, finance, marketing, human resources, and procurement. Managers must consider inputs from all functional areas to maintain adequate inventory levels. Insufficient inventory can disrupt

production, while excess inventory ties up capital unnecessarily. Therefore, managers must balance the differing priorities of various departments to achieve optimum inventory levels, aligning inventory management with the overall objectives of the firm.

❖ **Definitions :**

1. **J.R. Tony Arnold (1993) :**

   "Inventory management is the practice of planning, organizing, and controlling the flow of materials to ensure that the right quantity of inventory is available at the right time, while minimizing costs and meeting customer demand."

2. **Gopalkrishnan, G. (2007) :**

   "Inventory management is a process of overseeing and controlling the ordering, storage, and use of components that a company uses in production as well as the finished products ready for sale."

3. **Nadler and Nadler (1992) :**

   "Inventory management refers to the systematic approach of maintaining optimum stock levels to balance the cost of inventory with the benefits of holding inventory."

4. **Bhattacharya, S.K. (2008) :**

   "Inventory management involves controlling the quantity, location, and timing of raw materials, work-in-progress, and finished goods to ensure smooth production and uninterrupted supply to customers."

5. **American Production and Inventory Control Society (APICS) :**

   "Inventory management is the process of efficiently overseeing the constant flow of units into and out of an existing inventory, including controlling the transfer of units in order to prevent overstocking or stockouts."

11.2 Nature of Inventory :

Inventory represents all tangible assets held by a firm for the purpose of production, sale, or consumption. It is a current asset, which means it is expected to be converted into cash, sold, or consumed within a short period, usually within one year. The nature of inventory can be understood from the following aspects :

❖ **Tangible Asset :**

Inventory always consists of physical items, whether raw materials, components, semi-finished goods, or finished products. It is a real asset that has a measurable value and can be stored, counted, and utilized in production or sale.

❖ **Part of Production and Sales Cycle :**

Inventory forms an essential link in the production and marketing process. Raw materials are converted into work-in-progress and ultimately into finished goods, which are then sold to generate revenue. This cyclical flow highlights inventory's role in business continuity.

❖ **Current Asset :**

As a current asset, inventory is expected to be sold or consumed in the near future, typically during the normal operating cycle of the firm. It differs from fixed assets, which are long-term and not intended for immediate sale.

❖ **Comprises Different Categories :**

⇨ Raw materials: Inputs purchased for production.

⇨ Work-in-progress (WIP): Partially completed goods in production.

⇨ Finished goods: Products ready for sale to customers.

❖ **Value and Cost Implication :**

Inventory represents a financial investment for the firm. Maintaining too much inventory increases holding costs and ties up working capital, while too little inventory can disrupt production and sales. This dual nature emphasizes the balance between availability and cost.

❖ **Interdepartmental Dependence :**

Effective inventory management requires coordination among production, finance, procurement, marketing, and other departments, as it impacts operations, cash flow, and customer satisfaction.

11.3 Objectives :

Just like cash management, inventory management also faces the two conflicting objectives where on one side the form should have all time high stock in order to supply goods in a timely manner whenever the demand arises. On the other side not too much funds should be blocked which reduces the profitability of the organization. Hence, the firm needs to make a trade-off between these two

conflicting objectives. The two counter balancing object is of inventory management are mentioned below :

1. To minimise the investment in inventory
2. To meet the demand of the product efficiently

Now in order to study these two conflict in objectives, one needs to study the costs and benefits associated with these two conflicting objectives. Once the firm assesses the conditions and thus cost benefit analysis over inventory, it will be in position to take a decision whether to minimise the inventory or maximise the inventory. Technically here the organisation is supposed to study the merits and demerits in form of costs and benefits in reconcile both of them to decide upon an optimum level of inventory on the basis of trade-off between costs and benefits associated with the inventory levels. Let us discuss the costs and benefits associated with holding of inventory :

1. Cost of Holding Inventory :

When it comes to cost of holding inventory, most of the costs can be categorised into two basic categories: 1. Ordering cost, and 2. Carrying cost. Generally, when the firm makes a decision to keep inventory levels high the above-mentioned costs will be incurred by the firm. Let us discuss these two costs in detail :

(i) Ordering Costs :

Ordering costs are associated with the acquisition or procurement of the inventory is from various suppliers. The organisation needs to place orders frequently in order to replenish inventory of raw materials and other inputs. Hence, the expenses associated with bringing the raw material from suppliers placed to production facility are known as ordering costs. When this transaction happens a lot of departments and processes gets involved which costs the organization which are mentioned below :

- ⇨ preparing purchase order
- ⇨ requisition form
- ⇨ loading charges
- ⇨ unloading charges

- ⇨ receiving inspecting and recording the goods
- ⇨ clerical and stationery costs and so on

ordering costs are also known as setup costs because the firm needs to do all these exercises repeatedly so as to facilitate smooth travel of inputs to the production centres. These are generally fixed per order placed by the firm. So, if the firm orders it frequently, this cost will go high and if the frequency reduces, then the cost will also go down. This cost is inversely related with the size of inventory. When the cost is low, the level of inventory will certainly be high and vice versa. The firm may intend to minimize this cost but at the same time it needs to make investment in huge inventory which blocks the funds unnecessarily for a long time.

(ii) Carrying Costs :

The second set of costs which are incurred in the management of inventory carrying costs. Carrying costs basically involves maintaining the inventory at the premises. The cost of holding inventory at the factory site can be divided into two Main categories :

A. The first set of costs arises when the inventory is understood into the warehouse. The main components of this category are :
   a. storage costs, which include taxation, depreciation, insurance of the building, maintenance, etc
   b. insurance of the inventory stored.
   c. Deterioration of inventory because of pilferage, technical and style obsolescence, changing tastes and preferences, etc
   d. cost of labour for handling inventory, clerical and accounting costs.

B. The second cost that is incurred in carrying inventory is opportunity cost of funds. It basically consists of expenses of blocking funds to finance the acquisition of inventory. If the funds are not invested in inventory they could have been invested somewhere else to on a return, this is the opportunity cost of funds.

   The carrying costs in the size of inventory are positively related i.e. when the inventory level goes up these costs also increase and when the levels go down the costs also goes down.

Once the costs are ascertained. They are compared with the benefits of inventory to determine the optimal inventory level. The manager needs to observe and study it well in order to arrive at the optimum inventory which minimises the cost and maximises the benefit.

2. Benefits of Holding Inventory :

The next aspect to trade of the conflict of objectives of inventory management is the benefits of holding inventory. This aspect deals with holding inventory in such a way that it draws benefits which oversees the costs associated with holding inventory. In order to study the benefits of holding inventory, it is quite apt to study the basic functions of inventory. In simple words, in order to manage inventory certain basic functions needs to be performed by the managers which will help them derive maximum benefits. These basic functions are discussed below :

In order to study the benefits of inventory, the main focus will be on the long term activities. This is true because in short run it is very difficult to change everything but in case of longer and major changes can be put on in the form can take the benefit in long run. For instance, a farm cannot change its production capacity, technology, inputs, machines or labours in a period of three months while all of these can change if the farm has been given a time span of 2 to 5 years. Hence all the basic functions will work effectively in long run in order to derive maximum benefits.

(i) Benefits in Purchasing :

The form can get benefits from purchasing raw materials in bulk quantity. It is proven fact that when an order is placed in bulk the firm can avail discount that is available. This is possible when the farm has enough cash available which can be utilised in the prices of the raw materials are reasonable or lesser than the market value. There is one condition attached to benefits of purchasing is that the purchasing of raw materials should not be connected to production or sales. In simple words the form should be able to purchase the raw materials independently to ensure that it is bought at a reasonable price with discount which otherwise would not have been possible if bought in the times of need. When this happens it certainly cuts down on the cost of production and thereby went in increase in sales and profit simultaneously.

(ii) Benefits in Production :

Benefits of production can be availed when the firm produces product on a large scale without worrying about the purchase of raw material and sales. When the firm has to worry about sales level and flow of raw materials, or rather if the production is dependent on flow of raw materials, then the benefits of large scale production cannot be availed. Hence, if the production is independent of purchase of raw materials and sales level, it can take advantage of large scale production through economies of scale. The firm needs to pay special attention when they produce season product and the production is relied on either raw materials availability or demand in the market.

(iii) Benefits in Sales :

Inventory basically is a gap filler between actual sales level and current production. If the firm has stock in place when the demand arrives, it can supply goods instantly and earn the revenue. While, if the firm starts production of the goods when the demand arises, it may not be able to meet the demand because of the lengthy production process. Hence, it is advisable to have adequate stock of finished goods ready for sale in order to take advantage of rising demand in the market. Additionally, few products belong to monopolistic market where the number of substitutes are more in the market and if the firm is not been able to provide goods on time, then the customer may switch to other options that are available and firm will lose the chance of earning revenue.

In short, the above discussion relates to the objectives of inventory management, the two chief aspects pertaining to the minimization of investment in the inventory on the one hand and the need to ensure that there is enough inventory to meet demand such that the production and sales operations are smooth.

11.4 Techniques/Methods to Inventory Control :

1. Economic Ordering Quantity
2. ABC Technique
3. VED
4. Just in Time Inventory

❖ Economic Order Quantity (EOQ) Model

Once the inventories are classified into A, B and C categories, and the management gets acquainted with the degree of control to be applied in

various inventory items. They would know that if the item belongs to A category, rigourous control will be applied while if the inventory belongs to C category, minimum control should be imposed. This way they can minimise efforts to inventory control. But the problem that would come up is regarding how much of each of these categories should be ordered so that the cost of procuring and storing reduced to a minimum. In simple words, the firm needs to answer following questions: how much the inventory should be bought in one lot for replenishment? Should the quantity be purchased in small or large lot? Should we buy the materials for one month, quarter, six months or a year. The inventory issues are popularly known as order quantity problems.

In order to solve these ordering quantity problems, the manager needs to address the two conflicting objectives of inventory management and thereby arrive at an optimal inventory level. There are two options for the firm, first, wherein the firm keeps high average inventory in order to smoothen the production or sales operations and reducing the ordering costs. While, it may keep just in time inventory in order to avoid blockage of funds which can be invested elsewhere. When the firm successfully decides upon the optimum level of inventory then there is said to be practising economic ordering quantity.

Economic ordering quantity (EOQ) is that wanted the order which reduces the total ordering costs and carrying costs. It is also popularly known as economic lot size. The two concepts mentioned above, i.e. ordering costs and carrying costs are the nucleus on which the concept of EOQ is based. Let us first understand these two costs in order to understand economic ordering quantity

Economic order quantity is that quantity ordered at which the total ordering costs and inventory carrying costs will be the minimum. Alternatively, it is also known as 'economic lot size'. If orders are placed for a relatively small quantity frequently, the company will have to place orders again and again during a year, consequently, it will have to incur a considerable costs in the form of transportation Costs and clerical expenses. If on the other hand, large orders are placed, such costs will be minimised and in addition, the company will be able to enjoy advantages of bulk buying. As a result of it, per unit cost of placing an order will decline considerably. At the same time,

bulk buying leads to locking-up of capital and loss of interest to the company. Therefore, a company is required to consider a number of factors before fixing an economic ordering quantity of these factors, important ones are inventory carrying costs and ordering cost.

❖ **Ordering Cost :**

Ordering costs are those expenses are incurred when the firm places an order to buy the inputs and also to replenish them. Cost of placing orders are generally fixed per order and includes the following :

⇨ Clerical expenses

⇨ Preparing schedule for quotation

⇨ Sending them to suppliers to post or any other medium

⇨ Receiving goods and inspecting them

⇨ Preparing invoices

⇨ Salary for staff and so on

Now, generally when the firm places an order all the above mentioned expenses are to be incurred every time. Hence, if the frequency of placing order increases than the cost of ordering also goes up. While, if the firm orders large quantity single or a few orders then the ordering costs will go down. Only demerit when the number of orders are less, the firm needs to keep large quantity in their storage which will increase blockage of capital.

❖ **Carrying Costs :**

Inventory carrying costs refers to cost of storing and maintaining the inventory of inputs at the factory site. The major costs associated with caring inventory is that the amount of capital gets locked up in inputs that are ordered and hence these money cannot be invested on earn a return. Thus, the major carrying cost is the opportunity cost of funds that the firm has to bear. Apart from opportunity cost, the firm needs to spend on transportation (internal), insurance, and loss due to deterioration, obsolescence, etc. According to the Planning Commission of India, the inventory carrying costs in our country amounts to 15 to 20 per cent of the total cost of inventory of course the larger the inventory, the greater is the inventory carrying cost.

When inventory carrying cost and ordering cost are in balance, total cost of ordered quantity is lowest and therefore it is called economic order quantity. In other words, when the total of ordering costs and carrying costs is the lowest, the quantity would be the economic order quantity.

There are three methods of determining EOQ

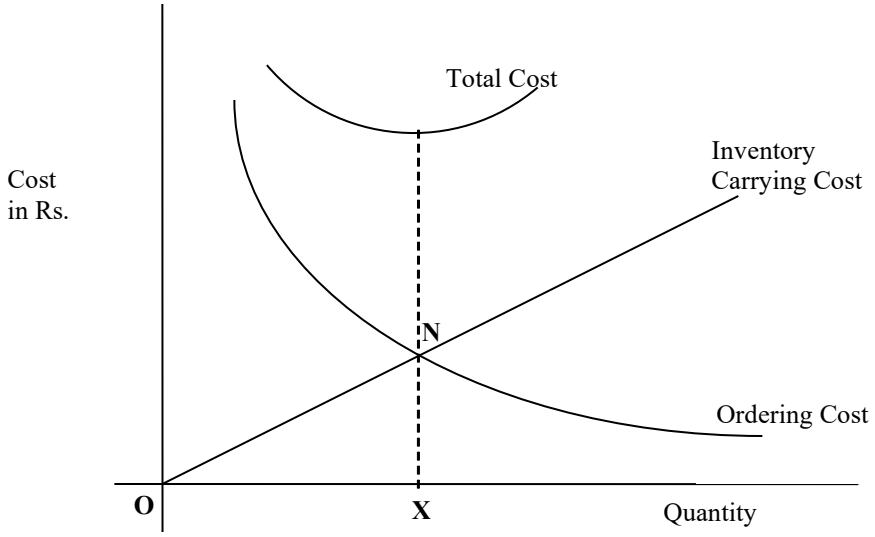
a) Graphic Method

b) Formula Method

c) Trial and Error Method

(A) Graphic Method :

The economic order quantity can be determined with the help of a graph as follows :



Economic Ordering Quantity

In the above diagram, upward moving straight line shows that inventory carrying cost increases with the quantity ordered. The downward sloping curve indicates that ordering cost per unit decreases with the increases in quantity ordered. The U-shaped curve shows that total cost of decreases with die increases in quantity ordered upto point X. After this point it increases with the quantity ordered. In other words, total cost is the lowest when OX quantity is ordered. Hence OX is the economic ordering quantity. It should be remembered that economic ordering quantity is always obtained at the point of intersection between inventory carrying cost line and ordering cost line.

(B) Formula Method :

To find out economic order quantity, different formulas are given by different authors. The formula which is commonly used is as follows :

$$EOQ = \sqrt{\frac{2AO}{C}}$$

Where, EOQ = Economic order quantity

A =Annual consumption

O = Ordering cost

C = Carrying cost per unit

Assumptions of EOQ Model : EOQ model, as a technique to determine the economic order quantity is based on four major assumptions :

1. The annual demand or usage for a particular item of inventory is known with certainty.
2. The rate of usage of inventory is constant.
3. The orders to replenish the inventory of an item are filled instantaneously. In other words, lead time is assumed to be zero.
4. There is known or constant price per unit i.e. there are no price discounts.

(C) Trial and Error Method :

The trial and error approach has been designed because the answer received through formula Method may not match with the actual lot size offered by the suppliers. The suppliers offers goods in specific lot sizes which may not match with the proper optimal balance received through EOQ formula. Hence, the firm needs to order raw materials and other supplies in the lot sizes available from supplier. At the most firm can select lot sizes which is near to the optimal balance received through formula Method. Let us understand this with the help of an illustration:

The inventory requirement of a company for the year is 30,000 units of raw material. The ordering cost is Rs. 80 per order and carrying costs are expected to be Re. 0. 10 per unit. It can make purchases in lots of 30,000 units, 15,000 units, 7,500 units, 5,000 units and 2,510"0 units.Find out the economic order quantity with help of trial and error approach.

❖ **Table showing Inventory Costs :**

Particulars	Lot 1	Lot 2	Lot 3	Lot 4	Lot 5
1. Purchases (units)	30,000	15,000	7,500	5,000	2,500
2. No. of Orders	1	2	4	6	12
3. Cost per Order	Rs.80	Rs.80	Rs.80	Rs.80	Rs.80
4. Total Ordering Costs	Rs.80	Rs.160	Rs.320	Rs.480	Rs.960
5. Carrying Costs (per unit)	Rs.0.10	Rs.0.10	Rs.0.10	Rs.0.10	Rs.0.10
6. Average Inventory (units)	15,000	7,500	3,750	2500	1250
7. Total Carrying Costs (Rs)	1500	750	375	250	125
8. Total Costs (Ordering+CarryingCosts)	1580	910	695	730	1085

The above calculations make it clear that when 7,500 units are purchased, the total cost is the lowest and so economic order quantity is 7500 units.

❖ **A B C System :**

The ABC system of inventory control is widely used technique which basically identifies or puts various raw materials or inputs into three categories, namely, A, B and C. It goes with an assumption that not every item of raw material requires equal degree of control. There are few items which available in abundance at reasonable rates while others are not available in the nearby area and/or may not be available at reasonable price. Hence, based on their availability, price, usage, and significance in the production process, the degree of control should be exercised. The firm should rather keep more control over those items which are not readily available and are costly.

Let us discuss the categories in which the items can be divided and the degree of control to be imposed on each :

Category A :

Category A those set of items that are very important from the point of view of production, the usage in the production is very small as compared to other items and are also costly (high in value). One thing to be noted here is that inspite of being only a small proportion used in production, the cost of these items are very high. It may constitute, say, only 10% of total of items used but represent almost 70% of the value of inventory. For instance, in case of construction, iron rods are used to construct any structure of building. Iron rods are used less as compared to bricks and cements but the value of

iron rods is substantially very high as compared to the other two items. Hence, iron rods can be classified into category A as per the ABC system of inventory control.

When it comes to controlling, strict control should be levied by the manager. Right from placing order, receiving it, storage and issuing to production should be monitored carefully and nothing should be wasted. The firm should make sure that this type of items are not purchased in bulk and stored as they block the capital on which the firm could earn a return.

Category B :

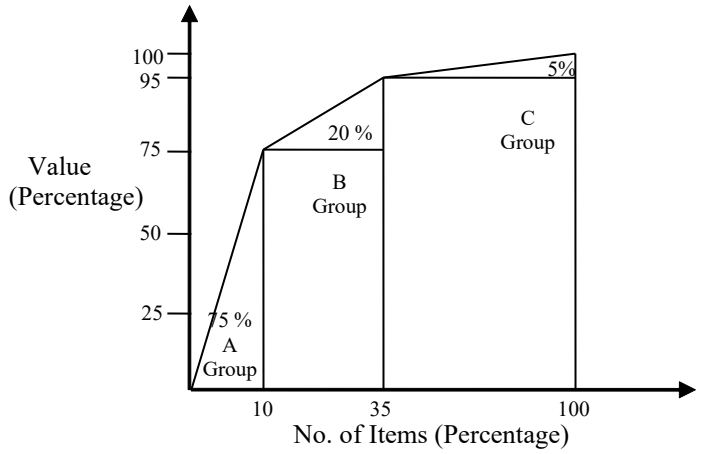
Category B items finds itself in the middle of category A and category C. They are not so important as those in category A, but are significant enough to make their presence felt if not handled properly. They may constitute around 20 - 25 percent of total inventory and represents 15 - 25 percent of the total value of the inventory. For instance, taking the above example of construction of building, apart from iron rods, cement is another important ingredient used in construction. Cement is not as important and costly as iron rods but requires some degree of control. Little lesser, but manager needs to pay attention to the managing category B items when it comes to its buying, storing and using.

Category C :

Category C is the last division in which the inventory items can be divided. They form the largest proportion of inventory items in the total inventory and costs the least of all. On an average they constitute 70 - 75 percent of the total number of items but when it comes to value, it is only 5-10 percent of the total cost. Hence, least effort for controlling should be given in this category as they not important and does not block funds. Thus, a very mild degree of control could be levied on category C items. This is because, if more efforts are directed towards controlling them, the efforts would cost more than the inventory itself. Continuing with the last example, in construction of building, the least costing and most used item is bricks.

Class	Number of items (in percentage of total number of items)	Value of items (in percentage of total value of inventory)
A	10	75
B	25	20
C	65	5

In the form of a graph this can be presented as follows



How it Works…?

The following steps are taken to implement the scheme :

a) The first step is to list all items in sequence to determine how many of each will required during production along with price range.

b) Next, for each of these listed items, determine consumption during production and total cost it incurs.

c) Ranking should be applied to each of the input to be used based on total cost it bears. The items which bears maximum value should be ranked first and items with least money value should be last.

d) Then determine the percentage of each input. Firstly, the percentage of number of each item with total number must be determined and then percentage of the total value of each input with total value of all items must be measured.

e) Lastly, based on the above calculations, all items must be grouped into A, B and C categories.

❖ **V.E.D Analysis :**

As discussed above, ABC analysis classifies the inventory items based on its financial value and amount of consumption, VED analysis critically classifies the inventory items based on their availability and usability. VED stands for Vital, Essential and Desirable. Hence, the organization keeps the stock based on the whether the inventory item is vital, essential or desirable.

VED analysis is very popular and are used in spare parts and medical stores. If any part or medicine is very important then it is categorized under the head VITAL and will be kept in stock all the times. If any item is not so important,

then it is categorized as ESSENTIAL and the firm sometimes can afford to avoid stocking it or it can face stock-out for a small period of time. While, those spare parts or medicines which are not essential are classified as DESIRABLE. These items are not expected to be stock at all the times. They are just desired. For example, any cosmetic product comes under D category in Medical store. The medical store may or may not have it in stock all the time but when it comes to medicines related to fever, cough, diabetes, blood-pressure, etc should be there at all the time.

❖ **J.I.T. System :**

The Just-In-Time (JIT) inventory system is a management strategy in which materials, components, and finished goods are procured or produced only as they are needed in the production process or for customer demand. The main objective is to reduce inventory holding costs, minimize waste, and improve efficiency by receiving goods "just in time" for use rather than storing large quantities in advance.

❖ **Key Features of JIT :**

- ⇨ Minimal Inventory Levels: Only the required amount of stock is kept at any time, reducing storage costs and risk of obsolescence.
- ⇨ Demand-Driven: Production and procurement are closely aligned with actual customer demand.
- ⇨ Continuous Flow: Materials flow smoothly through production without unnecessary delays or idle stock.
- ⇨ Supplier Coordination: Strong relationships with reliable suppliers are essential to ensure timely delivery of quality materials.
- ⇨ Waste Reduction: By eliminating excess inventory, JIT reduces waste related to storage, deterioration, and handling.

❖ Merits of JIT :

- ⇨ Reduces storage costs and frees up working capital.
- ⇨ Minimizes waste from obsolete, expired, or excess stock.
- ⇨ Improves production efficiency by ensuring materials are available when needed.
- ⇨ Encourages quality control since defective items disrupt the production flow.

❖ Demerits of JIT :

⇨ High dependency on suppliers: Any delay in supply can halt production.

⇨ Risk of stockouts: Minimal inventory increases the risk of running out of materials.

⇨ Requires precise planning: Production schedules must be carefully managed to match supply with demand.

⇨ Not suitable for unpredictable demand: Sudden spikes in demand can lead to shortages.

❖ **Exercise**

➢ **Descriptive Questions :**

1. What is inventory management? Discuss its objectives in detail
2. Discuss the concept of inventory management. Also discuss various costs and benefits associated with holding inventory.
3. Discuss the objectives of inventory management keeping in mind its costs and benefits.
4. Discuss in detail ABC system of inventory management
5. Explain in detail EOQ technique of inventory management
6. Discuss graphic and formula based methods of EOQ
7. What is order point problem? Explain how can it be solved?
8. Differentiate between ABC and EOQ methods to inventory management
9. Differentiate between EOQ and ROL method to inventory management

➢ **Short Notes :**

1. VED analysis
2. JIT analysis
3. Formula method of inventory management
4. Benefits of holding inventory
5. Costs of holding inventory
6. Differentiate between A, B and C categories of ABC system
7. Ordering costs and Carrying costs
8. Concept of inventory

➢ Multiple Choice Questions :

1. Which analysis will help us in finding out inventory to be disposed?
   a. ABC
   b. FSN
   c. VED
   d. Pareto analysis
2. Finished goods is the only inventory in case of ____ company.
   a. Manufacturing
   b. Finance
   c. Trading
   d. Service
3. In VED analysis, E stands for…
   a. Essential
   b. Economic
   c. Except
   d. None of the above
4. ABC analysis is also known as…
   a. All better cost
   b. Always business control
   c. Always better control
   d. Always better costing
5. EOQ is that inventory level where total of ordering and carrying cost is…
   a. Maximum
   b. Minimum
   c. Zero
   d. None of the above
6. In FSN, S stands for…
   a. Silver moment
   b. Stand alone
   c. Slow moving
   d. Sure moving

7. In EOQ is also known as Economic Lot Size. Do you agree?

   a. Yes

   b. No

   c. Can't say

   d. Subjective matter

8. EOQ and ROL are used synonymously. Do you agree?

   a. Yes

   b. No

   c. Can't say

   d. Subjective matter

9. Both the objectives of inventory management are mutually exclusive. This statement is…

   a. True

   b. False

   c. Partially true

   d. Partially false

10. Re-ordering Level (ROL) is same as EOQ. The statement is…

    a. True

    b. False

    c. Partially true

    d. Partially false

➢ **Fill in the Blanks :**

1. FSN analysis is used to classify inventory based on the speed of _____.

   Answer : movement

2. In VED analysis, the letter "E" stands for _____.

   Answer : Essential

3. The inventory that includes raw materials, work-in-progress, and finished goods in a manufacturing firm is classified using the _____ method.

   Answer : ABC

4. EOQ stands for _____, which is the inventory level where total ordering and carrying costs are minimized.

   Answer : Economic Order Quantity

5. In a trading company, the only type of inventory maintained is _____.

   Answer : finished goods.

➢ **True or False :**

1. ABC analysis is also known as Always Better Control.

   Answer : True

2. EOQ and Re-order Level (ROL) are exactly the same concept.

   Answer : False

3. The objectives of inventory management are mutually exclusive.

   Answer : False

4. In FSN analysis, "S" stands for Slow Moving items.

   Answer : True

5. VED analysis is used to classify inventory based on criticality or importance.

   Answer : True

****

Unit : 12
Receivables Management

12.1 Introduction

Let's begin with a simple example. Imagine you own a furniture store. A customer walks in, buys a sofa worth ₹50,000, but requests to pay after 30 days. You agree, trusting the customer's credibility. That ₹50,000 which you are yet to receive becomes your receivable.

Receivables are a normal part of business, especially when selling goods or services on credit. They help a firm to increase sales, compete in the market, and build long-term customer relationships. However, while credit sales may increase profit, they also delay cash inflow. This delay can cause liquidity problems if not managed properly.

Hence, receivables management is all about balancing increasing sales through credit while ensuring payments are received on time without risking bad debts.

❖ In short :

⇨ "Receivables management is the art of turning sales into cash quickly, safely, and efficiently."

12.2 Meaning and Definition of Receivables :

When goods or services are sold on credit, the amount that customers owe becomes the **receivable** of the business.In other words, receivables represent the firm's **right to receive money in the future.**

They are also referred to as **Trade Debtors, Debtors**, or **Accounts Receivable** and appear under **current assets** in the balance sheet.

❖ **Definition :**

"A debt owed to the firm by customers arising from the sale of goods or services in the ordinary course of business."

❖ **Example :**

A company sells electrical goods worth ₹1,00,000 to a retailer on 45 days' credit until the payment is received, this amount appears as receivables for the company.

1. **R. N. Anthony :**

   "Receivables are amounts owed to a business enterprise, usually by its customers, as a result of the ordinary extension of credit in the normal course of business."

2. **Weston and Brigham :**

   "Receivables represent the claims held against customers and others for money, goods, or services delivered in the ordinary course of business."

3. **Howard and Upton :**

   "Receivables are debts owed to the firm by customers arising from the sale of goods and services in the ordinary course of business."

4. **Bolten S. E. :**

   "Receivables constitute amounts due to an enterprise from customers on account of credit sales. They form a part of current assets and are expected to be converted into cash within a short period."

5. **Richard M. Lynch :**

   "Receivables are financial claims that a business holds against its customers and others arising from the sale of goods, services, or loans, which are collectible within a defined credit period."

6. **Guthmann and Dougall :**

   "Receivables are the outstanding claims that a business enterprise has against its customers for goods sold or services rendered on credit."

12.3 Objectives of Receivables Management :

Receivables are not just pending payments, they are strategic tools for sales growth and competitive survival. Let's explore why companies maintain receivables.

1. To Increase Sales :

It is quite natural that sales are increased when goods are sold on credit compared to when they are sold only for cash. Many customers prefer not to make immediate cash payments while purchasing. In some cases, they may lack sufficient cash at the time of purchase and need to wait until the goods are resold before making payment. In other cases, bills are required to be sent to the accounts department for verification before payment is released. Due to such customer practices, larger sales are achieved by firms that extend credit facilities.

Credit sales allow customers to buy even if they don't have immediate funds. This flexibility encourages more purchases, resulting in higher overall sales.

❖ **Example :**

A textile wholesaler offering 30 days' credit can attract more shopkeepers compared to one demanding full cash upfront.

2. To Survive in Competition :

Every enterprise must adopt the strategy of credit sales to survive in the competition. In modern markets, extending credit has become essential for maintaining competitiveness. A firm that fails to offer credit terms similar to its competitors-such as a 45 day credit period risks losing its customers to them.

❖ **Example :**

An electronics company offering installment or deferred payment options will likely win more customers than one requiring immediate payment.

3. To Increase Profit :

When sales grow due to credit, total revenue also increases. Even after considering some credit costs, overall profit can rise if the receivables are well managed.

However, this benefit is realized only when credit policies are designed carefully and bad debts are minimized.

❖ **Example :**

A firm's profit margin is 10%. If offering 30 days' credit boosts sales by 25%, profits may increase substantially provided most customers pay on time.

12.4 Advantages and Limitations of Receivables Management :

❖ **Advantages of Receivables Management :**

1. **Improves Cash Flow :** Efective receivables management ensures that customers pay their dues on time. Regular follow-up, proper credit terms, and timely billing help in faster conversion of credit sales into cash. Improved cash flow enables the firm to mneet daily expenses such as wages, rent, and purchase of raw materials without financial stress.
2. **Reduces Bad Debts :** A well-planned receivables management system includes proper credit evaluation of customers before allowing credit. Continuous monitoring of outstanding receivables helps identify risky customers early, thereby reducing the chances of non-recovery and losses due to bad debts.
3. **Increases Sales and Market Share :** When a company offers credit facilities to customers, it becomes more attractive compared to competitors who sell only on cash basis. Credit sales encourage more customers to buy goods, leading to increased sales volume and expansion of market share.
4. **Maintains Adequate Liquidity :** Receivables management helps maintain a balance between credit sales and cash availability. By fixing appropriate credit periods and ensuring timely collection, the firm can maintain sufficient liquid funds to run its operations smoothly.
5. **Strengthens Customer Relationships :** Flexible and fair credit policies help build trust between the firm and its customers. When customers are given reasonable time to pay, it improves goodwill and encourages repeat purchases, resulting in long-term business relationships.
6. **Better Financial Planning and Control :** Efficient receivables management provides accurate information about expected cash inflows. This helps management in preparing budgets, planning investments, and making informed financial decisions regarding expansion and working capital requirements.

7. **Improves Overall Profitability :** Although credit sales involve some cost, proper receivables management reduces losses from Dad debts and delays. Increased sales combined with controlled credit risk ultimately result in higher profits for the business.

❖ **Limitations of Receivables Management :**

1. **Blocking of Working Capital :**

   Money invested in receivables remains tied up until customers make payment. This reduces the business activities and may force the e firm to borrow availability of cash for other important business funds to meet its short term needs.

2. **Risk of Bad Debts :**

   Even with strict credit policies, there is always a risk that somne customers may default due to financial difficulties, dishonesty, or business failure. Such non recoverable amounts lead to financial losses for the firm.

3. **High Cost of Collection :**

   Receivables management involves expenses related to billing, record keeping, follow-ups. reminders, and sometimes legal action. These collection costs increase the operating expenses of the business.

4. **Difficulty in Assessing Creditworthiness :**

   It is often difficult to accurately judge the financial strength and payment behavior of customers. Incorrect assessment may lead to granting credit to unreliable customers, increasing the risk of delayed or non-payment.

5. **Delay in Cash Inflows :**

   Late payments from customers disturb the cash budget of the firm. Delayed cash inflows may affect payment to suppliers, employees, and lenders, leading to operational and reputational problems.

6. **Increased Administrative Work :**

   Managing receivables requires continuous monitoring, maintaining detailed records, and handling customer queries and disputes. This increases the workload of the finance and accounts department and may require additional staff.

12.5 Costs of Maintaining Receivables :

While credit sales bring benefits, they also tied up money and involve several costs. A good finance manager must weigh these costs before extending credit.

1. Collection Cost :

Collection cost refers to the administrative expenses incurred in maintaining and collecting receivables from customers who have purchased on credit. These costs arise as part of the firm's efforts to ensure timely payment and proper management of credit accounts.

This category of cost generally includes :

- ⇨ Salaries and wages of staff responsible for managing credit accounts and collections.
- ⇨ Expenses on stationery, postage, and reminder letters sent to customers.
- ⇨ Fees paid to collection agencies or legal professionals for recovering overdue payments.

In addition, collection cost also covers :

(a) The extra expenditure involved in setting up and maintaining a credit department including staff, accounting records, stationery, postage, and other related items.

(b) The cost of obtaining credit information, either through external specialist agencies or by the firm's own staff.

Thus, collection cost forms an important part of the total cost of credit sales and must be properly managed to maintain profitability.

❖ **Example :**

If a firm spends ₹25,000 monthly on follow-ups, reminders, and legal charges, that's the collection cost.

2. Capital Cost

When a firm adopts a liberal credit policy, the level of accounts receivable increases, leading to the blocking of the firm's financial resources. This happens because there is a time gap between the sale of goods and the actual receipt of payment from customers.

During this period, the firm still needs to meet its regular obligations such as paying employees, suppliers, and other operating expenses. To manage this, additional funds may have to be arranged either from external sources or from the firm's retained profits.

If funds are borrowed from outside sources, the firm incurs interest expenses on the borrowed amount. On the other hand, if internal funds (retained profits) are used, the firm faces an **opportunity cost** the potential return that could have been earned if those funds were invested elsewhere.

Therefore, when goods are sold on credit, the firm's funds remain blocked until payment is received. This blockage carries a cost, either in the form of

interest on borrowed money or as the opportunity cost of using internal funds.

❖ **Example :**

If ₹10,00,000 is tied up in receivables and the company's borrowing cost is 12% per annum, the annual capital cost is ₹1,20,000.

3. Default Cost :

Sometimes, customers fail to make payments due to reasons such as bankruptcy, insolvency, or dishonesty. The amounts that cannot be recovered from such customers are termed as bad debts. These represent a direct financial loss to the business.

When customers are unable to pay their dues, the outstanding amounts must be written off, as they cannot be realized. Such losses arising from non-payment are known as default costs.

Default costs are an inherent risk associated with credit sales and form an important component of the overall cost of extending credit to customers. Proper credit evaluation and collection policies can help minimize these losses.

❖ **Example :**

If out of ₹5,00,000 in receivables, ₹25,000 cannot be collected, that becomes a default cost.

4. Delinquency Cost :

Delinquency cost arises when customers delay their payments beyond the agreed credit period. It represents the additional cost incurred by the firm due to the failure of customers to meet their payment obligations on time.

The major components of delinquency cost include :

⇨ Interest cost on funds that remain blocked for an extended period due to delayed payments.

⇨ Administrative expenses associated with sending reminders, follow-up communications, and issuing legal notices.

⇨ Legal and collection expenses incurred in pursuing overdue accounts or initiating recovery actions.

In essence, delinquency cost reflects the financial burden placed on the firm when payments are not received within the stipulated time, thereby increasing the cost of maintaining receivables.

❖ **Example :**

If a customer delays payment by 20 days beyond due date, the firm bears the interest and administrative cost of waiting.

12.6 Factors Affecting Receivables :

Several internal and external factors influence how much a company should invest in receivables.

1. Nature of Business: Businesses selling consumer goods usually have smaller receivables compared to manufacturing or wholesale businesses, where credit is common.
2. Credit Policy: Liberal policies increase receivables; strict policies reduce them.
3. Market Competition: In a highly competitive market, firms offer longer credit periods to retain customers.
4. Customer Credit Worthiness: The stronger a customer's financial background, the safer it is to extend credit.
5. Economic Conditions: In periods of recession, payments slow down, increasing receivable levels.
6. Company's Financial Position: Firms with strong liquidity can afford to offer more credit compared to those already short on cash.

12.7 Credit Policy: Nature and Goals :

A credit policy is a set of principles that guide a business in granting credit to customers and collecting payments. It answers three key questions :

- ⇨ To whom should credit be given?
- ⇨ How much credit should be allowed?
- ⇨ For how long should the credit period be?

❖ **Nature of Credit Policy :**

- ⇨ Liberal Credit Policy: Encourages higher sales by giving longer credit periods and lenient terms. It can increase profits but also raises the risk of bad debts.
- ⇨ Strict Credit Policy: Restricts credit to financially sound customers and shortens the credit period. It reduces risk but may limit sales growth.

❖ **Example :**

A company offering 60 days' credit (liberal) may experience higher sales but also delayed collections, whereas a firm with 15 days' credit (strict) will collect cash faster but may lose some customers.

❖ **Goals of Credit Policy :**

1. Maximize Sales with Minimum Risk: Encourage more sales without increasing bad debts.
2. Maintain Liquidity: Ensure that credit does not harm the firm's cash position.
3. Reduce Collection Problems: Establish clear payment terms and follow-up systems.
4. Build Customer Relations: A balanced credit policy enhances trust and long-term association.

❖ **Example :**

A "2/10, net 30" credit policy means customers get a 2% discount if they pay within 10 days; otherwise, full payment is due within 30 days. This encourages early payments and improves cash flow.

12.8 Monitoring and Controlling Receivables :

Granting credit is easy collecting it on time is the real challenge. Therefore, receivables must be regularly monitored to ensure efficiency and prevent defaults.

1. Ageing Schedule

The **ageing of receivables** method is a useful tool to determine how long the firm's receivables have been outstanding. It helps in assessing the efficiency of the credit and collection policies by showing the time period for which the dues have remained unpaid.

Under this method, all outstanding receivables are classified into different **age brackets** such as :

⇨ 0-30 days

⇨ 31-60 days

⇨ 61-90 days

⇨ 91-120 days, and so on.

Each debtor is placed into the relevant category based on how long their payment has been overdue.

For example, if Mr. × has not paid an amount of ₹ 2,00,000 for the last 95

days, he will fall under the **91-120 days** bracket.

An **illustrative ageing schedule** is shown below :

Age Group (in days)	% of Receivables
0–30	35%
31–60	40%
61–90	20%
Over 90	5%

In this example, if the firm's standard credit period is 30 days, then 35% of receivables are within the normal period, while the remaining **65%** are overdue.

The **actual ageing schedule** of a firm should be compared with a **standard or expected schedule** to assess performance. If a higher percentage of receivables fall into the older age brackets compared to the standard, it indicates inefficiency in collection or possible payment issues with customers.

Thus, the ageing schedule serves as an effective tool to **monitor receivables, identify overdue accounts**, and **take timely corrective actions** to maintain sound credit management.

2. Days' Sales Outstanding (DSO) or Collection Ratio

Days' Sales Outstanding (DSO), also known as the **Collection Ratio**, measures the **average number of days** a company takes to collect payment after a credit sale has been made. It reflects the efficiency of the firm's credit and collection policies.

A **lower DSO** indicates faster collections and better management of receivables, whereas a **higher DSO** suggests delays in payment and possible inefficiencies in the collection process.

Formula :

$$DSO_t = \frac{\text{Accounts receivables at time}}{\text{Average daily sales}}$$

Where :

Average Daily Credit Sales= Total Credit Sales for the Period/ Number of Days in the Period

Accounts receivable are considered to be **under control** if the DSO is equal to or less than a certain **standard norms** set by the firm.

If the DSO value **exceeds the norms**, it indicates that **collections are slow**, and follow-up measures may be required.

❖ **Example : Sales & receivables data**

Month	Sales	Receivable	Month	Sales	Receivable
Jan	140	410	July	195	330
Feb	150	350	Aug	200	340
Mar	155	310	Sept	210	350
Apr	145	320	Oct.	215	370
May	160	300	Nov	230	400
June	180	320	Dec	250	410

If the DSO is calculated at the end of each quarter, we get the following picture :

First $\frac{310}{(140+150+155)/90}$ = 63 days

Second $\frac{320}{(145+160+185)/91}$ = 60 days

Third $\frac{350}{(195+200+210)/92}$ = 53 days

Fourth $\frac{410}{(215+230+250)/92}$ = 54 days

We get DSO in 63 days in first quarter, 60 days in second, 53 days in third, 54 days in fourth. Looking at DSO, we see that it decrease slightly over last year, suggesting that collections have improved.

3. Collection Matrix :

The **average collection period** and the **ageing schedule** are two commonly used techniques for monitoring receivables and evaluating the efficiency of credit collection. However, both these methods have certain **limitations** that affect their accuracy.

These measures are influenced not only by the **payment behavior of customers** but also by the **sales pattern** of the firm.

- ⇨ When **sales are increasing,** a larger portion of the receivables belongs to recent sales, making the average collection period and ageing schedule appear different from what they would be under constant sales levels.
- ⇨ This variation occurs even when customers' payment behavior remains the same because more current sales are yet to fall due for payment.
- ⇨ Similarly, when **sales are decreasing**, a smaller portion of receivables is from recent sales, which again affects the results of these measures.

To correctly analyze the **changes in customers' payment behavior**, it is important to study the **pattern of collections** related to credit sales rather than relying solely on traditional measures like the average collection period or ageing schedule.

The **collection matrix** provides a clearer and more accurate picture of how receivables are collected over time. It shows the percentage of credit sales realized in the **month of sale**, the **first following month**, the **second following month**, and so on.

This approach helps in identifying whether collections are improving, stable, or deteriorating over different periods. The following table shows an illustrative collection matrix

% of Receivables collected during the	Credit Sales					
	January	February	March	April	May	June
Month of sales	13	14	15	12	10	9
First following month	42	35	40	40	36	35
Second following month	33	40	21	24	26	26
Third following month	12	11	24	19	24	25
Fourth following month	----	----	----	5	4	5

❖ **Benefits of the Collection Matrix**

1. It helps to **evaluate whether the collection performance is improving or deteriorating** over time by comparing collection percentages across different months.
2. It provides a **historical record of collection patterns**, which can be used to **project future monthly receipts** and prepare more accurate **cash flow and budget forecasts.**
3. It allows management to **identify delays in payments** and take corrective actions promptly.
4. It gives a clearer picture of the **actual payment behavior of customers**, independent of changes in sales volume.

4. Credit Review and Follow-up :

Regular evaluation of customer accounts helps identify potential defaulters early. Sending reminders, making follow-up calls, and maintaining professional communication ensure that customers pay promptly.

❖ **Example :**

A company reviews customer accounts monthly and immediately contacts any client whose payment is overdue beyond 45 days.

Receivables represent the money owed by customers for credit sales. They help businesses increase sales and profits but also involve costs and risks.

Efficient receivables management ensures a proper balance between risk and return.

❖ Key take aways :

⇨ Receivables are an essential part of credit sales.

⇨ Objectives include increasing sales, competition survival, and profit growth.

⇨ Costs include collection, capital, default, and delinquency.

⇨ Factors such as nature of business, credit policy, and economic conditions affect receivables.

- ⇨ A well-designed credit policy balances sales growth with financial safety.
- ⇨ Regular monitoring through aging schedules and collection analysis is necessary to maintain healthy cash flow.

Receivables management is one of the most vital functions of financial management.

A firm must strike the right balance between extending credit to enhance sales and ensuring timely collection to maintain liquidity.

❖ Remember :

"Sales are good, but collections are better."

Efficient receivables management ensures the business remains profitable, liquid, and competitive in the long run.

❖ Exercise :

❖ Short Answer Questions

1. Define receivables in your own words.
2. List any four factors affecting receivables.
3. What is meant by collection cost?
4. Explain the term "default cost" with an example.
5. What is the main objective of receivables management?
6. Distinguish between strict and liberal credit policy.
7. What is an aging schedule?
8. What does "2/10, net 30" mean?
9. Name two goals of a credit policy.
10. What is meant by delinquency cost?

❖ Long Answer Questions

1. Explain the objectives and costs of maintaining receivables in detail with examples.
2. Discuss the various factors affecting receivables in a business organization.
3. Define credit policy and explain its nature and goals.
4. Describe different techniques for monitoring and controlling receivables.
5. "Receivables management is the key to financial balance between liquidity and profitability." Explain this statement with examples.

❖ **Multiple Choice Questions (MCQs) :**

1. The main objecctive of receivables management is to :
   a) Reduce sales
   b) Maximize profits by minimizing credit cost
   c) Increase inventory
   d) Delay collections
2. Receivables management mainly aims at :
   a) Increasing cash sales only
   b) Balancing sales growth and credit risk
   c) Eliminating debtors
   d) Increasing long-term liabilities
3. One major advantage of efficient receivables management is :
   a) Increase in bad debts
   b) Delay in collections
   c) Improvement in cash flow
   d) Increase in blocked funds
4. Offering credit to customers mainly helps in :
   a) Reducing sales
   b) Increasing administrative cost
   c) Increasing sales volume
   d) Increasing losses
5. One major limitation of receivables management is :
   a) Blocking of working capital
   b) Increase in cash balance
   c) Reduction in expenses
   d) Faster cash inflow
6. Which risk is directly associated with receivables ?
   a) Market risk
   b) Inflation risk
   c) Exchange risk
   d) Bad debt risk
7. Which of the following is a cost of maintaining receivables ?
   a) Opportunity cost
   b) Storage cost

c) Transportation cost

d) Production cost

8. Which of the following is a collection cost ?

a) Manufacturing expense

b) Billing and follow-up cost

c) Selling cost

d) Purchase cost

9. Which factor directly affects the level of receivables ?

a) Depreciation method

b) Wage policy

c) Dividend policy

d) Credit period

10. Credit policy of a firm mainly deals with :

a) Cash purchases

b) Production policy

c) Terms and conditions of credit sales

d) Dividend payment

11. Which of the following is a component of credit policy ?

a) Credit standards

b) Wage standards

c) Production standards

d) Quality standards

12. Regular follow-up and reminders help in :

a) Increasing bad debts

b) Faster collection of receivables

c) Increasing costs

d) Blocking funds

Answers:

1.	b)	5.	a)	9.	d)
2.	b)	6.	d)	10.	c)
3.	c)	7.	a)	8.	b)
4.	c)	11.	a)	12.	b)

****

Unit : 13
Financial Planning

13.1 Introduction

Have you ever wondered how successful companies always seem to have enough money to pay employees, buy equipment, and still invest in growth?

It's not luck, it's **financial planning.**

Just like individuals plan their monthly budgets to manage income and expenses, businesses too must plan their finances to ensure smooth operations and long-term stability.

Financial planning is the foundation of sound financial management. It helps in forecasting financial needs, arranging funds at the right time, and ensuring that these funds are used efficiently.

Without proper financial planning, even a profitable business can face liquidity problems, delayed payments, or unplanned borrowing.

In simple words, financial planning acts as a roadmap for the financial future of a business.

❖ **Definitions of Financial Planning :**

1. Guthmann and Dougal

"Financial planning involves determining in advance the financial requirements of an enterprise and the sources of funds to meet them."

Explanation :

This definition highlights that financial planning is about **estimating the need for finance** and deciding **where and how to obtain those funds.**

2. **Howard and Upton**

"Financial planning is the process of deciding in advance the financial activities to be undertaken for achieving business goals."

Explanation :

It emphasizes that financial planning is a forward-looking activity that aligns financial decisions with organizational objectives.

3. **Philip Kotler :**

"Financial planning is the process of setting financial goals and developing strategies to achieve them through effective utilization of available resources."

Explanation :

Kotler's view focuses on goal-setting and strategic management of resources to ensure financial success.

4. **Walker and Petty**

"Financial planning is the process of estimating the capital required and determining its composition."

Explanation :

This definition underlines the quantitative aspect-estimating how much capital is needed and how it should be structured (equity vs. debt).

5. **William J. Stanton**

"Financial planning means anticipating the future requirements of funds for a business and making arrangements for their procurement in advance."

Explanation :

It stresses the importance of forecasting financial needs and preparing early to meet those needs efficiently.

13.2 Meaning and Importance of Financial Planning :

❖ **Meaning :**

Financial Planning is the process of estimating the amount of capital required, determining its sources, and allocating it effectively to achieve organizational goals.

It involves preparing a blueprint for the company's financial activities, including raising funds, investing them in profitable projects, and maintaining financial control.

"financial planning means deciding in advance how much finance is needed, when it is needed, and how it will be used efficiently."

❖ **Example :**

A company planning to start a new manufacturing unit must first estimate how much money is needed for land, machinery, staff, and raw materials. This is part of financial planning.

Importance of Financial Planning

1. Ensures Availability of Adequate Funds

Financial planning ensures a business has sufficient funds available at the right time for both short- and long-term needs. It helps in avoiding cash shortages and ensures that operations, investments, and growth activities are never interrupted due to lack of money.

2. Reduces Business Uncertainty

Through careful forecasting of income, expenses, and future financial requirements, financial planning helps an organization to prepare for unexpected challenges. It minimizes financial risks by creating strategies to deal with uncertainties such as market fluctuations or economic downturns.

3. Helps in Smooth Operations

A well-prepared financial plan ensures that every department production, marketing, and administration runs efficiently. It guarantees a continuous flow of funds for daily activities, preventing operational delays and maintaining business stability.

4. Facilitates Coordination Between Departments

Financial planning aligns the goals of various departments by linking financial resources with business priorities. It ensures better coordination and communication between departments, so that everyone works collectively toward achieving the company's objectives.

5. Ensures Financial Discipline

Financial planning establishes clear policies regarding spending, borrowing, and investment. It brings accountability and control within the organization, helping management to avoid wasteful expenditures and use funds responsibly.

6. Helps in Achieving Long-Term Goals

Financial planning provides direction for future growth by setting measurable targets. It allows the business to focus on expansion, modernization, or diversification while maintaining financial stability and sustainability.

7. Improves Credit worthiness

A company with well-organized financial plans gains trust from investors, lenders, and financial institutions. It reflects sound management practices and enhances the company's ability to secure loans or attract investment.

8. Minimizes Wastage of Resources

Proper allocation of financial resources ensures that money is neither over-invested nor left idle. Financial planning promotes optimum utilization of funds, reducing wastage and improving overall efficiency.

13.3 Objectives of Financial Planning :

The primary objective of financial planning is to ensure that the right amount of funds are available at the right time and used efficiently. Let's discuss the key objectives :

1. **Estimate Capital Requirements :** Determine how much finance will be required for fixed assets (like machinery and buildings) and working capital (like wages and materials).
2. **Determine Capital Structure :** Decide how much capital should come from owners' funds (equity) and how much from borrowed funds (debt). A balanced structure reduces risk and the cost of capital.
3. **Ensure Availability of Funds :** Finance must be available at the right time to avoid delays in business operations.
4. **Avoid Overcapitalization and Undercapitalization :**
   - ⇨ Overcapitalization means holding excessive funds that remain idle.
   - ⇨ Undercapitalization means not having enough funds to run operations. Financial planning helps maintain the perfect balance.
5. **Utilize Funds Efficiently :** Funds should be invested in projects that offer maximum returns with minimum risk.

6. **Provide Financial Control :** It helps in setting standards and evaluating actual performance against planned targets.

7. **Promote Business Stability and Growth :** A well-prepared financial plan ensures steady expansion and long-term survival of the enterprise.

❖ **Example :**

If a company plans to open five new stores next year, it must plan its finances now estimate the required funds, decide sources, and set up timelines. This proactive approach ensures smooth execution.

13.4 Steps in the Financial Planning Process :

Financial planning helps a business estimate its financial needs, arrange suitable funds, and control their use to achieve goals effectively. The process involves several key steps as explained below :

❖ **Step 1 : Setting Financial Goals**

This is the first and most important step in financial planning. The company must decide what it wants to achieve financially in the short and long run.

❖ **Short-term goals :**

⇨ Managing working capital

⇨ Paying daily expenses and short-term liabilities

⇨ Ensuring liquidity for smooth operations

❖ **Long-term goals :**

⇨ Expansion of business

⇨ Modernization of plant and machinery

⇨ Diversification into new products or markets

Example :

A company may target **20% growth in sales** within two years or aim to **reduce total debt by 15%.**

❖ **Step 2 : Estimating Financial Requirements :**

Once goals are clear, the next step is to **estimate how much finance is required** to achieve them.

❖ **Fixed capital :**

⇨ Funds needed for long-term assets such as land, buildings, and machinery.

❖ **Working capital :**

Money required for day-to-day operations like raw materials, wages, and inventory.

❖ **Contingency funds :**

Extra money kept aside for unexpected expenses or emergencies.

Example :

If a company wants to buy new machinery worth ₹10 crore and maintain ₹2 crore as working capital, total funds required will be ₹12 crore.

❖ **Step 3 : Deciding the Sources of Finance :**

After estimating financial needs, the firm must decide **where to get the money from.**

- **Equity shares :** Ownership capital raised from shareholders.
- **Debentures or loans :** Borrowed capital that needs to be repaid with interest.
- **Public deposits :** Short-term funds collected from the public.
- **Retained earnings :** Profits reinvested back into the business.

A **balanced mix of sources** ensures lower cost of capital and financial stability.

❖ **Step 4 : Formulating Financial Policies :**

Financial policies provide **guidelines for using, investing, and managing funds** effectively.

- **Credit policy :** Decides terms and conditions for giving credit to customers.
- **Dividend policy :** Determines how much profit will be distributed and how much retained.
- **Investment policy :** Guides where and how funds should be invested for best returns.

Example :

A company may decide to reinvest 40% of its annual profit for expansion and development.

❖ **Step 5 : Ensuring Financial Control**

Once funds are raised and used, it is essential to **monitor and control** their use to avoid wastage or overspending.

Control tools include :

- **Budgets :** To plan income and expenses.
- **Variance analysis :** To compare actual results with budgeted figures.
- **Financial ratios :** To evaluate performance and efficiency.

Example :

If ₹ 50 lakh was budgeted for marketing but ₹ 60 lakh was spent, management must find out the reason and adjust future plans.

13.5 Factors Affecting Financial Planning :

Financial planning is not the same for every organization. It depends on various **internal and external factors** that influence how funds are raised, allocated, and controlled. The major factors affecting financial planning are as follows:

1. Nature of Business :

- The type of business plays a major role in financial planning.
- **Manufacturing firms** require large investments in fixed assets like machinery, land, and buildings.
- **Trading or service firms**, on the other hand, need less fixed capital and more working capital for daily operations.

2. Size of Business :

- The scale of operations affects the level of financial planning.
- Large firms need detailed and long-term financial plans to manage extensive operations.
- Small firms usually focus on short-term planning to meet immediate needs.

3. Business Growth Stage :

- The stage of business development determines its financial needs.
- A newly established business needs more funds for setup and expansion.
- An established business focuses more on modernization, diversification, or replacement of assets.

4. Availability of Funds :

- The availability of internal funds like reserves and retained earnings reduces dependence on external borrowing.
- Firms with strong internal sources of finance have greater flexibility in planning their financial strategies.

5. Economic Conditions :

- The overall economic environment-including inflation, recession, and interest rate trends-affects financial planning decisions.
- During inflation, the cost of borrowing rises, while in a recession, credit availability and sales may decline.

6. Management Attitude :

- The mindset of the management has a strong impact on financial planning.
- Conservative management prefers limited borrowing and low financial risk.
- Aggressive management is willing to take higher risks and use more debt to expand rapidly.

7. Government Regulations :

- Financial planning must comply with government rules and policies.
- Factors such as tax laws, monetary policies, and financial regulations influence decisions related to capital structure, investment, and dividends.

8. Market Conditions :

- Market trends, product demand, competition, and consumer preferences play a key role in financial planning.
- In a competitive market, firms must plan carefully to maintain profitability and liquidity.

13.6 Advantages of Financial Planning :

1. Clear Financial Goals :

Financial planning helps individuals and organizations identify and define financial goals such as education, marriage, buying a house, starting a business, or retirement. Clear goals give direction to saving and investment decisions.

2. Systematie Saving Habit :

It encourages regular and disciplined saving. Instead of saving randomly, money is saved“according to priorities and future requirements. It is a note that the habit of saving plays a crucial“role in financial planning because it is the basis for investment.

3. Proper Utilization of Income :

Financial planning ensures optimum use of income by allocating funds for consumption, saving, and investment, thus avoiding wastage and misuse of money. Resources are always profitable when they are smartly utilized by stakeholders.

4. Effective Budget Control :

Through budgeting, financial planning helps in controlling expenses, comparing income with expenditure, and maintaining financial discipline. Budget is an important aspect because it is a real-time cost analysis, and hence, the estimations of income and expenditure are flexible.

5. Financial Security in Emergencies

It provides protection against unexpected situations such as illness, accidents, job loss, or business loss by creating emergency funds and insurance coverage. When any corporate or business needs solvency or emergency funds that time the best source of getting funds for end use is financial security.

6. Better Investment Decisions

Financial planning helps in selecting appropriate investment options based on risk-bearing capacity, time period, and expected returns, leading to wealth creation. There are risk based and risk free investment proposals. Every time, an investor has an eye on the portfolio and their nature in terms of risk free or risk oriented securities. Risk free security is a safe side in terms of financial planning, and risk oriented is a risky project of financial planning.

7. Reduction of Financial Risk

By diversifying investments and using insurance, financial planning helps in minimizing inancial risks and uncertainties. Risk can be reduced through the proper financial planning of securities by investing in less risky securities and proper investigation of the financial securities of a business.

8. Tax Planning and Savings

It helps in legal tax reduction by making use of tax exemptions, deductions, and rebates through proper tax planning. Tax planning helps save income from the government through legal means.

There are multiple ways that can be used in financial planning for tax savings. A tax assistant knows the rules and regulations that will be useful in tax saving.

9. Peace of Mind

When finances are well planned, individuals feel confident and stress-free, knowing that present and future financial needs are taken care of. It is always important that people should be physically as well as mentally fit because mental well-being is very important for the growth and development of any business.

10. Helps in Retirement Planning

Financial planning ensures financial independence after retirement, enabling a comfortable and dignified life in old age. Financial planning is useful for retirement benefits because it is a case where we do not have a much income-oriented job for regular expenses. Financial planning will be helpful in every aspect of retirement.

11. Improves Standard of Living

By balancing present enjoyment and future security, financial planning helps in maintaining and improving the standard of living. Financial planning improves the standard of living through the savings and proper investment in a portfolio.

12. Long-Term Wealth Crcation

Through continuous saving, investment, and reinvestment, financial planning helps in building long-term wealth. Long-term wealth is a part of financial planning, and it is designed in such a way that will multiply their wealth. Long-term wealth is a core part of financial planning.

13. Helps Achieve Financial Independence

It reduces dependence on others by ensuring sufficient funds for future needs, leading to financial self-reliance. Financial planning helps people with their financial independence because if people can save more then they can invest more in terms of getting more return in future.

14. Better Decision Making

Financial planning provides a clear financial roadmap, helping individuais make informed and rational financial decisions. Financial planning is essential for a secure and stable financial future. It helps in achieving goals, managing risks, reducing stress, and ensuring long-term financial well-being.

13.7 Limitations of Financial Planning :

1. Uncertain Future

Financial planning depends on forecasts of future events such as market conditions, sales, costs, interest rates, and government policies. However, these factors are uncertain and can change unexpectedly. Events like economic slowdowns, inflation, or political instability can make financial plans unrealistic or ineffective.

2. Rigidity in Implementation

Once a financial plan is formulated, management often tends to follow it strictly. This rigidity may reduce flexibility, preventing the organization from making quick decisions or adapting to new opportunities and challenges. In today's dynamic business world, flexibility is as important as planning.

3. Time-Consuming Process

Preparing a detailed financial plan requires extensive research, data collection, analysis, and coordination between departments. This can consume a significant amount of time, delaying important decisions and reducing the ability to act swiftly on emerging business prospects.

4. High Cost of Preparation

Financial planning can be costly, especially for small and medium enterprises. It involves hiring financial experts, using analytical tools, conducting market research, and preparing detailed projections. These activities require both money and manpower, which may strain business resources.

5. Dependence on Assumptions

Financial planning is based on several assumptions related to sales forecasts, market conditions, and future expenses. If these assumptions prove incorrect, the entire plan may fail. For instance, an over estimation of future sales may lead to over investment, causing losses later.

6. Rapidly Changing Business Environment

The business environment is continuously evolving due to technological developments, market competition, policy changes, and customer preferences. A plan that fits current conditions may quickly become outdated if it isn't revised regularly.

7. Difficulty in Accurate Forecasting

It is impossible to predict future events with complete accuracy. Changes in demand, supply shortages, currency fluctuations, or natural disasters can disrupt financial projections, making the plan less reliable.

8. Lack of Qualified Personnel

Effective financial planning requires skilled professionals with analytical and forecasting abilities. In some organizations, particularly smaller ones, the lack of such expertise may lead to weak or unrealistic financial plans.

9. Possibility of Over-Planning

Sometimes organizations overemphasize financial planning, creating highly detailed and rigid plans. This over-planning can result in unnecessary paperwork, slow decision-making, and reduced creativity in financial management.

10. Influence of External Factors

Certain external forces such as changes in tax laws, trade policies, inflation rates, or global economic shifts are beyond the control of management. These factors can drastically affect the accuracy and practicality of financial plans.

11. Human Error and Bias

Financial planning involves human judgment in making forecasts, estimating future costs, and setting priorities. Errors, personal biases, or over confidence in predictions can lead to flawed financial decisions.

12. Short-Term Focus

In some cases, financial plans may concentrate too much on short-term results such as immediate profit or liquidity, neglecting long-term stability, growth, and innovation.

❖ Exercise

❖ Short Answer Questions

1. Define financial planning in your own words.
2. List any four objectives of financial planning.
3. What is meant by overcapitalization and undercapitalization?
4. Name any three factors affecting financial planning.
5. State two limitations of financial planning.
6. Why is financial planning important for a new business?

7. What is meant by financial control?
8. Write any two examples of financial goals.
9. What are the main steps in the financial planning process?
10. What is meant by capital structure?
11. Explain any two advantages of financial planning

❖ **Long Answer Questions :**

1. Define financial planning and explain its importance in business management.
2. Discuss the major objectives of financial planning.
3. Explain in detail the steps involved in the financial planning process.
4. Describe the factors that affect financial planning in an organization.
5. What are the limitations of financial planning? Suggest measures to overcome them.
6. Explain the advantages of financial planning in details.

❖ **MCQs :**

1. Financial planning in a business primarily helps in :

   A) Increasing employee satisfaction

   B) Forecasting financial needs and arranging funds

   C) Reducing marketing expenses

   D) Avoiding taxation

   Answer : B) Forecasting financial needs and arranging funds

2. Which of the following best defines financial planning?

   A) Preparing the balance sheet of a company

   B) Deciding in advance how much finance is needed, when, and how it will be used

   C) Maintaining a record of expenses only

   D) Allocating funds without any estimation

   Answer : B) Deciding in advance how much finance is needed, when, and how it will be used

3. Which of the following is NOT an importance of financial planning?

   A) Ensures availability of adequate funds

B) Helps in achieving long-term goals

C) Increases business uncertainty

D) Facilitates coordination between departments

Answer : C) Increases business uncertainty

4. The main objective of financial planning is to :

A) Reduce production cost

B) Ensure right amount of funds at the right time and use them efficiently

C) Avoid paying taxes

D) Increase competition in the market

Answer : B) Ensure right amount of funds at the right time and use them efficiently

5. Which of the following steps comes first in the financial planning process?

A) Estimating financial requirements

B) Ensuring financial control

C) Setting financial goals

D) Formulating financial policies

Answer : C) Setting financial goals

6. The funds needed for day-to-day operations like wages and raw materials are called :

A) Fixed Capital

B) Working Capital

C) Contingency Funds

D) Retained Earnings

Answer : B) Working Capital

7. Which of the following factors does not affect financial planning?

A) Nature of business

B) Government regulations

C) Size of business

D) Employee hobbies

Answer : D) Employee hobbies

8. One major limitation of financial planning is that:

   A) It ensures complete accuracy of forecasts

   B) It is free from external influences

   C) It may lack flexibility due to rigidity in implementation

   D) It guarantees high profits

   Answer : C) It may lack flexibility due to rigidity in implementation

9. Over capitalization in financial planning refers to :

   A) Having insufficient funds for operations

   B) Holding excessive funds that remain idle

   C) Excessive borrowing from banks

   D) Overestimating profits

   Answer : B) Holding excessive funds that remain idle

10. During a recession, financial planning is affected mainly because :

    A) Credit availability and sales may decline

    B) Interest rates increase

    C) Businesses earn higher profits

    D) Government policies become stable

    Answer : A) Credit availability and sales may decline

❖ **Fill in the Blanks :**

1. Financial planning acts as a _____ for the financial future of a business.
2. The process of estimating the amount of capital required and determining its sources is known as _____.
3. Financial planning ensures the availability of _____ funds at the right time for business needs.
4. A company with well-organized financial plans improves its _____ and gains the trust of investors and lenders.
5. The first step in the financial planning process is _____.
6. Funds required for day-to-day operations such as wages and raw materials are called _____.
7. The overall economic environment, including inflation and interest rate trends, is an example of an _____ factor affecting financial planning.
8. Financial planning helps in avoiding both _____ and _____ by maintaining a proper balance of funds.

9. One major limitation of financial planning is its dependence on various _____ related to sales and market conditions.
10. During periods of _____, credit availability and sales may decline, affecting financial planning decisions.
11. Financial planning provides _____ for future growth and expansion of the business.
12. The funds raised from shareholders in the form of ownership capital are called _____.
13. Financial control in planning is often maintained through tools like budgets, variance analysis, and _____ ratios.
14. A conservative management prefers limited borrowing and low _____ risk.
15. One of the limitations of financial planning is that it can become outdated due to a rapidly changing _____ environment.

❖ **Answers**

1. Roadmap
2. Financial planning
3. Adequate
4. Creditworthiness
5. Setting financial goals
6. Working capital
7. External
8. Overcapitalization, undercapitalization
9. Assumptions
10. Recession
11. Direction
12. Equity shares
13. Financial
14. Financial
15. Business

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Unit : 14
Emerging Trends in Financial Management

14.1 Introduction

Financial management is no longer limited to traditional activities such as budgeting, accounting, and cost control. With rapid changes in the business environment, it has become more dynamic, technology-oriented, and decision focused. Modern financial management considers not only financial data but also human behaviour, sustainability, and innovation while making financial decisions. These changes have given rise to several emerging trends that are shaping the future of finance.

Behavioural finance plays an important role by explaining how psychological factors like emotions, attitudes, and personal biases influence financial decisions. It helps managers and investors understand real-world decision-making and avoid common financial mistakes. Sustainability and green finance have gained importance as businesses aim for long-term growth while protecting the environment and society. Financial managers now support investments in renewable energy, sustainable projects, and responsible business practices.

FinTech and digital finance have transformed financial operations through digital payments, online banking, and advanced financial platforms, making financial processes faster, safer, and more efficient. Artificial intelligence and automation further improve accuracy in forecasting, risk assessment, and fraud detection while reducing manual work. Crypto assets and blockchain technology introduce secure, transparent, and decentralized systems for financial transactions and record keeping. Together, these emerging trends show how financial management has become more strategic, responsible, and future oriented in the modern business world.

Financial sector integrated with technology and continuously evolving to meet the demand of accuracy speed transparency and efficiency. In the contemporary digital era, Artificial Intelligence (AI) and automation have emerged as game-

changing technologies that are fundamentally transforming financial systems across the globe. From traditional banking operations to complex investment decisions, AI-driven models and automated processes are reshaping how financial system of the country. Hence AI and automation is now become integral part of finance.

14.2 Behavioral Finance - Basics :

❖ Meaning :

Behavioural finance is a branch of finance that studies how human psychology affects financial decisions. It explains that investors, managers, and individuals do not always act rationally while making financial decisions. Emotions such as fear, greed, overconfidence, and social influence often affect choices related to investment, savings, and risk. Behavioural finance helps in understanding real-life financial behavior rather than relying only on traditional financial theories.

❖ Concept :

Behavioral finance is a growing area in financial management that explains how psychological factors influence financial decisions made by investors, managers, and individuals. Traditional financial theories are based on the assumption that people are rational, well-informed, and always aim to maximize wealth. However, in real situations, financial decisions are often influenced by emotions, personal beliefs, social pressure, and past experiences. Behavioral finance bridges the gap between traditional finance and actual human behavior.

This approach studies various psychological biases and emotions that affect financial decision-making. Common biases include overconfidence, where individuals believe they have better knowledge than others, and loss aversion, where people prefer avoiding losses rather than achieving gains. Other important concepts are herd behavior, where people follow the crowd without proper analysis, and mental accounting, where individuals treat money differently based on its source or use. Emotions such as fear, greed, and anxiety also play a major role during market ups and downs.

In financial management, behavioral finance helps managers understand investor reactions, market movements, and decision-making errors. It supports better investment planning, risk assessment, and portfolio management by reducing emotional and biased decisions. By applying behavioral finance principles, financial managers can design effective financial strategies, improve communication with investors, and make more realistic and balanced decisions. Thus, behavioral finance provides a practical understanding of financial behavior in today's uncertain and competitive business environment.

❖ **Advantages of Behavioral Finance :**

1. **Better understanding of financial decisions:** Behavioral finance helps managers and investors understand why people do not always act logically while making financial decisions. By recognizing emotions and psychological biases, better and more realistic financial decisions can be made.
2. **Improved investment planning:** It helps in identifying common mistakes such as overconfidence and herd behavior. This knowledge supports better investment strategies and reduces the chances of emotional and impulsive decisions.
3. **Effective risk management:** By understanding fear and loss aversion, financial managers can manage risks more carefully and avoid panic-driven actions during market fluctuations.
4. **Better communication with investors:** Behavioral finance helps managers understand investor expectations and reactions, which improves communication and trust between companies and stakeholders.

14.3 Sustainability and Green Finance - Concept

❖ **Meaning :**

Sustainability and green finance refer to financial practices that promote economic growth while protecting the environment and society. It focuses on investing in projects and activities that are environmentally friendly, socially responsible, and ethically governed. The objective is to achieve long-term development without harming natural resources or future generations.

❖ **Concept :**

Sustainability and green finance is an important emerging concept in modern financial management that focuses on using financial resources in a responsible and long-term manner. The main idea behind this concept is to achieve economic growth while protecting the environment and supporting social well-being. Unlike traditional finance, which mainly emphasizes profit maximization, sustainability and green finance aim to balance profitability with environmental and social responsibility.

Sustainability in finance means making financial decisions that do not harm future generations. It encourages businesses to consider environmental, social, and governance factors while planning investments and financial strategies. Environmental factors include reducing pollution, saving energy, and using natural resources efficiently. Social factors focus on employee welfare, customer safety, and community development. Governance factors include ethical practices, transparency, and good corporate management.

Green finance is a part of sustainable finance that specifically supports environmentally friendly activities. It includes financing renewable energy projects, green buildings, clean transportation, waste management, and climate-friendly technologies. Financial instruments such as green bonds, green loans, and sustainable investment funds are used to raise funds for such projects. These instruments help channel money towards activities that reduce environmental damage and promote sustainable development.

In financial management, sustainability and green finance help organizations reduce environmental risks, improve their public image, and meet regulatory requirements. Investors are also increasingly interested in companies that follow sustainable and ethical financial practices. As a result, financial managers play a key role in integrating sustainability into budgeting, investment decisions, and long-term financial planning. Overall, sustainability and green finance promote responsible financial management that supports business growth along with environmental protection and social development.

From a financial management point of view, sustainable finance attracts responsible investors who prefer ethical and transparent companies. Many financial institutions now offer incentives such as lower interest rates or special funding for green projects. As a result, sustainability and green finance support stable growth, risk reduction, and long-term value creation for businesses.

❖ **Benefits of use of Sustainability and Green Finance :**

1. **Supports long-term business growth:** Sustainability and green finance encourage businesses to focus on long-term value rather than short-term profits, ensuring stable and responsible growth.
2. **Reduces environmental and financial risks:** Investing in eco-friendly projects helps reduce pollution-related risks, regulatory penalties, and future environmental costs.
3. **Improves company image and investor confidence:** Companies following sustainable practices attract socially responsible investors and build a positive reputation in the market.
4. **Encourages innovation and efficiency:** Green finance promotes the use of renewable energy and efficient technologies, leading to cost savings and operational efficiency over time.
5. **Competitive advantage in the market:** Companies adopting sustainable finance practices gain a competitive edge by attracting eco-conscious customers and investors, improving long-term market position.
6. **Encourages responsible resource management:** Green finance promotes efficient use of natural resources, reducing wastage and ensuring sustainable availability of resources for future business operations.

14.4 FinTech and Digital Finance - Concept

❖ **Meaning :**

FinTech and digital finance denote to the use of technology to deliver financial services in a faster, safer, and more efficient way. It includes digital payments, online banking, mobile applications, financial software, and automated financial systems. FinTech aims to improve traditional financial services by making them more accessible and user-friendly.

❖ **Concept :**

FinTech and digital finance refer to the use of technology to improve and automate financial services and financial management activities. FinTech is a combination of the words finance and technology, and it represents innovative technological solutions used in banking, payments, investments, lending, and financial planning. Digital finance focuses on conducting financial transactions and managing financial activities through digital platforms rather than traditional paper-based or manual systems.

The concept of FinTech includes services such as mobile banking, internet banking, digital wallets, online payment systems, peer-to-peer lending platforms, and robo-advisory services. These technologies make financial services faster, more convenient, and accessible to a wider population. Digital finance reduces the need for physical branches and paperwork, leading to lower costs and improved efficiency for businesses and financial institutions.

In financial management, FinTech plays a vital role in improving accuracy, transparency, and decision-making. Digital tools and financial software help in budgeting, forecasting, cash flow management, and financial reporting. Real-time data availability enables managers to monitor financial performance and respond quickly to changes. FinTech also improves financial inclusion by providing easy access to financial services for small businesses and individuals.

Security and regulation are important aspects of digital finance. Technologies such as encryption, authentication systems, and secure digital platforms help protect financial data and prevent fraud. Overall, FinTech and digital finance have transformed traditional financial systems into faster, smarter, and more customer-focused models, making them an essential part of modern financial management.

FinTech and digital finance have also improved customer experience by providing fast, user-friendly, and personalized financial services. Customers can access banking, payments, investments, and financial information anytime and anywhere through digital platforms. This convenience has increased customer satisfaction and trust in financial systems.

For businesses, digital finance supports better financial control and decision-making. Real-time financial data helps managers track cash flows, expenses, and performance accurately. Digital systems also improve transparency and reduce the chances of errors and fraud. Thus, FinTech and digital finance play a key role in making financial management more efficient, responsive, and competitive in the modern business environment.

❖ **Advantages of use of FinTech and Digital Finance in Financial Management :**

1. **Faster and more efficient financial services:** FinTech enables quick digital transactions, reducing time, paperwork, and operational delays in financial activities.
2. **Improved accuracy and transparency:** Digital systems reduce human errors and provide real-time financial information, improving control and transparency.
3. **Cost reduction:** Automation and digital platforms lower operational costs by reducing manual work and physical infrastructure.
4. **Financial inclusion:** FinTech provides easy access to financial services for individuals and small businesses that were previously underserved.
5. **Improved customer satisfaction:** Digital financial services provide convenience, speed, and ease of use, which increases customer satisfaction and loyalty.
6. **Supports data-driven decision making:** FinTech tools provide real-time financial insights and analytics, helping managers make informed and timely strategic decisions.

14.5 AI and Automation in Finance

Artificial Intelligence refers to the simulation of human intelligence in machines that are programmed to think, learn, reason, and make decisions. In finance, AI systems are designed to analyze vast volumes of structured and unstructured data, identify hidden patterns, and generate actionable insights.

AI technologies commonly used in finance include machine learning, deep learning, natural language processing, expert systems, and networks. Machine learning enables systems to learn from historical data and improve their performance without explicit programming. Deep learning, a subset of machine learning, uses complex networks to process high-dimensional data such as images, voice, and text. Natural language processing allows machines to understand and interpret human language, which is widely used in customer support and document analysis.

Automation refers to automatic execution of job without any frequent manual interaction with the help of AI and machine learning. In other way Automation

refers to the application of computerized systems and programmed instructions to execute repetitive, rule-based, and standardized tasks automatically, thereby reducing human effort, operational cost, and error in business and financial processes.

❖ **Types of AI and automated tools in finance :** There are the following types of AI and automation tools in the finance.

(i) Use of Automated teller machine by the banking company: the first use of AI and automation in the financial sector is the use of ATM by the banking companies. First ATM was used in India in 1987 by the HSBC in Mumbai. However, in 2000 these machines were installed in large numbers across the country by ICICI, UTI, HDFC bank etc. These machines use automation technique to count the money as per input and disbursed the payment. Now as per latest features even cash deposit and other services can be made by these machines.

(ii) AI enable mobile app (like YONO, iMobile, SBI YONO, etc.): It combines the AI with automation to provide the all banking and other financial services to the customers and users. Fund transfer though these app is done with the help of NEFT, RTGS & IMPS. Accordingly, customers can make majority of the transaction without visiting the branch of the banking/insurance/ finance company.

(iii) AI Chatbot apps (like EVA in HDFC SIA in SBI and I mobile in ICICI): These are the specific chatbot that provides all kind of assistance related to the banking. It also provides answer to all specific queries raised by the customers.

(iv) AI based insurance App (LIC app, policy bazaar etc.): These app are useful for selecting the specific insurance product by the individual. The specific features of these apps enable the user to compare the various insurance product available with the difference companies. Hence its act an interaction platform for selecting the various insurance product including motor insurance, health insurance offer by the various insurance companies.

(v) AI driven investment and stock market app (like Zerodha, Groww app stock Angel etc.): These apps are useful for making the investment in the market. These app provides customized and easy trading facility for the investors. Hence, in traditional system where lot of documentation is needed to open the demat account now through online KYC facility it is executed and individual can make the investment in the security market in India. Many apps are also providing the facility for commodity and option market. Hence due to simplicity in the operation these apps become very popular among the investors.

(vi) **Robo advisory app which advise us regarding the investment decision:** Now through AI and automation various app are available for the investor which gives investment advice through analysis and algorithms of data. These app are providing wealth management services to the customers.

(vii) **AI enabled UPI and digital payment app:** on 11th April 2016 UPI payment facility started in India by NPCI (National Payment Corporation of India and RBI (Reserve bank of India). The special features of these UPI are that; it just need to integrate with a specific bank account and user mobile number. It uses the automation and AI features to recognize and verify the account numbers. In India it created history in terms of transaction and volume. Small traders to fruit seller or vegetable seller, retail seller to big shopping mall all uses this UPI facility. In India transaction volume of UPI has increased many times and set the benchmark for paperless transaction in the financial sector.

(viii) **Clearing house and automation of settlement process:** Now clearing house is also automated and provided big boost to financial sectors. In traditional system it was cumbersome and lengthy however in modern time it becomes simple. Hence now T+1-day settlement has reduced the hassle of the customers. In coming days with help of AI and automation we expect we will get the settlement in the same day.

(ix) **Automated software for accounting:** Automated software in accounting has created major shift in the financial sector. Now ERP module integrated the whole financial operation into single operation. Through these software's all financial operation can be recorded, analyzed and presented in standardized and customized form. This automated software not only record analyses and present financial information but also provides the information to take the decision by the management. Example of these software's are cloud accounting, ERP, Zoho books, etc.

(x) **AI based loan app like Pay sense, Fin serve app:** These app provide the customers to directly apply for various loan as per their customized needs. Hence it provides the interactive platform to directly apply for loans to various financial companies.

(xi) **Back-office support system with AI and automation:** It provides automated recording of transaction OCR or other data entry reconciliation payroll accounting and procurement to pay cycle. Hence it automated the back-office work of the financial sector.

(xii) **Cyber Security and financial data protection:** Artificial intelligence and automation provides cyber security and financial data protection. In current scenario the cyber security becomes very important. Hence numbers of AI's are developed to check the suspicious software link malware etc.

AI and automation now become integral part of modern finance. Starting with automation in the back-office support to banking, insurance and stock trading, decision making -it dominates everywhere. Various mobile apps, chat boat and other automated software changed the whole landscape of finance. Now income and saving can be easily calculated by the individual and invested in any market by just using individual mobile only. There is an increase in the presence of customers in the commodity market, option market along with traditional security market due to artificial intelligence and automation. Now even acquisition and loan financing is done with the use of AI tools and automated software by setting various checkpoint. Now even small and medium enterprise can apply for medium- and long-term loan online by using automated software. With the mobile app now small trader's vegetable seller and other underprivileged population are now connected with the banking through payment and finance banking. Hence, we predict that AI and automation in finance will create solid platform for Vikshit bharat @2047.

14.6 Crypto Assets and Blockchain in Finance

Crypto assets and blockchain technology are increasingly important in modern business because they change how value is created, transferred, and recorded. Crypto assets are digital assets that rely on cryptographic techniques and blockchain networks to function securely. These include crypto currencies such as Bitcoin and Ethereum, which are used for digital payments, cross-border transactions, and as investment assets. Businesses use crypto currencies to reduce transaction costs, avoid intermediaries like banks, and enable faster international payments. In addition to crypto currencies, businesses also use tokens, which may represent access to a service (utility tokens), ownership or financial rights (security tokens), or stable value pegged to traditional currencies (stable coins). Non-fungible tokens (NFTs) are another type of crypto asset that represent unique digital items and are used in areas such as digital art, intellectual property protection, branding, and customer engagement.

Blockchain technology is the foundation that supports crypto assets and enables secure and transparent business operations. A blockchain is a decentralized and distributed digital ledger that records transactions across a network of computers. Each transaction is verified through consensus mechanisms and once recorded, it cannot easily be altered, making the system highly secure and trustworthy. For businesses, this immutability and transparency reduce fraud, increase accountability, and improve trust among stakeholders. Unlike traditional centralized databases, blockchain does not rely on a single authority, which minimizes the risk of system failure and manipulation.

In business operations, blockchain technology is widely applied in financial services, supply chain management, and contract execution. In finance, blockchain enables faster and cheaper cross-border payments, real-time settlements, and

decentralized finance (DeFi) services that operate without traditional financial intermediaries. In supply chain management, blockchain allows businesses to track products from origin to final delivery, ensuring authenticity, quality, and ethical sourcing. This is especially useful in industries such as food, pharmaceuticals, and luxury goods, where transparency and traceability are critical. Smart contracts, which are self-executing agreements written in code, further enhance business efficiency by automatically enforcing contract terms when predefined conditions are met, reducing delays, human error, and legal costs.

The adoption of crypto assets and blockchain technology offers several benefits to businesses, including cost reduction, operational efficiency, improved transparency, and global market access. Companies can automate processes, secure sensitive data, and build trust with customers and partners. However, there are also challenges such as regulatory uncertainty, price volatility of crypto assets, cyber-security risks, and the need for technical expertise. Despite these challenges, the future of blockchain in business is promising, with increasing adoption by large corporations, financial institutions, and governments. As regulations become clearer and technology continues to evolve, crypto assets and blockchain are expected to play a major role in transforming traditional business models and enabling more secure, efficient, and transparent global commerce.

❖ Exercise

❖ Answer the following question in detail :

1. Explain the concept of behavioural finance and discuss its importance in modern financial management.
2. Describe the concept of sustainability and green finance and its benefits in the financial management.
3. Explain the meaning and concept of FinTech and digital finance.
4. Discuss the types of AI and Automated tools in finance.
5. Explain the concept of crypto assets and blockchain technology.

❖ Answer the following question in short :

1. What is behavioural finance?
2. Define sustainability in financial management.
3. What is green finance?
4. What is FinTech?
5. Give two benefits of the usage of digital finance tools in financial management.
6. What are crypto assets?
7. Define blockchain technology.

❖ Multiple Choice Questions (MCQs) :

1. Behavioural finance mainly studies
   a) Accounting standards
   b) Human behavior in financial decisions
   c) Corporate laws
   d) Taxation policies

   Answer : b) Human behavior in financial decisions

2. Loss aversion means
   a) Preference for high profits
   b) Ignoring market risks
   c) Fear of losses more than desire for gains
   d) Investing only in safe assets

   Answer : c) Fear of losses more than desire for gains

3. Green finance mainly supports
   a) Short-term profits
   b) Speculative trading
   c) Environment-friendly projects
   d) High-risk investments

   Answer : c) Environment-friendly projects

4. FinTech is a combination of
   a) Finance and technology
   b) Finance and trade
   c) Funds and technology
   d) Finance and taxation

   Answer : a) Finance and technology

5. Which of the following is an example of digital finance?
   a) Manual bookkeeping
   b) Cash payment
   c) Paper-based accounting
   d) Mobile banking

   Answer : d) Mobile banking

6. AI in finance is mainly used for
   a) Writing legal documents
   b) Data analysis and forecasting
   c) Printing currency
   d) Physical verification of assets

   Answer : b) Data analysis and forecasting
7. Automation in finance helps in
   a) Performing routine tasks efficiently
   b) Reducing accuracy
   c) Increasing manual work
   d) Ignoring financial controls

   Answer : a) Performing routine tasks efficiently
8. Crypto assets are
   a) Physical assets
   b) Government-issued currencies
   c) Digital assets using cryptography
   d) Paper securities

   Answer : c) Digital assets using cryptography
9. Blockchain is best described as
   a) A central database
   b) A digital ledger of transactions
   c) A type of bank account
   d) A financial ratio

   Answer : b) A digital ledger of transactions
10. One major benefit of blockchain in finance is
    a) High paperwork
    b) Lack of transparency
    c) Increased intermediaries
    d) Secure and tamper-resistant records

    Answer : d) Secure and tamper-resistant records

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યુનિવર્સિટી ગીત

સ્વાધ્યાયઃ પરમં તપઃ
સ્વાધ્યાયઃ પરમં તપઃ
સ્વાધ્યાયઃ પરમં તપઃ

શિક્ષણ, સંસ્કૃતિ, સદ્‌ભાવ, દિવ્યબોધનું ધામ
ડૉ. બાબાસાહેબ આંબેડકર ઓપન યુનિવર્સિટી નામ;
સૌને સૌની પાંખ મળે, ને સૌને સૌનું આભ,
દશે દિશામાં સ્મિત વહે હો દશે દિશે શુભ-લાભ.

અભણ રહી અજ્ઞાનના શાને, અંધકારને પીવો ?
કહે બુદ્ધ આંબેડકર કહે, તું થા તારો દીવો;
શારદીય અજવાળા પહોંચ્યાં ગુર્જર ગામે ગામ
ધ્રુવ તારકની જેમ ઝળહળે એકલવ્યની શાન.

સરસ્વતીના મયૂર તમારે ફળિયે આવી ગહેકે
અંધકારને હડસેલીને ઉજાસના ફૂલ મહેંકે;
બંધન નહીં કો સ્થાન સમયના જવું ન ઘરથી દૂર
ઘર આવી મા હરે શારદા દૈન્ય તિમિરના પૂર.

સંસ્કારોની સુગંધ મહેંકે, મન મંદિરને ધામે
સુખની ટપાલ પહોંચે સૌને પોતાને સરનામે;
સમાજ કેરે દરિયે હાંકી શિક્ષણ કેરું વહાણ,
આવો કરીયે આપણ સૌ
ભવ્ય રાષ્ટ્ર નિર્માણ...
દિવ્ય રાષ્ટ્ર નિર્માણ...
ભવ્ય રાષ્ટ્ર નિર્માણ

DR. BABASAHEB AMBEDKAR OPEN UNIVERSITY
(Established by Government of Gujarat)
'Jyotirmay' Parisar,
Sarkhej-Gandhinagar Highway, Chharodi, Ahmedabad-382 481
Website : www.baou.edu.in