

203 – Financial Management

Course Objectives:

1. To introduce the goals, principles, and functions of financial management, including the time value of money, risk-return trade-off, and the role of financial markets.
2. To develop the ability to analyze financial statements and assess firm performance using ratio analysis, cash flows, and leverage concepts.
3. To understand the concepts of cost of capital and capital structure and apply valuation techniques for bonds and equity.
4. To equip students with capital budgeting techniques, including risk analysis, real options, leasing, and hire purchase.
5. To examine dividend decisions and working capital management, and understand their impact on firm value and liquidity.

Course Outcomes:

After the completion of the course, students will be able to

1. Explain the fundamental concepts of financial management, including the time value of money and financial decision-making.
2. Analyse and interpret financial statements, and evaluate performance using ratios, cash flows, and leverage measures.
3. Calculate the cost of capital and value financial instruments, and assess capital structure using EBIT-EPS analysis and other metrics.
4. Apply capital budgeting techniques, such as NPV, IRR, and risk-adjusted methods, to evaluate investment decisions.
5. Evaluate dividend policies and working capital components, and manage liquidity through effective cash, inventory, and receivables management.

UNIT – I

Introduction: Goals of Financial Management – Fundamental Principles – Time value of Money – Discounting, Compounding - Risk- Return Trade off- Finance Function-Financial Decisions. Financial Markets - Intermediaries.

UNIT – II

Financial Statement Analysis: Analysis of Balance Sheet, Profit & Loss Account, Ratio Analysis, Common Size Analysis, Cash Flow Statement, Operating, Financial, and Combined Leverage.

UNIT – III

Capital: Cost of Capital - Cost of Debt, Cost of Equity – Dividend Capitalisation, CAPM - Cost of Preference Shares - Weighted Average and Multiple Costs of Capital –Valuation of Bonds and Shares. Capital Structure Planning – EBIT – EPS analysis (Numerical Problems), Risks of Financial Leverage – Margin of Safety, Interest and Debt service. Long-term sources of Finance: Venture Capital.

UNIT – IV

Capital Budgeting: Traditional and Time-adjusted Discounted Cash Flow Techniques
- Risk analysis - Real Options – Leasing – Hire Purchase

UNIT – V

Dividends: Decisions, Influencing Factors, Forms, and Special Dividends. Walter, Gordon and MM models (Numerical Problems) Linter's Model Dividend Practices in India. Buy Back Shares, Taxation of Dividends and Capital Gains. Working Capital Management: Operating Cycle Estimation, Cash, Inventory and Receivables Management.

References:

1. Srivastava R, Anil A - *Financial Management*, Oxford.
2. I. M. Pandey - *Financial Management*, Vikas.
3. Prasanna Chandra - *Financial Management–Theory and Practice*, Tata McGraw-Hill.
4. Pandey & Bhat - *Cases in Financial Management*, Tata McGraw-Hill.
5. Khan & Jain - *Financial Management*, Tata McGraw-Hill.

INTRODUCTION

Business concerns need finance to meet their requirements in the economic world. Any kind of business activity depends on finance. Hence, it is called the lifeblood of business organizations. Whether the business concerns are big or small, they need finance to fulfill their business activities.

In the modern world, all the activities are concerned with economic activities and very particular to earning profit through any venture or activities. The entire business activities are directly related to making profit. (According to the economics concept of factors of production, rent given to landlord, wage given to labour, interest given to capital and profit given to shareholders or proprietors), a business concern needs finance to meet all the requirements. Hence finance may be called capital, investment, fund etc., but each term has different meanings and unique characters. Increasing the profit is the main aim of any kind of economic activity.

MEANING OF FINANCE

Finance may be defined as the art and science of managing money. It includes financial service and financial instruments. Finance also is referred to as the provision of money at the time when it is needed. Finance function is the procurement of funds and their effective utilization in business concerns. The concept of finance includes capital, funds, money, and amount. But each word has a unique meaning. Studying and understanding the concept of finance become an important part of the business concern.

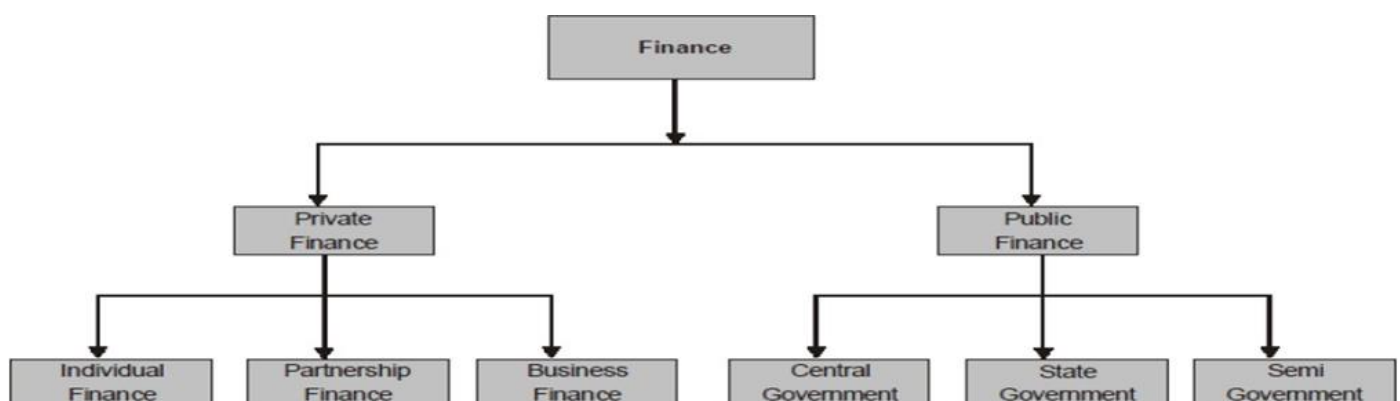
DEFINITION OF FINANCE

According to Khan and Jain, —Finance is the art and science of managing money. According to Oxford dictionary, the word ‘finance’ connotes ‘management of money’.

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

TYPES OF FINANCE

Finance is one of the important and integral parts of business concerns, hence, it plays a major role in every part of the business activities. It is used in all the areas of the activities under the different names. Finance can be classified into two major parts:



Private Finance, which includes the Individual, Firms, Business or Corporate Financial activities to meet the requirements. Public Finance which concerns revenue and disbursement of Government such as Central Government, State Government and Semi-Government Financial matters.

GOALS OR OBJECTIVES OF FINANCIAL MANAGEMENT

Equity shareholders are the owners' of a company. Any person becomes the owner of any company by purchasing (in primary market or secondary market) stocks and he/she expects financial return in the form of dividends and increase in stock price (capital gain). Shareholders elect directors, who then hire managers to run the company on a day-to-day basis. A financial manager requires the existence of some objectives or goals without which judgment as to whether or not a financial decision is efficient must be made in the light of some standard.

Although various goals or objectives are possible, we assume in this book that the management's prime goal is stockholders wealth maximisation, since the managers are working on behalf of the shareholders. This objective translates into maximising the price of the firm's equity stock. Maximisation of shareholders' wealth is possible only when the decisions of the managers are helpful to increase profit. Effective procurement and efficient use of finance lead to proper utilization of the finance by the business concern. It is the essential part of being a financial manager. Hence, the financial manager must determine the

basic objectives of financial management. Objectives of Financial Management may be broadly divided into two parts such as:

1. Profit maximization
2. Wealth maximization.

1. PROFIT MAXIMIZATION

The main aim of any kind of economic activity is earning profit. A business concern is also functioning mainly for the purpose of earning profit. Profit is the measuring techniques to understand the business efficiency of the concern. Profit maximization is also the traditional and narrow approach, which aims at maximizing the profit of the concern. Profit maximization consists of the following important features.

1. Profit maximization is also called cashing per share maximization. It leads to maximizing the business operation for profit maximization.
2. The ultimate aim of the business concern is earning profit; hence, it considers all the possible ways to increase the profitability of the concern.
3. Profit is the parameter of measuring the efficiency of the business concern. So it shows the entire position of the business concern.
4. Profit maximization objectives help to reduce the risk of the business.

Favourable Arguments for Profit Maximization

The following important points are in support of the profit maximization objectives of the business concern:

- (i) Main aim is earning profit.
- (ii) Profit is the parameter of the business operation.
- (iii) Profit reduces risk of the business concern.
- (iv) Profit is the main source of finance.
- (v) Profitability meets social needs also.

Unfavourable Arguments for Profit Maximization

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

- (i) Profit maximization leads to exploiting workers and consumers.
- (ii) Profit maximization creates immoral practices such as corrupt practice, unfair trade practice, etc.
- (iii) Profit maximization objectives lead to inequalities among the stakeholders such as customers, suppliers, public shareholders, etc.

Drawbacks of Profit Maximization

Profit maximization objective consists of certain drawback also:

- (i) **it is vague:** In this objective, profit is not defined precisely or correctly. It creates some unnecessary opinions regarding earning habits of the business concern.
- (ii) **It ignores the time value of money:** Profit maximization does not consider the time value of money or the net present value of the cash inflow. It leads to certain differences between the actual cash inflow and net present cash flow during a particular period.
- (iii) **It ignores risk:** Profit maximization does not consider risk of the business concern. Risks may be internal or external which will affect the overall operation of the business concern.

2. Wealth Maximization

Wealth maximization is one of the modern approaches, which involves latest innovations and improvements in the field of the business concern. The term wealth means shareholder wealth or the wealth of the persons those who are involved in the business concern. Wealth maximization is also known as value maximization or net present worth maximization. This objective is a universally accepted concept in the field of business.

Favourable Arguments for Wealth Maximization

- (i) Wealth maximization is superior to profit maximization because the main aim of the business concern under this concept is to improve the value or wealth of the shareholders.
- (ii) Wealth maximization considers the comparison of the value to cost associated with the business concern. Total value detected from the total cost incurred for the business operation. It provides exact value of the business concern.
- (iii) Wealth maximization considers both time and risk of the business concern.
- (iv) Wealth maximization provides efficient allocation of resources.
- (v) It ensures the economic interest of the society.

Unfavourable Arguments for Wealth Maximization

- (i) Wealth maximization leads to a prescriptive idea of the business concern but it may not be suitable to present day business activities.
- (ii) Wealth maximization is nothing, it is also profit maximization, and it is the indirect name of the profit maximization.

(iii) Wealth maximization creates ownership-management controversy.

(iv) Management alone enjoys certain benefits.

(v) The ultimate aim of the wealth maximization objectives is to maximize the profit.

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

	PROFITMAXIMIZATION	WEALTH MAXIMIZATION	WELFARE MAXIMIZATION
1	Profits are earned maximized, so that firm can overcome future risks which are uncertain.	Wealth is maximized, so that wealth of share-holders can be maximized.	Welfare maximization is done with the help of micro economic techniques to examine locative distribution.
2	Profit maximization is a yardstick for calculating efficiency and economic prosperity of the concern.	In wealth maximization stockholders current wealth is evaluated in order to maximize the value of shares in the market.	In welfare maximization, social welfare is evaluated by calculating economic activities of individuals in the society.
3	Profit is measured in terms of efficiency of the firm.	Wealth is measured in terms of market price of shares.	Welfare can be measured in two ways, either by pare to efficiency or in units or dollars.
4	Profit maximization involves the problem of uncertainty because profits are uncertain.	Wealth maximization involves problems related to maximizing shareholder's wealth or wealth of the firm	Wealth maximization involves the problem of combining the utilities of different people.

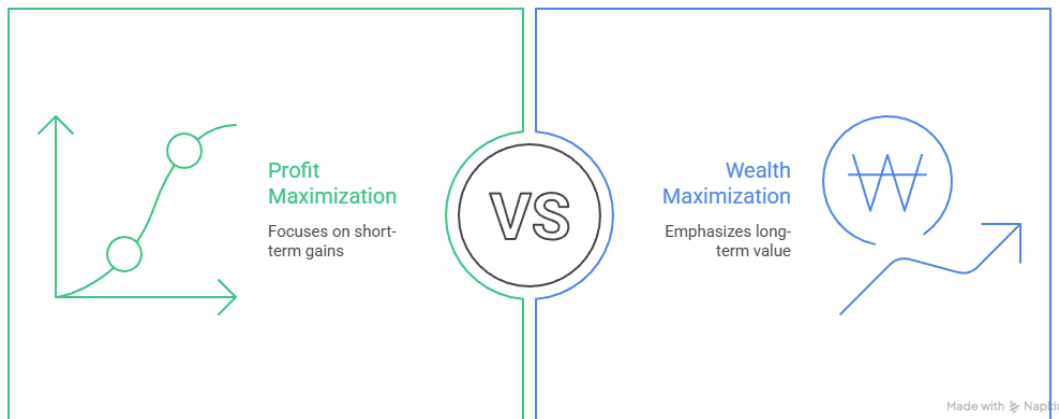
Financial management is a management function encompassing the **planning, sourcing, deploying, and controlling** of a firm's financial resources to achieve its goals and drive shareholder value. The fundamental principles that guide this process include the following core concepts and pillars:

1. Primary Objectives: Wealth vs. Profit Maximization

While traditional theory often focused on **profit maximization**, modern financial management prioritizes **wealth maximization**. Profit maximization is sometimes viewed as too narrow because it may ignore the **time value of money**, **risk**, and qualitative aspects like brand goodwill. In contrast, **wealth maximization** seeks to maximize the **present value of expected returns**,

incorporating both risk and the timing of benefits to create long-term value for shareholders.

Which financial objective should be prioritized?



2. The Three Pillars of Finance

The finance function rests on three interrelated pillars that dictate how a firm operates:

- **Investment Decisions:** Determining the **optimum asset mix** by choosing which projects or assets to fund. This includes **capital budgeting** for long-term investments and **liquidity management** to ensure sufficient cash flow for daily operations.
- **Financing Decisions:** Determining the **funding mix**, specifically the ratio of **debt to equity**. The goal is to establish a capital structure that maximizes shareholder value while keeping the financial risk profile within acceptable levels.
- **Dividend Decisions:** Deciding how much profit should be returned to shareholders versus how much should be **ploughed back** into the business for future growth.

3. Core Fundamental Principles

Several critical tenets underpin all financial decision-making:

- **Time Value of Money (TVM):** This principle states that a unit of money received today is worth more than the same unit received in the future. This is due to **opportunity costs**, **inflation** (which erodes purchasing power), and the **risk** of not receiving future payments. Consequently, cash flows at different time periods must be compounded or discounted to a common denominator—the **present value**—before they can be compared.
- **Risk-Return Trade-off:** There is a direct relationship between risk and expected return; generally, **higher risk requires a higher expected return** to compensate the investor. Finance managers must balance this trade-off to ensure the firm does not take on excessive risk that could lead to financial collapse, nor be so risk-averse that it generates sub-optimal returns.
- **Cash Flow over Accounting Profit:** Financial management emphasizes **actual cash inflows and outflows** rather than just accounting profits. For example, a firm can be profitable on paper but fail if it lacks **liquidity** (free cash flow) to meet its immediate obligations.

- **Liquidity-Profitability Trade-off:** A firm must maintain an **optimum level of cash**; too much cash wastes capital in unproductive avenues, while too little cash risks default on payments to suppliers and employees.

4. Key Analytical Tools

To apply these principles, managers use several standardized techniques:

- **Capital Budgeting:** Tools like **Net Present Value (NPV)**, which measures absolute profitability, and **Internal Rate of Return (IRR)**, which measures the percentage return, help separate viable projects from non-viable ones.
- **Leverage:** **Operating leverage** uses fixed costs to magnify the impact of sales changes on operating income, while **financial leverage** uses debt to magnify the effect of EBIT changes on **Earnings Per Share (EPS)**.
- **Ratio Analysis:** This involves evaluating **profitability, liquidity, efficiency, and solvency** ratios to diagnose the financial health of an enterprise and benchmark it against industry standards.

Time Value of Money (TVM)

The **Time Value of Money (TVM)** is a fundamental tenet of financial theory which states that the **value of a unit of money varies across different time periods**. Specifically, a sum of money received today is worth more than the same amount received in the future because of its potential earning capacity.

Core Rationale for TVM

Several factors explain why rational investors prefer current receipts over future receipts:

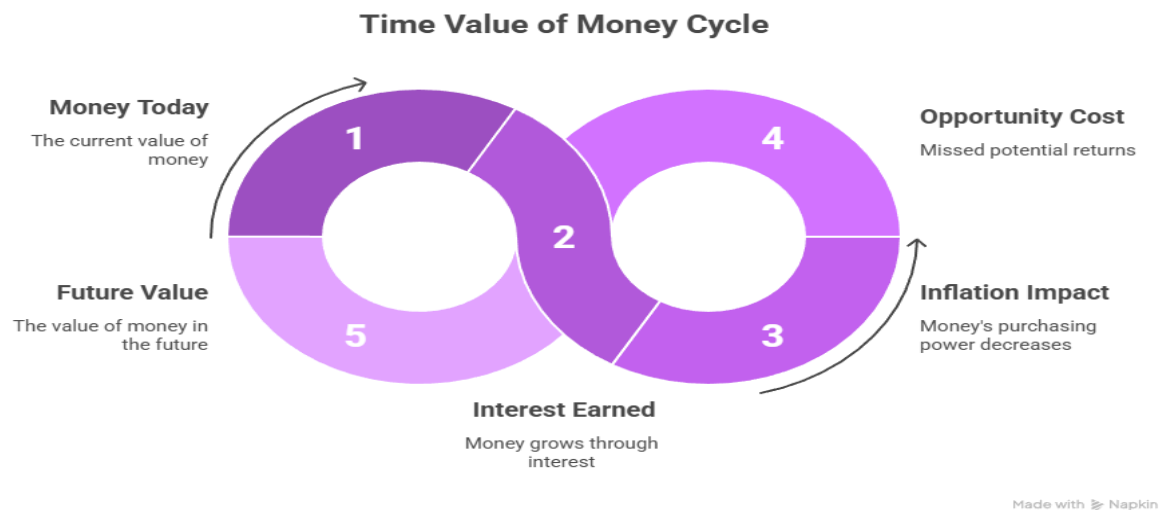
- **Opportunity Cost:** Lending or investing money today allows an individual to earn a return; by receiving money later, one forgoes the returns from alternative investments.
- **Inflation:** Most economies experience inflation, which is a fall in the **purchasing power of money**, meaning a fixed amount of money will buy fewer goods in the future than it does now.
- **Risk and Uncertainty:** There is always a risk that a borrower may default or go bankrupt, making future payments uncertain.
- **Liquidity Preference:** Individuals generally prefer to have resources available in a form that can be **immediately converted into cash**.

Primary Methods of Analysis

The concept of TVM allows for the comparison of cash flows occurring at different points in time by translating them into equivalent values at a specific point.

- **Compounding:** This process involves moving present money to a future date to determine its **Future Value (FV)**. **Compound interest** is paid on both the original principal and the previously earned interest, leading to a higher growth rate over time compared to simple interest.

- **Discounting:** This is the opposite of compounding and involves finding the **Present Value (PV)** of money to be received in the future. Discounting expresses future streams in terms of a **common denominator**—today's rupees.



Key TVM Components and Formulas

- **Annuities:** A stream of **regular, periodic, and constant cash flows** for a specified duration, such as insurance premiums or lease rentals.
- **Perpetuities:** A type of annuity where identical cash flows continue **forever (perpetually)**, such as dividends on irredeemable preference shares.
- **Effective Interest Rate:** When interest is compounded more than once a year (e.g., monthly or quarterly), the actual annual rate earned is the **Effective Rate**, which is always higher than the **Nominal (stated) Rate**.
- **Rule of 72:** A quick approximation tool where dividing 72 by the interest rate estimates the number of years required for an investment to **double**.

Applications in Financial Management

TVM is critical for various strategic and operational decisions:

- **Capital Budgeting:** Modern "time-adjusted" techniques like **Net Present Value (NPV)**, **Internal Rate of Return (IRR)**, and **Profitability Index (PI)** rely on discounting future cash flows to evaluate project viability. NPV, for instance, is the difference between the PV of future inflows and the initial outlay.
- **Wealth Maximization:** Unlike profit maximization, which may ignore the timing of returns, **wealth maximization** focuses on maximizing the **present value of expected returns** to drive long-term shareholder value.
- **Valuation:** TVM is used to determine the **intrinsic value of bonds** by calculating the PV of periodic interest payments and maturity amounts.
- **Leasing vs. Buying:** Firms use PV calculations to decide whether to purchase an asset outright or lease it by comparing the cost of the asset to the PV of lease rentals.
- **Inflation Adjustments:** To account for inflation, managers must use a **Nominal Discount Rate**, which is the Real Discount Rate adjusted for the inflation rate.

The Concept of Discounting

Time Value of Money (TVM)

1. Introduction to Discounting

In the world of finance, the **Time Value of Money (TVM)** is the concept that money available at the present time is worth more than the identical sum in the future due to its potential earning capacity.

Discounting is the process of determining the **Present Value (PV)** of a payment or a stream of payments that is to be received in the future. While *compounding* tells us how much money will grow into the future, *discounting* tells us what a future sum is worth to us right now.

2. The Core Logic

If you are offered \$100 today versus \$100 one year from now, you would choose today. If you take it today, you can invest it. If you wait a year, you lose the interest you could have earned.

The "Discount Rate" (r) represents this lost opportunity. It is the interest rate used to bring future values back to the present.

3. The Mathematical Formula

To calculate the Present Value, we use the following formula:

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

Variables:

- **PV (Present Value):** The value of the money today.
- **FV (Future Value):** The amount of money to be received in the future.
- **r (Discount Rate):** The interest rate per period (expressed as a decimal).
- **n (Number of Periods):** The amount of time (years, months, etc.) until the payment.

4. Step-by-Step Example

Scenario: You are promised a payment of 1,000\$ in **3 years**. If the current market interest rate (discount rate) is **5%**, what is the value of that promise today?

Inputs:

- $FV = 1,000$
- $r = 0.05$ (5%)
- $n = 3$

Calculation:

1. Calculate the denominator: $(1 + 0.05)^3 = 1.157625$
2. Divide the Future Value: $1000/1.57625 = 863.84$

Conclusion: The promise of \$1,000 in three years is worth exactly \$863.84 today.

5. Sensitivity Analysis

The Present Value is highly sensitive to changes in the rate and time.

Variable Change	Effect on Present Value (PV)	Reasoning
Higher Discount Rate (r $\uparrow$)	PV Decreases	A higher rate means you are "missing out" on more interest, making future money less attractive.
More Time (n $\uparrow$)	PV Decreases	The longer you have to wait for your money, the less value it holds for you today.

6. Real-World Applications

Discounting is the foundation for several critical financial tools:

- **Net Present Value (NPV):** Used by businesses to decide if a project is worth the investment by comparing the cost today to the discounted future profits.
- **Stock Valuation:** Analysts estimate a company's future dividends and discount them to determine a "fair" stock price.
- **Bond Pricing:** The price of a bond is essentially the discounted present value of all its future interest payments and its final face value.
- **Lottery & Pensions:** Large future payouts are often offered as a smaller "Lump Sum" today; that sum is calculated using discounting.

The Concept of & Compounding

Time Value of Money (TVM)

1. Introduction to TVM

The **Time Value of Money (TVM)** is a foundational financial principle stating that money available now is worth more than the same amount in the future.

- **Compounding** moves money **forward** to find its **Future Value (FV)**.
- **Discounting** moves money **backward** to find its **Present Value (PV)**.

2. Compounding: Exponential Growth

Compounding is the process where the value of an investment increases because the earnings (interest or capital gains) earn additional earnings as time passes. It is often described as a "snowball effect."

A. Compound vs. Simple Interest

- **Simple Interest:** Interest is calculated **only** on the initial principal. The growth is linear.
- **Compound Interest:** Interest is calculated on the initial principal **plus** all accumulated interest from previous periods. The growth is exponential.

Example: \$1,000 at 10% for 2 years.

- **Simple:** \$1,000 + \$100 (Year 1) + \$100 (Year 2) = **\$1,200**
- **Compound:** \$1,000 + \$100 (Year 1) = \$1,100. Then 10% of \$1,100 = \$110 (Year 2). Total = **\$1,210**

B. The Compounding Formula

To find how much a present sum will grow, use:

$$FV = PV \times \left(1 + \frac{r}{m}\right)^{m \times t}$$

Variables:

- FV : Future Value
- PV : Present Value (the starting amount)
- r : Annual interest rate (as a decimal)
- m : Compounding frequency (Number of times interest is added per year)
- t : Number of years

C. Compounding Frequency

The more often interest is compounded, the higher the Future Value.

- **Annual:** $m = 1$
- **Quarterly:** $m = 4$
- **Monthly:** $m = 12$
- **Daily:** $m = 365$

3. Discounting: The Reverse of Compounding

Discounting determines what a future sum is worth today by "stripping away" the interest that could have been earned.

The Mathematical Formula

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

Key Rule: As the discount rate or time increases, the Present Value decreases.

4. Summary Table: TVM Sensitivity

Variable Change	Effect on Future Value (FV)	Effect on Present Value (PV)
Higher Interest Rate (r)	Increases	Decreases
Longer Time (t or n)	Increases	Decreases
Higher Compounding Frequency (m)	Increases	Decreases

6. Helpful Rule of Thumb: The Rule of 72

To quickly estimate how long it takes for your money to double with compounding:

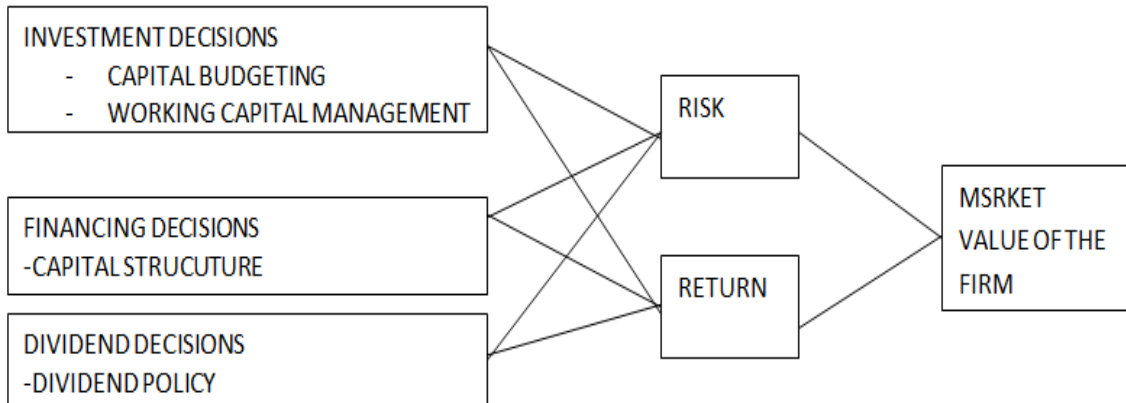
$$\text{Years to Double} \approx \frac{72}{\text{Interest Rate Percentage}}$$

Example: At a 6% interest rate, your money doubles in roughly 12 years ($72/6 = 12$).

RISK RETURN TRADE-OFF

The Risk-Return Trade-Off is an essential concept in finance theory. Risk implies the changes in expected return like sales, profits or cash flow and it also includes probability of that problem.

Risk analysis is a procedure of calculating and examining the risk which is related to financial and investment decisions of the company. Finance managers must focus on expected rate of return by comparing the level of risks involved in investment decisions. When it is expected that rate of return will be high then it involves high level of risk and vice versa



(RISK –RETURN TRADE OFF)

The decisions which involve risk-return trade off are explained below:

1) CAPITAL BUDGETING DECISIONS: Capital budgeting decision is important, as it involves proper allocation of funds. These decisions are made considerably for a long period of time in order to get benefits in future. While taking capital budgeting decisions, a finance manager needs to evaluate the cost of capital and risk involved in it. Finance manager must have complete knowledge about the techniques

used for evaluating such as Net Present Value (NPV), IRR, discounted cash flow, etc. A finance manager must have the capability of combining risk with returns in order to evaluate the potential of investment appropriately.

2) CAPITAL STRUCTURE DECISIONS: Capital structure decisions play an important role in designing the capital structure which is suitable for the company. It is the duty of a finance manager to develop an optimum capital structure which involves less cost of capital, less risk but which can generate huge amounts of returns. While developing capital structure, finance managers must also consider the financial and operating leverages of the firm.

3) DIVIDEND DECISIONS: Dividend decisions are also important for organizations to design the dividend policy. Dividend policy involves the amount of profits to pay as dividend to shareholders or reinvested in the organizations. Shareholders emphasize on getting a higher amount of dividend, whereas

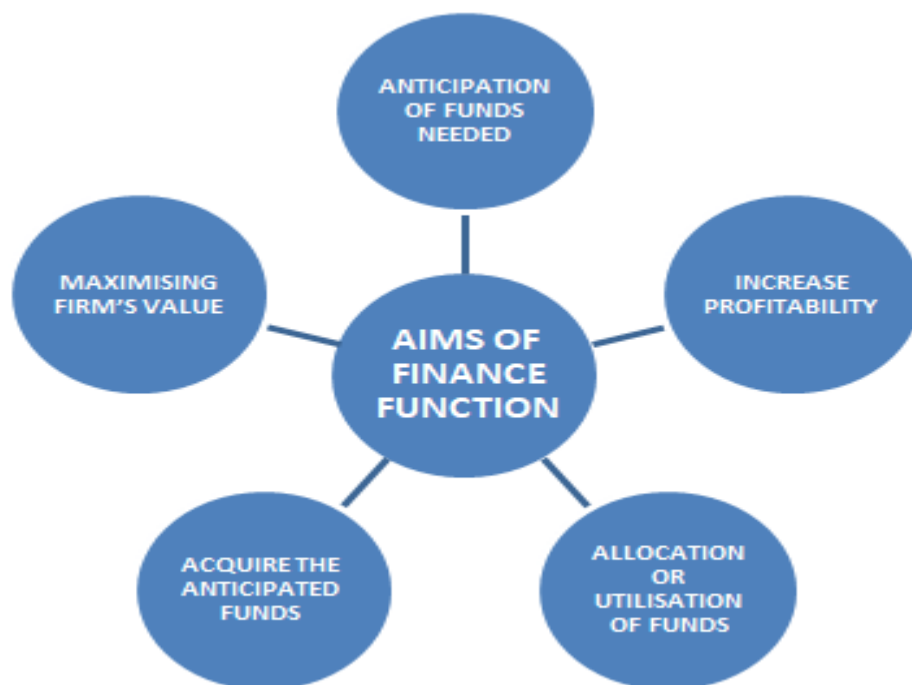
management of a company tries to maintain profits to face uncertainties in future. The dividend policy of the firm mainly depends on profitability.

4) WORKING CAPITAL DECISIONS: Working capital management is an addition to fixed capital investment. Working capital management is an important element of every organization, as it helps in continuing the business processes. Decisions related to working capital are known as working capital decisions. The essential elements of working capital are cash, accounts receivable and inventory. Each element of working capital involves some kind of risk in it.

Hence, it is clear that each every decision related to finance involves risk-return trade-off. So, it is the responsibility of finance managers to consider both risk and return, while making these decisions.

AIMS OF FINANCE FUNCTION

As we have seen that financial management is concerned with acquisition, financing and management of assets. And we have seen that there are three financial decisions. While making these decisions, an organization tries to balance cash inflows and cash outflows, which is called the liquidity decision. The following points bring out the aims of finance function.



1. ANTICIPATION OF FUNDS NEEDED: In the series of financial decisions, investment decisions take first place, but before going to identify the investment assets or projects, there is a need to evaluate available investment assets or projects. Selection of assets or projects takes place only after proper evaluation, which is helpful to anticipate the funds required for financing the selected assets or projects.

2. ACQUIRE THE ANTICIPATED FUNDS: The main aim of the finance function is to assess the required needs of a firm and then arrange the funds needed by rising from suitable sources of finance. The total required funds can be raised by different sources, viz., long-term sources and short-term sources. If the funds are needed for a long-term period then the funds need to be raised only from long-term sources of finance, like share capital, bonds/debenture, capital and long-term loans from financial institutions. If the organisation is an old company, which is running with a profit track record, it can use profit by retaining them in business. Short-term (capital) finance needs can be raised mainly from the bank by way of short-term loans.

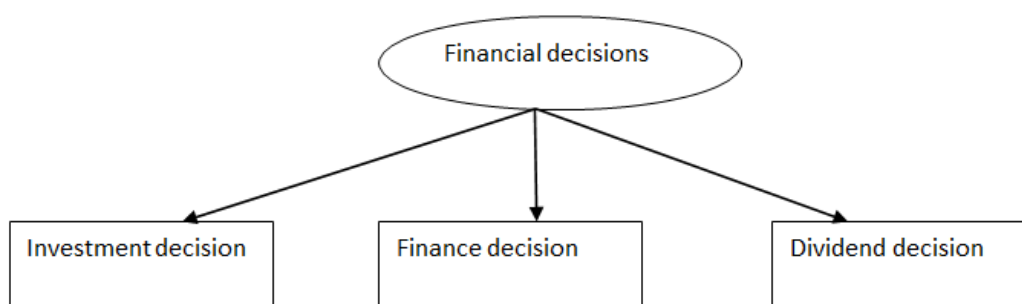
3. ALLOCATION OR UTILISATION OF FUNDS: Acquisition of funds needed by a firm is a prime objective of traditional finance function, but efficient allocation or utilization of funds is the objective of modern finance function. Efficient allocations among investment avenues mean investing funds on profitable projects. Profitable project means a project or asset that provides return, which is higher than the cost of funds. For example, there are three projects, X, Y and Z, which are identified as profitable in terms of ROI (%) with 10, 20 and 30 returns on investment, respectively. The cost of raised funds is 20%. Here, the project 'Z' is only eligible to invest because its (30) return on investment (ROI) is higher than cost of funds (20), i.e., it is able to provide 10 (30 - 20) profit, but the project X's ROI is less than cost of funds, i.e., 10 loss (10 - 20). The project Y is considerable but not preferable; its ROI is equal to cost of funds, which means there is no profit. So, project Y is not helpful to maximize shareholders' wealth. Hence, the finance manager should allocate funds among profitable investment assets and operations that help to maximize shareholders' wealth.

4. INCREASE PROFITABILITY: Planning and control are the twin functions of management that help to increase profits by reducing costs or minimizing waste or effective utilization of available resources. In the same way, proper planning and control of finance functions aim at increasing profitability of the firm. Proper planning of anticipation of funds, selection of investment avenues, acquiring and allocations of funds helps to increase profits, by arranging sufficient funds at least at the right time, investing on the right asset. Control of operations like cash receipts and payments also helps to increase profits. Hence, the finance function needs to match the costs and returns from the funds.

5. MAXIMISING FIRM'S VALUE: The prime objective of any function in any organization is to maximize firm's value by taking right decisions so as to finance function. But maximization of shareholders' wealth is possible only when the firm is able to increase profits. Hence, whatever decision a financial manager takes should be with the objective of maximization of owners' wealth.

FINANCIAL DECISIONS

As we have read above that financial management is concerned with the acquisition, financing and management of assets with some over all goals in mind. As mentioned in the contents of modern approach the discussions of financial management can be broken down into three major decisions, viz., (1) Investment decision; (2) Financing decision; and (3) Dividend decision (See Fig. 1.1). A firm takes these decisions simultaneously and continuously in the normal course of business. Firm may not take these decisions in a sequence, but decisions have to be taken with the objective of maximising shareholders' wealth.



1. INVESTMENT DECISION

It is more important than the other two decisions. It begins with a determination of the total amount of assets needed to be held by the firm. In other words, investment decision relates to the selection of assets, on which a firm will invest funds. The required assets fall into two groups:

(i) Long-term Assets (fixed assets: plant & machinery land & buildings, etc.), which involve huge investment and yield a return over a period of time in future. Investment in long-term assets is popularly known as —*capital budgeting*ll. It may be defined as the firm's decision to invest its current funds most efficiently in fixed assets with an expected flow of benefits over a series of years. It is discussed in detail under the Chapter Capital Budgeting.

(ii) Short-term Assets (current assets: raw materials, work-in-process, finished goods, debtors, cash, etc.) that can be converted into cash within a financial year without diminution in value. Investment in current assets is popularly termed as —*working capital management*ll. It relates to the management of current assets. It is an important decision of a firm, as short-survival is the prerequisite for long-term success. Firm should not maintain more or less assets. More assets reduce return and there will be no risk, but having fewer assets is more risky and more profitable. Hence, the main aspects of working capital management are the trade-off between risk and return. Management of working capital involves two aspects. *One* determination of the amount required for running of business and *second* financing these assets. It is discussed in detail in the Working Capital Management Chapter.

2. FINANCING DECISION

After estimation of the amount required and the selection of assets required to be purchased, the next financing decision comes into the picture. Financial manager is concerned with makeup of the right hand side of the balance sheet. It is related to the financing mix or capital structure or leverage. The financial manager has to determine the proportion of debt and equity in the capital structure. It should be on optimum

finance mix, which maximises shareholders' wealth. A proper balance will have to be struck between risk and return. Debt involves fixed cost (interest), which may help in increasing the return on equity but also increases risk. Raising of funds by issue of equity shares is one permanent source, but the shareholders will expect higher rates of earnings. The two aspects of capital structure are: *One* capital structure theory and *two* determination of optimum capital structure. Capital structure theories are out of the scope of this book, but optimal capital structure is discussed in detail under the Chapter Capital Structure.

3. DIVIDEND DECISION

This is the third financial decision, which relates to dividend policy. Dividend is a part of profits, which are available for distribution to equity shareholders. Payment of dividends should be analysed in relation to the financial decision of a firm. There are two options available in dealing with net profits of a firm, viz., distribution of profits as dividends to the ordinary shareholders where there is no need of retention of earnings or they can be retained in the firm itself if they are required for financing of any business activity. But distribution of dividends or retaining should be determined in terms of its impact on the shareholders' wealth. Financial managers should determine the optimum dividend policy, which maximises market value of the share thereby market value of the firm. Considering the factors to be considered while determining dividends is another aspect of dividend policy.

Financial Markets:

Financial markets are the engines of the global economy. They serve as platforms where buyers and sellers trade financial assets such as stocks, bonds, currencies, and derivatives. By channeling funds from those with surplus capital to those who need it for productive use, these markets facilitate economic growth, risk management, and wealth creation.

1. Core Functions of Financial Markets

Financial markets perform several critical roles that ensure the stability and efficiency of a modern economy:

- **Capital Allocation:** They move funds from savers (individuals/institutions) to borrowers (businesses/governments) who need capital for projects and operations.

- **Price Discovery:** Through the interaction of supply and demand, markets establish the fair value of financial assets.
- **Liquidity Provision:** They allow investors to quickly convert their assets into cash without significant loss in value.
- **Risk Transfer:** Instruments like derivatives allow participants to hedge against uncertainties such as price fluctuations or interest rate changes.
- **Transaction Cost Reduction:** By centralizing trading, markets reduce the time and effort required buyers and sellers to find each other.

2. Classification of Financial Markets

Financial markets are broadly categorized based on the nature of the assets traded and the timing of the transactions.

A. By Maturity (Time Horizon)

- **Money Market:** Deals in short-term debt instruments with maturities of one year or less (e.g., Treasury bills, commercial paper, certificates of deposit). It is primarily used for managing liquidity.
- **Capital Market:** Focuses on long-term financing (over one year). It includes:
 - **Equity Market (Stock Market):** Where ownership shares of companies are traded.
 - **Debt Market (Bond Market):** Where participants issue and trade debt securities.

B. By Issuance (Market Level)

- **Primary Market:** The "new issue" market where companies and governments raise capital for the first time through Initial Public Offerings (IPOs) or bond issuances.
- **Secondary Market:** Where investors trade previously issued securities among themselves (e.g., NYSE, NASDAQ). The original issuer does not receive funds from these trades.

C. By Asset Class

- **Foreign Exchange (Forex) Market:** The largest and most liquid market in the world, facilitating the exchange of currencies.
- **Commodities Market:** Trading in raw materials or primary products like gold, oil, wheat, and coffee.
- **Derivatives Market:** Trading in contracts whose value is derived from an underlying asset (e.g., futures, options, swaps).
- **Cryptocurrency Market:** A digital-native market for decentralized assets like Bitcoin and Ethereum.

3. Key Participants

1. **Investors (Retail & Institutional):** Individuals, pension funds, and insurance companies seeking returns.
2. **Borrowers:** Corporations and governments raising capital for growth or public projects.
3. **Intermediaries:** Investment banks, brokers, and dealers who facilitate trades.
4. **Regulators:** Entities like the SEC (USA) or SEBI (India) that ensure fair play and

transparency.

4. Global Market Trends for 2026

As of early 2026, several major themes are defining the global financial landscape:

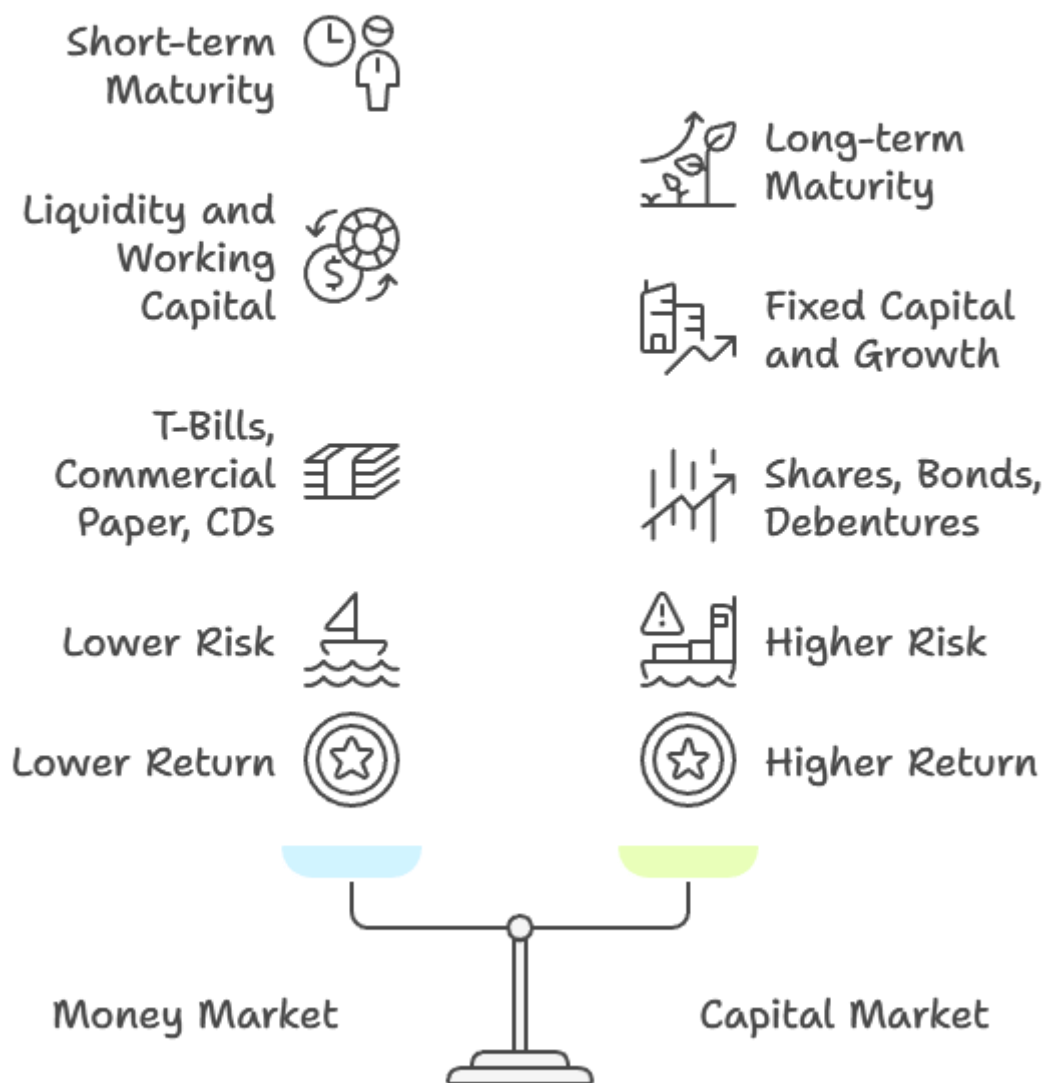
Trend	Description
The AI Supercycle	AI-driven earnings growth (estimated at 13-15% for S&P 500) remains a dominant theme, though it has created a "K-shaped" economy with high market concentration.
Monetary Policy "Hold"	After the easing cycles of 2025, major central banks are transitioning to a "simultaneous hold" at higher-than-pre-COVID interest rate levels to combat sticky inflation.
Digital Tokenization	Roughly 75% of G20 nations are adopting tokenized cross-border payment systems, significantly speeding up international settlements and reducing costs.
Private Credit Growth	Private credit has evolved into a \$2 trillion+ asset class, increasingly competing with traditional bank lending for corporate financing.
Geopolitical Polarization	Trade tensions and the rise of protectionist tariffs (especially between the US, EU, and China) are driving regional market divergences.

5. Summary Table: Money Market vs. Capital Market

Feature	Money Market	Capital Market
Maturity	Short-term (up to 1 year)	Long-term (over 1 year)
Primary Purpose	Liquidity and working capital	Fixed capital and long-term growth

Instruments	T-Bills, Commercial Paper, CDs	Shares, Bonds, Debentures
Risk	Lower	Higher
Return	Lower	Higher (potential for capital gains)

Balancing Risk and Return in Financial Markets



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Financial Intermediaries: The Architecture of Capital Flow

A financial intermediary is an institution or individual that acts as a middleman between those with surplus funds (savers/lenders) and those with a deficit of funds (borrowers/investors).

1. Core Economic Functions

Financial intermediaries do more than just "move money"; they transform it in three critical ways:

- **Maturity Transformation:** Savers often want "liquidity" (access to their money on demand), while borrowers often need "long-term" funds (e.g., a 30-year mortgage). Intermediaries bridge this gap by pooling short-term deposits to fund long-term loans.
- **Risk Transformation:** They take up a large pool of risky assets (like individual business loans) and turn them into safe assets for the saver (like a guaranteed bank deposit).
- **Information Asymmetry Reduction:** It is difficult for an individual to know if a stranger is "creditworthy." Intermediaries have specialized staff and data systems to screen and monitor borrowers effectively.

2. Primary Types of Financial Intermediaries

A. Depository Institutions (The "Banks")

These are the most common intermediaries. They accept deposits and use that capital to issue loans.

- **Commercial Banks:** Serve the public and businesses.
- **Credit Unions:** Member-owned cooperatives that often offer better rates to their members.
- **Savings and Loan Associations:** Primarily focused on residential mortgages.

B. Contractual Savings Institutions

These intermediaries acquire funds at periodic intervals on a contractual basis and pay out benefits in the future.

- **Insurance Companies:** Collect premiums to provide a safety net against specific risks (Life, Property, Casualty).
- **Pension Funds:** Employees and employers contribute to a fund that provides retirement income.

C. Investment Intermediaries

These institutions help individuals invest in capital markets.

- **Mutual Funds:** Pool money from many small investors to buy a diversified portfolio of stocks or bonds.
- **Investment Banks:** Do not take deposits; instead, they help corporations issue new stocks or bonds (underwriting) and advise on mergers.
- **Hedge Funds/Private Equity:** Specialized firms that manage large pools of capital for high-net-worth individuals or institutional investors.

3. How They Make Money

Intermediaries typically generate revenue through two primary models:

1. **The Spread (Net Interest Margin):** Banks pay a low interest rate to depositors (e.g., 1%) and charge a higher rate to borrowers (e.g., 7%). The 6% difference covers their operating costs and profit.
2. **Fees and Commissions:** Mutual funds charge management fees (Expense Ratios), and investment banks charge commissions for facilitating trades or advising deals.

4. Advantages vs. Risks

Benefit	Description
Economies of Scale	By processing thousands of transactions, they reduce the per-unit cost of financial services.
Diversification	They spread your money across hundreds of loans, so one person's default doesn't wipe out your savings.
Liquidity	You can withdraw your money from a bank instantly, even if that money is currently "stuck" in someone's home mortgage.

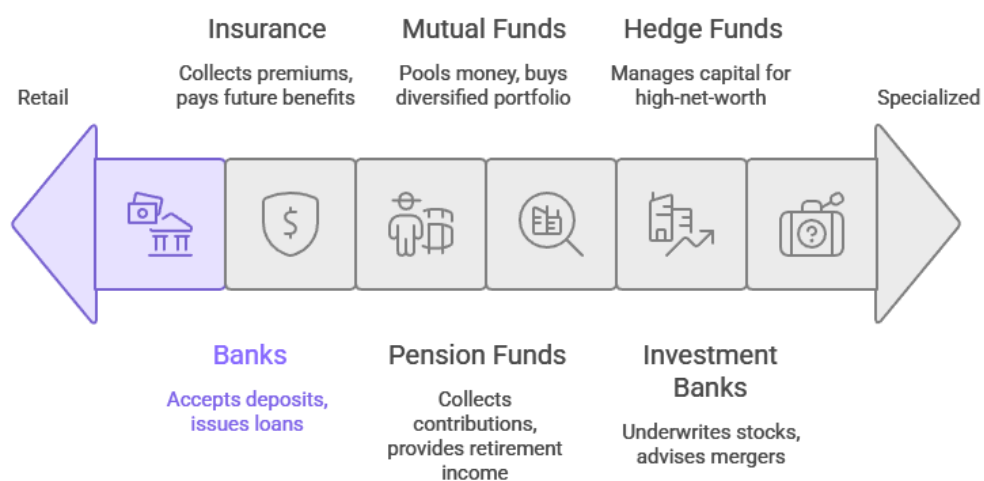
Risk	Description
Systemic Risk	Because they are so interconnected, the failure of one large intermediary can cause a "domino effect" across the entire economy.
Bank Runs	If all depositors try to withdraw their money at once (as seen in historical panics), the intermediary may run out of cash.
Moral Hazard	If intermediaries believe the government will bail them out, they may take excessive risks with depositors' money.

5. Modern Trend: Disintermediation

With the rise of **FinTech**, we are seeing a trend toward "cutting the middleman."

- **Peer-to-Peer (P2P) Lending:** Platforms like Prosper or Lending Club allow individuals to lend directly to other individuals.
- **DeFi (Decentralized Finance):** Using blockchain technology to perform the functions of a bank (lending, borrowing) without a central institution.

Financial intermediaries range from retail to specialized investment.



UNIT – II

Financial Statement Analysis (Numerical Problems): Analysis of Balance Sheet; Profit & Loss Account, Ratio analysis (Numerical Problems), common size analysis, cash flow statement, operating, financial, and combined leverage.

INTRODUCTION

A financial statement is an official document of the firm, which explores the entire financial information of the firm. The main aim of the financial statement is to provide information and understand the financial aspects of the firm. Hence, preparation of the financial statement is important as much as the financial decisions.

MEANING AND DEFINITION

According to Hamptons John, the financial statement is an organized collection of data according to logical and consistent accounting procedures. Its purpose is to convey an understanding of financial aspects of a business firm. It may show a position at a moment of time as in the case of a balance-sheet or may reveal a service of activities over a given period of time, as in the case of an income statement.

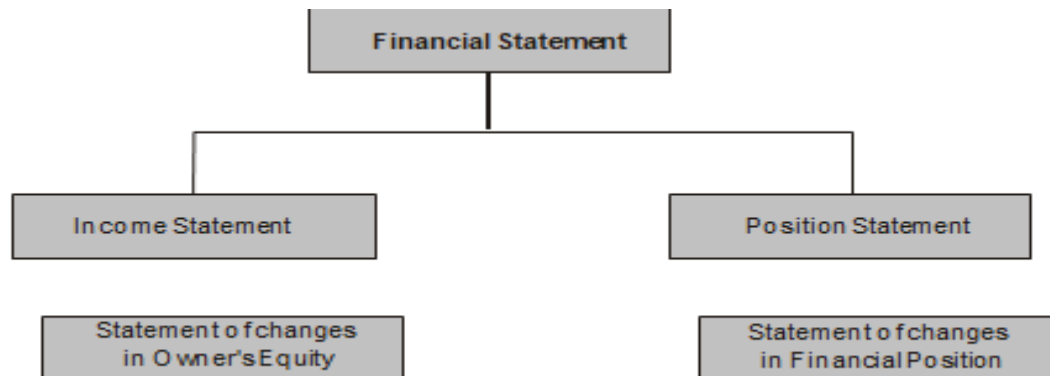
Financial statements are the summary of the accounting process, which provides useful information to both internal and external parties. **John N. Nyer** also defines it —Financial statements provide a summary of the accounting of a business enterprise, the balance-sheet reflecting the assets, liabilities and capital as on a certain data and the income statement showing the results of operations

Financial statements generally consist of two important statements:

- (i) The income statement or profit and loss account.
- (ii) Balance sheet or the position statement.

A part from that, the business concern also prepares some of the other parts of statements, which are very useful to the internal purpose such as:

- (i) Statement of changes in owner's equity.
- (ii) Statement of changes in financial position.



Income Statement

Income statement is also called as profit and loss account, which reflects the operational position of the firm during a particular period. Normally it consists of one accounting year. It determines the entire operational performance of the concern like total revenue generated and expenses incurred for earning that revenue.

Income statement helps to ascertain the gross profit and net profit of the concern. Gross profit is determined by preparation of trading or manufacturing a/c and net profit is determined by preparation of profit and loss account.

Position statement is also called as balance sheet, which reflects the financial position of the firm at the end of the financial year.

Position statement helps to ascertain and understand the total assets, liabilities and capital of the firm. One can understand the strength and weakness of the concern with the help of the position statement.

Statement of Changes in Owner's Equity

It is also called as statement of retained earnings. This statement provides information about the changes or position of owner's equity in the company. How the retained earnings are employed in the business concern. Nowadays, preparation of this statement is not popular and nobody is going to prepare the separate statement of changes in owner's equity.

Statement of Changes in Financial Position

Income statement and position statement shows only about the position of the finance, hence it can't measure the actual position of the financial statement. Statement of changes in financial position helps to understand the changes in financial position from one period to another period.

Statement of changes in financial position involves two important areas such as fund flow statement which involves the changes in working capital position and cash flow statement which involves the changes in cash position.

TYPES OF FINANCIAL STATEMENT ANALYSIS

Analysis of Financial Statement is also necessary to understand the financial positions during a particular period. According to Myres, —Financial statement analysis is largely a study of the relationship among the various financial factors in a business as disclosed by a single set of statements and a study of the trend of these factors as shown in a series of statements.

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

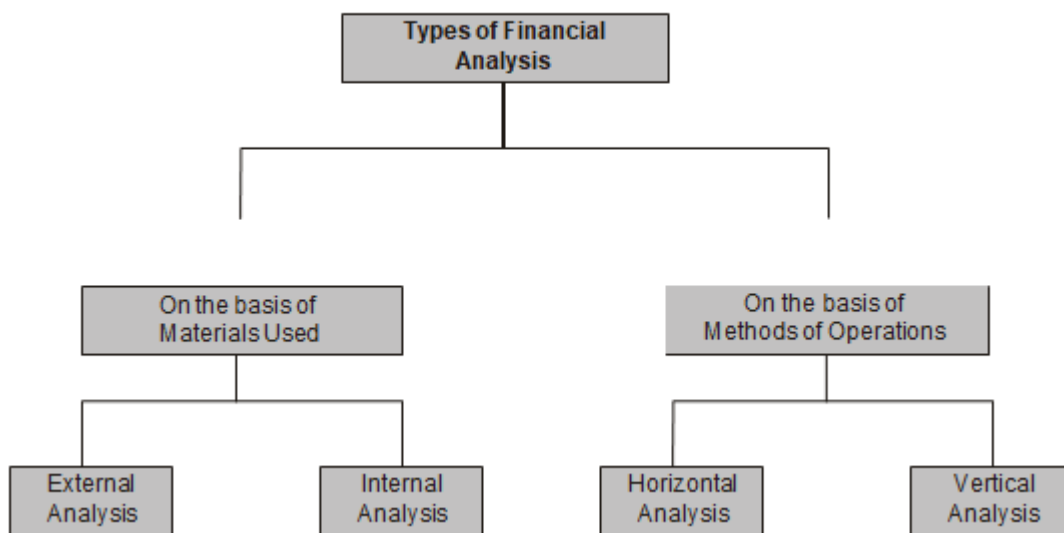


Fig. 2.2 Types of Financial Statement Analysis

1. Based on Material Used

Based on the material used, financial statement analysis may be classified into two major types such as External analysis and internal analysis.

A. External Analysis

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

B. Internal Analysis

The company itself does disclose some of the valuable informations to the business concern in this type of analysis. This analysis is used to understand the

operational performances of each and every department and unit of the business concern. Internal analysis helps to take decisions regarding achieving the goals of the business concern.

2. Based on Method of Operation

Based on the methods of operation, financial statement analysis may be classified into two major types such as horizontal analysis and vertical analysis.

A. Horizontal Analysis

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

B. Vertical Analysis

Under the vertical analysis, financial statements measure the quantity relationship of the various items in the financial statement on a particular period. It is also called as static analysis, because this analysis helps to determine the relationship with various items appearing in the financial statement. For example, a sale is assumed as 100 and other items are converted into sales figures.

TECHNIQUES OF FINANCIAL STATEMENT ANALYSIS

Financial statement analysis is interpreted mainly to determine the financial and operational performance of the business concern. A number of methods or techniques are used to analyse the financial statement of the business concern. The following are the common methods or techniques, which are widely used by the business concern.

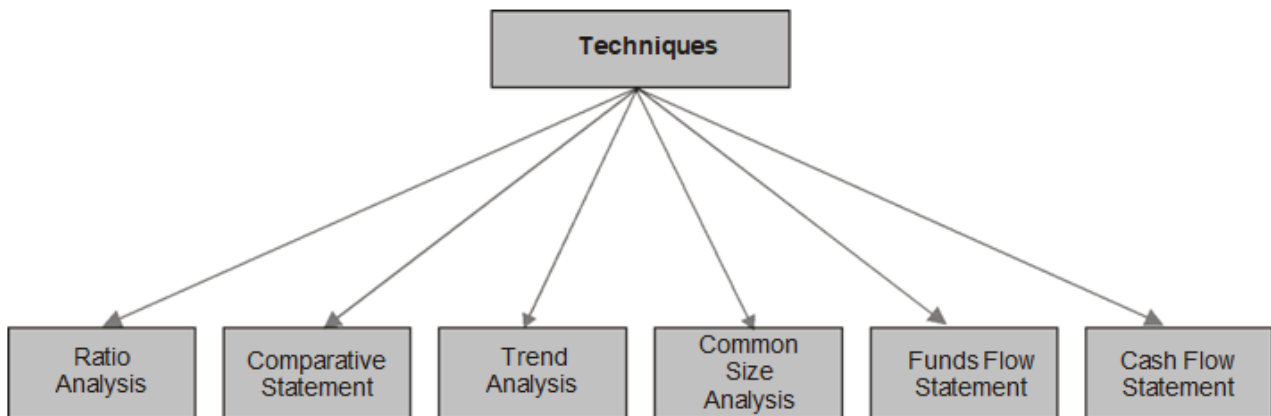


Fig. 2.3 Techniques of Financial Statement Analysis

1. Comparative Statement Analysis
 - A. Comparative Income Statement Analysis
 - B. Comparative Position Statement Analysis
2. Trend Analysis

3. Common Size Analysis
4. Fund Flow Statement
5. Cash Flow Statement
6. Ratio Analysis

Comparative Statement Analysis

Comparative statement analysis is an analysis of financial statement at different period of time. This statement helps to understand the comparative position of financial and operational performance at different period of time.

Comparative financial statements again classified into two major parts such as comparative balance sheet analysis and comparative profit and loss account analysis.

Comparative Balance Sheet Analysis

Comparative balance sheet analysis concentrates only the balance sheet of the concern at different period of time. Under this analysis the balance sheets are compared with previous year's figures or one-year balance sheet figures are compared with other years. Comparative balance sheet analysis may be horizontal or vertical basis. This type of analysis helps to understand the real financial position of the concern as well as how the assets, liabilities and capitals are placed during a particular period.

Common Size Analysis

Another important financial statement analysis technique are common size analysis in which figures reported are converted into percentage to some common base. In the balance sheet the total assets figures is assumed to be 100 and all figures are expressed as a percentage of this total. It is one of the simplest methods of financial statement analysis, which reflects the relationship of each and every item with the base value of 100%.

Common size balance sheet of Tamilnadu Mercantile Bank Ltd., as on 31st March 2003 and 2004.

Particulars	31st March 2003 Amount	Percentage	31st March 2004 Amount	Percentage
Fixed Assets Investments Advances	2,14,21,060	45.37	2,35,37,098	46.25
Fixed Assets	1,95,99,764	41.51	2,11,39,869	41.54
Other Assets	4,93,996	1.05	5,36,442	1.05
	18,58,064	3.94	18,35,883	3.61
Total Fixed Assets	4,33,72,884	91.86	4,70,49,292	94.44
Current Assets	27,06,808	5.73	22,37,601	4.40
Cash and Balance with RBI				
Balance with banks	11,36,781	2.41	16,07,975	3.20
and money at call and short notice				
Total Current Assets	38,43,589	8.14	38,45,576	7.6
Total Assets	4,72,16,473	100	5,08,94,868	100

Fixed Liabilities	2,845	0.01	2,845	0.01
Capital	39,66,009	8.40	47,65,406	9.36
Reserve and Surplus Deposits	4,08,45,783	86.50	4,40,42,730	86.54
Total Fixed Liabilities	4,48,14,637	94.91	4,88,10,981	95.91
Current Liability Borrowings Other	7,27,671	1.54	2,84,690	0.56
Liabilities	16,74,165	3.55	17,99,197	3.53
Provisions				
Total Current Liability	24,01,836	5.09	20,83,887	4.09
Total Liabilities	4,72,16,473	100	5,08,94,868	100

FUNDS FLOW STATEMENT

Funds flow statement is one of the important tools, which is used in many ways. It helps to understand the changes in the financial position of a business enterprise between the beginning and ending financial statement dates. It is also called as statement of sources and uses of funds.

Institute of Cost and Works Accounts of India, funds flow statement is defined as—a statement prospective or retrospective, setting out the sources and application of the funds of an enterprise. The purpose of the statement is to indicate clearly the requirement of funds and how they are proposed to be raised and the efficient utilization and application of the same.

CASH FLOW STATEMENT

Cash flow statement is a statement which shows the sources of cash inflow and uses of cash out- flow of the business concern during a particular period of time. It is the statement, which involves only short-term financial position of the business concern. Cash flow statement provides a summary of operating, investment and financing cash flows and reconciles them with changes in its cash and cash equivalents such as marketable securities. Institute of Chartered Accountants of India issued the Accounting Standard (AS-3) related to the preparation of cash flow statement in 1998.

Difference between Funds Flow and Cash Flow Statement

Funds Flow Statement

Cash Flow Statement

1. Funds flow statement is the report on the movement of funds or working capital 2. Funds flow statement explains how working capital is raised and used during the particular 3. The main objective of the fund flow statement is to show how the resources have been balanced, mobilized and used. 4. The funds flow statement indicates the results of current financial management. 5. In a funds flow statement an increase or decrease in working capital is recorded. 6. In the funds flow statement there are no opening and closing balances.	1. Cash flow statement is the report showing sources and uses of cash. 2. Cash flow statement explains the inflow and out flow of cash during the particular period. 3. The main objective of the cash flow statement is to show the causes of changes in cash between two balance sheet dates. 4. Cash flow statement indicates the factors contributing to the reduction of cash balance in spite of increase in profit and vice-versa. 5. In a cash flow statement only cash receipt and payments are recorded. 6. Cash flow statement starts with opening cash balance and ends with closing cash balance.
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Exercise 4

From the following balance sheet of A Company Ltd. you are required to prepare a schedule of changes in working capital and statement of flow of funds.

Balance Sheet of A Company Ltd., as on 31st March

Liabilities	2004	2005	Assets	2004	2005
Share Capital	1,00,000	1,10,000	Land and Building	60,000	60,000
Profit and Loss a/c	20,000	23,000	Plant and Machinery	35,000	45,000
Loans	—	10,000	Stock	20,000	25,000
Creditors	15,000	18,000	Debtors	18,000	28,000
Bills payable	5,000	4,000	Bills receivable	2,000	1,000
			Cash	5,000	6,000
	1,40,000	1,65,000		1,40,000	1,65,000

Solution

Schedule of Changes in Working Capital

Particulars	2004 Rs.	2005 Rs.	Increase Rs.	Decrease Rs.
Current Assets				

Stock	20,000	25,000	5,000	—
Debtors	18,000	28,000	10,000	—
Bills Receivable	2,000	1,000	—	1,000
Cash	5,000	6,000	1,000	
A	45,000	60,000		
Less Current Liabilities			1,000	3,000
Creditors	15,000	18,000		
Bills Payable	5,000	4,000		
B	20,000	22,000	17,000	4,000
A-B	25,000	38,000	—	13,000
Increase in W.C.	38,000	38,000	17,000	17,000

Fund Flow Statement

Sources	Rs.	APPLICATION	Rs.
<i>Issued Share Capital</i>	<i>10,000</i>	<i>Purchase of Plant and Machinery</i>	<i>10,000</i>
<i>Loan</i>	<i>10,000</i>	<i>Increase in Working Capital</i>	<i>13,000</i>
<i>Funds From Operations</i>	<i>3,000</i>		
	<i>23,000</i>		<i>23,000</i>

Exercise 5

From the above example 4 prepare a Cash Flow Statement.

Solution

Cash Flow Statement

INFLOW	Rs.	Outflow	Rs.
Balance b/d	5,000	Purchase of plant	10,000
Issued Share Capital	10,000	Increase Current Assets	5,000
Loan	10,000	Stock	10,000
Cash Opening Profit	3,000	Decrease in Bills Payable	1,000
Decrease in Bills	1,000	Balance c/d	6,000
Receivable	3,000		

Increase in Creditors			
	32,000		32,000

RATIO ANALYSIS

Ratio analysis is a commonly used tool of financial statement analysis. Ratio is a mathematical relationship between one number to another number. Ratio is used as an index for evaluating the financial performance of the business concern. An accounting ratio shows

the mathematical relationship between two figures, which have meaningful relation with each other. Ratio can be classified into various types. Classification from the point of view of financial management is as follows:

Liquidity Ratio

Activity Ratio

Solvency Ratio

Profitability Ratio

Liquidity Ratio

It is also called a short-term ratio. This ratio helps to understand the liquidity in a business which is the potential ability to meet current obligations. This ratio expresses the relationship between current assets and current liabilities of the business concern during a particular period. The following are the major liquidity ratio:

Liquidity Ratio Analysis

1. Introduction to Liquidity

Liquidity refers to a company's ability to convert its assets into cash quickly and cheaply to meet its short-term financial obligations. Liquidity ratios are used by creditors, suppliers, and analysts to determine if a business can remain solvent in the short term (usually within one year).

2. Primary Liquidity Ratios

A. Current Ratio (The Working Capital Ratio)

The Current Ratio measures a company's ability to pay off its short-term liabilities with its total short-term assets.

Formula:

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

- **Components:** Current Assets typically include Cash, Accounts Receivable, Inventory, and Prepaid Expenses.
- **Interpretation:** A ratio of $2 : 1$ is often considered a healthy benchmark. A ratio below 1.0 indicates that the company may have trouble meeting its immediate obligations.

B. Quick Ratio (The Acid-Test Ratio)

The Quick Ratio is a more conservative measure of liquidity. It excludes inventories and prepaid expenses from current assets because these can be difficult to liquidate in a crisis.

Formula:

$$\text{Quick Ratio} = \frac{\text{Cash} + \text{Cash Equivalents} + \text{Marketable Securities} + \text{Accounts R}}{\text{Current Liabilities}}$$

OR

$$\text{Quick Ratio} = \frac{\text{Current Assets} - \text{Inventory} - \text{Prepaid Expenses}}{\text{Current Liabilities}}$$

- **Interpretation:** A ratio of $1 : 1$ is generally the target. It shows the company can pay all short-term debts without selling any inventory.

C. Cash Ratio

The most stringent liquidity test, focusing only on the most liquid assets (cash and marketable securities).

Formula:

$$\text{Cash Ratio} = \frac{\text{Cash} + \text{Cash Equivalents} + \text{Marketable Securities}}{\text{Current Liabilities}}$$

3.

Comparative Summary Table

Ratio	Conservative Level	Formula Components	Primary Use
Current Ratio	Low	All Current Assets	General operating liquidity
Quick Ratio	Moderate	Assets excluding Inventory	Immediate solvency check
Cash Ratio	High	Only Cash/Investments	"Worst-case" stress testing

4. Practical Case Study

Company Profile: *Global Logistics Ltd.*

- Cash: \$15,000
- Marketable Securities: \$5,000
- Accounts Receivable: \$30,000
- Inventory: \$50,000
- Total Current Liabilities: \$40,000

Calculations:

1. Current Ratio Calculation:

Current Assets = 15,000 + 5,000 + 30,000 + 50,000 = \$100,000

Ratio = $\frac{\$100,000}{\$40,000}$ = 2.5

Insight: The company has \$2.50 for every \$1.00 of debt.

2. Quick Ratio Calculation:

$$\text{Quick Assets} = 15,000 + 5,000 + 30,000 = \$50,000$$

$$\text{Ratio} = \frac{\$50,000}{\$40,000} = \mathbf{1.25}$$

Insight: Even without selling inventory, the company remains solvent.

3. Cash Ratio Calculation:

$$\text{Cash Assets} = 15,000 + 5,000 = \$20,000$$

$$\text{Ratio} = \frac{\$20,000}{\$40,000} = \mathbf{0.5}$$

Insight: The company can pay 50% of its debts immediately using only cash.

5. Limitations of Liquidity Ratios

- **Static Nature:** These ratios are "snapshots" in time and may not reflect seasonal fluctuations.
- **Quality of Assets:** A high Quick Ratio is useless if the Accounts Receivable are mostly bad debts that cannot be collected.
- **Inventory Valuation:** Different accounting methods (LIFO vs. FIFO) can change the Current Ratio significantly.

Activity Ratios (Turnover Ratios)

Meaning: Activity ratios measure how efficiently a business uses its assets and liabilities during a particular period. They show the operating performance of the business. Higher turnover generally means better efficiency.

1. Stock Turnover Ratio (Inventory Turnover Ratio)

Meaning: Shows how many times inventory is sold and replaced during the year.

Formula: $\text{Stock Turnover Ratio} = \text{Cost of Sales} / \text{Average Inventory}$

$\text{Average Inventory} = (\text{Opening Stock} + \text{Closing Stock}) / 2$

Interpretation: High ratio indicates fast-moving stock. Low ratio indicates overstocking or slow sales.

2. Debtors Turnover Ratio (Receivables Turnover Ratio)

Meaning: Indicates how quickly the business collects cash from credit customers.

Formula: $\text{Debtors Turnover Ratio} = \text{Credit Sales} / \text{Average Debtors}$

$\text{Average Debtors} = (\text{Opening Debtors} + \text{Closing Debtors}) / 2$

Interpretation: High ratio shows fast collection. Low ratio shows poor credit control.

3. Creditors Turnover Ratio (Payables Turnover Ratio)

Meaning: Shows how quickly the business pays its suppliers.

Formula: $\text{Creditors Turnover Ratio} = \text{Credit Purchases} / \text{Average Creditors}$

$\text{Average Creditors} = (\text{Opening Creditors} + \text{Closing Creditors}) / 2$

Interpretation: High ratio means quick payment. Low ratio means longer credit period taken.

4. Working Capital Turnover Ratio

Meaning: Measures how effectively working capital is used to generate sales.

Formula: $\text{Working Capital Turnover Ratio} = \text{Sales} / \text{Net Working Capital}$

$\text{Net Working Capital} = \text{Current Assets} - \text{Current Liabilities}$

Interpretation: High ratio indicates efficient use of working capital. Low ratio indicates excess working capital or low sales.

Solved Example

Given Data:

Cost of Sales = 3,00,000

Opening Stock = 40,000

Closing Stock = 60,000

Credit Sales = 4,00,000

Opening Debtors = 30,000
Closing Debtors = 50,000
Credit Purchases = 2,40,000
Opening Creditors = 20,000
Closing Creditors = 40,000
Current Assets = 2,00,000
Current Liabilities = 80,000

Step 1: Average Inventory = $(40,000 + 60,000) / 2 = 50,000$

Stock Turnover Ratio = $3,00,000 / 50,000 = 6$ times

Step 2: Average Debtors = $(30,000 + 50,000) / 2 = 40,000$

Debtors Turnover Ratio = $4,00,000 / 40,000 = 10$ times

Step 3: Average Creditors = $(20,000 + 40,000) / 2 = 30,000$

Creditors Turnover Ratio = $2,40,000 / 30,000 = 8$ times

Step 4: Net Working Capital = $2,00,000 - 80,000 = 1,20,000$

Working Capital Turnover Ratio = $4,00,000 / 1,20,000 = 3.33$ times

Summary Table

Stock Turnover Ratio = Cost of Sales / Average Inventory

Debtors Turnover Ratio = Credit Sales / Average Debtors

Creditors Turnover Ratio = Credit Purchases / Average Creditors

Working Capital Turnover Ratio = Sales / Net Working Capital

Solvency Ratios (Leverage Ratios)

1. Concept Overview

As per the provided reference, a **Solvency Ratio** (also called a **Leverage Ratio**) measures the long-term obligations of a business concern. While liquidity ratios focus on the short-term, solvency ratios help stakeholders understand how long-term funds are utilized and whether the business can sustain its operations and debt payments over many years.

2. Key Solvency Ratios & Formulas

A. Debt-Equity Ratio

This ratio expresses the relationship between external equities (debts) and internal equities

(shareholders' funds). It indicates the relative proportion of debt and equity used to finance the company's assets.

Formula:

$$\text{Debt-Equity Ratio} = \frac{\text{External Equity (Total Debt)}}{\text{Internal Equity (Shareholders' Funds)}}$$

- **Interpretation:** A ratio of **2 : 1** is generally considered safe in many industries. A high ratio indicates that the business is primarily financed by lenders, which increases financial risk.

B. Proprietary Ratio

This ratio establishes the relationship between the shareholders' funds and the total assets of the business. It shows how much of the total assets are financed by the owners.

Formula:

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

- **Interpretation:** A higher ratio indicates a stronger financial position and less reliance on outside loans.

C. Interest Coverage Ratio

This ratio measures the ability of a business to pay interest on its loans out of its current profits.

Formula:

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT (Earnings Before Interest and Taxes)}}{\text{Fixed Interest Charges}}$$

- **Interpretation:** This ratio is expressed in "times." For example, a result of **5** means the company earns 5 times more than it needs to pay its interest.

3. Comprehensive Example Problem

Financial Data for "Titan Industries":

- Long-term Loans (External Equity): \$400,000
- Shareholders' Funds (Internal Equity): \$200,000
- Total Assets: \$800,000
- EBIT (Net Profit before Interest/Tax): \$150,000
- Annual Interest Charges: \$30,000

Step 1: Calculate Debt-Equity Ratio

$$\text{Ratio} = \frac{\$400,000}{\$200,000} = 2.0$$

Analysis: The company has \$2 of debt for every \$1 of equity. This is right at the typical industry limit.

Step 2: Calculate Proprietary Ratio

$$\text{Ratio} = \frac{\$200,000}{\$800,000} = 0.25 \text{ (or 25\%)}$$

Analysis: 25% of the company's assets are funded by the owners, while the remaining 75% are funded by creditors.

Step 3: Calculate Interest Coverage Ratio

$$\text{Ratio} = \frac{\$150,000}{\$30,000} = 5 \text{ Times}$$

Analysis: Titan Industries can cover its interest payments 5 times over using its current earnings. This is a safe margin for lenders.

4. Summary Table for Quick Revision

Ratio	Formula Focus	Unit	Signifies
Debt-Equity	External / Internal	Pure Ratio	Financial

	Equity		Risk/Leverage
Proprietary	Shareholder Funds / Total Assets	Percentage	Owner's stake in assets
Interest Coverage	EBIT / Fixed Interest	Times	Margin of safety for lenders

Profitability Ratios

1. Concept Overview

Profitability Ratios are financial metrics used to assess a business's ability to generate earnings compared to its expenses and other costs associated with generating revenue during a specific period. These ratios are essential for investors and management to evaluate the overall success and efficiency of the company.

2. Major Profitability Ratios & Formulas

A. Gross Profit Ratio

This ratio indicates the percentage of revenue that exceeds the Cost of Goods Sold (COGS). It measures the efficiency of production and pricing.

Formula:

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

- **Interpretation:** A higher ratio means the company retains more money from each dollar of sales to cover other operating expenses.

B. Net Profit Ratio

This ratio illustrates the percentage of each dollar of revenue that remains as profit after all expenses, interest, and taxes have been paid.

Formula:

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

- **Interpretation:** This is the "bottom line" efficiency. It shows how much actual profit the company generates from its total sales.

C. Operating Profit Ratio

This measures the operational efficiency of the company by calculating the profit generated from core business operations before interest and taxes.

Formula:

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

-
- **Note:** Operating Profit is often referred to as EBIT (Earnings Before Interest and Taxes).

D. Return on Investment (ROI) / Return on Equity (ROE)

As per your reference, this specifically measures the return generated on the funds provided by the shareholders.

Formula:

$$\text{Return on Investment} = \frac{\text{Net Profit After Tax}}{\text{Shareholders' Fund}} \times 100$$

3. Practical Example Problem

Financial Statement Data for "Nova Corp":

- Net Sales: \$800,000
- Cost of Goods Sold (COGS): \$480,000
- Operating Expenses: \$120,000
- Interest & Taxes: \$40,000
- Shareholders' Funds: \$400,000

Step 1: Calculate Profit Levels

1. **Gross Profit:** $\$800,000 - \$480,000 = \$320,000$
2. **Operating Profit:** $\$320,000 - \$120,000 = \$200,000$
3. **Net Profit After Tax:** $\$200,000 - \$40,000 = \$160,000$

Step 2: Apply Profitability Formulas

Ratio	Calculation	Result
Gross Profit Ratio	$(\$320,000/\$800,000) \times 100$	40%
Net Profit Ratio	$(\$160,000/\$800,000) \times 100$	20%
Operating Profit Ratio	$(\$200,000/\$800,000) \times 100$	25%
Return on Investment	$(\$160,000/\$400,000) \times 100$	40%

4. Analysis Summary

- **40% Gross Profit:** Nova Corp keeps 40 cents of every dollar to cover operations and profit.
- **20% Net Profit:** After all obligations, 20% of sales becomes pure profit for the owners.
- **40% ROI:** The shareholders are earning a 40% return on the capital they have invested in the business, which indicates high efficiency.

LEVERAGE

INTRODUCTION

Financial decision is one of the integral and important parts of financial management in any kind of business concern. A sound financial decision must consider the board coverage of the financial mix (Capital Structure), total amount of capital (capitalization) and cost of capital (Ko). Capital structure is one of the significant things for the management, since it influences the debt equity mix of the business concern, which affects the shareholder's return and risk. Hence, deciding the debt-equity mix plays a major role in the part of the value of the company and market value of the shares. The debt equity mix of the company can be examined with the help of leverage.

The concept of leverage is discussed in this part. Types and effects of leverage are discussed in the part of EBIT and EPS.

Meaning of Leverage

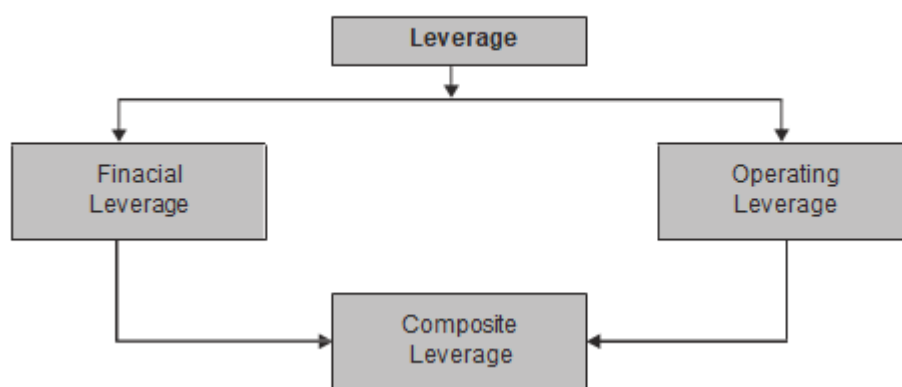
The term leverage refers to an increased means of accomplishing some purpose. Leverage is used for lifting heavy objects, which may not be otherwise possible. In the financial point of view, leverage refers to furnishing the ability to use fixed cost assets or funds to increase the return to its shareholders.

Definition of Leverage

James Horne has defined leverage as, —the employment of an asset or fund for which the firm pays a fixed cost or fixed return.

Types of Leverage

Leverage can be classified into three major headings according to the nature of the finance mix of the company.



Operating Leverage

1. Concept Definition

Operating Leverage is the leverage associated with the investment activities of a company. it is primarily caused by the existence of **fixed operating expenses** in the company's cost structure.

Key Characteristics:

- **Magnification Effect:** It represents a company's ability to use fixed operating costs to magnify the effects of changes in sales on its **Earnings Before Interest and Taxes (EBIT)** or Operating Profits.
- **Cost Structure:** It consists of two vital costs: **Fixed Costs** and **Variable Costs**.
- **High Leverage:** A company is said to have a high degree of operating leverage if it employs a high proportion of fixed costs relative to variable costs.
- **Analytical Tool:** Operating leverage can be effectively determined with the help of **Break-Even Analysis**.

2. Formulas for Operating Leverage

A. Basic Operating Leverage (OL)

This formula is used to calculate the leverage at a specific point in time using the contribution and operating profit.

Formula:

$$OL = \frac{C}{OP}$$

Where:

- **OL** = Operating Leverage
- **C** = Contribution (Sales - Variable Cost)
- **OP** = Operating Profits (EBIT)

B. Degree of Operating Leverage (DOL)

The Degree of Operating Leverage measures the sensitivity of profits to changes in sales volume. It defines the percentage change in profits resulting from a specific percentage change in sales.

Formula:

$$DOL = \frac{\% \text{ Change in Profits}}{\% \text{ Change in Sales}}$$

3. Practical Example Problem

Scenario:

A company has the following cost structure:

- **Sales:** \$100,000 (10,000 units @ \$10 each)
- **Variable Cost:** \$40,000 (\$4 per unit)
- **Fixed Operating Cost:** \$30,000

Step 1: Calculate Contribution and Operating Profit

1. **Contribution (C):** Sales – Variable Cost = \$100,000 – \$40,000 = \$60,000
2. **Operating Profit (OP):**

$$\text{Contribution} - \text{Fixed Cost} = \$60,000 - \$30,000 = \$30,000$$

Step 2: Calculate Operating Leverage (OL)

$$OL = \frac{C}{OP} = \frac{\$60,000}{\$30,000} = 2.0$$

4. Understanding the Result (The DOL Effect)

If the Operating Leverage (DOL) is **2.0**, it means:

- A **10% increase in sales** will result in a **20% increase in operating profit** ($10\% \times 2.0$).
- Conversely, a **10% decrease in sales** will result in a **20% decrease in operating profit**.

Summary of Impact:

Cost Structure	Operating Leverage	Risk Level	Profit Potential
High Fixed Costs	High	High Risk	High Reward (Magnified Profits)
Low Fixed Costs	Low	Low Risk	Lower Reward (Stable Profits)

Combined Leverage (Total Leverage)

1. Concept Definition

Combined Leverage is the leverage associated with the **total risk** of a company. It represents the total magnification effect of both Operating Leverage and Financial Leverage.

Key Characteristics:

- **Total Magnification:** It measures the total sensitivity of **Earnings Per Share (EPS)** to changes in **Sales volume**.
- **Combined Impact:** It accounts for the combined effect of fixed operating costs (Operating Leverage) and fixed financial charges (Financial Leverage).
- **Risk Assessment:** While Operating Leverage represents business risk and Financial Leverage represents financial risk, Combined Leverage represents the **Total Risk** of the firm.

2. Formulas for Combined Leverage

A. Calculation via Multiplication

Combined Leverage is the product of Operating Leverage and Financial Leverage.

Formula:

$$CL = OL \times FL$$

B. Direct Calculation (Income Statement Method)

Using the figures from the income statement, Combined Leverage can be calculated by comparing the Contribution to the Profit Before Tax.

Formula:

$$CL = \frac{C}{PBT}$$

Where:

- **CL** = Combined Leverage
- **C** = Contribution (Sales - Variable Costs)
- **PBT** = Profit Before Tax (EBIT - Interest)

C. Degree of Combined Leverage (DCL)

The Degree of Combined Leverage measures the percentage change in EPS resulting from a specific percentage change in Sales.

Formula:

$$DCL = \frac{\% \text{ Change in EPS}}{\% \text{ Change in Sales}}$$

3. Practical Example Problem

Scenario:

"Beta Corp" provides the following data:

- Sales: \$200,000
- Variable Costs: \$80,000
- Fixed Operating Costs: \$40,000
- Interest Expense: \$20,000

Step 1: Calculate Profit Levels

1. Contribution (C): $\$200,000 - \$80,000 = \$120,000$
2. Operating Profit (EBIT): $\$120,000 - \$40,000 = \$80,000$
3. Profit Before Tax (PBT): $\$80,000 - \$20,000 = \$60,000$

Step 2: Calculate Combined Leverage

Method 1 (Multiplication):

- $OL = C/EBIT = 120,000/80,000 = 1.5$
- $FL = EBIT/PBT = 80,000/60,000 = 1.33$
- $CL = 1.5 \times 1.33 = 2.0$

Method 2 (Direct):

- $CL = C/PBT = 120,000/60,000 = 2.0$

4. The "Leverage Web" Summary

Leverage Type	Impact Chain	Primary Cause
Operating	Sales $\rightarrow$ EBIT	Fixed Operating Costs
Financial	EBIT $\rightarrow$ EPS	Fixed Interest/Financial Charges
Combined	Sales $\rightarrow$ EPS	Total Fixed Costs (Operating + Financial)

Conclusion: If Combined Leverage is **2.0**, a **10% increase in Sales** will lead to a **20% increase in EPS**. This demonstrates the total power of leverage in a company's financial structure.

Basis	Operating Leverage	Financial Leverage
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Meaning	Use of fixed operating costs to magnify the effect of change in sales on operating profit (EBIT).	Use of fixed financial costs (interest, preference dividend) to magnify the effect of change in EBIT on EPS.
Focuses On	Cost structure of the company	Capital structure of the company
Arises Due To	Presence of fixed operating expenses like rent, salaries, depreciation	Presence of fixed financial charges like interest on loans
Impact Of Change In	Sales → affects EBIT	EBIT → affects EPS
Risk Type	Business Risk	Financial Risk
Measured By	Degree of Operating Leverage (DOL)	Degree of Financial Leverage (DFL)
Formula	$DOL = \text{Contribution} / \text{EBIT}$	$DFL = \text{EBIT} / \text{EBT}$
When It Is High	When fixed operating costs are high and variable costs are low	When company uses more debt (borrowed funds)
Effect	Small change in sales leads to large change in operating profit	Small change in EBIT leads to large change in EPS
Control	Controlled by management through production and cost decisions	Controlled by financing decisions (debt vs equity)

UNIT – III

Capital: Cost of Capital - Cost of Debt, Cost of Equity – Dividend Capitalisation, CAPM - Cost of Preference Shares - Weighted Average and Multiple Costs of Capital –Valuation of Bonds and Shares. Capital Structure Planning – EBIT – EPS analysis (Numerical Problems), Risks of Financial Leverage – Margin of Safety, Interest and Debt service. Long-term sources of Finance: Venture Capital.

Capital

In a business context, **Capital** refers to the total funds invested in the enterprise to facilitate its operations, growth, and stability. While "money" is a form of capital, in finance, capital encompasses all assets (tangible and intangible) that contribute to the production of goods or services.

Key Characteristics:

- **Wealth-Generating:** Unlike personal wealth, capital is specifically used to generate more wealth/income.
- **Man-made:** It consists of resources produced by human effort used for further production.
- **Durability:** Capital is not consumed instantly; it provides value over multiple operating cycles.

Classification of Capital

A. Based on Nature

1. **Fixed Capital:** Funds invested in long-term assets like land, buildings, machinery, and equipment.
2. **Working Capital:** Funds used for day-to-day operations, such as purchasing raw materials and paying wages. (Calculated as: Current Assets - Current Liabilities).

B. Based on Ownership (Accounting Perspective)

1. **Equity Capital (Owned Capital):** Funds provided by the owners/shareholders. It carries no fixed obligation of repayment or interest.
2. **Debt Capital (Borrowed Capital):** Funds raised through loans, debentures, or bonds. It carries a fixed obligation to pay interest.

Share Capital Structure

When a company is incorporated, its capital is typically divided into "shares." The hierarchy of share capital is as follows:

Type of Capital	Definition
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Authorized Capital	The maximum amount of capital a company is legally allowed to raise.
Issued Capital	The portion of authorized capital offered to the public for subscription.
Subscribed Capital	The portion of issued capital actually taken up by the public.
Called-up Capital	The portion of subscribed capital the company has asked shareholders to pay.
Paid-up Capital	The actual amount of money received by the company from shareholders.

The Capital Structure Equation

The relationship between assets and capital is defined by the **Accounting Equation**:

$$\text{Assets} = \text{Liabilities} + \text{Capital (Equity)}$$

Cost of Capital

Every form of capital has a cost associated with it:

- **Cost of Debt (K_d)**: The interest paid on loans.
- **Cost of Equity (K_e)**: The expected return/dividends demanded by shareholders.

Practical Example: Capital Assessment

Company: *Titan Start-up*

- **Initial Investment by Founder:** \$50,000
- **Bank Loan:** \$30,000
- **Purchased Machinery:** \$60,000
- **Cash for Operations:** \$20,000

Analysis:

1. **Total Capital Employed:** \$50,000 (Equity) + \$30,000 (Debt) = **\$80,000**
2. **Fixed Capital:** \$60,000 (Machinery)
3. **Working Capital:** \$20,000 (Cash)

4. Debt-Equity Mix: $30,000 : 50,000 = 0.6 : 1$

Summary

Capital Budgeting: The process of deciding whether to invest in fixed capital (long-term projects).

- **Capital Gearing:** The relationship between fixed-interest-bearing capital (debt) and equity capital.
- **Over-Capitalization:** When a company has more capital than it needs to conduct its business efficiently, leading to low earnings per share.

Cost of Capital (K_o)

Introduction

The **Cost of Capital** is the minimum rate of return a company must earn on its investments to maintain its market value and satisfy its investors. It is also known as the "Hurdle Rate" or "Cut-off Rate."

A company's total cost of capital is typically the **Weighted Average Cost of Capital (WACC)**, which combines the costs of its various financing components (Debt and Equity).

Cost of Debt (K_d)

The Cost of Debt is the effective rate that a company pays on its borrowed funds (bonds, loans, debentures).

Key Concept: The Tax Shield

Unlike dividends, interest payments are **tax-deductible**. Therefore, the actual cost of debt to the company is lower than the interest rate paid to the lender.

Formula (After-Tax):

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

Where:

- I = Annual Interest Rate (Coupon Rate)
- t = Corporate Tax Rate

Example:

If a company issues 10% debentures and the tax rate is 30%:

$$K_d = 0.10 \times (1 - 0.30) = 7\%$$

Cost of Equity (K_e)

The Cost of Equity is the return that shareholders require for investing their capital in the company. Since equity carries more risk than debt, K_e is almost always higher than K_d .

There are two primary models to calculate K_e :

A. Dividend Growth Model (Gordon Model)

This model assumes that the cost of equity is based on the dividends paid and their expected growth.

Formula:

$$K_e = \frac{D_1}{P_0} + g$$

Where:

- D_1 = Expected Dividend per share next year
- P_0 = Current Market Price of the share
- g = Constant Growth Rate of dividends

B. Capital Asset Pricing Model (CAPM)

This model focuses on the risk-free rate and the specific risk (Beta) of the stock.

Formula:

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

Where:

- R_f = Risk-free rate (e.g., Govt. Bond yield)
- β = Beta of the stock (Systematic Risk)
- R_m = Expected Market Return

Comparison Summary

Feature	Cost of Debt (K_d)	Cost of Equity (K_e)
Obligation	Legal/Contractual	Implicit/Expected
Risk Level	Low (Fixed)	High (Variable)
Tax Impact	Tax Deductible (Cheaper)	Paid from After-Tax Profit
Priority	First priority in liquidation	Last priority

Practical Example Problem

Scenario: *Global Ventures Ltd* has the following capital structure:

- Debt:** \$500,000 at 12% interest.
- Equity:** Market price per share is \$100. Next year's dividend is \$8, with a growth rate of 5%.
- Tax Rate:** 25%.

Step 1: Calculate K_d (After-Tax)

$$K_d = 0.12 \times (1 - 0.25) = 9\%$$

Step 2: Calculate K_e

$$K_e = \frac{8}{100} + 0.05 = 0.08 + 0.05 = 13\%$$

Step 3: Analysis

The company's cost of equity (13%) is significantly higher than its after-tax cost of debt (9%). To be profitable, any project this company undertakes must earn a return higher than the weighted average of these two costs.

Dividend Capitalisation Model

Concept Overview

The **Dividend Capitalisation Model** is based on the theory that the value of a share (and the cost of equity) is determined by the present value of all future dividends expected to be paid by the company.

In this model, the "Cost of Equity" (K_e) is viewed as the discount rate that equates the present value of all expected future dividends with the current market price of the stock.

Core Assumptions

For this model to be applicable, several conditions are generally assumed:

- **Dividends are the only cash flow:** Investors receive value solely through dividends.
- **Earnings Growth:** Earnings and dividends grow at a constant rate (g).
- **Payout Ratio:** The company maintains a consistent dividend payout ratio.
- **Infinite Life:** The company is assumed to operate indefinitely.
- $K_e > g$: The required rate of return (K_e) must be greater than the growth rate (g) for the formula to function.

The Formulas

A. Constant Dividend (No Growth)

If a company pays a fixed dividend every year without any growth, the cost of equity is calculated as a simple perpetuity.

Formula:

$$K_e = \frac{D}{P_0}$$

B. Constant Growth Model (Gordon Model)

This is the most common version, where dividends are expected to grow at a steady percentage (g) forever.

Formula:

$$K_e = \frac{D_1}{P_0} + g$$

Where:

- K_e = Cost of Equity (Dividend Capitalisation Rate)
- D_1 = Expected Dividend at the end of Year 1 ($D_0 \times (1 + g)$)
- P_0 = Current Market Price of the share
- g = Constant Growth Rate of dividends

Practical Example Problem

Scenario:

The shares of "Fortune 500 Corp" are currently selling at **\$150** per share. The company just paid a dividend (D_0) of **\$9** per share. The dividends are expected to grow at a constant rate of **6%** per year.

Step 1: Calculate the Expected Dividend (D_1)

$$D_1 = D_0 \times (1 + g)$$

$$D_1 = 9 \times (1 + 0.06) = \$9.54$$

Step 2: Apply the Capitalisation Formula

$$K_e = \frac{9.54}{150} + 0.06$$

$$K_e = 0.0636 + 0.06 = \mathbf{0.1236 \text{ or } 12.36\%}$$

Analysis: The Dividend Capitalisation rate for this company is **12.36%**. This represents the minimum return shareholders expect given the current price and growth prospects.

Factors Influencing Dividend Capitalisation

Factor	Change	Impact on Cost of Equity
--------	--------	--------------------------

		(K_e)
Market Price (P_0)	Increase	Decreases K_e (Stock is more expensive, lower yield)
Dividend Amount (D_1)	Increase	Increases K_e (Higher immediate return required)
Growth Rate (g)	Increase	Increases K_e (Reflects higher future expectations)

Advantages and Limitations

Advantages:

1. **Simplicity:** Easy to calculate and understand for stable, blue-chip companies.
2. **Direct Link:** Directly relates the stock value to the cash returns received by investors.

Limitations:

1. **Growth Sensitivity:** Small changes in the growth rate (g) lead to massive changes in K_e .
2. **Non-Dividend Payers:** Cannot be used for companies that do not pay dividends (e.g., many tech startups).
3. **Unrealistic Growth:** Assumes a "constant" growth rate forever, which rarely happens in the real world.

Capital Asset Pricing Model (CAPM)

Introduction

The **Capital Asset Pricing Model (CAPM)** describes the relationship between systematic risk and expected return for assets, particularly stocks. It is widely used for pricing risky securities and generating expected returns for assets given the risk of those assets and the cost of capital.

The core premise of CAPM is that investors need to be compensated in two ways: **Time value of money** and **Risk**.

The CAPM Formula

The expected return of an asset (K_e) is calculated using the following equation:

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

Where:

- K_e : Expected Return on the equity/asset.
- R_f : Risk-Free Rate (typically the yield on government bonds).
- β (**Beta**): A measure of the asset's systematic risk (sensitivity to market movements).
- R_m : Expected Return of the Market (e.g., S&P 500 or Nifty 50).
- $(R_m - R_f)$: **Market Risk Premium** (the additional return required for moving from a risk-free investment to a risky market investment).

Understanding Beta (β)

Beta measures how much a specific stock's price moves relative to the overall market.

Beta Value	Meaning	Example
$\beta = 1$	Exactly as volatile as the market.	If the market rises 10%, stock rises 10%.
$\beta > 1$	More volatile than the market (Aggressive).	Tech startups, Luxury brands.
$\beta < 1$	Less volatile than the market (Defensive).	Utilities, Consumer staples (Milk/Bread).
$\beta = 0$	No market risk.	Cash or Government Bonds.

Practical Example Problem

Scenario:

You are evaluating the stock of "TechGiant Inc." and have gathered the following market data:

- Current yield on 10-year Treasury Bonds (R_f): **4%**
- Expected return of the stock market index (R_m): **11%**
- The Beta of TechGiant (β): **1.2**

Step-by-Step Calculation:

1. Identify the Market Risk Premium:

$$R_m - R_f = 11\% - 4\% = 7\%$$

2. Apply the CAPM Formula:

$$K_e = 4\% + 1.2 \times (7\%)$$

$$K_e = 4\% + 8.4\%$$

$$K_e = 12.4\%$$

Analysis: According to CAPM, an investor should require a minimum return of **12.4%** to justify the risk of holding TechGiant Inc. If the stock is expected to return less than this, it may be considered overvalued or too risky.

Assumptions of CAPM

For the model to hold true, several theoretical assumptions are made:

- **Efficient Markets:** Investors have access to all information.
- **Rational Investors:** Investors are risk-averse and aim to maximize utility.
- **No Taxes or Transaction Costs:** Trading is "frictionless."
- **Single-Period Investment:** All investors look at the same time horizon.
- **Unlimited Borrowing/Lending:** Investors can borrow at the risk-free rate.

Advantages and Limitations

Advantages

- **Focus on Systematic Risk:** Unlike other models, it ignores "diversifiable risk" (company-specific problems) which can be eliminated by holding a portfolio.
- **Universal Utility:** Provides a standardized way to compare stocks across different sectors.

Limitations

- **Proxy for R_m :** It is difficult to determine the "true" market return.
- **Stability of Beta:** Beta is calculated using historical data, but a company's risk profile changes over time.
- **Unrealistic Assumptions:** In the real world, taxes and transaction costs exist, and not

everyone can borrow at the risk-free rate.

Cost of Preference Shares (K_r)

Concept Overview

Preference Shares are a "hybrid" source of capital. They carry a fixed rate of dividend (like interest on debt) but are paid out of after-tax profits (like equity).

Unlike interest on debt, preference dividends are **not tax-deductible**. Therefore, the cost of preference capital is generally higher than the cost of debt, even if the percentage rate is the same.

Cost of Irredeemable Preference Shares

These are shares that have no fixed date for redemption (repayment). The cost is calculated as a simple perpetuity.

Formula:

$$K_p = \frac{D_p}{P_0}$$

Where:

- K_r = Cost of Preference Shares
- D_p = Annual Preference Dividend
- P_0 = Net Proceeds (Market Price - Issue Expenses)

Cost of Redeemable Preference Shares

These shares are issued with a specific maturity date. The formula accounts for both the annual dividend and the gradual amortization of the difference between the issue price and the redemption price.

Formula (Approximation):

$$K_p = \frac{D_p + \frac{(RV - NP)}{n}}{\frac{(RV + NP)}{2}}$$

Where:

- D_p = Annual Preference Dividend
- RV = Redemption Value (Value at maturity)
- NP = Net Proceeds (Amount received at issue)
- n = Number of years to maturity

Practical Example Problem

Scenario:

"Sterling Corp" issues 1,000 preference shares of \$100 each at a discount of 5%. The shares carry a dividend of 12% and are redeemable after 10 years at par.

Step 1: Identify the Variables

- $D_p = 12\% \text{ of } \$100 = \12
- $RV = \$100$ (Redeemable at par)
- $NP = \$100 - 5\% \text{ discount} = \95
- $n = 10$ years

Step 2: Apply the Redeemable Formula

$$K_p = \frac{12 + \frac{(100 - 95)}{10}}{\frac{(100 + 95)}{2}}$$

$$K_p = \frac{12 + 0.5}{97.5} = \frac{12.5}{97.5}$$

$$K_p = 0.1282 \text{ or } 12.82\%$$

Summary Comparison

Feature	Cost of Debt (K_d)	Cost of Preference (K_p)	Cost of Equity (K_e)
Tax Benefit	Yes (Interest is deductible)	No	No
Payment Obligation	Mandatory	Priority over Equity	Discretionary
Relative Cost	Lowest (due to tax)	Middle	Highest (highest risk)

Key Considerations

- No Tax Shield:** Never apply $(1 - t)$ to preference shares unless the question specifically states that preference dividends are tax-deductible in that jurisdiction (which is rare).
- Net Proceeds:** Always subtract flotation costs (underwriting, brokerage, printing) from the issue price to get the NP .
- Cumulative vs. Non-cumulative:** If dividends are cumulative and the company skips a year, the cost effectively increases as the liability accumulates.

Weighted Average Cost of Capital (WACC)

Concept Overview

The **Weighted Average Cost of Capital (WACC)**, often denoted as K_o , is the overall cost of capital for a firm. Since firms raise money from multiple sources (Debt, Equity, Preference Shares), each with a different cost, the WACC represents the average of these costs, weighted by their proportion in the total capital structure.

Why WACC Matters:

- The Hurdle Rate:** It is the minimum return a company must earn on its existing asset base to satisfy its creditors and owners.
- Investment Appraisal:** Used as the discount rate for Net Present Value (NPV) calculations.
- Valuation:** Used to value a firm based on the DCF (Discounted Cash Flow) method.

The WACC Formula

The WACC is calculated by multiplying the cost of each capital component by its proportional

weight and then summing the results:

$$WACC = (w_e \times K_e) + (w_d \times K_d) + (w_p \times K_p)$$

Where:

- w_e, w_d, w_p : Weights of Equity, Debt, and Preference shares (as a % of total capital).
- K_e, K_d, K_p : Individual costs of Equity, Debt (after-tax), and Preference shares.

Practical Example: Calculating WACC

Scenario:

"Horizon Corp" has the following capital structure and specific costs:

Source of Capital	Amount	Specific Cost (K)
Equity Capital	₹5,00,000	15% (K_e)
Preference Shares	₹2,00,000	12% (K_p)
10% Debentures	₹3,00,000	7% (After-tax K_d)
Total Capital	₹10,00,000	

Step 1: Calculate the Weights

- Equity (w_e): $5,00,000/10,00,000 = 0.50$
- Preference (w_p): $2,00,000/10,00,000 = 0.20$
- Debt (w_d): $3,00,000/10,00,000 = 0.30$

Step 2: Apply the WACC Formula

$$WACC = (0.50 \times 0.15) + (0.20 \times 0.12) + (0.30 \times 0.07)$$

$$WACC = 0.075 + 0.024 + 0.021$$

$$WACC = 0.12 \text{ or } 12\%$$

Interpretation: Horizon Corp must earn at least **12%** on its new projects to maintain its current value and satisfy all investors.

Multiple Costs: Book Value vs. Market Value Weights

When calculating weights, companies can use two different approaches:

A. Book Value Weights

- Based on the values recorded in the balance sheet.
- **Advantage:** Easy to calculate and objective.
- **Disadvantage:** Does not reflect current economic reality (especially for equity).

B. Market Value Weights

- Based on the current market prices of shares and bonds.
- **Advantage:** More accurate for decision-making as it represents the "current" cost of raising new funds.
- **Disadvantage:** Market prices fluctuate daily, making the WACC "noisy."

Marginal Cost of Capital (MCC)

While WACC is the average cost of *existing* capital, the **Marginal Cost of Capital** is the cost of raising **one additional rupee** of new capital.

- As a company tries to raise more and more capital, the MCC typically rises because investors perceive higher risk.
- **Investment Rule:** A firm should continue to invest as long as the **Internal Rate of Return (IRR)** of a project is greater than the **Marginal Cost of Capital (MCC)**.

Summary

1. **Always check Debt:** Ensure the cost of debt is **after-tax** ($K_d(1 - t)$) before putting it into the WACC formula.
2. **Sum of Weights:** The weights must always add up to **1.0** (or 100%).
3. **Hierarchy of Costs:** Typically, $K_e > K_p > K_d$. If your results show debt as more expensive than equity, double-check your calculations.

Valuation of Bonds and Shares

Valuation of Bonds (Debentures)

The value of a bond is the present value of the contractual cash flows (interest payments and

principal repayment) discounted at the investor's required rate of return.

Valuation of Redeemable Bonds

These bonds pay periodic interest (coupons) and a lump sum at maturity.

Formula:

$$V = \sum_{t=1}^n \frac{I}{(1 + k_d)^t} + \frac{RV}{(1 + k_d)^n}$$

Where:

- V = Value of the bond
- I = Annual interest (Coupon)
- RV = Redemption Value (Maturity value)
- k_d = Required rate of return (Discount rate)
- n = Number of years to maturity

Valuation of Irredeemable (Perpetual) Bonds

Formula:

$$V = \frac{I}{k_d}$$

Yield to Maturity (YTM)

YTM is the internal rate of return earned by an investor who buys the bond today at the market price and holds it until maturity.

Valuation of Equity Shares

Unlike bonds, shares do not have a fixed maturity or a guaranteed dividend. Valuation is based on expected future dividends.

Dividend Discount Model (DDM)

- **Zero Growth Model:** Assumes dividends remain constant forever.

$$P_0 = \frac{D}{k_e}$$

- **Constant Growth Model (Gordon Model):** Assumes dividends grow at a constant rate (g).

$$P_0 = \frac{D_1}{k_e - g}$$

- **Variable (Multi-stage) Growth:** Used for companies expected to grow rapidly for a few years and then stabilize.

Earnings Capitalisation Model

Used when a company reinvests all earnings and does not pay dividends.

$$P_0 = \frac{EPS}{k_e}$$

Practical Example: Bond Valuation

Scenario:

"Bharat Tech" has issued a 5-year bond with a face value of **₹1,000** and a coupon rate of **10%**. The investor's required rate of return is **12%**.

Step 1: Identify Cash Flows

- Annual Interest (I): 10% of ₹1,000 = ₹100
- Maturity Value (RV): ₹1,000
- Required Return (k_d): 12% or 0.12
- Time (n): 5 years

Step 2: Calculate Present Value

- PV of Interest (Annuity): $₹100 \times PVFA(12\%, 5) = ₹100 \times 3.605 = ₹360.50$
- PV of Principal: $₹1,000 \times PVF(12\%, 5) = ₹1,000 \times 0.567 = ₹567.00$

Total Bond Value: $₹360.50 + ₹567.00 = ₹927.50$

Note: Since the required return (12%) is higher than the coupon (10%), the bond sells at a discount (below ₹1,000).

Practical Example: Share Valuation

Scenario:

"Green Energy Ltd" paid a dividend of ₹5 last year. Dividends are expected to grow at 8% per annum. If the required rate of return is 15%, what is the share value?

Step 1: Calculate D_1

$$D_1 = D_0 \times (1 + g) = 5 \times (1.08) = ₹5.40$$

Step 2: Apply Gordon Model

$$P_0 = \frac{5.40}{0.15 - 0.08} = \frac{5.40}{0.07} = ₹77.14$$

Summary Table

Security Type	Primary Cash Flow	Growth Factor	Sensitivity
Bond	Fixed Interest	Usually None	Highly sensitive to Interest Rates
Share	Dividends	High impact (<i>g</i>)	Sensitive to Growth & Market Risk

Capital Structure Planning

Concept Overview

Capital Structure Planning involves deciding the optimal mix of long-term sources of funds, such as equity shares, preference shares, and debentures. The goal is to design a structure that minimizes the cost of capital while maximizing the value of the firm (and consequently, the wealth of the shareholders).

Factors Influencing Capital Structure

- Financial Leverage (Trading on Equity):** Using fixed-cost debt to increase the return to equity shareholders.

- **Cost of Capital:** Seeking a mix that results in the lowest Weighted Average Cost of Capital (WACC).
- **Control:** Management may prefer debt to avoid diluting the voting power of existing shareholders.
- **Flexibility:** The ability of the firm to adapt its capital structure to changing financial needs.
- **Risk:** Balancing financial risk (fixed interest obligations) with the business's earning stability.
- **Taxation:** Debt is often preferred because interest payments are tax-deductible, whereas dividends are not.

Trading on Equity

Trading on equity is a financial strategy where a company uses high-interest-bearing debt to finance assets, expecting that the return on those assets will be higher than the interest paid. The "surplus" earnings then belong to the equity shareholders, increasing their Earnings Per Share (EPS).

EBIT-EPS Analysis

This is a vital tool for capital structure planning. It helps determine the impact of different financing alternatives on the EPS at various levels of EBIT.

Indifference Point

The Indifference Point is the level of EBIT at which the Earnings Per Share (EPS) remains the same, regardless of the debt-equity mix chosen.

Formula for Indifference Point (between Debt and Equity):

$$\frac{(EBIT - I_1)(1 - t)}{N_1} = \frac{(EBIT - I_2)(1 - t)}{N_2}$$

Where:

- $EBIT$ = Earnings Before Interest and Taxes (The unknown variable)
- I = Interest under respective plans
- t = Tax rate
- N = Number of equity shares under respective plans

Practical Example: Financing Alternatives

Scenario:

"Indus Manufacturing" needs ₹10,00,000 for expansion. They are considering two plans:

- **Plan A (Equity Heavy):** All ₹10,00,000 raised by issuing equity shares at ₹100 each.
- **Plan B (Debt Heavy):** ₹5,00,000 raised by equity shares and ₹5,00,000 raised via 10% Debentures.
- **Assumptions:** EBIT is ₹2,00,000 and the Tax rate is 30%.

Comparative Analysis:

Particulars	Plan A (Equity)	Plan B (Debt/Equity)
EBIT	₹2,00,000	₹2,00,000
Less: Interest	₹0	(₹50,000)
Profit Before Tax (PBT)	₹2,00,000	₹1,50,000
Less: Tax (30%)	(₹60,000)	(₹45,000)
Profit After Tax (PAT)	₹1,40,000	₹1,05,000
No. of Equity Shares	10,000	5,000
EPS (PAT / No. of Shares)	₹14.00	₹21.00

Analysis: Even though Plan B has lower total profit after tax due to interest, the **EPS is much higher (₹21 vs ₹14)**. This is the result of successful **Trading on Equity**.

Summary for Planning

- **Conservative Approach:** Use more equity to reduce the risk of insolvency.
- **Aggressive Approach:** Use more debt to maximize shareholder returns, provided the return on investment (ROI) is higher than the cost of debt (K_d).
- **Optimal Structure:** The point where the total value of the firm is highest and the cost of capital is lowest.

EBIT – EPS Analysis: Numerical Problems

Calculation of EPS under Different Financing Plans

Problem Scenario

"Veda Electronics" requires ₹20,00,000 for a new project. The company is considering three financing options. The corporate tax rate is 30%. The expected EBIT is ₹5,00,000.

- **Plan 1:** 100% Equity shares of ₹100 each.
- **Plan 2:** 50% Equity shares and 50% in 12% Debentures.
- **Plan 3:** 25% Equity shares, 25% in 12% Debentures, and 50% in 10% Preference Shares.

Solution Table

Particulars	Plan 1	Plan 2	Plan 3
EBIT	₹5,00,000	₹5,00,000	₹5,00,000
Less: Interest (12%)	₹0	(₹1,20,000)	(₹60,000)
Earnings Before Tax (EBT)	₹5,00,000	₹3,80,000	₹4,40,000
Less: Tax (30%)	(₹1,50,000)	(₹1,14,000)	(₹1,32,000)
Earnings After Tax (EAT)	₹3,50,000	₹2,66,000	₹3,08,000
Less: Preference Div.	₹0	₹0	(₹1,00,000)
Earnings for Equity	₹3,50,000	₹2,66,000	₹2,08,000
No. of Equity Shares	20,000	10,000	5,000
EPS (Earnings / Shares)	₹17.50	₹26.60	₹41.60

Analysis: Plan 3 yields the highest EPS due to the high degree of financial leverage.

Calculating the Indifference Point

The Indifference Point is the EBIT level where two different financing plans result in the exact same EPS.

Problem Scenario

"Apex Ltd" is choosing between two plans to raise ₹10,00,000:

- **Plan A:** Issue 10,000 Equity shares at ₹100 each.
- **Plan B:** Issue 5,000 Equity shares at ₹100 each and ₹5,00,000 in 10% Debentures.
- **Tax Rate:** 50%

Calculation:

The formula used is:

$$\frac{(EBIT - I_1)(1 - t)}{N_1} = \frac{(EBIT - I_2)(1 - t)}{N_2}$$

Substituting the values:

$$\frac{(EBIT - 0)(1 - 0.50)}{10,000} = \frac{(EBIT - 50,000)(1 - 0.50)}{5,000}$$

Solving for EBIT:

- Simplify the denominators:

$$\frac{0.50 \times EBIT}{2} = \frac{0.50 \times (EBIT - 50,000)}{1}$$

- Cross multiply:

$$0.50 \times EBIT = 1.0 \times (EBIT - 50,000)$$

$$0.50 \times EBIT = EBIT - 50,000$$

$$50,000 = 0.50 \times EBIT$$

$$EBIT = ₹1,00,000$$

Result: At an EBIT of ₹1,00,000, both plans will give an EPS of ₹5.00.

EPS Sensitivity Analysis

Problem Scenario

A firm has an EBIT of ₹4,00,000 and a 10% Debt of ₹10,00,000. There are 20,000 equity shares. If EBIT increases by 20%, calculate the percentage change in EPS. (Tax rate = 40%).

Solution:

At EBIT ₹4,00,000:

- Interest = ₹1,00,000
- EBT = ₹3,00,000
- Tax (40%) = ₹1,20,000
- EAT = ₹1,80,000
- **EPS** = ₹1,80,000 / 20,000 = **₹9.00**

At EBIT ₹4,80,000 (20% Increase):

- Interest = ₹1,00,000
- EBT = ₹3,80,000
- Tax (40%) = ₹1,52,000
- EAT = ₹2,28,000
- **EPS** = ₹2,28,000 / 20,000 = **₹11.40**

Percentage Change in EPS:

$$\frac{11.40 - 9.00}{9.00} \times 100 = \mathbf{26.67\%}$$

Analysis: Because of financial leverage, a 20% increase in EBIT led to a 26.67% increase in EPS.

Risks of Financial Leverage

1. Overview of Financial Risk

Financial leverage involves using fixed-cost debt to magnify shareholder returns. However, this creates **Financial Risk**, which is the risk that a company will be unable to meet its mandatory fixed financial obligations (Interest and Principal repayments).

While Operating Risk (Business Risk) relates to the uncertainty of EBIT, **Financial Risk** relates to the uncertainty of EPS and the possibility of insolvency.

2. Key Risk: Margin of Safety (MOS)

Definition: Margin of Safety in financial planning measures how much Operating Profit (EBIT) can drop before it fails to cover the company's fixed interest charges.

- **Formula:**

$$\text{Margin of Safety (Financial)} = \text{Current EBIT} - \text{Financial Break-even EBIT}$$

- **The Risk:** A thin Margin of Safety means even a small downturn in the economy or a slight drop in sales can leave the company unable to pay its lenders, leading to a default.

3. Key Risk: Interest Coverage Risk

This risk refers to the danger of failing to meet periodic interest payments. It is measured by the **Interest Coverage Ratio (ICR)**.

- **Formula:**

$$ICR = \frac{EBIT}{\text{Interest Expense}}$$

- **Risk Interpretation:**
 - **ICR < 1.0:** Highly Dangerous. The company is not earning enough to pay its interest.
 - **ICR 1.0 to 2.0:** High Risk. Very little room for error.
 - **ICR > 3.0:** Generally considered safe by lenders.

4. Key Risk: Debt Service Risk (Cash Flow Risk)

Debt Service Risk is more comprehensive than Interest Risk because it includes the **repayment of the principal amount**. Since principal repayments are not tax-deductible, they must be paid out of after-tax cash flows.

- **Measurement:** Debt Service Coverage Ratio (DSCR)
- **Formula:**

$$DSCR = \frac{\text{Net Operating Income}}{\text{Interest} + \text{Principal Repayments}}$$

- **The Danger:** A company might have enough profit to cover interest (high ICR) but lack the actual **cash** to repay the loan principal when it matures, leading to bankruptcy.

5. Summary of Leverage Risks

Risk Type	Metric Used	What it Measures
Default Risk	Margin of Safety	The buffer between current earnings and fixed costs.
Insolvency Risk	Interest Coverage (ICR)	Ability to pay periodic interest from earnings.
Liquidity Risk	Debt Service (DSCR)	Ability to repay both interest and principal from cash.
EPS Volatility	Degree of Financial	How much EPS will crash if

	Leverage (DFL)	EBIT drops slightly.
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6. Conclusion

Financial leverage is a "double-edged sword." To manage its risks, a firm must:

1. Maintain a **Return on Investment (ROI)** higher than the **Cost of Debt** (K_d).
2. Ensure a high **Margin of Safety** to survive business cycles.
3. Keep **Fixed Financial Charges** at a level where they can be covered even during poor performance years.

Numerical Problems: Risks of Financial Leverage

This worksheet contains practical problems for calculating **Margin of Safety**, **Interest Coverage Ratio**, and **Debt Service Coverage Ratio**.

Problem 1: Margin of Safety (MOS)

Scenario: "Zenith Manufacturing" has a total sales revenue of ₹25,00,000. Its variable cost ratio is 60% and fixed operating costs (excluding interest) are ₹6,00,000. The company has a 12% loan of ₹10,00,000.

Required:

1. Calculate the Operating Break-even Point (Sales).
2. Calculate the Margin of Safety (Value and Percentage).
3. Analyze the risk if sales drop by 25%.

Solution Logic:

- **Contribution:** Sales (₹25,00,000) - Variable Cost (60% = ₹15,00,000) = ₹10,00,000.
- **P/V Ratio:** $10,00,000 / 25,00,000 = 40\%$.
- **Break-even Sales:** $\text{Fixed Costs} / \text{P/V Ratio} = 6,00,000 / 0.40 = ₹15,00,000$.
- **MOS (Value):** $25,00,000 - 15,00,000 = ₹10,00,000$.
- **MOS (Percentage):** $(10,00,000 / 25,00,000) \times 100 = 40\%$.
- **Risk Analysis:** Since the MOS is 40%, a 25% drop in sales is safe; the company will still be above the break-even point.

Problem 2: Interest Coverage Ratio (ICR)

Scenario: A firm has the following financial data:

- Sales: ₹15,00,000
- Operating Expenses (including ₹50,000 Depreciation): ₹9,00,000
- 10% Debentures: ₹10,00,000
- Tax Rate: 30%

Required:

1. Calculate EBIT.
2. Calculate Interest Coverage Ratio.
3. If the lender requires a minimum ICR of 3.5, does the firm qualify for further loans?

Solution Logic:

- **EBIT:** Sales (₹15,00,000) - Operating Expenses (₹9,00,000) = ₹6,00,000.
- **Interest:** 10% of 10,00,000 = ₹1,00,000.
- **ICR:** 6,00,000/1,00,000 = 6.0 times.
- **Decision:** Yes, the firm qualifies as its ICR (6.0) is much higher than the requirement (3.5).

Problem 3: Debt Service Coverage Ratio (DSCR)

Scenario: "Titan Logistics" reports the following for the financial year:

- Net Profit After Tax: ₹4,20,000
- Depreciation: ₹80,000
- Interest on Loan: ₹1,00,000
- Annual Principal Repayment: ₹2,00,000

Required:

1. Calculate the total cash available for debt servicing.
2. Calculate the DSCR.
3. Comment on the company's ability to repay the principal.

Solution Logic:

- **Numerator (Funds available):**

$$\text{PAT} + \text{Depreciation} + \text{Interest} = 4,20,000 + 80,000 + 1,00,000 = ₹6,00,000$$
- **Denominator (Total Service):**

$$\text{Interest} + \text{Principal} = 1,00,000 + 2,00,000 = ₹3,00,000$$
- **DSCR:** 6,00,000/3,00,000 = 2.0.
- **Comment:** A DSCR of 2.0 is considered "Very Safe." The company generates twice the amount of cash needed to meet its total debt obligations.

Long-Term Sources of Finance

Long-term finance refers to funds required for a period exceeding 5 to 10 years. These funds are generally used for purchasing fixed assets (land, machinery, buildings) or for funding

permanent working capital.

Classification of Long-Term Sources

Long-term sources are broadly classified into three categories:

- **Owned Capital:** Equity Shares, Preference Shares, and Retained Earnings.
- **Borrowed Capital:** Debentures, Term Loans from Banks, and Public Deposits.
- **Alternative/Modern Sources:** Venture Capital, Angel Investing, Lease Financing, and Asset Securitization.

Traditional Owned Capital

1. Equity Shares

Equity shares represent the ownership interest. Shareholders are the real owners and bear the ultimate risk.

- **Advantages:** Permanent capital; no fixed dividend obligation.
- **Disadvantages:** Highest cost of capital; dilution of control.

2. Preference Shares

Preference shares carry preferential rights regarding dividends and repayment of capital.

- **Advantages:** Fixed dividend rate; no dilution of voting power.
- **Disadvantages:** Dividends are not tax-deductible.

Borrowed Capital (Debt)

1. Debentures (Bonds)

Debt instruments issued under the company's seal with a promise to pay interest and principal.

- **Advantages:** Interest is tax-deductible; cheaper than equity.
- **Disadvantages:** Mandatory interest payments regardless of profit.

2. Term Loans

Provided by banks and financial institutions (IDBI, IFCI) for specific projects.

- **Key Feature:** Negotiated interest rates and restrictive covenants (e.g., limits on future borrowing).

Modern & Alternative Sources

1. Venture Capital (VC)

Venture Capital is a type of private equity provided to startups and small businesses that show high growth potential.

- **Equity Participation:** VCs provide funds in exchange for an equity stake.
- **Value Add:** Beyond money, they provide technical expertise and business networking.

- **Risk:** High-risk, high-reward investment.

2. Angel Investing

Angel investors are wealthy individuals who provide capital for a business start-up, usually in exchange for convertible debt or ownership equity.

- **Timing:** They usually invest earlier than Venture Capitalists (Seed stage).
- **Terms:** Often more flexible than traditional bank loans or VC funding.

3. Lease Financing

A contract where the owner of an asset (Lessor) allows another party (Lessee) to use the asset for a periodic payment (Lease Rental).

- **Advantage:** Allows the firm to use expensive assets without a huge initial capital outlay.
- **Tax Benefit:** Lease rentals are tax-deductible expenses.

4. Retained Earnings (Internal Accruals)

The portion of profits not distributed as dividends.

- **Advantage:** Zero flotation costs; no dilution of control.
- **Disadvantage:** Limited to the extent of profits earned.

Comparison Table: Equity vs. Debt vs. Venture Capital

Feature	Equity Shares	Debentures (Debt)	Venture Capital
Status	Owners	Creditors	Partners/Owners
Obligation	Optional Dividend	Mandatory Interest	Exit via IPO/Acquisition
Tax Status	Not Tax Deductible	Tax Deductible	Capital Gains Tax
Control	Voting Rights	No Voting Rights	Board Representation
Cost	High	Low	Very High (Equity stake)

Conclusion

A firm should maintain an **Optimal Capital Structure** by mixing traditional and modern sources. While debt and equity remain the pillars, startups and high-growth firms increasingly rely on **Venture Capital** and **Angel Investors** to fund innovation where banks may be hesitant to lend.

Venture Capital (VC)

Venture Capital is a form of **Private Equity** financing provided by venture capital firms or funds to startups, early-stage, and emerging companies that have been deemed to have high growth potential.

1. How Venture Capital Works

Unlike traditional bank loans, VCs do not ask for collateral. Instead, they provide capital in exchange for **Equity** (ownership stakes) and often a seat on the Board of Directors.

The VC Cycle:

1. **Deal Origination:** Scouting for innovative startups.
2. **Due Diligence:** Rigorous analysis of the business model, market size, and management team.
3. **Investment:** Funding provided in "rounds" (Series A, B, C, etc.).
4. **Value Addition:** Providing mentorship, networking, and strategic guidance.
5. **Exit:** VCs realize their profits through an IPO (Initial Public Offering) or an Acquisition by a larger company.

2. Stages of Venture Capital Funding

Stage	Focus	Example Goal
Seed Stage	Idea/Prototype	Market research and product development.
Startup (Early) Stage	Launch	Initial marketing and starting full-scale operations.
Expansion (Second) Stage	Growth	Entering new markets or scaling manufacturing.
Bridge/Mezzanine	Pre-IPO	Final funding before going public or being acquired.

3. Real-Time & Historical Examples

A. WhatsApp (The Sequoia Capital Success)

- **The Investment:** Sequoia Capital was the sole venture investor in WhatsApp. They invested approximately **\$60 million** over three rounds.

- **The Exit:** In 2014, Facebook acquired WhatsApp for **\$19 billion**.
- **The Result:** Sequoia's stake became worth roughly \$3 billion, one of the largest returns in VC history.

B. Airbnb (From "Air Mattresses" to IPO)

- **Early Struggle:** The founders famously sold "Obama O's" cereal boxes to stay afloat because banks wouldn't lend to a company letting strangers sleep in houses.
- **VC Intervention:** Sequoia and Greylock Partners provided the "Expansion Stage" capital needed to go global.
- **The Exit:** Airbnb went public (IPO) in 2020 with a valuation exceeding **\$100 billion**.

C. Flipkart (The Indian Unicorn Example)

- **The Investment:** Accel Partners and Tiger Global invested in Flipkart when it was just an online bookstore.
- **The Exit:** Walmart acquired a 77% stake for **\$16 billion** in 2018.
- **The Result:** This exit validated the Indian startup ecosystem for global VC firms.

4. Advantages & Disadvantages

Advantages:

- **No Debt Burden:** No monthly interest or principal repayments.
- **Business Expertise:** Access to the VC's network of experts, partners, and future talent.
- **Scale:** Allows companies to grow much faster than they could using only their own profits.

Disadvantages:

- **Loss of Control:** Founders often lose the "majority" stake over several rounds.
- **High Pressure:** VCs expect "10x" returns, which can lead to aggressive, sometimes unsustainable growth targets.
- **Exit Requirement:** Founders are eventually forced to sell the company or go public to satisfy the VC's need for liquidity.

5. Comparison: Angel Investors vs. Venture Capitalists

Feature	Angel Investors	Venture Capitalists (VC)
Who they are	Wealthy individuals (e.g., Peter Thiel)	Professional firms (e.g., Sequoia, SoftBank)
Source of Funds	Personal Wealth	Pooled money from Pension funds/Insurance
Investment Size	Smaller (\$25k - \$500k)	Larger (\$1M - \$100M+)

Stage	Seed/Idea stage	Growth/Expansion stage
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Summary

Venture Capital is the "fuel" for innovation. While it is the **most expensive** source of finance (because you give away ownership), it is often the **only** source available for high-risk, high-tech startups that lack the assets required for traditional bank loans.

UNIT – IV

Capital Budgeting: Traditional and Time-adjusted Discounted Cash Flow Techniques

- Risk analysis - Real Options – Leasing – Hire Purchase

Capital Budgeting

Concept Overview

Capital Budgeting is the process of making investment decisions in long-term assets. It involves a firm's decision to invest its current funds most efficiently in long-term activities in anticipation of an expected flow of future benefits over a series of years.

Importance of Capital Budgeting

- **Long-term Effects:** Decisions affect the firm's future growth and profitability for years.
- **Irreversibility:** Once a project is started, it is often difficult or very costly to reverse.
- **Large Funds:** It involves substantial capital outlays.
- **High Risk:** Future cash flows are uncertain, making these decisions high-stakes.

The Capital Budgeting Process

1. **Project Generation:** Identifying potential investment opportunities.
2. **Project Evaluation:** Estimating cash flows and assessing risks.
3. **Project Selection:** Applying evaluation techniques to choose the best project.
4. **Project Execution:** Implementing the project.
5. **Performance Review:** Comparing actual results with estimated ones.

Evaluation Techniques (Methods)

1. Traditional (Non-Discounting) Techniques

These methods do not consider the "Time Value of Money."

- **Payback Period (PBP):**
 - **Meaning:** The time required to recover the initial investment from the project's cash inflows.
 - **Decision Rule:** Accept if PBP is less than the standard set by management.
 - **Formula:** $\text{Initial Investment} / \text{Annual Cash Inflow}$ (if inflows are equal).
- **Accounting Rate of Return (ARR):**
 - **Meaning:** Based on accounting profits rather than cash flows.
 - **Formula:**
$$(\text{Average Annual Profit After Tax} / \text{Average Investment}) \times 100$$

2. Modern (Discounting) Techniques

These methods consider the "Time Value of Money" by discounting future cash flows.

- **Net Present Value (NPV):**
 - **Meaning:** The difference between the present value of cash inflows and the present value of cash outflows.
 - **Decision Rule:** Accept if **NPV > 0**.
 - **Formula:** $NPV = \sum \frac{CF_t}{(1+k)^t} - \text{Initial Investment}$
- **Internal Rate of Return (IRR):**
 - **Meaning:** The discount rate at which the NPV of a project becomes zero.
 - **Decision Rule:** Accept if **IRR > Cost of Capital (k)**.
- **Profitability Index (PI):**
 - **Meaning:** A ratio used to measure the relationship between costs and benefits.
 - **Formula:** $\text{PV of Cash Inflows} / \text{PV of Cash Outflows}$
 - **Decision Rule:** Accept if **PI > 1**.

Summary

Capital budgeting is about choosing the right "Future." While **Payback Period** is great for assessing liquidity (how fast you get your money back), **NPV** is the gold standard for assessing wealth creation for shareholders.

Traditional Methods of Capital Budgeting

Traditional methods are also known as **Non-Discounting Techniques** because they do not consider the "Time Value of Money." They treat a rupee received five years from now as equal to a rupee received today.

Payback Period (PBP)

Meaning

The Payback Period is the amount of time it takes for a project to generate cash flows sufficient to recover the initial investment cost. It focuses on **liquidity** and risk.

Decision Rules

- **Single Project:** Accept if the Payback Period is less than the maximum period set by management.
- **Multiple Projects:** Choose the project with the **shortest** payback period.

Calculation Cases

- **Case 1: Constant Annual Cash Inflows**

$$\text{Payback Period} = \frac{\text{Initial Investment}}{\text{Annual Cash Inflow}}$$

- **Case 2: Uneven Cash Inflows**

You must calculate the **Cumulative Cash Inflows** year by year until the initial investment is recovered.

Example (Uneven Inflows)

- **Investment:** ₹1,00,000
- **Inflows:** Year 1: ₹30,000 | Year 2: ₹40,000 | Year 3: ₹50,000
- **Cumulative:** Yr 1: ₹30,000 | Yr 2: ₹70,000 | Yr 3: ₹1,20,000
- **Calculation:** Payback occurs between Year 2 and Year 3.

$$\text{PBP} = 2 \text{ years} + \left(\frac{\text{Remaining to recover (30,000)}}{\text{Next year inflow (50,000)}} \right) = \mathbf{2.6 \text{ years}}$$

Accounting Rate of Return (ARR)

Meaning

Unlike other methods, ARR uses **Accounting Profits (Net Profit After Tax)** instead of Cash Flows. It measures the profitability of the investment as a percentage.

Formula

$$\text{ARR} = \frac{\text{Average Annual Profit After Tax}}{\text{Average Investment}} \times 100$$

- **Average Profit:** Total Profit over project life / Number of years.
- **Average Investment:** $(\text{Initial Investment} + \text{Salvage Value}) / 2$.

Decision Rule

- Accept the project if the ARR is higher than the minimum required rate of return set by the company.

Merits and Demerits of Traditional Methods

Feature	Payback Period (PBP)	Accounting Rate of
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		Return (ARR)
Focus	Liquidity (Recovery of cash)	Profitability (Accounting income)
Data Used	Cash Flows	Net Profit After Tax (PAT)
Merits	Simple to use; handles risk well.	Considers the entire life of the project.
Demerits	Ignores cash flows after payback.	Ignores Time Value of Money.

Numerical Practice: Traditional Methods

Problem 1: Payback Period

A project costs ₹2,00,000 and yields annual cash inflows of ₹50,000 for 6 years.

- Calculation: $2,00,000 / 50,000 = 4$ years.

Problem 2: ARR Calculation

A machine costs ₹5,00,000 with a life of 5 years and no salvage value. The profits after tax are:

Year 1: ₹60,000 | Year 2: ₹70,000 | Year 3: ₹90,000 | Year 4: ₹1,00,000 | Year 5: ₹80,000.

1. Total Profit: ₹4,00,000
2. Average Profit: $4,00,000 / 5 = ₹80,000$
3. Average Investment: $5,00,000 / 2 = ₹2,50,000$
4. ARR: $(80,000 / 2,50,000) \times 100 = 32\%$

Modern Methods of Capital Budgeting

Modern methods are known as **Discounting Techniques**. They recognize that a rupee received today is worth more than a rupee received in the future due to its potential earning capacity (Interest) and the impact of inflation.

1. Net Present Value (NPV)

Meaning

NPV is the difference between the Present Value (PV) of cash inflows and the Present Value of cash outflows. It measures the absolute increase in shareholder wealth.

Decision Rule

- **NPV > 0 (Positive):** Accept (Wealth increases).
- **NPV < 0 (Negative):** Reject (Wealth decreases).
- **NPV = 0:** Neutral (Point of indifference).

Formula

$$NPV = \sum_{t=1}^n \frac{CF_t}{(1+k)^t} - \text{Initial Investment}$$

2. Profitability Index (PI)

Meaning

PI is a relative measure of a project's profitability. It is particularly useful for "Capital Rationing" (comparing projects of different sizes).

Formula

$$PI = \frac{\text{Present Value of Cash Inflows}}{\text{Present Value of Cash Outflows}}$$

Decision Rule

- **PI > 1:** Accept.
- **PI < 1:** Reject.

3. Internal Rate of Return (IRR)

Meaning

IRR is the discount rate at which the NPV of a project becomes exactly zero. It represents the "True" interest rate earned by the project.

Decision Rule

- **IRR > Cost of Capital (k):** Accept.
- **IRR < Cost of Capital (k):** Reject.

Numerical Problem: NPV and PI

Scenario:

"Neo Corp" is evaluating a project with the following details:

- Initial Investment: ₹2,00,000
- Cost of Capital: 10%
- Cash Inflows: Yr 1: ₹80,000 | Yr 2: ₹90,000 | Yr 3: ₹70,000 | Yr 4: ₹60,000

Solution Table:

Year	Cash Inflow (₹)	PV Factor @ 10%	Present Value (₹)
1	80,000	0.909	72,720
2	90,000	0.826	74,340
3	70,000	0.751	52,570
4	60,000	0.683	40,980
Total			2,40,610

Calculations:

1. **NPV:** $2,40,610 - 2,00,000 = ₹40,610$ (Accept)
2. **PI:** $2,40,610 / 2,00,000 = 1.203$ (Accept)

Numerical Problem: Internal Rate of Return (IRR)

Scenario:

A project costs ₹1,00,000 and yields ₹60,000 for 2 years. Find the IRR.

Step 1: Try a low discount rate (e.g., 10%)

- Yr 1: $60,000 \times 0.909 = 54,540$
- Yr 2: $60,000 \times 0.826 = 49,560$
- **Total PV:** ₹1,04,100 (NPV is +4,100) -> IRR is higher than 10%

Step 2: Try a higher discount rate (e.g., 15%)

- Yr 1: $60,000 \times 0.870 = 52,200$
- Yr 2: $60,000 \times 0.756 = 45,360$
- **Total PV:** ₹97,560 (NPV is -2,440) -> IRR is between 10% and 15%

Step 3: Interpolation Formula

$$IRR = L + \frac{NPV_L}{NPV_L - NPV_H} \times (H - L)$$

$$IRR = 10\% + \frac{4,100}{4,100 - (-2,440)} \times (15\% - 10\%)$$

$$IRR = 10\% + \left(\frac{4,100}{6,540} \right) \times 5 = 10\% + 3.13\% = \mathbf{13.13\%}$$

Comparison Summary

Method	Best Used For	Key Weakness
NPV	Wealth Maximization	Doesn't consider project size.
PI	Capital Rationing	Hard to interpret in isolation.
IRR	Comparing Returns	Can be difficult to calculate manually.

Risk Analysis in Capital Budgeting

In the real world, cash flows are rarely certain. Risk analysis involves techniques used to measure and mitigate the uncertainty of project returns.

1. Sensitivity Analysis (What-If Analysis)

Concept: This technique measures how the NPV of a project changes in response to a change in a **single variable** (like sales volume, price, or cost of capital) while keeping all other variables constant.

The Process:

1. Identify the variables that influence NPV.
2. Calculate the "Base Case" NPV.
3. Change one variable by a specific percentage (e.g., -10%) and observe the impact on NPV.

2. Scenario Analysis

Concept: Unlike sensitivity analysis, Scenario Analysis changes **multiple variables** simultaneously to see the impact of a specific economic environment.

Common Scenarios:

- **Best Case:** High sales, high price, low costs.
- **Most Likely Case:** Normal operations (Base Case).
- **Worst Case:** Low sales, low price, high costs.

3. Probability Distribution (Expected NPV)

Concept: Assigns probabilities to different possible outcomes. We calculate the **Expected NPV (ENPV)** by multiplying each possible NPV by its probability.

Numerical Example: Expected NPV

Project Alpha has an initial cost of ₹1,00,000. The estimated cash flows for Year 1 based on different economic conditions are:

Condition	Probability (Pi)	Cash Inflow (CFi)
Recession	0.20	₹40,000
Normal	0.50	₹70,000
Boom	0.30	₹1,20,000

Step 1: Calculate Expected Cash Flow (ECF)

$$ECF = \sum (P_i \times CF_i)$$

$$ECF = (0.20 \times 40,000) + (0.50 \times 70,000) + (0.30 \times 1,20,000)$$

$$ECF = 8,000 + 35,000 + 36,000 = \text{₹}79,000$$

4. Risk-Adjusted Discount Rate (RADR)

Concept: Instead of using the standard cost of capital, we add a "Risk Premium" to the discount rate. Higher-risk projects are discounted at higher rates to compensate for the uncertainty.

Formula:

$$RADR = \text{Risk-Free Rate} + \text{Risk Premium}$$

Numerical Example: RADR

A project costs ₹50,000 and is expected to generate ₹65,000 in one year.

- Risk-free rate: 6%
- Risk premium for this project type: 4%
- **Total RADR = 6% + 4% = 10%**

Evaluation:

$$PV = \frac{65,000}{(1 + 0.10)^1} = \text{₹}59,091$$

$$NPV = 59,091 - 50,000 = \text{₹}9,091$$

5. Certainty Equivalent (CE) Approach

Concept: Instead of adjusting the discount rate, we adjust the **cash flows**. We multiply risky

cash flows by a "Certainty Equivalent Coefficient" (α) between 0 and 1.

- An α of 1.0 means the cash flow is certain.
- An α of 0.5 means you'd trade that risky amount for half the amount in "sure" cash.

Formula:

$$NPV = \sum \frac{\alpha_t \times CF_t}{(1 + R_f)^t} - \text{Investment}$$

(Note: We use the Risk-Free rate (R_f) here because the risk has already been removed from the cash flows.)

Summary of Techniques

Technique	Adjusts...	Best Used When...
Sensitivity	Single Variable	You want to find the most "critical" factor.
Scenario	Multiple Variables	You want to see the "Worst Case" impact.
RADR	Discount Rate	The company is risk-averse.
Certainty Eq.	Cash Flows	Managers can accurately estimate their risk tolerance.

Numerical Problems: Risk Analysis in Capital Budgeting

This document provides practical numerical examples for the most common risk analysis techniques.

1. Sensitivity Analysis

Problem: A project costs **1,000**. Expected annual cash inflow is **400** for 3 years. The discount rate is **10%**.

Find: How sensitive is the NPV to a **10%** decrease in annual cash inflows?

Step 1: Base Case NPV

$$PV \text{ factor for 3 years at } 10\% = 2.4869$$

$$Base \text{ NPV} = (400 \times 2.4869) - 1,000 = 994.76 - 1,000 = -5.24$$

Step 2: Revised NPV (Inflow decreases by 10%)

$$\text{New Inflow} = 400 - (10\% \text{ of } 400) = 360$$

$$Revised \text{ NPV} = (360 \times 2.4869) - 1,000 = 895.28 - 1,000 = -104.72$$

Sensitivity Score:

$$\% \text{ change in NPV} = \frac{-104.72 - (-5.24)}{-5.24} \times 100 = 1,898\%$$

Conclusion: The project is extremely sensitive to changes in cash inflows.

2. Expected NPV (Probability Distribution)

Problem: A project requires an investment of **2,000**. The possible cash flows for Year 1 are:

Economic State	Probability	Cash Flow (\$)
Recession	0.3	1,500

Normal	0.4	2,500
Boom	0.3	4,000

Assume a discount rate of **10%**.

Calculation:

1. Expected Cash Flow (ECF):

$$ECF = (0.3 \times 1,500) + (0.4 \times 2,500) + (0.3 \times 4,000)$$

$$ECF = 450 + 1,000 + 1,200 = \mathbf{2,650}$$

2. Expected NPV:

$$ENPV = \frac{2,650}{(1.10)^1} - 2,000 = 2,409.09 - 2,000 = \mathbf{+409.09}$$

3. Risk-Adjusted Discount Rate (RADR)

Problem: Project X costs **5,000** and yields **7,000** in Year 1. The risk-free rate is **5%**. The management assigns risk premiums as follows:

- Low Risk: **2%**
- Medium Risk: **5%**
- High Risk: **10%**

Find: NPV if the project is classified as "High Risk."

Calculation:

$$RADR = \text{Risk-free} + \text{Premium} = 5\% + 10\% = 15\%$$

$$PV = \frac{7,000}{(1.15)^1} = 6,086.96$$

$$NPV = 6,086.96 - 5,000 = +1,086.96$$

4. Certainty Equivalent (CE)

Problem: A project has an initial cost of 3,000. Expected cash flow in Year 1 is 4,000. The Certainty Equivalent Coefficient (α) is 0.7. The risk-free rate is 6%.

Calculation:

Under CE, we use the risk-free rate for discounting because the "risk" is already removed from the cash flow via the coefficient.

$$\text{Adjusted Cash Flow} = 4,000 \times 0.7 = 2,800$$

$$PV = \frac{2,800}{(1.06)^1} = 2,641.51$$

$$NPV = 2,641.51 - 3,000 = -358.49$$

5. Coefficient of Variation (CV) - Comparing Two Projects

Problem: Which project is riskier relative to its return?

Data	Project A	Project B
Expected NPV	\$5,000	\$8,000
Standard Deviation (σ)	\$1,000	\$2,000

Calculation:

$$CV = \frac{\text{Standard Deviation}}{\text{Expected NPV}}$$

- - Project A: $1,000/5,000 = 0.20$
 - Project B: $2,000/8,000 = 0.25$

Conclusion: Project B is riskier because it has a higher CV (0.25 vs 0.20), meaning it has more risk per unit of return.

Real Options in Capital Budgeting

1. Concept Overview

Traditional Capital Budgeting (like NPV) assumes a "now or never" approach—once you invest, you are locked into a fixed path. **Real Options** theory recognizes that managers have the flexibility to adapt and revise their decisions in response to unexpected market developments.

A "Real Option" is the right—but not the obligation—to take a specific business action, such as expanding, deferring, or abandoning a project.

2. Types of Real Options

A. Option to Defer (Wait-and-See)

The ability to delay an investment to see if market conditions improve.

- **Example:** A real estate developer owns land but waits for property prices to rise before starting construction.

B. Option to Expand (Growth Option)

The ability to make a follow-on investment if the initial project is successful.

- **Example:** A tech company launches a pilot version of an app in one country. If successful, they exercise the option to launch globally.

C. Option to Abandon (Exit Option)

The ability to shut down a project if it is performing poorly to realize a salvage value or cut losses.

- **Example:** A manufacturer uses general-purpose machinery that can be resold if the specific product line fails.

D. Option to Switch

The ability to change inputs or outputs depending on prices.

- **Example:** A power plant that can switch between burning oil and natural gas depending on which is cheaper at the moment.

3. Real Options vs. Financial Options

Feature	Financial Options	Real Options
Underlying Asset	Stocks, Bonds, Gold	Real Assets (Projects, Land, R&D)
Traded on	Exchanges (NSE, NASDAQ)	Not traded; managed internally
Value Source	Market volatility	Managerial flexibility & uncertainty
Duration	Short-term (Months)	Long-term (Years)

4. Numerical Logic: The Value of Flexibility

Traditional NPV ignores the value of these options. The **Strategic NPV** is calculated as:

$$\text{Strategic NPV} = \text{Traditional NPV} + \text{Value of Real Options}$$

Example: Option to Abandon

Scenario: A project costs ₹500 now.

- **Success (50%):** Inflows of ₹800 (PV).
- **Failure (50%):** Inflows of ₹100 (PV).

1. Traditional NPV (No Abandonment):

$$\text{Expected PV} = (0.5 \times 800) + (0.5 \times 100) = ₹450$$

$$\text{Traditional NPV} = 450 - 500 = -\text{₹}50 \text{ (Reject)}$$

2. With Abandonment Option:

If the project fails, the company can sell the assets for a salvage value of ₹300.

- **Success:** Keep the project (Value = ₹800).
- **Failure:** Abandon the project (Value = ₹300 salvage, instead of ₹100 inflow).

$$\text{Expected PV with Option} = (0.5 \times 800) + (0.5 \times 300) = \text{₹}550$$

$$\text{Strategic NPV} = 550 - 500 = +\text{₹}50 \text{ (Accept)}$$

Conclusion: The value of the Option to Abandon is ₹100 ($50 - (-50)$). It turned a "Reject" project into an "Accept" project.

5. Limitations of Real Options

1. **Complexity:** Requires sophisticated mathematical models (like Black-Scholes).
2. **Subjectivity:** Estimating the "volatility" of a real-world project is difficult.
3. **Over-optimism:** Managers might use "strategic value" as an excuse to approve projects with deeply negative traditional NPVs.

Summary

- Real Options increase the **Total Value** of a project.
- They are most valuable when **uncertainty/volatility is high**.
- Traditional NPV is a "static" tool; Real Options provide a "dynamic" perspective.

Leasing as a Source of Finance

1. Concept of Leasing

Leasing is a contractual arrangement where the owner of an asset (**Lessor**) grants the right to use that asset to another party (**Lessee**) for a specific period in exchange for periodic payments called **Lease Rentals**.

- **Lessor:** The owner of the asset (Banks, Leasing companies).
- **Lessee:** The user of the asset (The business firm).

2. Types of Leases

A. Finance Lease (Capital Lease)

A long-term lease that is non-cancelable. It effectively transfers almost all risks and rewards of ownership to the lessee.

- **Duration:** Covers most of the asset's economic life.
- **Maintenance:** Lessee usually handles repairs and insurance.
- **Ownership:** Often contains an option for the lessee to buy the asset at a nominal price at the end.

B. Operating Lease

A short-term lease that can usually be canceled by the lessee with short notice.

- **Duration:** Significantly shorter than the asset's life.
- **Maintenance:** Lessor usually handles maintenance (e.g., car rentals, office photocopiers).
- **Risk:** The lessor bears the risk of obsolescence.

C. Sale and Leaseback

A firm sells an asset it already owns to a financial institution and immediately leases it back.

- **Purpose:** To unlock cash tied up in fixed assets while still retaining the use of the asset.

D. Leveraged Lease

Involves a third party (a lender). The lessor borrows a significant portion of the asset's cost from a bank to purchase the asset, using the lease rentals to service the loan.

3. Advantages of Leasing

For the Lessee	For the Lessor
Liquidity: No huge initial cash outlay.	Regular Income: Stable lease rentals.
Tax Benefits: Lease rentals are tax-deductible.	Tax Shields: Lessor claims Depreciation.
Flexibility: Easy to upgrade to newer tech.	Security: Ownership remains with the lessor.
Off-Balance Sheet: (Note: Modern accounting rules now require most leases to be on-balance sheet).	Higher Returns: Often more profitable than simple lending.

4. Lease vs. Buy Decision (Numerical Logic)

Firms must decide whether to **Buy** an asset (usually via a bank loan) or **Lease** it. We compare the **Present Value (PV) of After-Tax Cash Outflows** under both options. The option with the **Lower PV of Outflow** is selected.

Numerical Problem

Scenario: A machine costs ₹1,00,000.

- **Option 1 (Buy):** 5-year loan at 10% interest. Depreciation is 20% SLM. Tax rate 30%.
- **Option 2 (Lease):** Annual lease rental of ₹25,000 for 5 years.

Lease vs Buy Decision – Numerical Problem Solution

Given Data

Machine Cost = ₹1,00,000

Loan Interest Rate = 10%

Tax Rate = 30%

Lease Rental = ₹25,000 per year for 5 years

Depreciation = 20% Straight Line Method (SLM)

After-tax cost of debt = $10\% \times (1 - 0.30) = 7\%$

PV Annuity Factor for 5 years at 7% = 4.100

Step 1: Evaluation of Lease Option

Annual Lease Rental = ₹25,000

Tax Saving on Lease = $25,000 \times 30\% = ₹7,500$

Net Annual Cash Outflow = $25,000 - 7,500 = ₹17,500$

Present Value of Lease Payments = $17,500 \times 4.100 = ₹71,750$

Step 2: Evaluation of Buying Option

Loan is repaid in 5 equal annual installments at 10% interest.

Annual Loan Installment = ₹26,379

Depreciation per year = $1,00,000 \times 20\% = ₹20,000$

Tax Saving on Depreciation = $20,000 \times 30\% = ₹6,000$ per year

Loan Amortization and Tax Shield

Year	Interest (₹)	Principal (₹)	Installment (₹)	Interest Tax Shield (₹)
1	10,000	16,379	26,379	3,000
2	8,362	18,017	26,379	2,509
3	6,560	19,819	26,379	1,968
4	4,579	21,800	26,379	1,374
5	2,399	23,980	26,379	720

Total Annual Tax Shield and Net Outflow

Year	Depreciation Shield (₹)	Interest Shield (₹)	Net Outflow (₹)
1	6,000	3,000	17,379
2	6,000	2,509	17,870
3	6,000	1,968	18,411
4	6,000	1,374	19,005
5	6,000	720	19,659

Present Value of Buying Option (Discounted at 7%)

Year	Net Outflow (₹)	Present Value (₹)
1	17,379	16,248
2	17,870	15,600
3	18,411	15,020
4	19,005	14,500
5	19,659	14,010

Total Present Value of Buying Option = ₹75,378

Final Comparison and Decision

PV of Lease Option = ₹71,750

PV of Buying Option = ₹75,378

Leasing is cheaper by ₹3,628. Therefore, the company should choose the LEASE option.

5. Summary Table: Finance vs. Operating Lease

Feature	Finance Lease	Operating Lease
Nature	Intermediate/Long term	Short term
Cancelability	Generally non-cancelable	Cancelable
Maintenance	By Lessee	By Lessor
Obsolescence Risk	Borne by Lessee	Borne by Lessor
Example	Heavy Machinery, Airplanes	Computers, Construction Equipment

6. Impact of Accounting Standards (IFRS 16 / Ind AS 116)

Previously, operating leases were kept "off-balance sheet." Under new standards, lessees must recognize a **"Right-of-Use" (ROU) Asset** and a **Lease Liability** on their balance sheet for almost all leases, increasing transparency regarding a firm's total debt obligations.

Numerical Analysis: Lease vs. Buy Decision

Problem Statement

ABC Ltd. is considering the acquisition of a specialized CNC machine costing **₹1,000,000**. The company is evaluating two financing options:

1. Option 1: Purchase via Loan

- **Loan Interest Rate:** 14% per annum.
- **Repayment:** 5 equal annual installments of ₹291,284 (Principal + Interest) paid at the end of each year.
- **Depreciation:** 25% on WDV (Written Down Value) basis.
- **Salvage Value:** ₹237,305 at the end of Year 5.

2. Option 2: Lease the Asset

- **Annual Lease Rental:** ₹280,000 for 5 years, payable at the end of each year.

Common Data:

- **Tax Rate:** 30%
- **Discount Rate (After-tax cost of debt):** $14\% \times (1 - 0.30) = 9.8\%$ (Rounded to 10% for simplicity in this calculation).

Part 1: Evaluation of Leasing Option

Lease rentals are fully tax-deductible.

Year	Lease Rental (A)	Tax Shield @ 30% (B)	Net Cash Outflow (A - B)	PV Factor @ 10%	PV of Outflow
1	280,000	84,000	196,000	0.909	178,164
2	280,000	84,000	196,000	0.826	161,896
3	280,000	84,000	196,000	0.751	147,196
4	280,000	84,000	196,000	0.683	133,868

5	280,000	84,000	196,000	0.621	121,716
Total					₹742,840

Present Value of Leasing Cost: ₹742,840

Part 2: Evaluation of Buying Option

In buying, we get tax shields on both **Interest** and **Depreciation**.

A. Loan Schedule (Interest Calculation)

Year	Opening Principal	Installment	Interest @ 14%	Principal Repaid	Closing Principal
1	1,000,000	291,284	140,000	151,284	848,716
2	848,716	291,284	118,820	172,464	676,252
3	676,252	291,284	94,675	196,609	479,643
4	479,643	291,284	67,150	224,134	255,509
5	255,509	291,284	35,775	255,509	0

B. Depreciation Schedule (WDV @ 25%)

- Y1: 250,000 | Y2: 187,500 | Y3: 140,625 | Y4: 105,469 | Y5: 79,102

C. Cash Outflow Analysis (Buying)

Year	Installment (1)	Interest (2)	Depr. (3)	Tax Shield [0.3*(2+3)]	Net Outflow [1 - 4]	PV @ 10%	PV Amount
1	291,284	140,000	250,000	117,000	174,284	0.909	158,424
2	291,284	118,820	187,500	91,896	199,388	0.826	164,694

3	291,284	94,675	140,625	70,590	220,694	0.751	165,741
4	291,284	67,150	105,469	51,786	239,498	0.683	163,577
5	291,284	35,775	79,102	34,463	256,821	0.621	159,486
Gross PV							811,922
Less	PV of Salvage	(237,305	×	0.621)			(147,366)
Net PV							₹664,556

Final Decision

- **PV Cost of Leasing:** ₹742,840
- **PV Cost of Buying:** ₹664,556

Conclusion: The company should **Buy** the machine, as it results in a lower Present Value of cash outflows, saving the company **₹78,284** in present terms.

Hire Purchase

1. Concept of Hire Purchase

Hire Purchase is a credit purchase system where the buyer (Hire Purchaser) pays for an asset in regular installments while having the right to use it.

The Key Distinction: Unlike leasing, the ownership of the asset is transferred to the buyer automatically upon the payment of the **last installment**. Until then, the buyer is considered a "hirer."

Key Parties:

- **Hire Vendor:** The seller/owner of the asset.
- **Hire Purchaser:** The buyer who uses the asset and pays installments.

2. Key Features of Hire Purchase

1. **Down Payment:** A small percentage of the cash price is usually paid at the time of signing the agreement.
2. **Installments:** The balance amount, plus interest, is paid in monthly or quarterly installments.
3. **Ownership:** Legal title remains with the vendor until the final payment is made.
4. **Right of Repossession:** If the purchaser defaults on any installment, the vendor has the legal right to take back the asset without refunding previous payments.
5. **Responsibility:** The purchaser is responsible for the maintenance and insurance of the asset from day one.

3. Financial Implications (Tax & Accounting)

In a Hire Purchase transaction:

- **Depreciation:** Even though legal ownership hasn't transferred, the **Hire Purchaser** is allowed to claim depreciation as per tax laws (because they intend to own it).
- **Interest:** The interest portion of each installment is a tax-deductible expense for the purchaser.
- **Principal Repayment:** The principal part of the installment is not tax-deductible (it is a capital repayment).

4. Comparison: Leasing vs. Hire Purchase

Feature	Leasing	Hire Purchase
Ownership	Remains with the Lessor.	Transfers to Purchaser after the last payment.
Depreciation	Claimed by the Lessor.	Claimed by the Hire Purchaser.
Tax Benefit	Entire Lease Rental is deductible.	Only the Interest portion is deductible.
Maintenance	Lessor (Operating) or Lessee (Finance).	Always by the Hire Purchaser.
Down Payment	Usually not required.	Typically required (10-25%).

5. Numerical Example: Hire Purchase Calculation

Scenario: A truck is purchased for ₹10,00,000.

- **Down Payment:** ₹2,00,000.
- **Balance:** ₹8,00,000 to be paid in 4 annual installments of ₹2,50,000 each (includes interest).

- **Tax Rate:** 30%.
- **Depreciation:** 20% on SLM.

Step-by-Step Analysis for Purchaser:

Year	Total Payment (A)	Interest Component (B)	Depreciation (C)	Tax Shield [30% of (B+C)]	Net Outflow [A - Tax Shield]
0	2,00,000	-	-	-	2,00,000
1	2,50,000	80,000	2,00,000	84,000	166,000
2	2,50,000	60,000	2,00,000	78,000	172,000
3	2,50,000	40,000	2,00,000	72,000	178,000
4	2,50,000	20,000	2,00,000	66,000	184,000

6. Advantages & Disadvantages

Advantages:

- **Easier than Loans:** Often easier to secure than a bank loan because the asset itself acts as security.
- **Asset Ownership:** The firm eventually owns the asset, which adds to the balance sheet strength.
- **Spread the Cost:** High-value assets can be acquired without depleting cash reserves.

Disadvantages:

- **High Interest:** Hire purchase interest rates are often higher than bank interest rates.
- **Risk of Loss:** Defaulting on the very last payment can still result in the loss of the asset.
- **Total Cost:** The total amount paid is significantly higher than the cash price.

UNIT – V

Dividends: Decisions, Influencing Factors, Forms and Special Dividends. Walter, Gordon and MM models (Numerical Problems) Linter's Model Dividend Practices in India. Buy Back of Shares, Taxation of Dividends and Capital Gains. Working Capital Management: Operating Cycle Estimation, Cash, Inventory and Receivables Management.

Dividends

A dividend is the distribution of a portion of a company's earnings to its shareholders. It is determined by the Board of Directors and represents a share of the profits for those who own the company's stock.

1. Types of Dividends

- **Cash Dividend:** The most common type, where money is transferred directly into the shareholder's brokerage account or bank.
- **Stock Dividend (Bonus Shares):** The company issues additional shares to shareholders instead of cash. This doesn't change the company's value but increases the number of shares outstanding.
- **Property Dividend:** A non-monetary dividend where the company distributes physical assets or products (rare in modern markets).
- **Special Dividend:** A one-time, extra payment made by a company after an exceptionally profitable period or the sale of a business segment.
- **Scrip Dividend:** A promissory note to pay shareholders at a later date, used when a company is short on immediate cash.

2. Key Dates in the Dividend Process

Understanding the timeline is crucial for investors to know if they are eligible for a payout:

1. **Declaration Date:** The day the Board of Directors announces the dividend amount and the timeline.
2. **Cum-Dividend Date:** The last day you can buy the stock and still be entitled to the dividend.
3. **Ex-Dividend Date:** Usually one business day before the Record Date. If you buy the stock on or after this date, you **do not** receive the dividend.
4. **Record Date:** The date the company checks its books to see who the official shareholders are.
5. **Payment Date:** The day the actual money or shares are distributed to the eligible investors.

3. Financial Ratios & Metrics

- **Dividend Yield:** Shows how much a company pays out in dividends each year relative to its stock price.

$$\text{Dividend Yield} = \frac{\text{Annual Dividend Per Share}}{\text{Price Per Share}} \times 100$$

- **Dividend Payout Ratio:** The percentage of net income paid to shareholders.

$$\text{Payout Ratio} = \frac{\text{Dividends Paid}}{\text{Net Income}}$$

- **Dividend Cover:** Measures how many times a company can pay its current dividend using its profits (a safety metric).

Legal and Procedural Requirements

- **Board Approval:** Dividends must be recommended by the Board.
- **Shareholder Approval:** In many jurisdictions, the "Final Dividend" must be approved by shareholders at the Annual General Meeting (AGM). Shareholders can usually vote to reduce the amount, but not increase it.
- **Solvency Test:** Most corporate laws prevent a company from paying a dividend if that payment would make the company unable to pay its debts (insolvent).

Dividend Decisions & Influencing Factors

The **Dividend Decision** is the process of deciding how much of a company's after-tax profit should be distributed to shareholders and how much should be retained for reinvestment.

1. The Core Decision: Payout vs. Retention

Financial managers must balance two competing needs:

1. **Shareholder Reward:** Providing an immediate return on investment to maintain stock price and investor loyalty.
2. **Corporate Growth:** Keeping cash within the business to fund new projects, which leads to capital appreciation (higher share prices) in the future.

2. External Influencing Factors

These are factors outside the company's direct control that dictate what they *can* or *must* do.

- **Legal Constraints:**
 - **Capital Impairment Rule:** Dividends cannot be paid out of the "Capital" (Paid-up capital); they must be paid from "Revenue Profits."
 - **Solvency Requirement:** A company cannot declare a dividend if it is insolvent or if the payment would make it unable to pay its creditors.
- **Taxation Policy:**

- If the tax rate on dividends is higher than the tax rate on capital gains, investors may prefer the company to retain earnings (growth) rather than pay out cash.
- **Access to Capital Markets:**
 - Large, established firms with easy access to banks or bond markets can afford to pay high dividends because they can quickly raise cash elsewhere if needed. Smaller firms must retain cash because they have fewer borrowing options.
- **Inflation:**
 - During high inflation, the cost of replacing assets (machinery/inventory) rises. Companies often reduce dividend payouts to keep more cash for these higher replacement costs.

3. Internal Influencing Factors

These are factors based on the company's specific financial health and strategy.

- **Liquidity Position:**
 - Profit is an accounting concept, but dividends are paid in **cash**. A company might be highly profitable but have all its cash tied up in "Accounts Receivable" or "Inventory." Without liquid cash, a dividend cannot be paid.
- **Growth Opportunities:**
 - Companies with many high-return projects ($\text{Internal Rate of Return} > \text{Cost of Capital}$) should retain more earnings. This is why "Tech" companies often pay low dividends compared to "Utility" companies.
- **Stability of Earnings:**
 - A firm with stable, predictable income (like a water or electricity provider) can safely commit to a high dividend. A firm with volatile income (like a mining or fashion company) must be conservative with payouts.
- **Control Objectives:**
 - If a company pays out too much cash and later needs to raise funds for a project, it might have to issue new shares. Issuing new shares dilutes the control of existing owners. To avoid this, owners may prefer the company to retain earnings.

4. Market-Related Factors

- **Signaling Effect:**
 - The market views a dividend announcement as a "signal" from management. A dividend cut is often interpreted as a sign of financial trouble, leading to a stock price crash, even if the cut was for a good reason (like a new investment).
- **Clientele Effect:**
 - Certain investors (like retirees or pension funds) buy specific stocks for their steady dividend income. If the company changes its dividend policy, these investors will sell their shares, causing price volatility.

5. Summary Table: Decision Drivers

Factor	High Dividend Payout Likely	Low Dividend Payout Likely
Growth Potential	Mature, low-growth industry	High-growth, tech/R&D focus
Earnings	Highly stable and predictable	Volatile or seasonal
Cash Flow	High liquid cash reserves	Cash tied up in assets/receivables
Investment Needs	Few profitable projects available	Many high-return projects available
Market Access	Can easily borrow from banks	Difficult/Expensive to borrow

Forms of Dividends and Special Payouts

Companies choose different forms of dividends based on their cash position, tax implications, and the message they want to send to the stock market.

1. Primary Forms of Dividends

A. Cash Dividend

The most common form. The company sends money (via electronic transfer or check) to shareholders.

- **Impact:** Reduces the company's total assets (cash) and its retained earnings.
- **Requirement:** Requires both accumulated profits and liquid cash.

B. Stock Dividend (Bonus Shares)

Instead of cash, the company issues additional shares to existing shareholders (e.g., 1 new share for every 10 owned).

- **Impact:** No cash leaves the company. It is a "book entry" moving funds from Retained Earnings to Share Capital.
- **Why use it?** When the company wants to reward shareholders but needs to keep its cash for reinvestment or expansion.

C. Scrip Dividend (Promissory Note)

A company issues a "Scrip," which is a document promising to pay the dividend at a later date.

- **Why use it?** Used when a company has the profits but is temporarily facing a cash shortage. It often carries a small interest rate until paid.

D. Property Dividend

A distribution of assets other than cash or shares.

- **Example:** Distributing shares of a subsidiary company or physical products.
- **Impact:** The asset is restated at "fair market value" at the time of distribution, often resulting in a gain or loss for the company.

2. Special Dividends (Extra Dividends)

A **Special Dividend** is a non-recurring distribution that is separate from the regular quarterly or annual dividend cycle.

Characteristics:

- **One-time Event:** It does not create an expectation of future payments.
- **Larger Amounts:** Usually significantly higher than the regular dividend.
- **Signaling:** It tells the market, "We have excess cash right now, but we aren't sure we can maintain this high level every year."

Common Triggers for Special Dividends:

1. **Asset Sale:** Selling off a business division or a large piece of real estate.
2. **Windfall Profits:** An exceptionally good year due to high commodity prices or a one-time surge in demand.
3. **Recapitalization:** The company takes on debt to pay out a massive one-time dividend to shareholders (often to prevent a hostile takeover).
4. **Tax Changes:** Paying out cash before a new, higher tax law on dividends comes into effect.

3. Comparison: Regular vs. Special Dividends

Feature	Regular Dividend	Special Dividend
Frequency	Scheduled (Monthly/Quarterly/Yearly)	Occasional / One-time
Commitment	Implied commitment to continue	No future commitment
Market Reaction	Neutral (Expected)	Positive (Surprise)
Source	Normal recurring operations	Non-recurring events

4. Liquidating Dividends

When a company is going out of business or selling its entire operation, it pays a **Liquidating Dividend**.

- **Nature:** This is considered a return of the original capital invested by the shareholder, rather than a distribution of profit.
- **Taxation:** Often taxed differently (as capital gains) because it is a return of investment.

5. Summary

Choosing the right **form** of dividend is a strategic balancing act. While investors generally prefer **Cash**, a **Stock Dividend** can be a sign of a company that is successfully reinvesting in its own growth. **Special Dividends** are the "bonus" of the corporate world, used to clear out excess cash without locking the company into a high-cost future commitment.

The Walter Model of Dividend Policy

Proposed by Professor James E. Walter, this model argues that the dividend policy of a company is almost always linked to its investment opportunities. It explores the relationship between the internal rate of return (r) and the cost of capital (k_e).

1. The Formula

The Walter Model determines the market price per share (P) using the following equation:

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

Where:

- P = Market price per share
- D = Dividend per share
- E = Earnings per share (EPS)
- r = Internal rate of return on the company's investments
- k_e = Cost of equity (Capitalization rate)
- $(E - D)$ = Retained earnings per share

2. Core Logic: Three Types of Firms

The model suggests that the "Optimum Payout Ratio" depends on the relationship between r and k_e :

Condition	Type of Firm	Logic	Optimum Payout
$r >$	Growth Firm	The firm earns more than shareholders could elsewhere.	0% (Retain all)
$r <$	Declining Firm	Shareholders can earn more elsewhere than the firm can.	100% (Distribute all)
$r =$	Normal Firm	Dividend policy has no effect on share price.	Indifferent

3. Numerical Example

Scenario Data:

- Earnings Per Share (E): \$10
- Cost of Capital (k_e): 10% (or 0.10)
- Case A (Growth): $r = 15\%$
- Case B (Declining): $r = 8\%$

We will compare the Market Price (P) at a **40% Payout** ($D = \$4$) vs. a **80% Payout** ($D = \8).

Calculation for Case A: Growth Firm ($r = 15\%$)

- At 40% Payout ($D = 4$):

$$P = \frac{4 + \frac{0.15}{0.10}(10 - 4)}{0.10} = \frac{4 + 1.5(6)}{0.10} = \frac{13}{0.10} = \$130$$

- At 80% Payout ($D = 8$):

$$P = \frac{8 + \frac{0.15}{0.10}(10 - 8)}{0.10} = \frac{8 + 1.5(2)}{0.10} = \frac{11}{0.10} = \$110$$

Result: Higher payout decreased the share price.

Calculation for Case B: Declining Firm ($r = 8\%$)

1. At 40% Payout ($D = 4$):

$$P = \frac{4 + \frac{0.08}{0.10}(10 - 4)}{0.10} = \frac{4 + 0.8(6)}{0.10} = \frac{8.8}{0.10} = \$88$$

2. At 80% Payout ($D = 8$):

$$P = \frac{8 + \frac{0.08}{0.10}(10 - 8)}{0.10} = \frac{8 + 0.8(2)}{0.10} = \frac{9.6}{0.10} = \$96$$

Result: Higher payout increased the share price.

4. Assumptions and Limitations

- **Internal Financing:** The model assumes the firm only uses retained earnings to finance investments (no new debt or equity).
- **Constant r and k_e :** It assumes the rate of return and cost of capital do not change, which is rarely true in a dynamic market.
- **Infinite Life:** The firm is assumed to have a never-ending life.

5. Summary Table

If...	Then the Firm is...	To Maximize Price...
$r > k_e$	Growth	Decrease Payout (Reinvest)
$r < k_e$	Declining	Increase Payout (Give to Shareholders)
$r = k_e$	Normal	Payout is Irrelevant

Gordon's Model of Dividend Policy

Proposed by Myron Gordon, this theory suggests that dividend policy is relevant and affects the market value of shares. It is famously known as the "**Bird-in-the-Hand**" Theory.

1. The Core Logic: "Bird-in-the-Hand"

Gordon argues that investors are risk-averse and prefer "certain" returns today over "uncertain" returns in the future.

- **Current Dividends:** Considered certain and less risky.
- **Future Capital Gains:** Considered uncertain and risky.
- **Conclusion:** Investors discount future capital gains at a higher rate. Therefore, a company that pays higher current dividends will have a higher share price.

2. The Formula

The market price of a share (P) is calculated as:

$$P = \frac{E(1 - b)}{k_e - br}$$

Where:

- P = Market Price per share
- E = Earnings Per Share (EPS)
- b = Retention Ratio (Percentage of earnings kept by the firm)
- $(1 - b)$ = Dividend Payout Ratio
- k_e = Cost of Equity (Capitalization Rate)
- r = Internal Rate of Return (IRR) on investments
- br = Growth Rate (g)

3. Numerical Example

Scenario Data:

- Earnings Per Share (E): ₹20
- Cost of Capital (k_e): 12% (0.12)

- **Return on Investment (r):** 15% (0.15) — This is a **Growth Firm** ($r > g$)

We will compare the Market Price (P) at two different **Retention Ratios** (b):

1. **Low Retention (40%):** $b = 0.40$ (Payout = 60%)
2. **High Retention (60%):** $b = 0.60$ (Payout = 40%)

Calculation:

Case 1: $b = 0.40$ (40% Retained)

- Growth (g) = $b \times r = 0.40 \times 0.15 = 0.06$
- $P = \frac{20(1-0.40)}{0.12-0.06} = \frac{20(0.60)}{0.06} = \frac{12}{0.06} = ₹200$

Case 2: $b = 0.60$ (60% Retained)

- Growth (g) = $b \times r = 0.60 \times 0.15 = 0.09$
- $P = \frac{20(1-0.60)}{0.12-0.09} = \frac{20(0.40)}{0.03} = \frac{8}{0.03} = ₹266.67$

Result: For this Growth Firm, increasing the retention ratio (decreasing the dividend) **increased** the share price.

4. Relationship Summary

Gordon's conclusions are similar to Walter's regarding the type of firm, but they are based on the growth rate (g):

Relationship	Type of Firm	Effect of Increasing Dividend Payout
$r > k_e$	Growth	Share Price Decreases
$r < k_e$	Declining	Share Price Increases
$r = k_e$	Normal	Share Price Remains Constant

5. Key Assumptions

1. **All-Equity Firm:** The firm is financed solely by equity.
2. **Internal Financing:** No external financing is used; growth is funded by retained earnings.

3. **Constant r and k_e :** Both the return on investment and cost of capital remain unchanged.
4. $k_e > br$: The cost of capital must be greater than the growth rate for the formula to work.

Modigliani-Miller (MM) Hypothesis:

Dividend Irrelevance

Proposed by Franco Modigliani and Merton Miller, this model argues that under certain assumptions, the **dividend policy of a firm has no effect on its value** or its cost of capital.

1. The Core Logic

The MM hypothesis suggests that the value of a firm is determined by its **earnings power** and the **risk of its underlying assets**, not by how those earnings are split between dividends and retained earnings.

If a company pays a dividend, its share price decreases by exactly the same amount. Therefore, the shareholder's total wealth (Share Price + Dividend) remains unchanged.

2. The Mathematical Framework

The model uses three primary steps to prove irrelevance:

Step 1: Market Price at the end of the period (P_1)

$$P_0 = \frac{D_1 + P_1}{1 + k_e} \implies P_1 = P_0(1 + k_e) - D_1$$

Step 2: Number of New Shares to be issued (Δn)

To fund a new investment (I) when dividends are paid:

$$\Delta n \cdot P_1 = I - (E - nD_1)$$

(Where E is total earnings, I is investment required, and nD_1 is total dividends paid).

Step 3: Value of the Firm (V)

$$V = \frac{(n + \Delta n)P_1 - I + E}{1 + k_e}$$

3. Numerical Problem (The Proof)

Scenario Data:

- Current Market Price (P_0): ₹100
- Number of Outstanding Shares (n): 10,000
- Capitalization Rate (k_e): 10% (0.10)
- Net Income / Earnings (E): ₹2,00,000
- New Investment Required (I): ₹4,00,000
- Dividend proposed (D_1): ₹5 per share

Goal: Compare the Value of the Firm if dividends are **Paid** vs. **Not Paid**.

Case A: Dividends are Paid ($D_1 = 5$)

1. Calculate P_1 :

$$P_1 = 100(1 + 0.10) - 5 = 110 - 5 = ₹105$$

2. Calculate Amount to be Raised for Investment:

$$\text{Total Dividend} = 10,000 \times 5 = ₹50,000$$

$$\text{Retained Earnings} = 2,00,000 - 50,000 = ₹1,50,000$$

$$\text{New Funds needed} = 4,00,000 - 1,50,000 = ₹2,50,000$$

3. Calculate New Shares (Δn):

$$\Delta n = 2,50,000 / 105 = 2,380.95 \text{ shares}$$

4. Calculate Value of the Firm (V):

$$V = \frac{(10,000 + 2,380.95) \times 105 - 4,00,000 + 2,00,000}{1.10} = ₹10,00,000$$

Case B: Dividends are NOT Paid ($D_1 = 0$)

1. Calculate P_1 :

$$P_1 = 100(1 + 0.10) - 0 = ₹110$$

2. Calculate Amount to be Raised for Investment:

Retained Earnings = Full ₹2,00,000

New Funds needed = ₹4,00,000 - ₹2,00,000 = ₹2,00,000

3. Calculate New Shares (Δn):

$$\Delta n = 2,00,000 / 110 = 1,818.18 \text{ shares}$$

4. Calculate Value of the Firm (V):

$$V = \frac{(10,000 + 1,818.18) \times 110 - 4,00,000 + 2,00,000}{1.10} = ₹10,00,000$$

4. Conclusion

In both cases, the **Value of the Firm remains ₹10,00,000**. This proves that whether the firm pays a dividend or not, the total value remains the same, provided the investment policy is unchanged.

5. Assumptions of MM Model

1. **Perfect Capital Markets:** No taxes, no transaction costs, and no floatation costs.
2. **Fixed Investment Policy:** The firm's investment decisions are not affected by its dividend policy.
3. **No Risk of Uncertainty:** Investors can predict future prices and dividends with certainty.

Comparative Analysis: Walter, Gordon, and MM Models

Dividend theories are broadly classified into two categories: **Relevance Theories** (Walter & Gordon) and **Irrelevance Theories** (MM). Below is a detailed comparison of their logic, applications, and shortcomings.

1. At a Glance: Core Philosophies

Feature	Walter's Model	Gordon's Model	MM Hypothesis
School of Thought	Relevance (Dividends matter)	Relevance (Dividends matter)	Irrelevance (Dividends don't matter)
Main Driver	Relationship between r and k	Investors' risk aversion	Firm's investment policy
Key Phrase	"Internal vs. External return"	"Bird-in-the-hand"	"Arbitrage / Perfect Market"
Value Focus	Optimum payout maximizes price	Payout reduces investor risk	Total value is independent of payout

2. Advantages and Limitations

Walter's Model

- **Advantages:**
 - Extremely simple to calculate and understand.
 - Clearly shows why growth firms should reinvest and declining firms should distribute.
- **Limitations:**
 - Assumes r and k are constant (in reality, as you invest more, r usually decreases).
 - Assumes only internal financing (no new debt or equity).

Gordon's Model

- **Advantages:**
 - Incorporates investor psychology (risk aversion).
 - Recognizes the growth rate ($g = br$) as a driver of share price.
- **Limitations:**
 - The model fails if the growth rate (g) exceeds the cost of capital (k).
 - Like Walter, it ignores the impact of taxes and transaction costs.

MM Hypothesis

- **Advantages:**
 - The most scientifically rigorous model.
 - Shifts focus from "how to pay" to "how to earn" (Investment is the real value creator).
- **Limitations:**
 - The "Perfect Market" assumptions (no taxes, no costs) do not exist in the real world.

- Ignores the "Signaling Effect" where a dividend change moves prices because of information, not math.

3. Scenario Analysis: When is each model right?

Scenario A: A High-Growth Tech Startup

- **Walter/Gordon:** Would suggest a **0% payout**. Since r (e.g., 25%) is much higher than k (e.g., 12%), the value of the firm is maximized by keeping every dollar to fuel growth.
- **MM:** Would say the startup is valuable because of its projects. If it pays a dividend and then borrows that money back to fund growth, the value remains the same.

Scenario B: A Mature Utility Company (Steady but slow)

- **Walter/Gordon:** Since $r \approx k$, investors want the "Bird-in-the-hand." A high payout ratio (e.g., 80%) is expected to keep the stock price stable.
- **MM:** Argues that the investors could just sell a few shares if they wanted cash; the company's dividend policy is still technically irrelevant.

4. Summary Comparison Table

Dimension	Walter Model	Gordon Model	MM Model
Treatment of Risk	Does not explicitly factor in risk.	High risk for future gains; low risk for current dividends.	Risk is based on the business, not the payout.
Optimal Payout	0% for growth; 100% for declining.	0% for growth; 100% for declining.	No such thing as an "optimal" payout.
Growth (g)	Not explicitly in the formula (r is used).	$g = b * r$	Growth is part of the total investment value.
Capital Market	Ignore external markets.	Ignore external markets.	Relies on perfect external markets.

5. Final Conclusion

- If the question asks about "Internal Rate of Return vs. Cost of Capital," use **Walter**.
- If the question mentions "Risk Aversion" or "Bird-in-the-hand," use **Gordon**.
- If the question asks to prove that "Dividend policy has no effect on wealth," use **MM**.

Lintner's Model: The Behavioral Approach

to Dividends

Developed by John Lintner in 1956, this model is based on a series of interviews with corporate managers. Unlike Walter or Gordon, who focus on what firms *should* do, Lintner describes what firms *actually* do.

1. Core Logic: Dividend Smoothing

Lintner observed that managers are very reluctant to cut dividends and will only increase them if they believe the company can sustain the new, higher level of earnings. This leads to **Dividend Smoothing**—where dividends are much less volatile than earnings.

Key Observations:

1. **Long-term Payout Ratio:** Companies have a target percentage of earnings they want to pay out over the long term.
2. **Partial Adjustment:** Companies do not move to the target payout immediately. They adjust dividends slowly to avoid having to reverse the decision later.
3. **Current Earnings:** The primary determinant of a change in dividends is current year earnings.

2. The Mathematical Formula

The change in dividends from last year to this year is calculated as:

$$D_t - D_{t-1} = c \times (EPS_t \times T - D_{t-1})$$

Where:

- D_t = Dividend in the current year
- D_{t-1} = Dividend in the previous year
- c = **Speed of Adjustment** (How quickly the firm moves toward the target; $0 < c < 1$)
- EPS_t = Earnings Per Share in the current year
- T = **Target Payout Ratio**
- $(EPS_t \times T)$ = The "Target" dividend for the current year

3. Numerical Problem

Scenario Data:

- Last year's Dividend (D_{t-1}): **\$2.00**
- This year's Earnings (EPS_t): **\$10.00**

- Target Payout Ratio (T): **40% (0.40)**
- Speed of Adjustment (C): **0.30** (Meaning the firm only closes 30% of the gap in one year)

Step 1: Calculate the Target Dividend

$$\text{Target Dividend} = 10.00 \times 0.40 = \$4.00$$

Step 2: Calculate the Change in Dividend

$$\text{Change} = 0.30 \times (4.00 - 2.00)$$

$$\text{Change} = 0.30 \times 2.00 = \$0.60$$

Step 3: Calculate this year's Dividend (D_t)

$$D_t = D_{t-1} + \text{Change}$$

$$D_t = 2.00 + 0.60 = \mathbf{\$2.60}$$

Observation: Even though the company earned enough to pay \$4.00, it only increased the dividend to \$2.60 to ensure it can maintain this level if earnings drop next year.

4. Merits and Limitations

Merits	Limitations
Realistic: Mirrors actual corporate behavior.	Subjective: "Speed of adjustment" is hard to determine.
Investor Confidence: Explains why stable	Historical Focus: Relies heavily on past

dividends help stock prices.	dividends (D_{t-1}).
Risk Management: Prevents "dividend shocks" to the market.	Ignores Investment: Doesn't factor in new project needs.

5. Comparison: Lintner vs. Other Models

Feature	Walter/Gordon	MM Model	Lintner Model
Basis	Mathematical Optimum	Arbitrage/Efficiency	Managerial Behavior
Volatility	High (follows r or g)	Irrelevant	Low (Smoothed)
Dividend Cut	Acceptable if $r > k$	Irrelevant	Highly Avoided

Dividend Practices in India

Dividend practices in India are governed by a combination of the **Companies Act, 2013**, **SEBI (Listing Obligations and Disclosure Requirements) Regulations**, and the **Income Tax Act**.

1. Legal Framework (Companies Act, 2013)

In India, dividends can only be paid under specific legal conditions:

- **Source of Funds:** Dividends must be paid out of:
 1. Profits of the current financial year after providing for depreciation.
 2. Undistributed profits (Retained Earnings) of previous financial years.
 3. Money provided by the Central or State Government for the payment of dividends in pursuance of a guarantee.
- **Prohibition on Capital Payout:** Dividends cannot be paid out of the company's capital.
- **Depreciation:** No dividend can be declared unless carried over losses and depreciation not provided in previous years are set off against profits of the current year.
- **Transfer to Reserves:** Companies are no longer *mandatorily* required to transfer a fixed percentage of profits to reserves before declaring a dividend (this was changed from the 1956 Act); it is now at the discretion of the Board.

2. Types of Dividends in the Indian Context

1. **Interim Dividend:** Declared by the Board of Directors during any financial year. It does not require shareholder approval but must be "noted" at the next Annual General Meeting (AGM).
2. **Final Dividend:** Recommended by the Board but **approved by shareholders** at the AGM. Shareholders can reduce the amount recommended by the Board but cannot increase it.

3. Taxation of Dividends (Crucial Change)

The taxation landscape in India shifted significantly on **April 1, 2020**:

- **Pre-April 2020:** Companies paid **Dividend Distribution Tax (DDT)**. Dividends were largely tax-free in the hands of the shareholders.
- **Post-April 2020 (Current):** DDT was abolished. Dividends are now **taxable in the hands of the shareholders** at their applicable income tax slab rates.
- **TDS (Tax Deducted at Source):** Companies are required to deduct TDS at **10%** on dividend payments exceeding ₹5,000 to a resident individual.

4. SEBI Guidelines for Listed Companies

- **Dividend Distribution Policy:** The top 1,000 listed companies (by market capitalization) must formulate a "Dividend Distribution Policy" and disclose it in their annual reports and on their websites.
- **Timeline:** Dividends must be deposited in a separate bank account within **5 days** of declaration and must be paid to shareholders within **30 days**.
- **Unpaid Dividend Account:** Any dividend remains unpaid or unclaimed for 30 days must be transferred to a special "Unpaid Dividend Account." If it remains unclaimed for **7 years**, the money (along with the shares) is transferred to the **Investor Education and Protection Fund (IEPF)**.

5. Trends in Indian Corporate Dividends

- **Consistency:** Blue-chip companies (e.g., TCS, Infosys, HUL, ITC) are known for steady and increasing dividend payouts to maintain "Dividend Aristocrat" status.
- **PSU Dividends:** Public Sector Undertakings (PSUs) like ONGC, Coal India, and IOC often have high dividend yields because the Government of India (the majority shareholder) relies on these dividends for fiscal revenue.
- **Buybacks vs. Dividends:** Since the 2020 tax change, many Indian companies (especially in IT) have shifted toward **Share Buybacks** as a more tax-efficient way to return cash to shareholders, as buybacks are taxed at the company level at a flat rate, making it "tax-free" for the investor.
- **Special Dividends:** Indian companies frequently issue "Special" or "One-time" dividends during anniversaries or after the sale of a subsidiary.

6. Summary of Procedural Steps

1. **Board Meeting:** Recommendation of dividend.
2. **Public Announcement:** Notify Stock Exchanges.
3. **Record Date/Book Closure:** Determining eligible shareholders.
4. **AGM Approval:** Shareholders vote on Final Dividend.
5. **Payment:** Within 30 days of declaration.

Buyback of Shares: The Indian Context

A share buyback (or stock repurchase) occurs when a company buys its own outstanding shares from the marketplace or directly from shareholders, reducing the total number of shares available.

1. The 2024 Tax Paradigm Shift

The most significant "real-time" change in Indian buybacks occurred in the **Union Budget 2024**.

- **Old Regime (Pre-Oct 2024):** The company paid a "Buyback Tax" (approx. 23.3%), and the proceeds were tax-free for shareholders.
- **Current Regime (Effective Oct 1, 2024):** * Buyback proceeds are now treated as **Dividend Income** in the hands of the shareholder.
 - They are taxed at the shareholder's **applicable income tax slab rate**.
 - The "cost of acquisition" of the bought-back shares can be claimed as a capital loss, which can be set off against other capital gains.
 - **Impact:** This has made buybacks significantly less attractive for high-net-worth individuals (HNIs) in the 30%+ tax bracket.

2. Modes of Buyback in India

Under SEBI guidelines, companies usually choose one of two routes:

1. **Tender Offer:** The company offers to buy shares at a fixed price (usually at a premium to the market price). A portion (15%) is reserved specifically for small shareholders (investments < ₹2 Lakhs).
2. **Open Market:** The company buys shares through the stock exchange over a period of time. *Note: SEBI is currently phasing out the open market route to ensure all shareholders have an equal chance to participate.*

3. Real-Time Data & Recent Examples (2023-2024)

Company	Size (approx)	Premium at Announcement	Date
TCS	₹17,000 Crore	~15%	Dec 2023
Bajaj Auto	₹4,000 Crore	~43%	Mar 2024
Indus Towers	₹2,640 Crore	~11%	Aug 2024
Aarti Industries	₹192 Crore	~22%	Sept 2024

Observations:

- **IT Sector Dominance:** Cash-rich IT firms (TCS, Wipro, Infosys) remain the most frequent users of buybacks to return excess cash.
- **The "Pre-October Rush":** There was a massive surge in buyback announcements in August and September 2024 as companies rushed to complete processes before the new tax rules kicked in on October 1st.

4. Investor Perception & Sentiment

Investor perception varies depending on the "signal" the company is sending:

A. The Positive Perception (Bullish Signal)

- **Confidence in Value:** Investors often see a buyback as a sign that the management believes the stock is **undervalued**.
- **Earnings per Share (EPS) Accretion:** Since the total number of shares decreases, the "profit per share" increases, often leading to a higher stock price in the long run.
- **Utilization of Idle Cash:** It suggests the company has more cash than it needs for operations and is disciplined enough not to waste it on bad acquisitions.

B. The Skeptical Perception (Bearish Signal)

- **Lack of Growth Opportunities:** Critics may argue that if a company is buying back shares, it has run out of ideas for new projects, R&D, or expansion.
- **Artificial Price Support:** Sometimes seen as a move to support a falling stock price or to prevent a hostile takeover.

5. Strategic Benefits for the Company

1. **Optimizing Capital Structure:** Improving Return on Equity (ROE) by reducing the equity base.
2. **Exit for Shareholders:** Provides a liquid exit route for shareholders in a sluggish market, especially during a Tender Offer.
3. **Preventing Dilution:** Offsetting the dilution caused by Employee Stock Option Plans

(ESOPs).

6. Regulatory Checklist (SEBI & Companies Act)

- **Limit:** Maximum 25% of the aggregate of paid-up capital and free reserves.
- **Debt-Equity Ratio:** Post-buyback debt-equity ratio cannot exceed **2:1**.
- **Cooling-off Period:** A company cannot make another buyback offer for **one year** from the date of the previous buyback.
- **No Fresh Issue:** The company cannot issue new shares (except bonus or ESOPs) for six months after the buyback.

Budget 2026: Stocks & Taxes

Think of the Budget as the "Rulebook" for how the government takes a small slice of the money you make. Here is the simple version of the 2026 rules for Dividends and Capital Gains.

1. Dividends: The "Reward" Money

What it is: When a company makes a profit and shares some of that cash with you just for owning their stock.

- **How it's taxed:** It's added to your total income. If you are a student with no other income, you might pay **0%**. If you have a high-paying job, you pay your **Slab Rate** (e.g., 5%, 10%, or 20%).
- **The Big Change:** You can no longer "discount" your tax. Previously, if you borrowed money to buy the stock, you could subtract the interest cost. **Now, you pay tax on the full amount you receive.**

2. Capital Gains: The "Profit" Money

What it is: The profit you make when you sell a stock for more than you bought it (e.g., Buy at ₹100, Sell at ₹150).

The "Holding Period" Rule

How long you keep the stock determines your tax rate:

- **Short-Term (STCG):** If you sell in **less than 1 year**, the tax is **20%**. (The government doesn't like "quick flipping").
- **Long-Term (LTCG):** If you sell after **more than 1 year**, the tax is **12.5%**.

The "Freebie" Limit

- You get a **₹1.25 Lakh discount** every year on Long-Term gains.
- **Example:** If you make ₹2,00,000 profit after holding for two years, you only pay tax on ₹75,000 (₹2L - ₹1.25L).

3. The "Buyback" Win

What it is: When a company offers to buy its own shares back from you.

- **Old Rule:** It was treated like a Dividend (taxed at high slab rates on the *total* money).
- **New Rule (2026):** It's treated as a **Capital Gain**.
- **Why this is better:** Now you only pay tax on the **Profit**, not the whole amount. This saves investors a lot of money!

4. Trading "F&O" (Gambling/Speculation)

If you like trading "Options" or "Futures" (high-risk trading):

- **STT (Tax on every trade):** This has gone up. It's now more expensive to be a "Day Trader" because the government wants to encourage long-term investing over risky betting.

Summary Table for Quick Revision

Action	Tax Category	The Rate
Get a Dividend	Income from Other Sources	Your Income Slab
Sell Stock < 1 Year	Short-Term Capital Gain	20%
Sell Stock > 1 Year	Long-Term Capital Gain	12.5% (First ₹1.25L Free)
Participate in Buyback	Capital Gain	12.5% or 20% (depending on time)

If your total annual income (including these gains) is below ₹7 Lakhs (under the New Tax Regime), you likely won't end up paying any actual tax due to tax rebates.

Working Capital Management: An Analytical Overview

1. Introduction to Working Capital Management

Working Capital Management is a vital area of financial management that focuses on managing short-term assets and short-term liabilities of a business. Working capital refers to the funds required to carry out the day-to-day operations of a firm. Every business needs money to purchase raw materials, pay wages, meet routine expenses, and maintain smooth production and sales activities. Without adequate working capital, even a profitable company may face financial difficulties.

1.1 Meaning of Working Capital

Working capital is commonly defined as the difference between current assets and current liabilities.

- **Current Assets:** Assets that can be converted into cash within one year, such as cash in hand, cash at bank, inventory, debtors, and bills receivable.
- **Current Liabilities:** Obligations that must be paid within one year, such as creditors, bills payable, short-term borrowings, and outstanding expenses.

The mathematical relationship is expressed as:

$$\text{Net Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$

2.

Concepts of Working Capital

There are two important concepts of working capital: **Gross Working Capital** and **Net Working Capital**.

- **Gross Working Capital:** Refers to the total investment in current assets. This concept highlights the firm's investment in short-term assets required for operations.

$$\text{Gross Working Capital} = \sum \text{Current Assets}$$

- **Net Working Capital:** Refers to the difference between current assets and current liabilities. It indicates the liquidity position of the firm and its ability to meet short-term obligations.

3. Need for Working Capital Management

Proper management of working capital is essential to ensure that the business runs smoothly without financial interruptions. A firm must maintain sufficient liquidity to meet its short-term commitments such as payment to suppliers, wages to employees, and other operating expenses.

At the same time, excessive investment in current assets should be avoided because idle funds reduce profitability. Thus, working capital management aims to **strike a balance between liquidity and profitability**.

Risk vs. Efficiency: Insufficient working capital increases the risk of insolvency, while excessive working capital leads to inefficient use of resources.

4. Types of Working Capital

Working capital can be classified into two primary categories:

1. **Permanent Working Capital:** The minimum level of working capital required to conduct business operations smoothly throughout the year. This level remains constant irrespective of seasonal fluctuations.
2. **Temporary Working Capital:** Also known as **Variable Working Capital**, this refers to the additional working capital required during peak seasons or special situations. *Example:* A company may need extra inventory during festive seasons or increased production during high-demand periods.

5. Objectives of Working Capital Management

The primary objectives of managing working capital include:

- **Ensuring Adequate Liquidity:** Maintaining the ability to meet short-term obligations as they fall due.
- **Efficient Utilization:** Ensuring current assets (cash, inventory, and receivables) are used to maximize profitability without interruption.
- **Risk Mitigation:** Reducing financial risk and improving the firm's creditworthiness.
- **Opportunity Capture:** Enhancing the firm's ability to take advantage of profitable opportunities such as cash discounts and bulk purchases.

6. Importance of Working Capital Management

Working capital management is crucial for maintaining the financial health of a business. Its importance can be summarized as follows:

- **Operational Continuity:** Ensures smooth production and sales operations.
- **Relationship Management:** Facilitates timely payment of expenses and maintains better relationships with suppliers and customers.
- **Goodwill:** Helps in improving the firm's market reputation and financial standing.
- **Avoidance of Bankruptcy:** Poor management can lead to production stoppages, loss of discounts, and ultimately, bankruptcy.

7. Conclusion

In conclusion, working capital management deals with the planning and control of current assets and current liabilities to ensure operational efficiency and financial stability. It is a continuous process that requires careful forecasting, monitoring, and control. A firm that manages its working capital effectively can maintain liquidity, reduce risk, and improve profitability, ensuring long-term success.

Operating Cycle Estimation in Working Capital Management

1. Meaning of Operating Cycle

The operating cycle refers to the time duration required for a business to convert its investment in raw materials into cash received from customers. It represents the flow of working capital through different stages of business operations.

The length of the operating cycle determines how long funds remain tied up in working capital.

- **Shorter Operating Cycle:** Indicates efficient management and better liquidity.
- **Longer Operating Cycle:** Means funds are blocked for a longer period.

Operating cycle estimation is vital because it helps in determining the total amount of working capital required. Businesses with longer production and sales cycles necessarily require more working capital than those with shorter cycles.

2. Stages of the Operating Cycle

The operating cycle consists of several stages where funds move from one form to another:

- **Raw Material Storage Period:** The time raw materials remain in store before being issued for production.
- **Work-in-Progress (WIP) Period:** The time taken to convert raw materials into finished goods.
- **Finished Goods Storage Period:** The time finished goods remain in the warehouse before being sold.
- **Debtors Collection Period:** The time taken to collect cash from customers after credit sales are made.
- **Creditors Payment Period:** The time allowed by suppliers to pay for purchases. This period acts as a "source" of funds and effectively reduces the length of the operating cycle.

3. Operating Cycle Formula

The net operating cycle is calculated by summing the holding periods of assets and subtracting

the payment period of liabilities.

Symbolic Representation:

$$OC = R + W + F + D - C$$

Where:

- R = Raw material holding period
- W = Work-in-progress period
- F = Finished goods holding period
- D = Debtors collection period
- C = Creditors payment period

4. Calculation of Components

Each stage is measured in days to determine the velocity of capital. The formulas are as follows:

4.1 Raw Material Holding Period

$$R = \left(\frac{\text{Average Raw Material Stock}}{\text{Annual Raw Material Consumption}} \right) \times 365$$

4.2 Work-in-Progress Period

$$W = \left(\frac{\text{Average Work - in - Progress}}{\text{Cost of Production}} \right) \times 365$$

4.3 Finished Goods Holding Period

$$F = \left(\frac{\text{Average Finished Goods Stock}}{\text{Cost of Goods Sold}} \right) \times 365$$

4.4 Debtors Collection Period

$$D = \left(\frac{\text{Average Debtors}}{\text{Credit Sales}} \right) \times 365$$

4.5 Creditors Payment Period

$$C = \left(\frac{\text{Average Creditors}}{\text{Credit Purchases}} \right) \times 365$$

5. Importance of Estimation

Estimating the operating cycle allows financial managers to:

1. **Plan Requirements:** Accurately forecast how much cash is needed to support operations.
2. **Improve Liquidity:** By identifying bottlenecks in inventory or collections, managers can speed up cash inflows.
3. **Negotiate Terms:** Better credit terms with suppliers (increasing C) can lower the overall working capital requirement.
4. **Reduce Financial Risk:** Shorter cycles reduce the dependence on expensive external financing.

6. Operating Cycle and Working Capital Requirement

The working capital requirement is directly proportional to the length of the operating cycle.

- **Manufacturing Firms:** Generally have longer cycles due to production time.
- **Trading Firms:** Usually have shorter cycles as they skip the raw material and WIP stages.
- **Seasonal Industries:** Experience fluctuations in cycle length, requiring flexible financing.

7. Conclusion

The operating cycle is a key concept in working capital management, measuring the time gap between cash outflow for purchases and cash inflow from sales. Proper estimation and control enable firms to maintain adequate liquidity, reduce financial risk, and improve overall profitability.