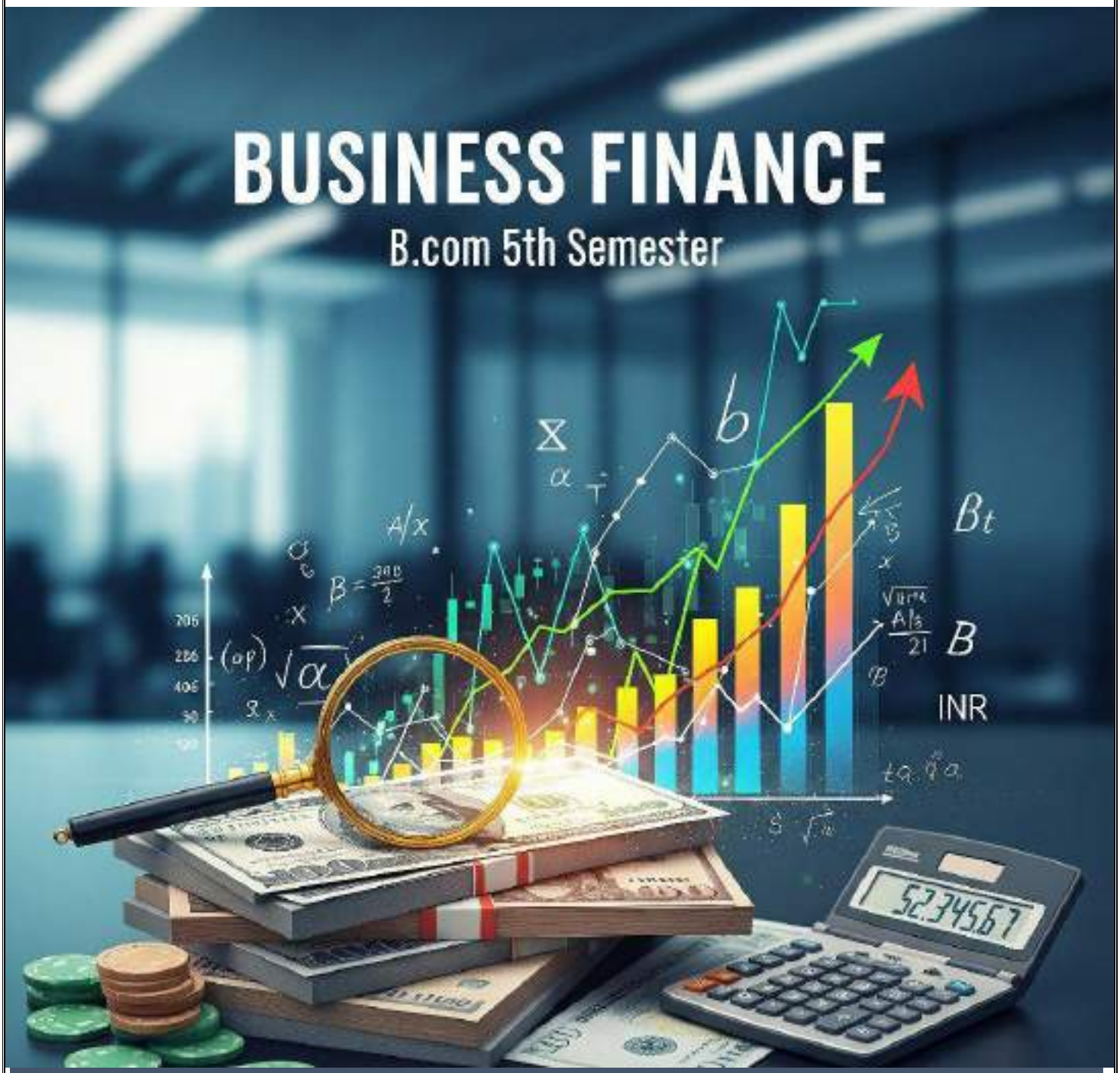


BUSINESS FINANCE

B.COM 5th

Business Finance

Meaning:

Business concern needs finance to meet their requirements in the economic world. Any kind of business activity depends on the finance. Hence, it is called as lifeblood of business organization. Whether the business concerns are big or small, they need finance to fulfil their business activities. In the modern world, all the activities are concerned with the economic activities and very particular to earning profit through any venture or activities. The entire business activities are directly related with 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 as capital, investment, fund etc., but each term is having different meanings and unique characters. Increasing the profit is the main aim of any kind of economic activity.

Finance may be defined as the an art and science of managing money. It includes financial service and financial instruments. Finance also is referred 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 is having unique meaning. Studying and understanding the concept of finance become an important part of the business concern. Financial management is the strategic planning, organizing, directing, and controlling of financial activities to achieve the objectives of an organization. It involves managing the financial resources of the organization effectively and efficiently.

Thus, Financial Management is mainly concerned with the effective funds management in the business. In simple words, Financial Management as practiced by business firms can be called as Corporation Finance or Business Finance.

Definition

1. **Joshep and Massie: Financial management is the operational activity of a business that is responsible for obtaining and effectively utilizing the funds necessary for efficient operations.**
2. **The most popular and acceptable definition of financial management as given by S.C. Kuchal is that "Financial Management deals with procurement of funds and their effective utilization in the business".**

Nature of Financial Management

Financial management involves the planning, organizing, directing, and controlling of financial activities within an organization. Its primary goal is to ensure that the organization's financial resources are used effectively and efficiently to achieve its objectives. Here's a breakdown of its nature:

1. **Planning and Forecasting Budgeting:** Creating financial plans for the future, including setting budgets and forecasting future revenues and expenses.
2. **Financial Analysis Performance Evaluation:** Assessing financial performance using various metrics and ratios such as profitability, liquidity, and solvency ratios. Decision Making: Analyzing financial data to make informed decisions about investments, financing, and resource allocation.
3. **Investment Management Capital Budgeting:** Evaluating and selecting long-term investment projects based on their expected returns and risks.
4. **Funding and Capital Structure Raising Capital:** Determining the best sources of financing, whether through equity, debt, or other financial instruments. Capital Structure Management: Balancing the use of debt and equity to optimize the cost of capital and maintain financial stability.
5. **Risk Management:** Recognizing financial risks such as market risk, credit risk, and operational risk. Implementing strategies to minimize financial risks through diversification, hedging, and insurance.
6. **Cash Flow Management:** Ensuring there is enough cash flow to meet day-to-day operational needs and unexpected expenses.
7. **Control Regulatory Compliance:** Adhering to financial regulations and standards set by governing bodies.
8. **Financial Reporting and Communication:** Preparing and presenting financial statements and reports to stakeholders, including investors, management, and regulatory authorities. Effectively communicating financial information and strategies to various stakeholders.
9. **Strategic Financial Management:** Focusing on strategies that enhance the value of the organization, such as mergers and acquisitions, and strategic investments. Long-term Planning: Aligning financial strategies with the organization's long-term goals to achieve sustainable growth.

Scope of Business Finance

- **Capital Management**:

This involves determining the optimal mix of debt and equity to finance a company's operations and growth. It focuses on ensuring that the company has the right amount of capital to support its business activities while minimizing the cost of capital and maintaining financial stability.

- **Financial Planning**:

Financial planning includes developing long-term and short-term financial strategies based on the company's goals, market conditions, and financial forecasts. It involves budgeting, setting financial targets, and preparing for future financial needs and contingencies.

- **Investment Analysis**:

This aspect involves evaluating potential investment opportunities to determine their viability and potential return. It includes conducting cost-benefit analyses, assessing risks, and comparing investment options to make informed decisions that align with the company's strategic objectives.

- **Risk Management**:

Identifying, analyzing, and mitigating financial risks is crucial. This scope covers market risks, credit risks, operational risks, and liquidity risks. Effective risk management strategies, such as diversification and hedging, help safeguard the company's financial health.

- **Cash Flow Management**:

Ensuring that a company has adequate cash flow to meet its operational and financial obligations is vital. This involves monitoring and controlling cash inflows and outflows, managing receivables and payables, and optimizing working capital.

- **Financial Reporting**:

Accurate and timely financial reporting is essential for internal decision-making and external compliance. This includes preparing financial statements, such as the balance sheet, income statement, and cash flow statement, and ensuring transparency and adherence to accounting standards.

- **Capital Budgeting**:

Capital budgeting involves evaluating and selecting long-term investment projects that are expected to generate significant returns. This process includes analyzing project cash flows, assessing risks, and determining the feasibility and potential benefits of the investments.

- **Profitability Analysis**:

Analyzing a company's profitability involves examining various financial metrics, such as profit margins, return on assets, and return on equity. This helps in understanding the company's operational efficiency, pricing strategies, and cost control measures, ultimately guiding decisions to enhance profitability.

Functions of Financial Management

1. **Determine the Capital Requirement:** The first function of a financial manager is to estimate the total capital required by the business to fulfil its mission and objectives. The amount of capital required is determined by several factors, including the size of the business, expected profits, company programmes, and policies.

2. **Establish the Capital Structure:** After estimating the required capital, the structure must be determined. Short-term and long-term equity is used in the structure. It will also determine how much capital the company must own and how much must be raised from outside sources, such as IPOs (Initial Public Offerings), and so on.

3. **Determine the Funding Sources:** The next financial management function is to determine where the capital will come from. The company may decide to take out bank loans, approach investors for capital in exchange for equity, or hold an IPO to raise funds from the public in exchange for shares. The source of funds is chosen and ranked based on the benefits and limitations of each source.

4. **Fund Investment:** Another function of financial management is deciding how to allocate funds to profitable ventures. The financial manager must calculate the risk and expected return for each investment. The investment methods must also be chosen so that there is minimal loss of funds and maximum profit optimisation.

5. **Implement Financial Controls:** Controls can take the form of financial forecasting, cost analysis, ratio analysis, profit distribution methods, and so on. This information can assist the financial manager in making future financial decisions for the company

6. **Mergers and Acquisitions:** They both are one method of business growth. Buying new or existing businesses that align with the buyer company's mission and goals is referred to as an acquisition. A merger occurs when two current companies combine to form a new company. One of the responsibilities of a financial manager is to assist in the merger and acquisition decision by carefully examining the financials and securities of each company.

7. **Work on Capital Budgeting:** Capital budgeting refers to decisions made regarding the purchase of assets, the construction of new facilities, and the investment in stocks or bonds. Prior to making a significant capital investment, organisations must first identify opportunities and challenges.

In the modern sense of term involve 3 major decisions as

"Function of Finance"

1. What is Investment Decision?

Investment decisions are those made in regard to how the company's funds are allocated among various assets. Long-term or short-term investment decisions are both possible. Capital budgeting decisions are long-term investment choices that involve large sums of money and are not reversible except at a high cost. Working capital decisions are short-term investment decisions that have an impact on how a business operates on a daily basis. It also includes choices regarding the quantities of cash, inventory, and receivables.

2. What is Financing Decision?

The amount of money to be raised from various long-term sources of funding, such as equity shares, preference shares, debentures, bank loans, etc., is the subject of this financial decision, referred to as a financing decision. In other words, it refers to the company's "**capital structure.**" There are two ways from which finance can be sourced.

- **Borrowed Fund:** It includes Loans, Bonds, and Debentures.
- **Owner's Fund:** It includes Retained Earnings, Bonus, and Share Capital.

Example: A company wants to build a new factory costing 10 million. It only has 4 million in retained profits. To cover the remaining 6 million, it may:

- Take a bank loan (debt financing),
- Issue new shares to investors (equity financing), or
- Use a mix of both.

3. What is Dividend Decision?

Dividend decision is a term used to describe a financial choice regarding how much of a company's profit should be retained for future needs versus distributed to shareholders as a dividend.

Capital Budgeting

Capital budgeting is made up of two words ***'capital'*** and '***budgeting.***' In this context,

Capital Budgeting refers to the **process of planning and evaluating investments in long-term assets.** Since capital is limited, so organizations must choose the most profitable projects and budgeting is setting targets for projects to ensure maximum profitability. Example, deciding whether to repair or replace a mobile phone based on costs.

capital expenditure is the spending of funds for **large expenditures** like purchasing fixed assets and equipment, repairs to fixed assets or equipment, research and development, expansion etc.

What is Capital Budgeting?

In simple terms, **capital budgeting is about deciding where and how to invest a company's long-term funds**. An organization is often faced with the challenges of selecting between two projects/investments or the *buy vs replace decision*. These are major projects or investments such as:

- Purchasing new machinery
- Expanding business operations
- Launching new products
- Constructing new buildings or factories

Definitions of Capital Budgeting

1. Charles T. Harngreen: "Capital budgeting is long term planning for making and financing proposed capital outlay."

2. Richards and Green Law: "Capital budgeting generally refers to acquiring inputs with long-run returns."

3. G.C. Philiphatos: "Capital budgeting is concerned with the allocation of a firm's scarce financial resources amongst available market opportunities. The consideration of the expected future streams of earnings from a project, with the immediate and subsequent streams of expenditure for it."

Objectives of Capital Budgeting:

- **Select profitable projects:** Choose projects that increase shareholder wealth.
- **Control capital expenditure:** Forecast and budget capital costs effectively.
- **Find funding sources:** Balance the cost of borrowing with expected returns.

Nature of Capital Budgeting

There are several essential aspects in the nature of capital budgeting. These are:

1. Huge Investment: Capital expenditure is a huge investment plan for acquiring or expanding fixed assets.

2. Long-term Investment: Capital expenditure is not only a huge investment plan but also a long-term investment whose return will be available after a considerable period of time.

3. Futuristic Investment: Capital budgeting is a futuristic investment. It is a forecasting of several years' profitability of several years.

4. Effect of Wrong Selection: Any error in the evaluation of a proposal may lead to serious consequences.

5. Permanent Commitment of Funds: The **funds** involved in capital expenditure are not only huge but also long-term decisions. The longer the time, the longer the period for which risks are involved.

6. Investment Decision: Long-term capital expenditure decisions are always complex. This is because long-term decisions are always associated with risk and uncertainty. For this reason, management should strive to make judicious decisions.

7. Wealth Maximization: Capital expenditure directly influences a firm's financial health, and the aim should be to avoid over-investment and under-investment in fixed assets.

Importance of Capital Budgeting

Choosing the most profitable capital expenditure proposal is a key function of a company's financial manager.

As mentioned earlier, these are long-term and substantial capital **investments**, which are made with the intention of increasing **profits** in the coming years.

The **importance of capital budgeting** can be highlighted as follows:

1. Heavy Investment: All capital expenditures are long-term investments and also involve huge sums that are collected from various external and internal sources. Thus, these funds pose a serious problem for capital investment planning.

2. Permanent Commitment of Funds: Capital budgeting is a long-term decision that has far-reaching effects. A poor capital expenditure decision may lead to unnecessarily heavy operating costs.

3. Guard Against Risk and Uncertainty: Capital expenditure decisions are more sophisticated and carry more risk and uncertainty compared to acquiring capital assets, which is a continuous process. Therefore, management must always be judicious.

4. Irreversible Decisions: Capital expenditure not only involves heavy investment but also irreversible decisions. In particular, the amount invested cannot be taken back without heavy financial **losses**.

5. Ranking of Investment Programs: Capital expenditure requires substantial investment, which is not easy to procure. Careful **cash** forecasts are needed to ensure that financial requirements are met at the right time.

6. Wealth Maximization: Capital expenditure is a long-term financial planning activity that benefits the **interest** of shareholders. It guards against over- and under-investment in fixed assets. In this context, the most profitable projects are selected. There is every possibility that shareholders will derive the maximum benefit, which in turn results in wealth maximization.

7. Useful for Sound Depreciation Policy: Capital expenditure planning is a useful technique in **depreciation** policy and the replacement of fixed assets.

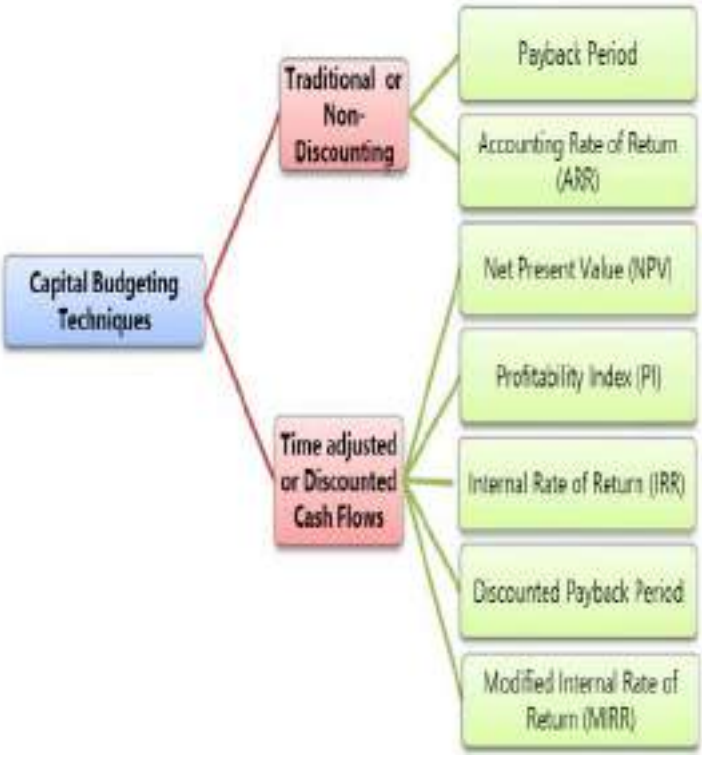
8. Cost Reduction: Capital budgeting is useful for cost reduction. The most modern machine is purchased whose capacity is greater than the old one, which means that the per-unit **cost** of output falls.

Capital Budgeting Process

Capital Budgeting Process:

1. **Identify investment opportunities or Project Generation:** Find potential projects or assets to invest in.
2. **Project Evaluate:** Analyse different ways to acquire or execute the project (e.g., in-house production vs. outsourcing).
3. **Project Selection:** Rank and choose projects using capital rationing if necessary.
4. **Fund the project (Project Execution):** Allocate resources from reserves, loans, or other sources.
5. **Review performance (Follow-Up):** Compare actual returns with expected returns after implementation.

Investment Decisions – Major Evaluation Criteria:



Each technique has pros and cons, and organizations often use multiple methods to make.

1. **Traditional methods**: These methods are based on the principles to determine the desirability of an investment project on the basis of its useful life and expected returns. These will not take into account the concept of 'time value of money', which is a significant factor to determine the desirability of a project in terms of present value.

A. Pay-back period method: It is the most popular and widely recognized traditional method of evaluating the investment proposals. It can be defined, as 'the number of years required to recover the original cash out lay invested in a project'. According to James. C. Vanhorne, **"The payback period is the number of years required to recover initial cash investment."**

Payback period = $\boldsymbol{Original\ cost\ of\ project\ /\ annual\ cash\ inflow}$

OR

$NI/Cash\ Inflow$

Where, NI = Net Investment

Merits:

1. It is one of the earliest methods of evaluating the investment projects.

2. It is simple to understand and to compute.

3. It does not involve any cost for computation of the payback period

4. It is one of the widely used methods in small scale industry sector

5. It can be computed on the basis of accounting information available from the books.

Demerits:

1. This method fails to take into account the cash flows received by the company after the pay-back period.

2. It doesn't take into account the interest factor involved in an investment outlay.

3. It is not consistent with the objective of maximizing the market value of the company's share.

B. Accounting, Rate of return (or) Average rate of return method (ARR):

It is an accounting method, which uses the accounting information repeated by the financial statements to measure the probability of an investment proposal. It can be determined by dividing the **average income** after taxes by the **average investment** i.e., the average book value after depreciation.

According to 'Soloman', accounting rate of return on an investment can be calculated as the ratio of accounting net income to the initial investment, i.e.,

$$\text{ARR} = \left(\frac{\text{Average Annual Accounting Profit}}{\text{Average Investment}} \right) \times 100$$

Where:

- **Average Annual Accounting Profit = Total Net Profit after depreciation and tax ÷ Number of years**
- **Average Investment = (Initial Investment + Salvage Value) ÷ 2**

Or

- **Average Investment = (Cost of Investment – Scrap) ÷ 2 + Scrap (if scrap value is given)**

Or

- **Average Investment = Cost of Investment ÷ 2 + Add. Working capital (if working capital is given)**

Or

- **Average Investment = (Cost of Investment – Scrap) ÷ 2 + Scrap + Add. Working capital (if both are given)**

- On the basis of this method, the company can select all those projects who's ARR is higher than the minimum rate established by the company.
- It can reject the projects with an ARR lower than the expected rate of return.
- This method can also help the management to rank the proposal on the basis of ARR.
- A highest rank will be given to a project with highest ARR, where as a lowest rank to a project with lowest ARR.

Merits:

1. It is very simple to understand and calculate.
2. It can be readily computed with the help of the available accounting data.
3. It uses the entire stream of earning to calculate the ARR.

Demerits:

1. It is not based on cash flows generated by a project.
2. This method does not consider the objective of wealth maximization
3. It ignores the length of the project's useful life.
4. It does not take into account the fact that the profits can be re-invested.

C. Discounted Pay-back Period

D. Bail-Out Pay-back Period

E. Post Pay-back Profitability

F. Pay-back Reciprocal

2. Time Adjusted or Discounting Techniques

Discounting techniques consider time value of money and discount the cash flows to their Present Value. These techniques are also known as Present Value techniques. These are namely Net Present Value (NPV), Internal Rate of Return (IRR) and Profitability Index (PI), Discounted Payback Period.

A. NET PRESENT VALUE TECHNIQUE (NPV)

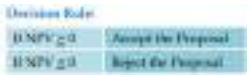
The net present value technique is a discounted cash flow method that considers the time value of money in evaluating capital investments.

This method compares the present value of a project's cash inflows to the present value of its cash outflows, taking into account the time value of money (the time of the initial investment is year 0).

- **Net present value = Present value of net cash inflow - Total net initial investment**

Since it might be possible that some additional investment may also be required during the life time of the project, then appropriate formula shall be:

- **Net present value = Present value of cash inflows - Present value of cash outflows**



Advantages

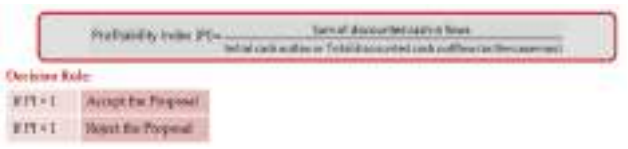
- Considers the time value of money
- Accounts for all expected cash inflows and outflows
- Provides a measure of the investment's profitability
- Can be used to compare multiple investment opportunities

Limitations

- Requires accurate estimates of future cash flows and discount rates
- Can be complex and time-consuming to calculate
- Does not consider non-financial factors such as environmental impact or social responsibility.

B. Profitability Index (PI) OR Benefit-Cost Ratio

The Profitability Index (PI) method technique is used to evaluate investment opportunities by calculating the ratio of the present value of cash inflows to the initial investment cost. One of the methods of comparing such proposals is to work out what is also known as the 'Desirability factor', or 'Profitability Index' or 'Present Value Index Method'.

- **PI = PV of Cash Inflows / PV of Cash Outflows (cost)**
- 

Advantages

- Considers the time value of money
- Accounts for all expected cash inflows and outflows
- Provides a measure of the investment's profitability

- Can be used to compare multiple investment opportunities

Limitations

- May lead to incorrect decisions when evaluating mutually exclusive projects
- May not always lead to the best investment decisions when budgets are limited.

C. Internal Rate of Return Method (IRR)

This discount rate is called IRR.

Definition: The Internal Rate of Return (IRR) method is a capital budgeting technique that determines the expected rate of return of an investment. It is the discount rate that makes the net present value of the project's expected cash inflows equal to the initial investment cost

This IRR is then compared to a criterion rate of return that can be the organization's desired rate of return for evaluating capital investments.

Formula:

$$LR + \frac{NPV \text{ at } LR}{NPV \text{ at } LR - NPV \text{ at } HR} \times (HR - LR)$$

Or

$$LR + \frac{PV \text{ at } LR - CI}{PV \text{ at } LR - PV \text{ at } HR} \times (HR - LR)$$

Where,

LR = Lower Rate

HR = Higher Rate

CI = Capital Investment

If IRR > Cut-off Rate or WACC	Accept the Proposal
If IRR < Cut-off Rate or WACC	Reject the Proposal

Advantages

- Considers the time value of money
- Accounts for all expected cash inflows and outflows
- Provides a measure of the investment's profitability
- Can be used to compare multiple investment opportunities

Limitations

- Requires accurate estimates of future cash flows and discount rates
- May lead to incorrect decisions when evaluating mutually exclusive projects
- May result in multiple IRR values for some projects

D. Discounted Payback Period Method

This is similar to Payback period except that the cash flows here are discounted at predetermined rate. This technique is considered superior to simple payback period method because it takes into account time value of money.

E. Modified Internal Rate of Return (MIRR) OR Terminal Value Method

The Modified Internal Rate of Return (MIRR) method is a capital budgeting technique used to determine the rate of return on investment by considering both the cost of the investment and the reinvestment rate of future cash flows.

Formula:

$$MIRR = [(PV \text{ of positive cash flows} / PV \text{ of negative cash flows})^{(1/n)}] - 1$$

Where:

FV = Future Value

PV = Present Value

n = Number of periods

Advantages

- Considers the reinvestment of future cash flows
- Accounts for the time value of money
- Provides a measure of the investment's profitability

Limitations

- Requires accurate estimates of future cash flows and reinvestment rates
- Can be complex and time-consuming to calculate
- May not be appropriate for investments with uneven cash flows

Summary Of Decision Criteria of Capital Budgeting Techniques

Techniques		For Independent Project	For Mutually Exclusive Projects
Non Discounted	Pay Back	(i) When Payback period < Maximum Acceptable Payback period: Accepted (ii) When Payback period > Maximum Acceptable Payback period: Rejected	Project with least Payback period should be selected
	Accounting Rate of Return (ARR)	(i) When ARR> Minimum Acceptable Rate of Return: Accepted	Project with the maximum ARR should be selected.
		(ii) When ARR < Minimum Acceptable Rate of Return: Rejected	
Discounted	Net Present Value (NPV)	(iii) When NPV> 0: Accepted (iv) When NPV< 0: Rejected	Project with the highest positive NPV should be selected
	Profitability Index (PI)	(v) When PI > 1: Accepted (vi) When PI < 1: Rejected	When Net Present Value is same project with Highest PI should be selected
	Internal Rate of Return (IRR)	i. When IRR >K: Accepted ii. When IRR <K: Rejected	Project with the maximum IRR should be selected

Capital Budgeting Under Capital Rationing

However, there may be a situation due to resource (capital) constraints (rationing) a firm may have to select some projects among various projects, all having positive NPVs. Capital Rationing technique is used when a company has limited funds and must prioritize its investment opportunities based on the availability of capital.

Broadly two scenarios may influence the method of evaluation to be adopted.

(i) Divisible projects - Projects are independent of each other and are divisible in nature:
(ii) Indivisible Projects - Projects are not divisible:

Advantages

- Enables a company to prioritize investments based on available funds
- Helps avoid over-committing to investments
- Encourages better financial management

Limitations

- May limit a company's ability to pursue all profitable investments
- May result in missed opportunities
- Can be difficult to determine the optimal allocation of capital.

Q.1 A company is evaluating a project that requires:

- **Cost of Investment** = ₹600,000
- **Scrap (Salvage) Value** = ₹100,000
- **Project Life** = 5 years
- **Additional Working Capital** = ₹50,000
- **Total Net Profit after depreciation and tax over 5 years** = ₹3,00,000

Step 1: Calculate Average Annual Accounting Profit

Average Annual Profit=3,00,000 ÷ 5 = ₹60,000

Now apply each version of Average Investment formula:

Formula 1: Average Investment = (Initial Investment + Salvage Value) ÷ 2

Average Investment=600,000+100,000 ÷ 2=₹350,000

ARR= (350,000 ÷ 60,000)×100=17.14%

Formula 2: Average Investment = (Cost – Scrap) ÷ 2 + Scrap

Average Investment=600,000–100,000 ÷ 2 (+100,000)

250,000+100,000=₹350,000

ARR= (350,000 ÷ 60,000) ×100=17.14%

Same result as Formula 1 — just different format.

Formula 3: Average Investment = Cost ÷ 2 + Add. Working Capital

Average Investment=600,000 ÷ 2 (+50,000)

=300,000+50,000=₹350,000

ARR= (350,000 ÷ 60,000) ×100=17.14%

formula considers working capital instead of salvage.

Formula 4: Average Investment = (Cost – Scrap) ÷ 2 + Scrap + Add. Working Capital

Average Investment=600,000–100,000 ÷2 (+100,000+50,000)

=250,000+100,000+50,000=₹400,000

ARR= (400,000÷60,000) × 100 = 15%

*Now ARR decreases because working capital is **added** to the average investment, increasing the denominator.*

Formula Used	Average Investment (₹)	ARR (%)
(Initial + Scrap) ÷ 2	₹350,000	17.14%
(Cost – Scrap) ÷ 2 + Scrap	₹350,000	17.14%
Cost ÷ 2 + Add. Working Capital	₹350,000	17.14%
(Cost – Scrap) ÷ 2 + Scrap + Add. Working Capital	₹400,000	15.00%

Q.2 A company is considering investing in a machine that costs **$ 100,000**.
The machine is expected to generate the following **annual accounting profits** over its **5-year** useful life:

Year	Profit ($)
1	12,000
2	15,000
3	18,000
4	20,000
5	25,000

Calculate the **Average Rate of Return (ARR)** for the investment.

Q.3 A company plans to invest **$120,000** in a machine.
The machine will last **4 years** and is expected to have a **salvage value of $20,000** at the end of its life.
The expected **net profits before depreciation and tax** are:

Year	Profit ($)
1	25,000
2	30,000
3	28,000
4	27,000

Calculate the **Average Rate of Return (ARR)** based on **average investment.**

Q.1 A company is evaluating a project that requires:

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- **Scrap (Salvage) Value** = ₹100,000
- **Project Life** = 5 years
- **Additional Working Capital** = ₹50,000
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Same result as Formula 1 — just different format.

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=250,000+100,000+50,000=₹400,000

ARR= (400,000÷60,000) × 100 = 15%

*Now ARR decreases because working capital is **added** to the average investment, increasing the denominator.*

Formula Used	Average Investment (₹)	ARR (%)
(Initial + Scrap) ÷ 2	₹350,000	17.14%
(Cost – Scrap) ÷ 2 + Scrap	₹350,000	17.14%
Cost ÷ 2 + Add. Working Capital	₹350,000	17.14%
(Cost – Scrap) ÷ 2 + Scrap + Add. Working Capital	₹400,000	15.00%

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The machine is expected to generate the following **annual accounting profits** over its **5-year** useful life:

Year	Profit (₹)
1	12,000
2	15,000
3	18,000
4	20,000
5	25,000

Calculate the **Average Rate of Return (ARR)** for the investment.

Calculate the Total Profit Over 5 Years

12,000+15,000+18,000+20,000+25,000=90,000

Calculate Average Annual Profit

Average Annual Profit=90,000÷5=18,000

Use the ARR Formula

ARR=(18,000÷100,000)×100=18%

Q.3 A company plans to invest **₹120,000** in a machine.
The machine will last **4 years** and is expected to have a **salvage value of ₹20,000** at the end of its life.
The expected **net profits before depreciation and tax** are:

Year	Profit (₹)
1	25,000
2	30,000
3	28,000
4	27,000

Calculate the **Average Rate of Return (ARR)** based on **average investment.**

ARR Formula with Average Investment:

ARR = Average Annual Accounting Profit (after depreciation)) ÷ Average Investment ×100

Depreciation = Initial cost −Salvage Value ÷ Useful Life

120,000−20,000÷4 =25,000per year

Year	Profit Before Depreciation	Depreciation	Profit After Depreciation
1	25,000	25,000	0
2	30,000	25,000	5,000
3	28,000	25,000	3,000
4	27,000	25,000	2,000

Step 3: Calculate Average Annual Accounting Profit

Total Profit After Depreciation= 0+5,000+3,000+2,000=10,000

Average Profit=10,000 ÷ 4 =2,500

Step 4: Calculate Average Investment

Average Investment=Initial Cost + Salvage Value ÷ 2 =120,000+20,000 ÷ 2=70,000

ARR=(70,000÷2,500)×100≈3.57%

Q. If an investment costs 25,000 in annual cash inflows for the next five years, with a discount rate of 10%, the NPV calculation would be ?

Annual cash inflow = **25,000** at the end of each year for **5 years**,

discount rate **r = 10%**.

(Initial cost / outlay not given — NPV = PV of inflows - initial cost.) Initial cost ?

1) Discount each year's cash flow

Compute present value of each year's 25,000:

- Year 1: $PV_1 = \frac{25{,}000}{(1+0.10)^1} = \frac{25{,}000}{1.10} = 22{,}727.27$
- Year 2: $PV_2 = \frac{25{,}000}{1.10^2} = \frac{25{,}000}{1.21} = 20{,}661.16$
- Year 3: $PV_3 = \frac{25{,}000}{1.10^3} = \frac{25{,}000}{1.331} = 18{,}782.87$
- Year 4: $PV_4 = \frac{25{,}000}{1.10^4} = \frac{25{,}000}{1.4641} = 17{,}075.34$
- Year 5: $PV_5 = \frac{25{,}000}{1.10^5} = \frac{25{,}000}{1.61051} = 15{,}523.03$

Now sum them:

PV of inflows=22,727.27+20,661.16+18,782.87+17,075.34+15,523.03 = 94,769.67

2) (Shortcut) Using the annuity formula

Present value of an n-year annuity:

$$PV = CF \cdot \frac{1-(1+r)^{-n}}{r}$$

Plug in $CF = 25{,}000$, $r = 0.10$, $n = 5$:

$$PV = 25{,}000 \cdot \frac{1-(1.10)^{-5}}{0.10} = 25{,}000 \times 3.7907569\ldots = \mathbf{94{,}769.67}$$

3) NPV and decision rule:

NPV=PV of inflows−Initial investment (cost)

So NPV=94,769.67−Initial cost

Examples

If initial cost = 90,000 → NPV = 94,769.67 − 90,000 = **4,769.67 → Accept** (NPV > 0).

If initial cost = 100,000 → NPV = 94,769.67 − 100,000 = **−5,230.33 → Reject** (NPV < 0). And If initial cost = 0 → NPV = **94,769.67**.

Business Finance

UNIT - 2

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B.com 5th Semester

Define Cost of Capital

Cost of capital of an investor, in financial management, is equal to return, an investor can fetch from the next best alternative investment. The **cost of capital** refers to the **minimum rate of return** that a company must earn on its investments to maintain its market value and attract funds. It represents the **opportunity cost** of using capital — that is, the return that investors expect from an investment with similar risk elsewhere.

In simple terms, **cost of capital is the price paid for using funds** (whether borrowed or owned) to finance business operations or investments.

Cost of capital is the minimum required rate of return that a firm must earn on its investments to satisfy its investors and maintain its market value.

Definition:

According to Solomon Ezra:
"The cost of capital is the minimum required rate of earnings or the cut-off rate of capital expenditure."

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

According to Weston and Brigham:
"Cost of capital is the minimum rate of return a firm must earn on its investments which will maintain the market value of its shares."

Importance of Cost of Capital

For businesses, it directly influences decisions related to capital budgeting, project investments, and capital structure. For investors, it's a key factor in assessing the attractiveness of an investment opportunity.

Here's a further breakdown as to why it's so significant:

Strategic decision-making:

For businesses, the cost of capital is pivotal in strategic decision-making. It influences capital budgeting, project investments, and capital structure choices. By determining these costs, companies can make informed decisions that optimize their financial structure, minimize costs, and maximize profitability.

Investment assessment:

For investors, the cost of capital is a critical factor in assessing the attractiveness of an investment opportunity. Investors want to know whether the returns from an investment are expected to surpass the company's cost of capital. It helps them evaluate the risk and potential reward associated with an investment.

Capital structure optimization:

Understanding the cost of capital allows businesses to balance debt and equity financing. This optimization can lead to lower capital costs, increased financial stability, and improved creditworthiness.

Performance evaluation:

Cost of capital is also used to evaluate a company's financial performance. If a company consistently earns returns above its cost of capital, it indicates efficient capital utilization and value creation.

Market competitiveness:

In a competitive market, companies with a lower cost of capital may have a competitive advantage. They can potentially offer lower prices or invest in growth opportunities more aggressively.

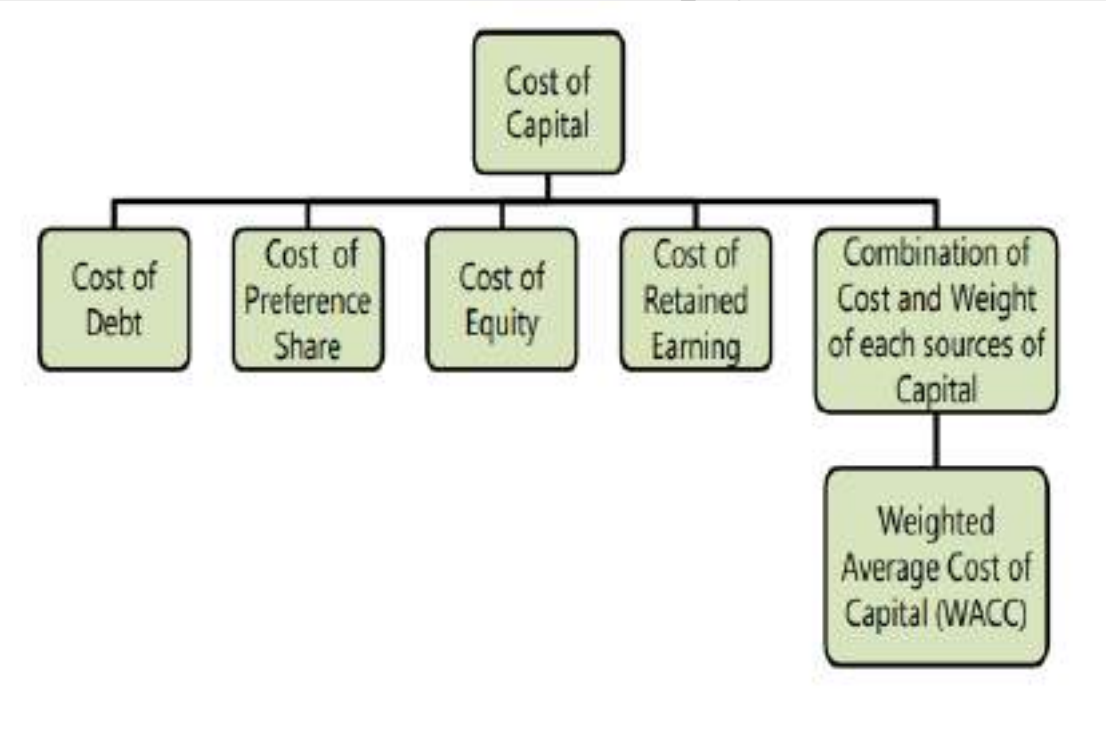
Types Of Cost of Capital

When a company raises capital (money) from different sources like **equity shares, preference shares, debentures, and retained earnings**, each source has a cost.

For example:

- If a company borrows money, the **interest rate** is the cost of debt.
- If it issues equity shares, the **dividend expected by shareholders** is the cost of equity.

The overall cost of capital is the **weighted average** of all these individual costs, known as the **Weighted Average Cost of Capital (WACC)**.



We can classify cost of capital into following broad classifications:

COST OF DEBT CAPITAL

Meaning:

Cost of Debt Capital is the **effective rate of return that a company pays to its creditors or debenture holders** for using borrowed funds.

It represents the **interest cost** incurred on debt capital — such as **debentures, bonds, or loans** — used for financing business activities.

In simple words:

It is the **rate of interest** that a company must pay on its borrowings **after considering the tax benefit** on interest payments.

Definition:

According to Solomon Ezra:
"The cost of debt is the rate of return expected by debt holders."

According to Hampton:
"The cost of debt is the after-tax cost of long-term funds through borrowing."

Conclusion:

Debt is cheaper than equity because **interest paid on debt is tax deductible**. So, the **actual cost of debt** (after-tax) becomes less than the nominal interest rate.

The company gets a **tax benefit** on the interest paid, as interest reduces taxable income.

Advantages and Disadvantages of Cost of Debt:

Advantages of cost of debt

- **Lower cost compared to equity:** Debt is generally cheaper than equity financing, as interest payments are tax-deductible.
- **Preservation of ownership:** Using debt allows a company to raise capital without diluting ownership or control.
- **Leverage benefits:** Debt can be used to leverage returns on equity, potentially increasing shareholder value.
- **Predictable payments:** Debt repayments are predictable, allowing companies to plan their cash flow more effectively.
- **Flexibility in financing:** Debt offers various structures and terms, providing companies with flexibility in financing their operations or growth.

Limitations of cost of debt

- **Repayment obligations:** Debt must be repaid with interest, which can strain a company's cash flow and financial stability.
- **Increased risk:** High levels of debt increase financial risk, potentially leading to financial distress or bankruptcy.
- **Interest rate fluctuations:** Variable interest rates can lead to increased borrowing costs, making debt more expensive over time.
- **Credit rating impact:** Excessive debt can lead to a credit rating downgrade, further increasing the cost of borrowing.
- **Covenants and restrictions:** Lenders may impose covenants or restrictions on a company's operations, limiting its flexibility.

Types of Cost of Debt:

1. COST OF REDEEMABLE DEBT

Meaning:

Redeemable debt means debentures or bonds that are repayable after a specific period.
The company pays interest every year and repays the principal amount (face value) at the time of redemption.

So, the Cost of Redeemable Debt is the effective rate of return the company must pay on such debt, considering interest payments, redemption value, issue price, and tax savings.

Formula (After-Tax):

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

Where:

- K_d= **Cost of redeemable debt**
- I= **Annual interest payment**
- T= **Tax rate**
- RV= **Redeemable (maturity) value of debt**
- NP= **Net proceeds from issue (after discount/issue cost)**
- n= **Number of years to redemption**

Example:

A company issues 12% debentures of ₹1,00,000 at a discount of 5%.
The debentures are redeemable after 5 years at par, and the tax rate is 30%.

Find the after-tax cost of redeemable debt.

Solution:

$$I = 12\% \text{ of } 1,00,000 = ₹12,000$$
$$RV = ₹1,00,000, NP = ₹95,000, T = 30\%, n = 5$$

Formula:

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

Solution:

$$K_d = \frac{12,000(1-0.30) + \frac{(1,00,000 - 95,000)}{5}}{\frac{(1,00,000 + 95,000)}{2}}$$
$$K_d = \frac{8,400 + 1,000}{97,500} = \frac{9,400}{97,500} = 0.0964$$

Cost of Redeemable Debt = 9.64%

2. COST OF PERPETUAL (IRREDEEMABLE) DEBT

Meaning:

Perpetual or Irredeemable Debt means **debt that has no maturity period** — the company **pays interest forever** but **never repays the principal**.
So, its cost is based only on **annual interest payments** and **net proceeds**, adjusted for taxes.

Formula (After-Tax):

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

Where:

- I= Annual interest
- NP= Net proceeds (amount received after discount or cost)
- T= Tax rate

Example:

A company issues **10% perpetual debentures of ₹1,00,000** at a **discount of 5%**, and the **tax rate is 30%**. **Find the cost of perpetual debt.**

Solution:

- $I = 10\%$ of $1{,}00{,}000 = ₹10{,}000$

$$NP = 1{,}00{,}000 - 5{,}000 = ₹95{,}000$$
$$T = 30\%$$
$$K_d = \frac{10{,}000(1-0.30)}{95{,}000} = \frac{7{,}000}{95{,}000} = 0.0737$$

Cost of Perpetual Debt = 7.37%

Difference:

Basis	Redeemable Debt	Perpetual (Irredeemable) Debt
Meaning	Debt repayable after a certain period	Debt that is never repaid (interest paid forever)
Principal Repayment	Repaid at maturity	Never repaid
Formula	$\boldsymbol{K_d = \frac{I(1-T) + \frac{(RV-NP)}{n}}{\frac{(RV+NP)}{2}}}$	$K_d = \frac{I(1-T)}{NP}$
Tax Adjustment	Considered	Considered

In summary:

Cost of Debt Capital is the **effective rate of interest a firm pays on its borrowed funds after considering tax benefits**, and it helps in determining the overall cost of capital for financing decisions.

Cost of Preference:

Meaning:

The Cost of Preference Share Capital is the rate of return that a company must pay to preference shareholders for using their funds.

Preference shareholders get a fixed rate of dividend but they are not owners of the company — not creditors.
Hence, their dividend is not tax deductible, and payment is made after interest but before equity dividend.

In simple words:

It is the fixed cost of funds raised through the issue of preference shares.

Definition:

According to James C. Van Horne:
"The cost of preference capital is the annual preference dividend divided by the net proceeds from the sale of preference shares."

According to Solomon Ezra:
"The cost of preference capital is that rate of return which equates the net amount received from the issue of preference shares to the present value of all future dividends and redemption amount."

Explanation:

Preference shares are similar to debt in that they carry a **fixed dividend rate**, but unlike debt, the **dividend is not tax-deductible**.
That's why **cost of preference capital is higher than cost of debt**.

There are **two main types** of preference shares for this calculation:

1. **Redeemable Preference Shares** – Repaid after a certain period.
2. **Irredeemable (Perpetual) Preference Shares** – No maturity, dividends paid forever.

Formulae:

A. Redeemable Preference Shares:

$$K_p = \frac{D_p + \frac{(RV - NP)}{n}}{\frac{(RV + NP)}{2}} \times 100$$

Where:

- D_p= Annual dividend
- RV= Redeemable value (face value or redemption price)
- NP= Net proceeds from issue
- n= Number of years to redemption

Example 1: (Redeemable Preference Share)

A company issues **10% preference shares of ₹100 each**, redeemable after **5 years at par**, at a **discount of 4%**.

- $D_p = ₹10, RV = ₹100, NP = ₹96, n = 5$

$$K_p = \frac{10 + \frac{(100 - 96)}{5}}{\frac{(100 + 96)}{2}} \times 100$$

$$K_p = \frac{10 + 0.8}{98} \times 100 = \frac{10.8}{98} \times 100 = 11.02\%$$

Cost of Redeemable Preference Share = 11.02%

B. Irredeemable (Perpetual) Preference Shares:

$$K_p = \frac{D_p}{N_p} \times 100$$

Where:

- K_p= Cost of preference share
- D_p= Annual preference dividend per share
- N_p= Net proceeds (Issue price – floatation cost, discount, etc.)

Example 2: (Irredeemable Preference Share)

A company issues **12% preference shares of ₹100 each** at a **discount of 5%**. Find the **cost of preference capital**.

- $D_p = ₹12, NP = ₹95$

$$K_p = \frac{12}{95} \times 100 = 12.63\%$$

Cost of Preference Share = 12.63%

Difference Between Cost of Debt and Cost of Preference Share

Basis	Cost of Debt	Cost of Preference Share
Tax Deduction	Interest is tax-deductible	Dividend is not tax-deductible
Risk	Less risk	More risk
Return	Fixed interest	Fixed dividend
Holder	Creditor	Owner
Cost Level	Lower	Higher

In Summary:

Cost of Preference Share is the **fixed return expected by preference shareholders** and represents the **minimum rate of dividend** a company must pay to attract and retain preference capital.

It's **not adjusted for tax**, and can be **redeemable or perpetual**.

COST OF EQUITY CAPITAL:

Meaning:

The **Cost of Equity** is the **minimum rate of return** that a company earn on its investments **to keep its shareholders satisfied** and to maintain the **market price of its shares**.

Definition:

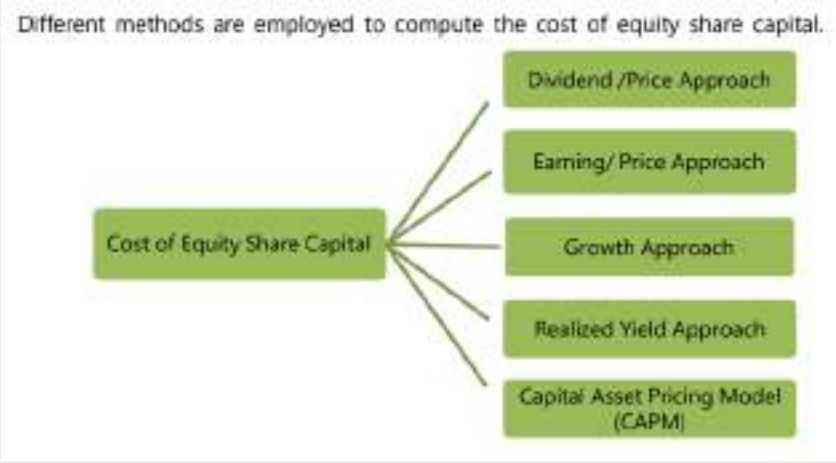
According to Solomon Ezra:
"Cost of equity capital is the minimum rate of return that a firm must earn on the equity-financed portion of its investments to keep the current market price of its shares unchanged."

According to Weston and Brigham:
"Cost of equity is the rate at which investors discount the expected dividends of a firm to determine its share price."

Explanation:

Equity capital is the **most permanent and risky** source of finance because shareholders are **owners** — they get dividends only after all other claims are paid.

Therefore, shareholders expect a **higher return** for bearing this risk.
This expected return becomes the **cost of equity** for the company



Methods / Formula to Calculate Cost of Equity (K_e):

There are mainly **three popular approaches:**

A. Dividend Yield Method (No Growth):

Used when dividends are constant and not expected to grow.

$$K_e = \frac{D}{P_0} \times 100$$

Where:

- K_e= Cost of equity
- D= Dividend per share
- P_0= Current market price per share

B. Dividend Discount Model (With Growth):

Used when dividends are expected to grow at a constant rate (Gordon's Model).

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

Where:

- D_1= Expected dividend next year
- P_0= Current market price per share
- g= Growth rate in dividend

C. Earning Yield Method (If no dividend info):

Used when company doesn't pay dividends regularly.

$$K_e = \frac{E}{P_0} \times 100$$

Where:

- E= Earnings per share (EPS)
- P_0= Market price per share

Example 1: (Using Dividend Discount Model)
A company's share is currently selling for ₹100. It is expected to pay a dividend of ₹8 next year. The dividend is expected to grow at a rate of 5% per year.

Find the **Cost of Equity**.

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

$$K_e = \frac{8}{100} + 0.05 = 0.08 + 0.05 = 0.13$$

Cost of Equity (K_e) = 13%

Example 2: (Using Earning Yield Method)
A company's share is selling at ₹80 and its EPS is ₹12. Find the cost of equity.

$$K_e = \frac{E}{P_0} = \frac{12}{80} = 0.15$$

Cost of Equity = 15%

Alternative Simplified Formulas (When Dividend not Given):

A. EPS / MPS Method:

$$K_e = \frac{EPS}{MPS\ or\ NP} \times 100$$

Where:

- EPS= Earnings per Share
- MPS= Market Price per Share
- NP = Net Proceed

Use this when: Company does not pay dividends or dividend data is missing.

Example:

Dividend per share = ₹8, Market price = ₹100

$$K_e = \frac{8}{100} \times 100 = 8\%$$

Cost of Equity = 8%

Using Net Proceeds (NP) or Issue Price:

If shares are newly issued at a **discount or premium**, then use **Net Proceeds** instead of market price:

$$K_e = \frac{D}{NP} \times 100$$

or

$$K_e = \frac{EPS}{NP} \times 100$$

Where NP =Issue Price – Discount or Issue Expenses

Example:

A company issues shares of ₹100 each at ₹95 (₹5 discount). Expected dividend = ₹10 per share.

$$K_e = \frac{10}{95} \times 100 = 10.53\%$$

Cost of Equity = 10.53%

Capital Asset Pricing Model (CAPM):

Limitation of dividend and earning price method is that they do not consider the risk directly. The expected return of a security is directly proportional to the degree of risk.

Cost of Equity

CAPM = Risk-Free Rate + Beta * (Market Risk Premium – Risk-Free Rate)

OR

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

Where:

- R_f= Risk-free rate
- R_m= Market return
- β= Beta (measure of risk)

Example:
The risk-free rate equals four percent and the expected return on the market is ten percent. If a stock's expected return is 13 percent, what is the stock's beta?

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

Putting the values in the above equation

13%= 4% + β (10%-4%)

Beta= 1.5

Note: expected rate of return = cost of equity

Case	Formula	When to Use
Dividend given, no growth	$K_e = \frac{D}{P_0}$	Constant dividend
Dividend + growth given	$K_e = \frac{D_1}{P_0} +$	Growing dividends
Only EPS given	$\frac{EPS}{MPS\ or\ NP} \times$	No dividend data
Newly issued shares	$K_e = \frac{D}{NP} \times$	When issued at discount/premium
Using CAPM	$K_e = R_f + \beta(R_m - R_f)$	When risk data given

Importance of Cost of Equity:

1. **Helps in Investment Decision** – Used in evaluating project returns (for WACC).
2. **Determines Capital Structure** – Balances between debt and equity financing.
3. **Helps in Valuation** – Useful for valuing shares using models like Gordon or CAPM.
4. **Measures Shareholder Expectation** – Shows the minimum return expected by owners.

In Summary:

Cost of Equity (Ke) = Return expected by shareholders.
It can be computed using **dividends, earnings, market price, or risk-return models** depending on available data.

RETAINED EARNING:

What are Retained Earnings?

Retained Earnings (RE) are the accumulated portion of a business's profits that are not distributed as dividends to shareholders but instead are reserved for reinvestment back into the business.

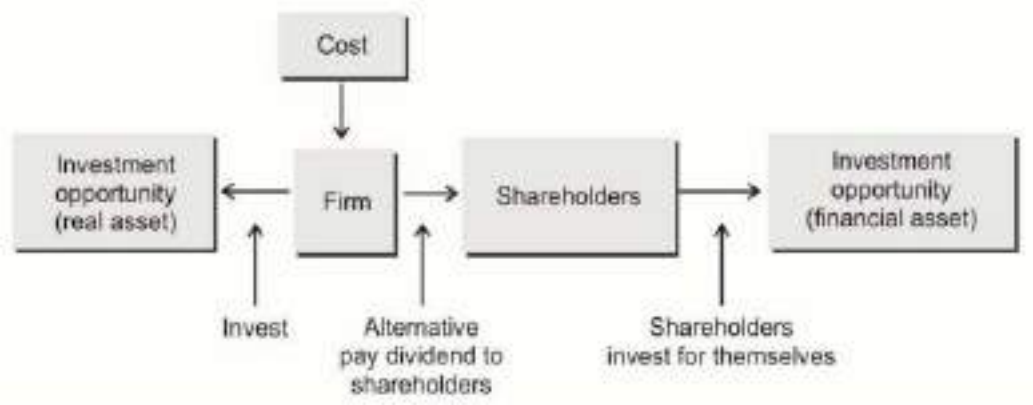
Generally, the companies do not distribute the entire profits by way of divided among their shareholders. A part of such profits is retained for further expansion and development. It may lead to growth in both cash flow earnings and in dividends. Retained earnings, like equity funds, have no accounting cost but do have an opportunity cost.

Therefore, the cost of retained earnings is considered the **opportunity cost** of reinvested earnings.

Definition:

According to Ezra Solomon:
"The cost of retained earnings is the opportunity cost of dividends foregone by shareholders."

In simple Definition:
Cost of retained earnings is the **rate of return that shareholders expect** on the profits retained by the company.



Formula:

There are **three ways** to calculate the **Cost of Retained Earnings (Kr):**

Case 1: cost of retained earnings when there are no floatation cost and no personal tax rate applicable for shareholders.

$$Kr = Ke = D1/P0 + g$$

If there is **no tax or floatation**, cost of **retained earnings = cost of equity.**

Case 2: cost of retained earnings when there is floatation cost and personal tax rate applicable for shareholders.

$$K_r = K_e(1 - T)(1 - f)$$

Where:

- K_e = Cost of equity
- T = Tax rate of shareholder
- B = Brokerage or flotation cost on new investment

Example: Cost of equity of a company is 20%. Rate of floatation cost is 5%. Rate of personal income tax is 30%. Calculate cost of retained earnings. Solution: Kr = Ke (1-tp)(1-f) = 20% x (1-0.30) x (1-0.05) = 13.3%

Case	Formula	When to Use
1. Simple	**(K_r = K_e)**	**No tax/brokerage**
2. Tax + Brokerage	**(K_r = K_e (1 – T)(1 – B))**	**When both given**
3. Only Tax	**(K_r = K_e (1 – T))**	**Only tax given**
4. Dividend Growth	**(K_r = D_1/P_0+ g)**	**When dividend data given**
5. Adjusted Gordon	**(K_r = D_1/P_0(1 – T)) + g)**	**When dividend + tax given**

Importance of Cost of Retained Earnings:

1. **Helps in Capital Budgeting** – To decide whether reinvestment will earn adequate returns.
2. **Part of WACC** – Included as a component in Weighted Average Cost of Capital.
3. **Indicates Opportunity Cost** – Shows the rate shareholders expect even when profits are retained.
4. **Affects Dividend Policy** – Balances between distributing and retaining profits.

Summary:

Cost of Retained Earnings (Kr) is the **expected rate of return foregone by shareholders** when profits are retained instead of distributed.
It is usually **equal to or slightly less than the cost of equity**.

WEIGHTED AVERAGE COST OF CAPITAL (WACC):

Meaning:

The **Weighted Average Cost of Capital (WACC)** is the **overall cost of capital** of a firm, computed as the **average cost of each source of capital (debt, preference, equity, retained earnings)**, **weighted by their proportion** in the total capital structure.

In simple words:

It is the **minimum overall return** a company must earn on its investments to satisfy all its investors — debt holders, preference shareholders, and equity shareholders.

Definition:

According to Ezra Solomon:
"The weighted average cost of capital is the average of the costs of specific sources of capital employed by the firm, weighted according to their proportion in the capital structure."

According to Van Horne:
"The overall cost of capital is the composite or weighted average of the cost of the various sources of funds used by the firm."

Explanation:

A company finances its activities through a mix of:

Equity shares

Preference shares

Debt (loans, debentures)

Retained earnings

Each has a **different cost** (Ke, Kp, Kd, Kr).

Formula (General):

WACC = Weight of Equity * Cost of Equity + Weight of Debt * Cost of Debt

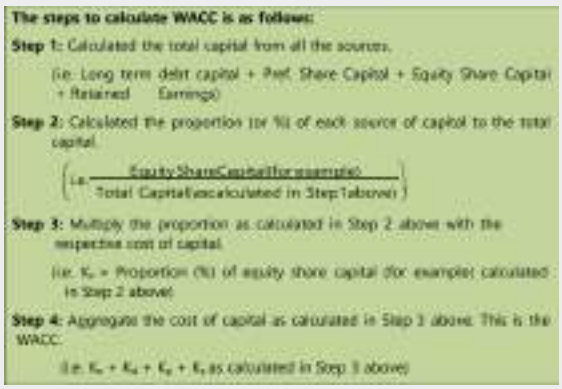
Or

$$\text{WACC} = (W_e \times K_e) + (W_p \times K_p) + (W_d \times K_d \times (1 - T)) + (W_r \times K_r)$$

Where:

- W_e, W_p, W_d, W_r= Proportion (weight) of equity, preference, debt, and retained earnings in total capital
- K_e, K_p, K_d, K_r= Cost of equity, preference, debt, and retained earnings respectively
- T= **Tax rate (interest on debt is tax-deductible)**

Steps to Calculate WACC:



Example:

A company has the following capital structure:

Source	Amount (₹)	Cost (%)
Equity Share Capital	6,00,000	15%
Preference Share Capital	2,00,000	12%
Debentures	2,00,000	10%
Total Capital	**10,00,000**	—

The **tax rate** is **30%**. Find the **WACC**

Step 1: Calculate Weights (Proportion of Each Source)

$$W_e = 6{,}00{,}000/10{,}00{,}000 = 0.60$$
$$W_p = 2{,}00{,}000/10{,}00{,}000 = 0.20$$
$$W_d = 2{,}00{,}000/10{,}00{,}000 = 0.20$$

Step 2: Adjust Cost of Debt for Tax

$$K_d(after\ tax) = 10\%(1 - 0.30) = 7\%$$

Step 3: Apply the Formula

$$\text{WACC} = (0.60 \times 15\%) + (0.20 \times 12\%) + (0.20 \times 7\%)$$
$$= 9 + 2.4 + 1.4 = 12.8\%$$

Weighted Average Cost of Capital (WACC) = 12.8%

Importance of WACC:

1. **Investment Decision:**
   Used as the **discount rate** in capital budgeting (NPV, IRR).
2. **Performance Evaluation:**
   Helps judge if a project earns more than its financing cost.
3. **Capital Structure Decision:**
   Assists in selecting an optimal mix of debt and equity.
4. **Valuation:**
   Determines firm value and cost of new funds.

Key Points to Remember:

- WACC is the **composite cost of all capital sources**.
- **Tax affects only debt**, not equity or preference.
- **Weights** can be based on **book value** or **market value**.
- A lower WACC means **cheaper capital** and **higher firm value**.

In Summary:

Weighted Average Cost of Capital (WACC) is the **average cost of all capital components**, weighted by their proportion in total capital.
It represents the **minimum overall return** a company must earn to maintain its market value.

Capitalization:

What Is Capitalization?

When a business spends money on something that it considers a fixed or long-term asset, that item can be capitalized: The cost moves onto the balance sheet as an asset instead of being recorded as a business expense on the income statement. The capitalized cost is then systematically reallocated to expenses through **depreciation or amortization** schedules for tangible and intangible assets.

Definition:

According to **Guthmami and Dougall**, 'capitalization is the sum of the par value of the outstanding stocks and the bonds.'

In the words of **Walker and Baughen**, 'capitalization refers only to long-term debt and capital stock, and short-term creditors do not constitute suppliers of capital, is erroneous. In reality, total capital is furnished by short-term creditors and long-term creditors.'

Bonneville and Deway define capitalization as 'the balance sheet values of stocks and bonds outstanding'.

Over-Capitalisation:

Meaning of Over-capitalization occurs when a company has issued more debt and equity than its assets are worth. The market value of the company is less than the total capitalized value of the company. An overcapitalized company might be paying more in interest and dividend payments than it has the ability to sustain long-term. The heavy debt burden and associated interest payments might be a strain on profits and reduce the amount of retained funds the company has to invest in research and development or other projects. To escape the situation, the company may need to reduce its debt load or buy back shares to reduce the company's dividend payments. Restructuring the company's capital is a solution to this problem.

The phrase 'over-capitalisation' has been misunderstood with abundance of capital. In actual practice, overcapitalized concerns have been found short of

funds. Truly speaking, overcapitalisation is a relative term used to denote that the firm in question is not earning reasonable income on its funds.

According to **Bonneville, Dewey and Kelly,** "When a business is unable to earn a fair rate of return on its outstanding securities, it is over-capitalized."

Likewise, Gerstenberg opines that "a corporation is over-capitalized when its earnings are not large enough to yield a fair return on the amount of stocks and bonds that have been issued."

Formula for Identifying Over-Capitalization:

$$\textbf{Rate of Return (ROR)} = \frac{\textbf{Net Profit}}{\textbf{Total Capital}} \times 100$$

If ROR < Normal Industry Rate,
→ the firm is Over-Capitalized.

Example:

Suppose total capital = ₹10,00,000
Net profit = ₹80,000
So,

$$ROR = \frac{80,000}{10,00,000} \times 100 = 8\%$$

If similar companies in the same industry earn 12%,
→ this firm is Over-Capitalized (because it earns only 8%).

Causes of Over-Capitalization:

Several factors can lead to over-capitalization in a company:

1. **Assets Acquired at Inflated Prices:** When assets are acquired at prices significantly higher than their actual value, it results in over-capitalization. This occurs when promoters or management pay an excess price for assets that does not align with their earning capacity.

2. **Issue of Excessive Finances:** Sometimes, during a favorable market sentiment, promoters may issue excessive shares or securities, leading to the infusion of more capital than the company can profitably use. This excess capital becomes non-earning and contributes to over-capitalization.
3. **Huge Borrowings at High Interest Rates:** If a company borrows a substantial amount of money through debentures or loans at high-interest rates, a significant portion of its earnings may go towards interest payments, leaving little surplus for equity shareholders. This can result in over-capitalization.
4. **Liberal Dividend Policy:** When a company follows a liberal dividend policy, distributing a large portion of its earnings as dividends, it may not have enough profits left for reinvestment in the business. This can hinder growth and lead to over-capitalization.
5. **High Corporate Taxes:** High corporate taxes can reduce the profits available for reinvestment and paying returns to equity shareholders. This can contribute to the problem of over-capitalization.

Consequences of Over-Capitalization:

1. **Consequences for the Company:**
    - Reduced market value of the company's shares.
    - Loss of goodwill and investors' confidence.
2. **Consequences for the Members (Shareholders):**
    - Reduced and uncertain dividends.
    - Capital loss due to poor market value of shares.
3. **Consequences for the Workers (Employees):**
    - Possible wage cuts due to reduced profitability.
    - Risk of job loss if the company faces liquidation.
4. **Consequences for the Society:**

- Wastage of economic resources.
- Economic impact due to loss of production and employment opportunities.

Remedies for Over-Capitalization:

Several measures can be taken to address the issue of over-capitalization: - **Reducing Capital:** The company can reduce its capital through methods like buybacks or cancellation of excessive shares. - **Increasing Earnings:** Focusing on improving the company's profitability and earning capacity. - **Optimizing Capital Structure:** Properly structuring the company's capital by balancing equity and debt. - **Dividend Policy:** Revising the dividend policy to retain more earnings for reinvestment. - **Asset Revaluation:** Revaluing the assets to reflect their true earning potential. - **Efficient Cost Management:** Managing costs effectively to enhance profitability.

Over-capitalization is a financial condition that can have significant negative consequences for a company and its stakeholders. Identifying the causes and implementing appropriate remedies is essential to restore the company's financial health and competitiveness.

Difference between over and under capitalizations:

Basis	Over-Capitalization	Under-Capitalization
Meaning	Capital > Earning capacity	Earning capacity > Capital invested
Return	Low	High
Share Price	Falls	Rises
Effect	Unhealthy for company	Seems good but creates pressure
Remedy	Reduce capital	Increase capital

Difference between Capital and capitalizations:

Capital	Capitalization
The term capital refers to the total investment of a company in money.	Capitalization refers to the par value of securities
Capital is also known as the total paid up values of shares (except debentures, bonds and other types of loans)	The term 'Capitalization' is used only in private and public limited companies
The term capital is a Universal concept, which is used by all types of business, organization. (Private, public, partnership or proprietary concerns)	The term capitalization is not applicable to entrepreneurship and proprietary concerns

Summary

Over-Capitalization is a situation when a company's **capital exceeds its earning capacity**, leading to **low returns**, **declining share values**, and **loss of investor confidence**.