



Financial Management

Innovation, Incubation and Entrepreneurship



“ 66 ”

Finance is the lifeblood of a business



Financial Management

Managerial activity concerning the finance of the firm. It deals with planning, control and management of financial resources of the firm.

Functions of Finance Manager

□ Routine Finance Function

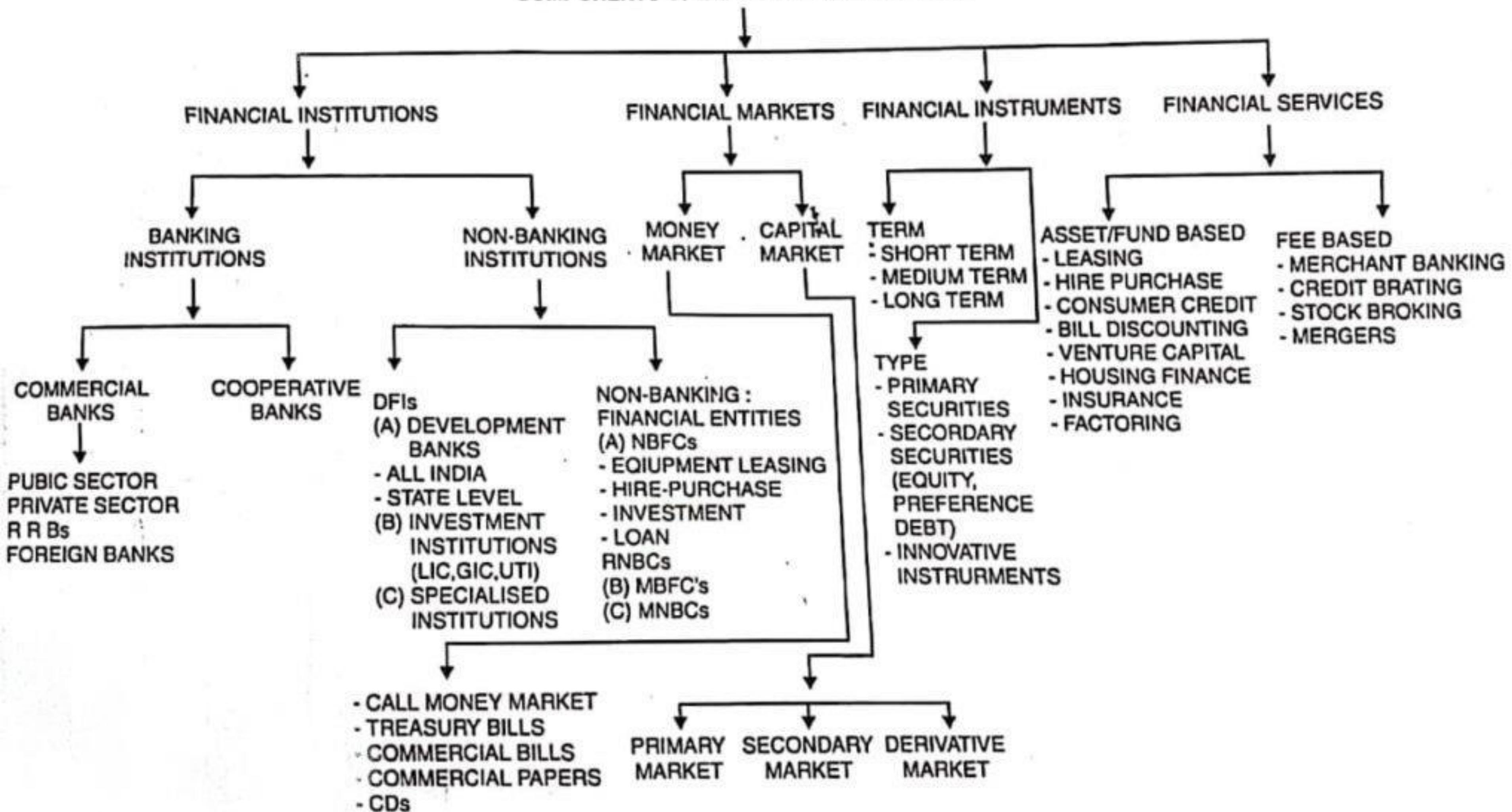
1. Supervision of cash receipts and payments
2. Safeguarding cash balances
3. Record keeping (accounting)
4. Custody and safeguarding of securities, insurance policies, and other important documents
5. Taking care of the mechanical details of outside finances
6. Regular return of borrowed funds.

□ Managerial Finance Function

1. Estimating financial requirements
2. Identifying sources of finance
3. Raising of finance
4. Proper use of finance
5. Control of finance



COMPONENTS OF INDIAN FINANCIAL SYSTEM

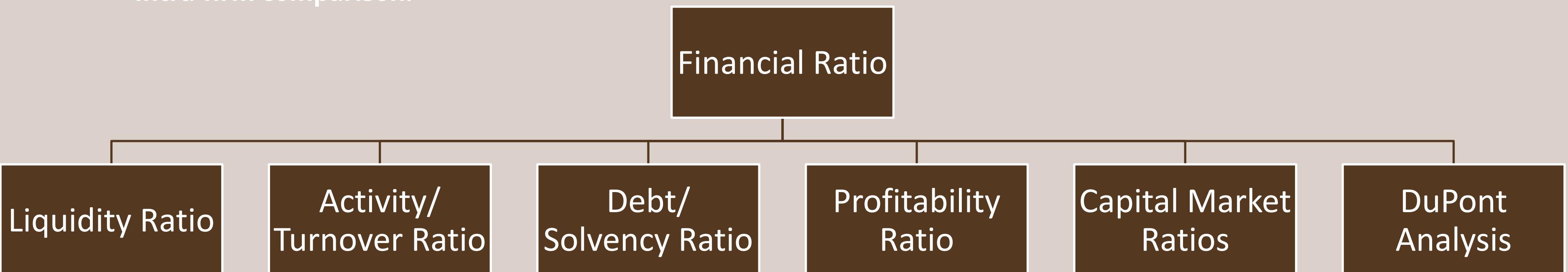


Ratio Analysis

Ratio analysis seeks to measure and establish cause-and-effect relationships between either two items of a balance sheet or of a profit and loss account, or both the balance sheet and the profit and loss account. Thus, ratio analysis is a more focused analysis of financial statements. The interpretation of results for decision making is the most critical part of ratio analysis.

Significance

- Comparison against industry benchmarks.
- Inter-firm comparison because absolute figure comparison will not be conclusive
- Analysis of chronological performance over a long period.
- Intra-firm comparison.



Liquidity Ratios

The liquidity of a firm is measured by its ability to satisfy its short-term obligations as they come due. The capacity of an enterprise to discharge its suppliers and service providers and to meet its day-to-day expenses indicates its liquidity and ensures the smooth continuity of operations, which in turn, has a strong bearing on the long-term survival of the company.

- **Current ratio=** $\text{Current assets} / \text{Current liabilities}$
- **Quick ratio (acid-test) ratio** $\text{Current assets} - (\text{Inventory} / \text{Current liabilities})$
- **Collection period to customers (days)** $\text{Receivables} (365 / \text{Credit sales})$
- **Suppliers credit (days)** $\text{Payables} (365 / \text{Credit purchases})$
- **Inventory-holding period** $\text{Inventory} (365 / \text{Cost of goods sold})$

Activity/Turnover Ratios

Activity ratios measure the speed with which various accounts are converted into sales or cash inflows or outflows. The efficiency with which the assets and resources of a company are utilized in generating operational revenue has a direct bearing on the top line. It is, therefore, important to study the turnover ratios.

- **Inventory turnover = Cost of goods sold/Inventory**
- **Average collection period = Accounts receivable/Average sales per day**
- **Average payment period = Accounts payable/Average purchases per day**
- **Total asset turnover = Sales/Total assets**

Debt/Solvency Ratios

The capacity of an enterprise to discharge its obligations towards long-term lenders indicates its financial strength and ensures its long-term survival. The debt position of a firm indicates the amount of other people's money being used to generate profits. It is important to analyse the capacity of an enterprise to raise further capital borrowings. These are particularly useful for financial institutions, banks, and other lenders to assess the creditworthiness of a company and the attendant financial default risk.

- **Debt ratio = Total liabilities / Total assets**
- **Net asset value (NAV) = Equity shareholders' funds / No. of equity shares**
- **Debt equity ratio = Long-term debt / Total net worth**
- **Interest cover ratio (Interest cover) = PAT / interest on long-term debt (Non-cash charges/Interest on long-term debt)**
- **Debt-coverage service (DSCR ratio) = PAT + Interest on long-term debt + (Non-cash charges / Interest on long-term debt) + Installments of principal due**

Profitability Ratios

Profitability ratios enable the analyst to evaluate the firm's profits with respect to a given level of sales, a certain level of assets, or the owner's investment. These ratios analyse the profitability of an enterprise at different steps or at intermediate levels of business activities.

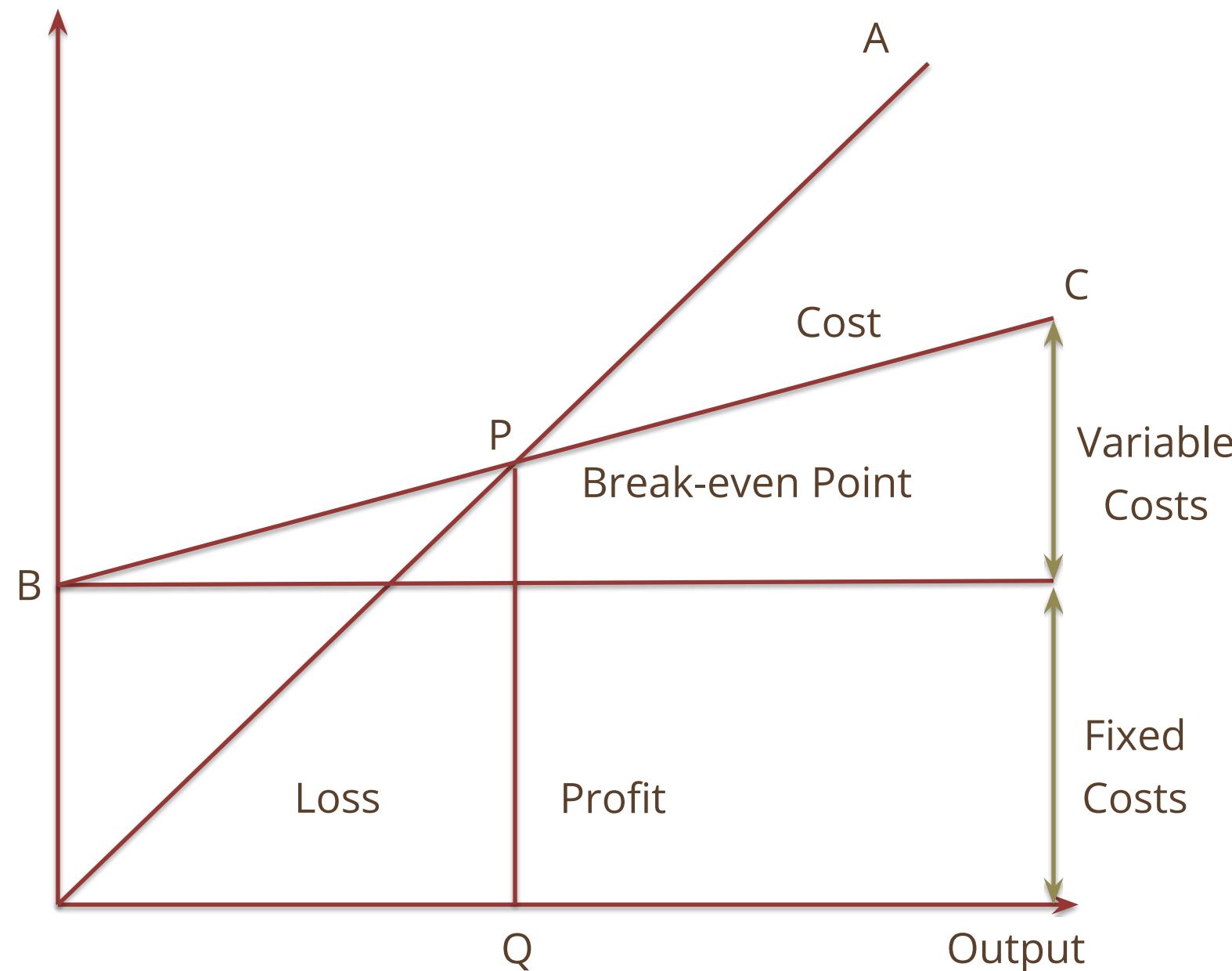
- **Gross profit margin**-Gross profits/sales
- **Operating profit margin**-Operating profits/sales
- **Net profit margin**-Earnings available for common stockholders/Sales
- **Earnings per share (EPS)** =
$$\frac{\text{Earnings available for common stockholders}}{\text{Number of shares of common stock outstanding}}$$
- **Return on total assets (ROA)** = Earnings available for common stockholders / Total assets
- **Return on common equity (ROE)** = Earnings available for common stockholders / Common stock equity
- **Return on net worth (RONW)** = (PAT-Preference dividend/Equity shareholder's funds or net worth) × 100

Capital Market Ratios

The capital market has become a major source of capital, both for equity as well as bonds and debentures for the industry. Market ratios relate a firm's market value, as measured by its current share price, to certain accounting values. It is necessary for the entrepreneur to have a knowledge of these ratios.

- **Price/earnings (P/E) ratio = Market price per share of common stock / Earnings per share**
- **Market/book (M/B) ratio = Market price per share of common stock / Common stock equity**

Break-Even Analysis



- BEP is a calculation that forecasts the point at which a company's total revenues are equal to its total expenses.
- BEP is the point of business operations when the business neither earns any profit nor any loss.
- Break even analysis focuses on the relationship between fixed cost, variable cost and selling price.

$$\text{Break - Even Point} = \frac{\text{Fixed Costs}}{\text{Selling price per unit} - \text{Variable Cost}}$$

The data regarding the fixed costs and variable costs of a company are given below. If the company has to break even, how many units should it sell?

Fixed Costs:

Monthly Rent: 1000/-

Insurance: 500/-

Total monthly fixed costs: 1500/-

Variable Cost:

Materials: 30/-

Labour: 40/-

Total variable cost: 70/-

Selling Price: 100/-

$$\text{Break - Even Point} = \frac{\text{Fixed Costs}}{\text{Selling price per unit} - \text{Variable Cost}}$$

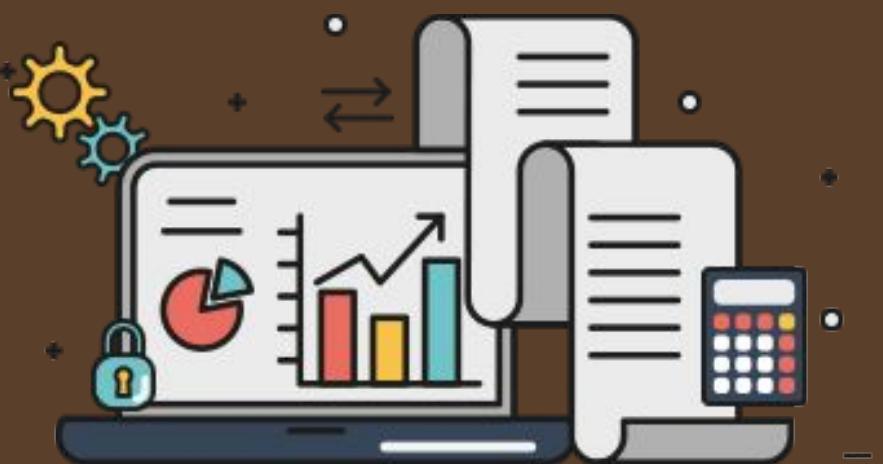
$$\text{Break - Even Point} = \frac{1500}{100 - 70} = \frac{1500}{30} = 50$$

The company should sell 50 units per month to break even

Cash Flow Statement

It provides benefits:

It enables users to analyse the changes in the net assets of an enterprise, its financial structure including its liquidity and solvency, and its ability to affect the amount and timing of cash flows in order to adapt to changing circumstances and opportunities.



The cash generated and utilized by a company is depicted in the cash flow statement.

The salient features of a cash flow statement are:

- Prepared for a given period.
- A derived statement
- Comparative position.
- Vertically drawn.
- Cash flows from operating, investing, and financing activities.
- Reconciliation with the opening and closing balances of cash and cash equivalents.
- Indirect method for cash flows from operating activities.
- Signed by the person who prepared it and the auditors.

Cash Flow Statement

It helps in examining the relationship between profitability and net cash flow.

It is useful in checking the accuracy of the past assessments of future cash flows.

Historical cash flow information is often used as an indicator of the amount, timing, and certainty of future cash flows.

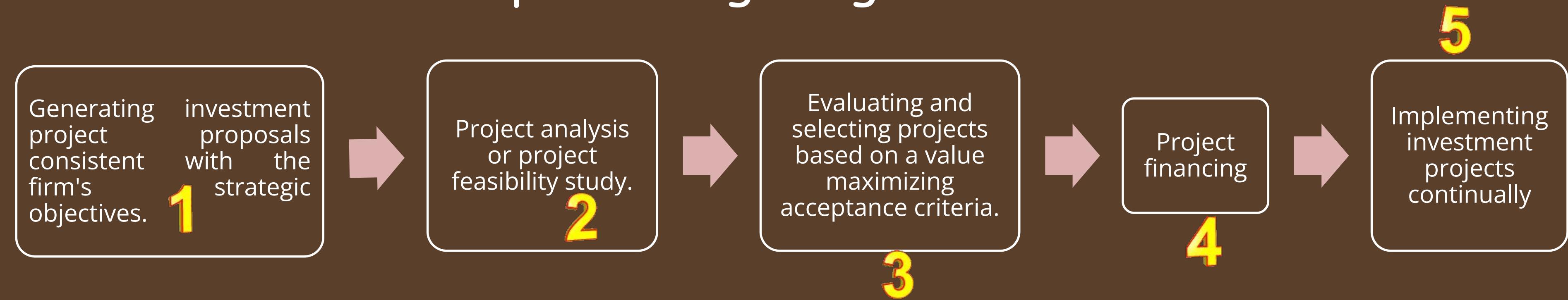


Year	March 17	March 16	March 15
Cash Flow Summary			
Cash and Cash Equivalents at Beginning of the year	10000	2000	5000
Net Cash from Operating Activities	00	00	00
Net Cash Used in Investing Activities	00	00	00
Net Cash Used in Financing Activities	00	00	00
Net Inc./(Dec) in Cash and Cash Equivalent	00	00	00
Cash and Cash Equivalents at End of the year	(3000)	10000	2000

Capital Budgeting

- Capital budgeting is the process of evaluating and selecting long-term investments that are consistent with the goal of shareholders' wealth maximization. The capital budgeting process deals with identifying and selecting investment projects whose returns are expected to extend beyond one year.
- Capital budgeting decisions are of paramount importance in financial decision making because such decisions are long term, not easily reversible, involve cost, and affect the profitability of an enterprise.

Capital Budgeting involves:



1

GENERATING INVESTMENT PROJECT PROPOSALS CONSISTENT WITH THE FIRM'S STRATEGIC OBJECTIVES.

The enterprise may be confronted with three types of capital budgeting decisions:
(1) the accept-reject decision, (2) the mutually exclusive choice decision, and (3) the capital rationing decision.

2

PROJECT ANALYSIS

Market Analysis

Technical Analysis

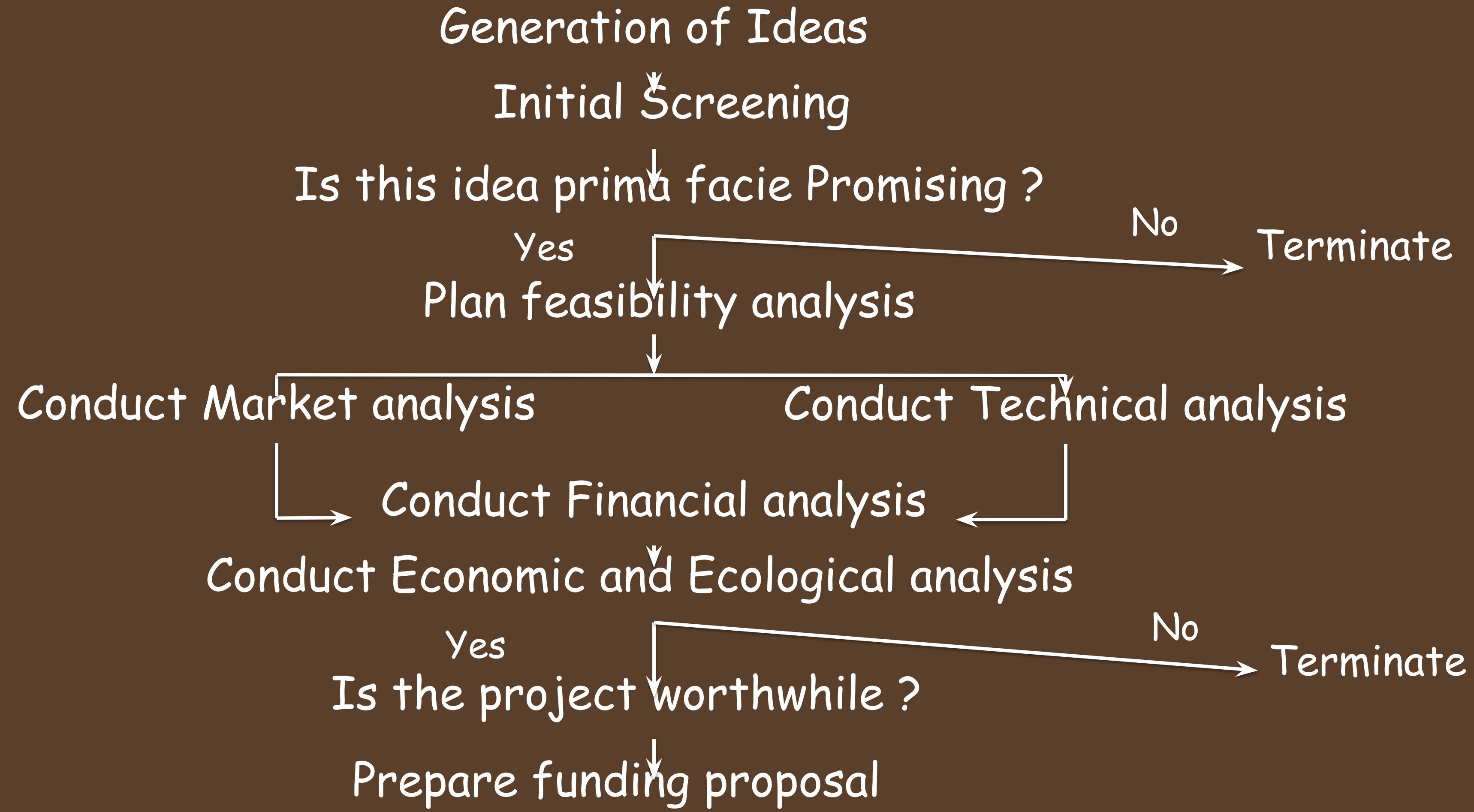
Financial Analysis

Economic Analysis

Ecological Analysis

Project Feasibility Study: A schematic Diagram

Preliminary work Analysis Evaluation



PROJECT EVALUATION AND SELECTION

Non-discounting Criteria

- The Payback Period (PBP)
- Accounting Rate of Return
(ARR)

Discounting Criteria

- Net Present Value (NPV)
- Internal Rate of Return (IRR)
- Benefit-Cost Ratio (BCR)

The amount of time that it takes to recover the cost of investment made in a project.

All other things remaining equal, the better investment is the one with the shorter pay back period

- Ignores the time value of money.
- Do not measure profitability



The Payback Period (PBP)

Payback period (PBP) = Cost of project(Cash Outflow)/Annual cash inflows

Example

If a project costs INR. 100,000 and is expected to return INR. 20,000 annually, the payback period is 5 years.

Payback period $100,000/20,000 = 5 \text{ years}$

Accounting Rate of Return (ARR)

This is also referred to as the **average rate of return on investment**. It is a measure of profitability which relates income to investment, both measured in accounting terms.

The **Limitation** of the ARR method is that it uses profit rather than cash flows

ARR

=

Average Annual profits after tax

Average investment over the life of the project

EXAMPLE

Shakti Construction Company has an option of two projects, A and B, with the same initial capital investment of INR. 100,000. The profits for both the projects are given below. The estimated resale value of both projects at the end of the third year is INR. 22,000. Calculate the ARR for each project and advise the company.

Project	Year 1	Year 2	Year 3
A	INR. 10,000	INR. 5,000	INR. 15,000
B	INR. 12,000	INR. 11,000	INR. 4,000

Solution:

ARR for Project A

$$\text{Average profit} = (10,000 + 5,000 + 15,000)/3 = \text{INR. } 10,000$$

$$\text{Average investment} = (100,000 + 22,000)/2 = \text{INR. } 61,000$$

$$\text{Accounting rate of return} = 10,000/61,000 = 16.39\%$$

ARR for Project B

$$\text{Average profit} = (12,000 + 11,000 + 4,000)/3 = \text{INR. } 9,000$$

$$\text{Average investment} = (100,000 + 22,000)/2 = \text{INR. } 61,000$$

$$\text{Accounting rate of return} = 9,000/61,000 = 14.75\%$$

Since Project A has higher ARR, it should be chosen.

Net Present Value (NPV)

For a project to be viable, the net present value of the project **has to be positive**. A negative net present value indicates that the project is not viable. When choosing among **mutually exclusive projects, the project with the largest (positive) NPV** should be selected. The NPV calculated as the present value of the project's cash inflows minus the present value of the project's cash outflows.

$$NPV = \sum_{t=0}^n \frac{CF_t}{(1+r)^t} = \frac{CF_0}{(1+r)^0} + \frac{CF_1}{(1+r)^1} + \dots + \frac{CF_n}{(1+r)^n}$$

EXAMPLE

Consider capital budgeting projects A and B, which yield the following cash flows over a period of five years. Calculate the NPV of A and B and suggest which of the two projects should be accepted. The cost of capital for the project is 10 per cent.

Year	Project A: Cash Flow in INR.	Project B: Cash Flow in INR.
0	-1,000	-1,000
1	500	100
2	400	200
3	200	200
4	200	400
5	100	700

Solution:

NPV for Project A

$$NPV = -1,000 + 500/(1+0.10)^1 + 400/(1+0.10)^2 + 200/(1+0.10)^3 + 200/(1+0.10)^4 + 100/(1+0.10)^5 = INR. 134.08$$

NPV for Project B

$$NPV = -1,000 + 100/(1+0.10)^1 + 200/(1+0.10)^2 + 200/(1+0.10)^3 + 400/(1+0.10)^4 + 700/(1+0.10)^5 = INR. 114.31$$

Thus, if Projects A and B are independent projects, then both the projects should be accepted. On the other hand, if they are mutually exclusive projects then Project A should be chosen since it has a larger NPV.

Internal Rate of Return (IRR)

IRR is sometimes referred to as the "**economic rate of return**." IRR is the rate of return on an investment. The rate of return at which the net present value of a stream of payments/incomes **is equal to zero**. It is the discount rate which equates the present value of future cash flows with the initial investment.

**Lower discount rate +[(NPV @ lower rate - Initial investment)/(NPV
@ lower rate - NPV @ higher rate)] * 2**

EXAMPLE

Find the IRR of the following investment proposals. The initial investment is INR. 70,000 and the expected annual cash inflow is INR. 24,000. The economic life of the project is four years. The present value of INR. 1 for 4 years at 10% is 3.17, at 12% is 3.037, and at 14% is 2.914,

Solution:

At 12%,

$$PV \text{ of total cash inflow} = 3.037 \times 24,000 = 72,880$$

At 14%,

$$PV \text{ of total cash inflow} = 2.914 \times 24,000 = 69,936$$

$$\begin{aligned} IRR &= 12 + \left(\frac{72,880 - 70,000}{72,880 - 69,936} \right) \times 2 \\ &= 13.6 \% \end{aligned}$$

Benefit-Cost Ratio (BCR)

The BCR is also referred to as the "profitability index". It is an **investment appraisal technique**. Profitability index is actually a **modification of the net present value method**. While NPV is an **absolute measure** as it gives the total value in Indian rupees for a project, the profitability index is a **relative measure** as it gives the value in the form of a **ratio**.

Profitability index

=

$1 + (\text{NPV}/\text{Initial investment required})$

EXAMPLE

Alliance Solar Company is undertaking a project at a cost of INR. 50 crore, which is expected to generate future net cash flows with a present value of INR. 65 crore. Calculate the profitability index.

Solution:

$$\text{Profitability index} = \frac{\text{PV of cash inflow}}{\text{PV of cash outflow}} = 65/50 = 1.3$$

It can also be calculated as below:

$$\text{Profitability Index} = 1 + (\text{NPV}/\text{Initial investment required})$$

$\text{NPV} = \text{Present value of net future cash flows} - \text{Initial investment required}$

$$\text{NPV} = 65 - 50 = 15$$

$$\text{Profitability Index} = 1 + 15/50 = 1.3$$

Criteria	Accept	Reject
Payback period (PBP)	PBP < Target period	PBP > Target period
Accounting rate of return (ARR)	ARR > Target rate	ARR < Target rate
Net present value (NPV)	NPV > 0	NPV < 0
Internal rate of return (IRR)	IRR > Cost of capital	IRR < Cost of capital
Benefit–cost ratio (BCR)	BCR > 1	BCR < 1

4 PROJECT FINANCING

Equity Financing

- Equity Capital
- Preference Capital
- Internal Accruals
- Venture Capital
- Angel Investing

Debt Financing

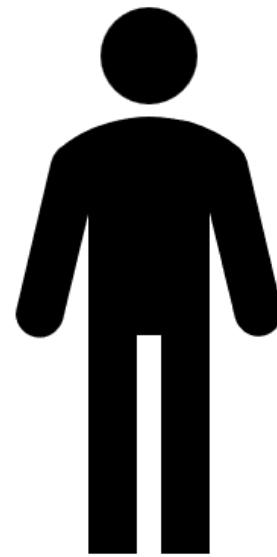
- Term Loans
- Debentures

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PROJECT IMPLEMENTATION PHASE

The implementation phase for a project involves the setting up of facilities. For project planning and control, two basic network techniques are available **program evaluation and review technique (PERT) and critical path method (CPM)**. These techniques help in monitoring the project throughout its life. Once the project is commissioned, performance review is done periodically to compare the actual performance with projected performance.

Time Value of Money



Common
man



Time Value of Money

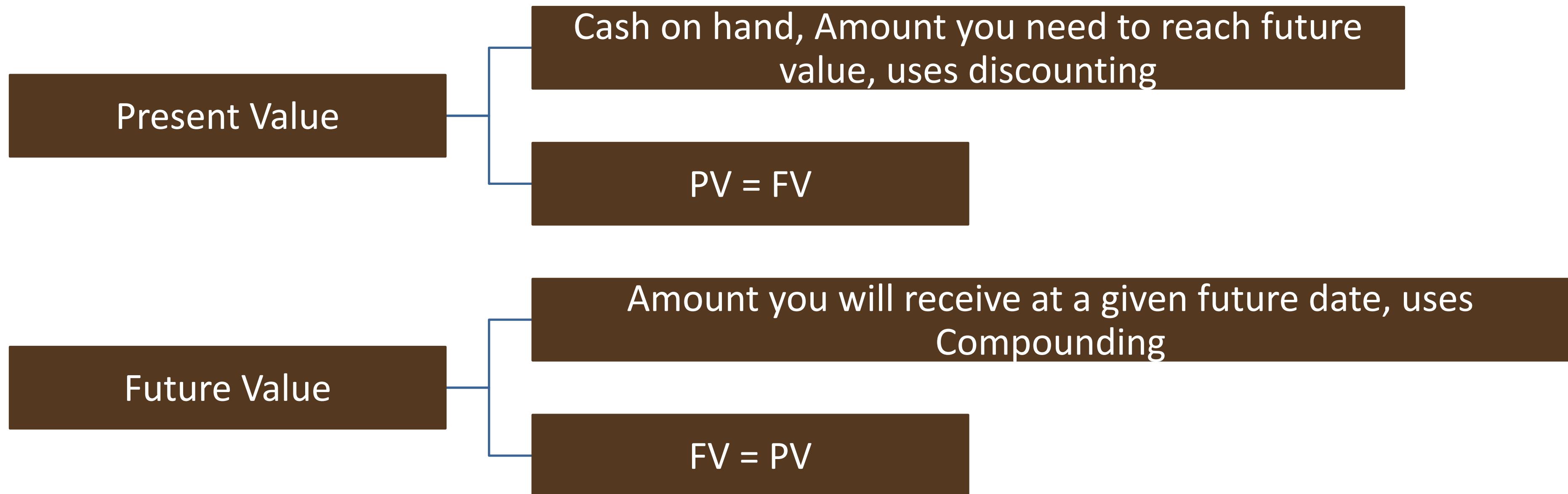
- Time Value of Money ► Financial Decision Making
- Financial management is future oriented.
- A financial decision taken today has implications for a number of years, that is, it spreads into future.
- One basic requirement of comparability is the incorporation of time element in the calculation.
- In order to have a logical and meaningful comparison between cash flows that accrue in different time periods. It is necessary to convert the sums of money to a common point of time.
- 'Time value of money' means that the value of money is different in different time periods.

Time Value of Money

Concept Which states that purchasing power of money differs with the passage of time

Effect of time value of money on daily routine life:

1. Spending, 2. Saving, 3. Borrowing and 4. Investing



Time Value of Money

- Time Value of Money can also be referred to as 'Time preference for money'.
- The time preference for many is therefore expressed generally in terms of rate of return or more popularly as a discount rate of return & expected rate of return.
- Suppose :
You given a choice of getting 1000/- either now or one year later.

RATIONAL BEHAVIOUR

Compounding Technique

Interest is compounded when the amount earned on an initial deposit (the initial principal) becomes part of the principal at the end of the first compounding period. The term principal refers to the amount of money on which interest is received.

1.1 Annual Compounding

Ms. V invests in a saving bank account 1000/- at 5% interest compounded annually, at the end of first year. FV = ? After 3 years.

$$A = P (1 + i)^n$$

Where, A = Amount at the end of year

P = Principal at the beginning of the period

i = Interest rate

n = Number of years

1.1 Annual Compounding

Year	Amount	Interest	Total
1	1000	50	1050
2	1050	52.50	1102.50
3	1102.50	55.125	1157.625

But....

What if n = 50 year

$$\begin{aligned}\text{Then } (1.05)^{50} &= 11.467 \\ &= 1000 (11.467)\end{aligned}$$

$$\begin{aligned}FV &= PV (CVF@5\%)3 \\ &= 1000 (1.158) \\ &= 1158/-\end{aligned}$$

1.2 Semi - Annual Compounding

Means that there are two compounding periods within the year. Interest is actually paid after every six months at a rate of one – half of the annual (Stated) rate of interest.

Mr. Q places his savings of 1000/- in a two year time period scheme of a bank which yields 6% interest compounded semi-annually. He will be paid 3% interest compounded over four periods – each of six months' duration.

Year	Months	Amount	Interest	Total
1	6	1000	30	1030
	12	1030		
2	18			
	24			

1.3 Quarterly Compounding

Means that there are four compounding periods within the year. Instead of paying interest once a year, it is paid in four equal installments after every three months.

Using the same example of 1.2% interest for each compounding year will be 1.5%

Year	Months	Amount	Interest	Total
1	3	1000	15	1015
	6	1015		
	9			
	12			
2	15			
	18			
	21			
	24			

1.4 Annual Compounding of series of payments

In many instances, we may be interested in the future value of a series of payments made at different time period.

Ms. R deposits each year 500/-, 1000/-, 1500/-, 2000/-, 2500/- in her saving bank account for 5 years. The interest rate is 5%. Assume that the compounding period is one year and payment is made at the end of each year. She wishes to find the future value of her deposits at the end of 5th year.

1.5 Compound sum of an annuity

An annuity is a stream of equal annual cash flows.

Mr. Y Deposits 2000/- at the end of every year for 5 years in his saving account paying 5% interest compounded annually. He wants to determine how much sum of money he will have at the end of 5th year.

Year	Amount	No. of year Compounded	CVF	FV
1	2000	4	1.216	2432
2	2000	3	1.158	2316
3	2000	2	1.103	2206
4	2000	1	1.050	2100
5	2000	0	1.000	2000
Future Value				11054

$$FV = 2000 \text{ (CVFA@5\%)}$$

$$= 2000 (5.527)$$

$$= 11054/-$$

Discounting Technique

- (Present Value Approach) money is received at same future date and will be worth less because the corresponding interest is lost during the period.
- Present value of a rupee that will be received in the future will be less than the value of a rupee in hand today.
- It is concerned with determining the present value of a future amount, assuming that decision maker has an opportunity to earn a certain return on his money.
- This return is designated in financial literature as the discount rate, the cost of capital or an opportunity cost.

2.1

Mr. B has been given an opportunity to receive 1060/- one year from now. He knows that he can earn 6% interest on his investment. The question is : What amount will he be prepared to invest for this opportunity ?

$$PV = FV \frac{1}{(1+r)^n} \text{ or } P = A \frac{1}{(1+i)^n}$$

2.2

Mr. G wants to find the present value of 2000/- to be received 5 years from now. Assuming 10% rate of interest.

$$PV = 1242/-$$

The sum of 1242/- will be compounded to 2000/- in five years at 10% rate of interest (1242 *1.611 = 2000.862)

Present Value of a series of cash flows.

$$P = \frac{CF_1}{(1+i)^1} + \frac{CF_2}{(1+i)^2} + \frac{CF_3}{(1+i)^3} + \dots + \frac{CF_n}{(1+i)^n}$$

2.3 Present Value of mixed stream of cash flows

N = 5 years

i = 10%

Year	Amount
1	500
2	1000
3	1500
4	2000
5	2500

Year	Amount	PVF @ 10%	PV
1	500	0.909	
2	1000	0.826	
3	1500	0.751	
4	2000	0.683	
5	2500	0.621	
Present Value			= 5325.5

2.4 Present Value of an annuity of 1000/- for five year

Use annuity

$$= 3790/-$$

ABC Company expects to receive 100000/- for a period of 10 years from now project it has just undertaken. Assuming a 10% rate of interest. How much would be the present value of this annuity ?

$$= 614500/-$$

2.5 Present value of uneven cash flows having annuity.

ABC Company expects cash inflows from its investment proposal. It has undertaken in time period zero, 200000/- and 150000/- for first two years respectively and an annuity payment of 100000/- for the next eight years, what would be the present value of cash inflows, assuming a 10% rate of interest. = **746600/-**

MANAGING WORKING CAPITAL



Working Capital

Funds that a company must possess to finance its day to day operations.

It is a short term fund needed to meet operating expenses.

Net of current assets minus current liabilities

Equals to the value of raw materials, work in progress, finished goods inventories and accounts receivable less accounts payable



Working Capital

Gross Working Capital

Sum of all current assets
that appear in the balance
sheet

Net Working Capital

The excess of current
assets over current
liabilities

Working Capital

Permanent

Assets that are required on a
continuing basis over the entire year

Temporary

Additional assets required at
different times during the year

Determinants of Working Capital

1. Nature of business
2. Sales and Demand Conditions
3. Technology and Manufacturing policy
4. Credit Policy
5. Availability of Credit
6. Operating Efficiency
7. Price Level Changes

Working Capital Cycle

Working Capital Cycle

$$= \text{Inventory days}$$

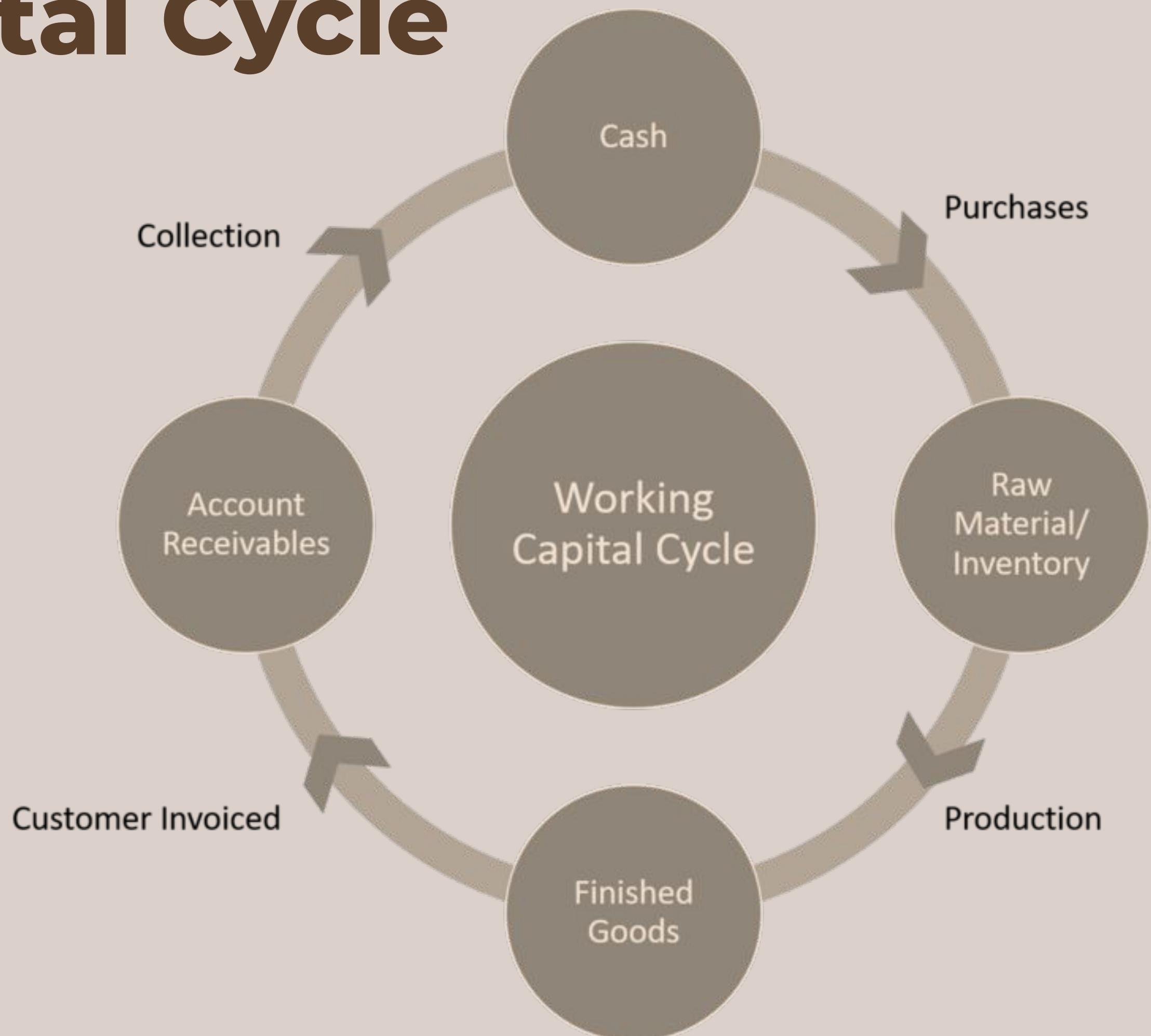
$$+ \text{Receivable days}$$

$$- \text{Payable days}$$

$$\text{Inventory days} = \frac{\text{Inventory}}{\text{Cost of sales}} \times 360 \text{ days}$$

$$\text{Receivable days} = \frac{\text{Receivables}}{\text{Sales}} \times 360 \text{ days}$$

$$\text{Payable days} = \frac{\text{Payables}}{\text{Cost of Sales}} \times 360 \text{ days}$$



Sources of Working Capital

Long term Financing

Determine the working capital required to finance a level of activity of 180,000 units of output for a **Short-term Financing** year. The cost structure is given below:

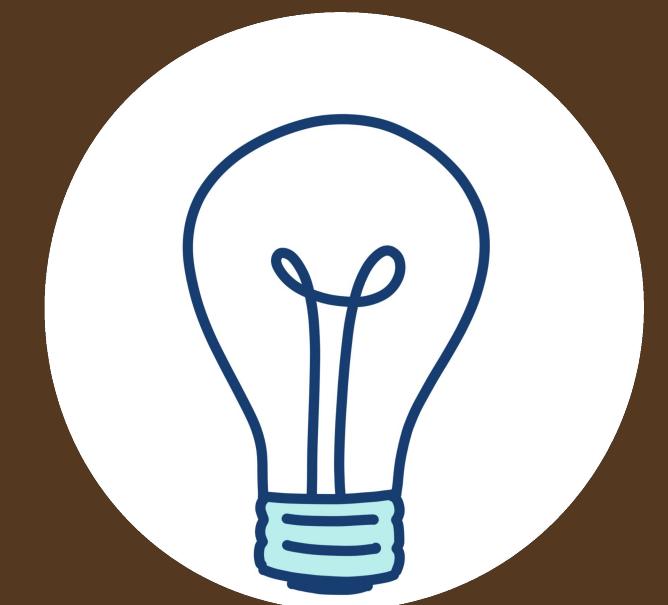
Spontaneous Financing	Cost Per Unit (INR)
Raw materials	20
Direct labour	5
Overheads (including depreciation of INR. 5)	15
Total cost	40
Profit	10
Selling price	50

Additional Information:

1. Minimum desired cash balance is INR. 20,000.
2. Raw materials are held in stock, on an average, for two months
3. Work-in-progress (assume 50 percent completion stage) will approximate to half a month's production.
4. Finished goods remain in the warehouse, on an average, for a month.
5. Suppliers for materials extend a month's credit and debtors are provided two month's credit. The cash sales are 25 per cent of total sales.
6. There is a time lag in payment of wages for a month and half a month in the case of overheads.

Particulars	Amount in INR
A. Estimation of current assets	
Raw materials: $(180,000 \times 20 \times 2)/12$	600,000
Work-in-process: $(180,000 \times 35 \times 0.5)/12 \times 0.5$	131,250
Finished goods: $(180,000 \times 35 \times 1)/12$	525,000
Debtors (75% of total units produced): $(135,000 \times 35 \times 2)/12$	787,500
Cash balance	20,000
Total current assets	2,063,750
B. Estimation of current liabilities	
Suppliers: $(180,000 \times 20 \times 1)/12$	300,000
Wages: $(180,000 \times 5 \times 1)/12$	75,000
Overheads: $(180,000 \times 10/10.5)/12$	75,000
Total current liabilities	450,000
C. Working capital (A-B)	1,613,750

Solution:



THANK YOU

