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# CA INTER
## Financial Management


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# PREFACE

Dear Student,

Welcome to the World of Knowledge - J.K. Shah Classes !

I have the pleasure of presenting this study material to you. It contains good number of good problems, selected so carefully from wide-ranging sources. It covers the problems which will bring in to focus all important concepts that you need to study in order to fortify yourself for your examination. The subject will be taught by eminent professors who are highly experienced and well-versed with the job.

The coaching is very exhaustive and wholly concept based. The conceptual explanations are entirely supported by good problems that cover the past and the problems which peep into the future. Also, the coaching is very systematic, well - planned and absolutely time bound. For a change, say good - bye to mechanical learning. I am sure you will feel that the study is a pleasurable job and not a painful exercise.

Each Topic of Financial Management is divided in to three parts :

(A) Theory Section : This section covers theory related to the topic.

(B) Classwork Section : This section covers good number of quality problems which will be solved in the classroom.

(C) Homework Section : This section covers good number of problems. Students are strongly advised to solve these problems.

Each Topic of Economics for Finance is Divided into 2 Parts:

A. Classwork Section : This section includes coverage of all conceptual questions as well as numerical questions.

B. Additional Questions: This section emphasizes on extra questions which will help in deeper understanding of the topics already covered in classwork section. This section is to be done after completing syllabus.

I wish you a very happy study time.

BEST OF LUCK !

Prof. J.K. Shah.
Chartered Accountant

# FINANCIAL MANAGEMENT

## INDEX

# LEVERAGES

## THEORY SECTION

### Meaning and Scope

The term leverage, in general, refers to the relationship between two interrelated variables of which one variable is dependent on the other.

Formula for calculating Leverage

$$= \frac{\%\text{ change in dependent variable}}{\%\text{ change in independent variable}}$$

In this chapter we have to learn and calculate 3 leverages :

1. Operating Leverage
2. Financial Leverage
3. Combined Leverage

### Operating Leverage

Income Statement for calculating Operating Leverage

| | |
|---|---|
| Sales | xx..... (independent) |
| Less: Variable Cost | xx |
| Contribution | xx |
| Less: Operating Fixed Cost | xx |
| EBIT | xx..... (dependent) |

$$\text{Operating Leverage} = \frac{\%\text{ change in EBIT}}{\%\text{ change in Sales / Contribution}}$$

OR

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

Operating Leverage is a measure of operating risk. Operating risk comes into existence due to presence of operating fixed cost (e g: Fixed salaries, rent, etc.) Operating Leverage indicates the tendency of the EBIT to change disproportionately due to change in sales.

Operating Leverage of 1 indicates no operating risk. The higher the operating leverage higher is the operating risk. OL is unavoidable.

## Financial Leverage

Income statement for financial leverage

| | |
|---|---|
| EBIT | xx .....(independent) |
| Less: Interest | xx |
| EBT | xx |
| Less: Tax | xx |
| EAT | xx |
| Less: Preference dividend | (xx) |
| Earnings for equity shareholders | xx.....(dependent) |
| :- No of equity shares | xx |
| EPS | xx.....(dependent) |

$$\text{Financial Leverage} = \frac{\%\text{ change in EPS / Earning for Equity shareholders}}{\%\text{ change in EBIT}}$$

OR

$$\text{Financial Leverage} = \frac{\text{EBIT}}{\text{EBIT} - \frac{\text{Preference dividend}}{(1 - \text{tax rate})}}$$

Financial Leverage is a measure of financial risk and financial risk comes into existence due to presence of fixed finance cost (e.g. interest, preference dividend). It indicates the tendency of the EPS / Earnings for equity shareholders to change disproportionately due to change in EBIT. FL of 1 indicates no financial risk. The higher the financial leverage higher is the financial risk. FL is avoidable

## Combined Leverage

$$\text{Combined Leverage} = \frac{\%\text{ change in EPS / Earnings for Equity shareholders}}{\%\text{ change in sales}}$$

OR

$$\text{Combined Leverage} = \frac{\text{Contribution}}{\text{EBT} - \frac{\text{Preference dividend}}{(1 - \text{tax rate})}}$$

OR

$$\text{Combined Leverage} = \text{Operating Leverage} \times \text{Financial Leverage}$$

It is a measure of total risk.

CLASSWORK SECTION

**Question 1**

Calculate the operating leverage, financial leverage and combined leverage for the following firms and interpret the results:

| | P | Q | R |
|---|---|---|---|
| Output (units) | 2,50,000 | 1,25,000 | 7,50,000 |
| Fixed Cost (₹) | 5,00,000 | 2,50,000 | 10,00,000 |
| Unit Variable Cost (₹) | 5 | 2 | 7.50 |
| Unit Selling Price (₹) | 7.50 | 7 | 10.0 |
| Interest Expense (₹) | 75,000 | 25,000 | 7,50,000 |

**Question 2**

Following is the Balance Sheet of Soni Ltd. as on 31st March, 2023:

| Liabilities | Amount in ₹ |
|---|---|
| Shareholder's Fund | |
| Equity Share Capital (₹ 10 each) | 25,00,000 |
| Reserve and Surplus | 5,00,000 |
| Non-Current Liabilities (12 Debentures) | 50,00,000 |
| Current Liabilities | 20,00,000 |
| Total | 1,00,00,000 |
| **Assets** | **Amount in ₹** |
| Non-Current Assets | 60,00,000 |
| Current Assets | 40,00,000 |
| Total | 1,00,00,000 |

Additional Information:

(i) Variable Cost is 60% of Sales.

(ii) Fixed Cost p.a. excluding interest ₹ 20,00,000.

(iii) Total Asset Turnover Ratio is 5 times.

(iv) Income Tax Rate 25% You are required to:

(1) Prepare Income Statement

(2) Calculate the following and comment:

(a) Operating Leverage

(b) Financial Leverage

(c) Combined Leverage

**Question 3**

From the following details of X Ltd., prepare the Income Statement for the year ended 31st December, 2023:

| | |
|---|---|
| Financial Leverage | 2 |
| Interest | ₹ 2,000 |
| Operating Leverage | 3 |
| Variable cost as a percentage of sales | 75% |
| Income tax rate | 30% |

**Question 4**

The following information is available for SS Ltd.

| | |
|---|---|
| Profit volume (PV) ratio | 30% |
| Operating leverage | 2.00 |
| Financial leverage | 1.50 |
| Loan | ₹1,25,000 |
| Post - tax interest rate | 5.6% |
| Tax rate | 30% |
| Market Price per share (MPS) | ₹140 |
| Price Earnings Ratio (PER) | 10 |

You are required to:

(1) Prepare the Profit - Loss statement of SS Ltd. and

(2) Find out the number of equity shares

**Question 5**

The following data is available for Stone Ltd.:

| | (₹) |
|---|---|
| Sales | 5,00,000 |
| (-) Variable cost @ 40% | 2,00,000 |
| Contribution | 3,00,000 |
| (-) Fixed cost | 2,00,000 |
| EBIT | 1,00,000 |
| (-) Interest | 25,000 |
| Profit before tax | 75,000 |

Using the concept of leverage, find out

(i) The percentage change in taxable income if EBIT increases by 10%.

(ii) The percentage change in EBIT if sales increases by 10%.

(iii) The percentage change in taxable income if sales increases by 10%.

Also verify the results in each of the above case.

**Question 6**

A firm has sales of ₹ 75,00,000 variable cost is 56% and fixed cost is ₹ 6,00,000. It has a debt of ₹ 45,00,000 at 9% and equity of ₹ 55,00,000.

(i) What is the firm's ROI?

(ii) Does it have favourable financial leverage?

(iii) If the firm belongs to an industry whose capital turnover is 3, does it have a high or low capital turnover?

(iv) What are the operating, financial and combined leverages of the firm?

(v) If the sales is increased by 10% by what percentage EBIT will increase?

(vi) At what level of sales the EBT of the firm will be equal to zero?

(vii) If EBIT increases by 20%, by what percentage EBT will increase?

**Question 7**

X Limited has estimated that for a new product its break-even point is 20,000 units if the item is sold for ₹ 14 per unit and variable cost ₹ 9 per unit. Calculate the degree of operating leverage for sales volume 25,000 units and 30,000 units.

**Question 8**

From the following informatin, prepare Income Statement of Company A & B:

| Particulars | Company A | Company B |
|---|---|---|
| Margin of safety | 0.20 | 0.25 |
| Interest | ₹ 3000 | ₹ 2000 |
| Profit volume ratio | 25% | 33.33% |
| Financial Leverage | 4 | 3 |
| Tax rate | 45% | 45% |

**Question 9**

The Capital structure of RST Ltd. is as follows:

| | (₹) |
|---|---|
| Equity Share of ₹ 10 each | 8,00,000 |
| 10% Preference Share of ₹ 100 each | 5,00,000 |
| 12% Debentures of ₹ 100 each | 7,00,000 |
| | 20,00,000 |

**Additional Information:**

- Profit after tax (Tax Rate 30%) are ₹ 2,80,000
- Operating Expenses (including Depreciation ₹ 96,800) are 1.5 times of EBIT

- Equity Dividend paid is 15%
- Market price of Equity Share is ₹ 23

**Calculate:**

(i) Operating Leverage, Financial Leverage, combined Leverage, EPS & Sales

(ii) Cover for preference and equity dividend

(iii) The Earning Yield Ratio and Price Earning Ratio

(iv) The Net Fund Flow

HOMEWORK SECTION

**Question 1**

The data relating to two companies are as given below:

| | A Ltd. | B Ltd. |
|---|---|---|
| Equity Capital | ₹ 6,00,000 | ₹ 3,50,000 |
| 12% Debentures | ₹ 4,00,000 | ₹ 6,50,000 |
| Output (units) per annum | 60,000 | 15,000 |
| Selling price/ unit | ₹ 30 | ₹ 250 |
| Fixed Costs per annum | ₹ 7,00,000 | ₹ 14,00,000 |
| Variable Cost per unit | ₹ 10 | ₹ 75 |

You are required to calculate the Operating leverage, Financial leverage and Combined leverage of two Companies.

**Question 2**

A company had the following Balance Sheet as on 31st March, 2020:

| Liabilities | (₹ in crores) | Assets | (₹ in crores) |
|---|---|---|---|
| Equity Share Capital (50 lakhs shares of ₹ 10 each) | 5 | Fixed Assets (Net) | 12.5 |
| | | Current Assets | 7.5 |
| Reserves and Surplus | 1 | | |
| 15% Debentures | 10 | | |
| Current Liabilities | 4 | | |
| | **20** | | **20** |

The additional information given is as under:

| | |
|---|---|
| Fixed cost per annum (excluding interest) | ₹ 4 crores |
| Variable operating cost ratio | 65% |
| Total asset turnover ratio | 2.5 |
| Income Tax rate | 30% |

**Required:**

Calculate the following:

(i) Earnings Per Share

(ii) Operating Leverage

(iii) Financial Leverage

(iv) Combined Leverage

**Question 3**

The following details of RST Limited for the year ended 31st March, 2020 are given below:

| | |
|---|---|
| Operating leverage | 1.4 |
| Combined leverage | 2.8 |
| Fixed Cost (Excluding interest) | ₹ 2,04 lakhs |
| Sales | ₹ 30,00 lakhs |
| 12% Debentures of ₹ 100 each | ₹ 21,25 lakhs |
| Equity Share Capital of ₹ 10 each | ₹ 17,00 lakhs |
| Income tax rate | 30 per cent |

**Required:**

(i) Calculate Financial leverage

(ii) Calculate P/V ratio and Earning per Share (EPS)

(iii) If the company belongs to an industry, whose assets turnover is 1.5, does it have a high or low assets turnover?

(iv) At what level of sales the Earning before Tax (EBT) of the company will be equal to zero?

**Question 4**

The operating income of a textile firm amounts to ₹ 1,86,000. It pays 50% tax on its income. Its capital structure consists of the following:

| | |
|---|---|
| 14% Debentures | ₹ 5,00,000 |
| 15% Preference Shares | ₹ 1,00,000 |
| Equity Shares (₹ 100 each) | ₹ 4,00,000 |

(i) Determine the firm's EPS

(ii) Determine the percentage change in EPS associated with 30% change (both increase and decrease) in EBIT.

(iii) Determine the degree of financial leverage at the current level of EBIT.

(iv) What additional data do you need to compute operating as well as combined leverage?

**Question 5**

The following information related to XL Company Ltd. for the year ended 31st March, 2020 are available to you:

| | |
|---|---|
| Equity share capital of ₹ 10 each | ₹ 25 lakh |
| 11% Bonds of ₹ 1000 each | ₹ 18.5 lakh |
| Sales | ₹ 42 lakh |

| | |
|---|---|
| Fixed cost (Excluding Interest) | ₹ 3.48 lakh |
| Financial leverage | 1.39 |
| Profit-Volume Ratio | 25.55% |
| Income Tax Rate Applicable | 35% |

**You are required to calculate:**

(i) Operating Leverage;

(ii) Combined Leverage; and

(iii) Earning per Share.

### Question 6

Annual sales of a company is ₹ 60,00,000. Sales to variable cost ratio is 150 per cent and Fixed cost other than interest is ₹ 5, 00,000 per annum. Company has 11 per cent debentures of ₹ 30,00,000.

You are required to calculate the operating, Financial and combined leverage of the company.

### Question 7

From the following financial data of Company A and Company B: Prepare their Income Statements.

| | Company A (₹) | Company B (₹) |
|---|---|---|
| Variable Cost | 56,000 | 60% of Sales |
| Fixed Cost | 20,000 | - |
| Interest Expenses | 12,000 | 9,000 |
| Financial Leverage | 5:1 | - |
| Operating Leverage | - | 4:1 |
| Income Tax Rate | 30% | 30% |
| Sales | - | 1,05,000 |

### Question 8

The capital structure of ABC Ltd. as at 31.3.20 consisted of ordinary share capital of ₹ 5,00,000 (face value ₹ 100 each) and 10% debentures of ₹ 5,00,000 (₹ 100 each). In the year ended with March 15, sales decreased from 60,000 units to 50,000 units. During this year and in the previous year, the selling price was ₹ 12 per unit; variable cost stood at ₹ 8 per unit and fixed expenses were at ₹ 1,00,000 p.a. The income tax rate was 30%.

You are required to calculate the following:

(i) The percentage of decrease in earnings per share.

(ii) The degree of operating leverage at 60,000 units and 50,000 units.

(iii) The degree of financial leverage at 60,000 units and 50,000 units.

**Question 9**

A firm has Sales of ₹ 40 lakhs; Variable cost of ₹ 25 lakhs; Fixed cost of ₹ 6 lakhs; 10% debt of ₹ 30 lakhs; and Equity Capital of ₹ 45 lakhs.

**Required:** Calculate operating and financial leverage.

**Question 10**

Following data of MT Ltd. under Situations 1,2 and 3 and Financial Plan A and B is given:

| | | |
|---|---|---|
| Installed Capacity (units) | | 3,600 |
| Actual Production and Sales (units) | | 2,400 |
| Selling price per unit (Rs.) | | 30 |
| Variable cost per unit (Rs.) | | 20 |
| Fixed Costs (Rs.): | Situation 1 | 3,000 |
| | Situation 2 | 6,000 |
| | Situation 3 | 9,000 |

Capital Structure:

| Particulars | Financial Plan | |
|---|---|---|
| | A | B |
| Equity | Rs. 15,000 | Rs. 22,500 |
| Debt | Rs. 15,000 | Rs. 7,500 |
| Cost of Debt | 12% | 12% |

Required:

(i) CALCULATE the operating leverage and financial leverage.

(ii) FIND out the combinations of operating and financial leverage which give the highest value and the least value.

**Question 11**

Axar Ltd. has a Sales of ₹68,00,000 with a Variable cost Ratio of 60%.

The company has fixed cost of ₹16,32,000. The capital of the company comprises of 12% long term debt, ₹1,00,000 Preference Shares of ₹10 each carrying dividend rate of 10% and 1,50,000 equity shares.

The tax rate applicable for the company is 30%.

At current sales level, DETERMINE the interest & EPS and also amount of debt for the firm if a 25% decline in Sales will wipe out all the EPS.

**Question 12**

The Balance Sheet of Gitashree Ltd. is given below:

| Liabilities | | (₹) |
|---|---|---|
| Shareholders' fund | | |
| Equity share capital of ₹ 10 each | ₹ 1,80,000 | |
| Retained earnings | ₹ 60,000 | 2,40,000 |
| Non-current liabilities 10% debt | | 2,40,000 |
| Current liabilities | | 1,20,000 |
| | | 6,00,000 |
| **Assets** | | **(₹)** |
| Fixed Assets | | 4,50,000 |
| Current Assets | | 1,50,000 |
| | | 6,00,000 |

The company & total asset turnover ratio is 4. Its fixed operating cost is ₹ 2,00,000 and its variable operating cost ratio is 60%. The income tax rate is 30%.

Calculate:

(a) Degree of Operating leverage.

(b) Degree of Financial leverage.

(c) Degree of Combined leverage.

**Question 13**

Details of a company for the year ended 31st March, 2022 are given below

| | |
|---|---|
| Sales | ₹ 86 lakhs |
| Profit Volume (P/V) Ratio | 35% |
| Fixed Cost excluding interest expenses | ₹ 10 lakhs |
| 10% Debt | ₹ 55 lakhs |
| Equity Share Capital of ₹ 10 each | ₹ 75 lakhs |
| Income Tax Rate | 40% |

Required:

(i) Determine company's Return on Capital Employed (Pre-tax) and EPS.

(ii) Does the company have a favourable financial leverage?

(iii) Calculate operating and combined leverages of the company.

(iv) Calculate percentage change in EBIT, if sales increases by 10%.

(v) At what level of sales, the Earning before Tax (EBT) of the company will be equal to zero?

**Question 14**

Information of A Ltd. is given below:

- Earnings after tax: 5% on sales
- Income tax rate: 50%
- Degree of Operating Leverage: 4 times
- 10% Debenture in capital structure: ₹ 3 lakhs
- Variable costs: ₹ 6 lakhs

Required:

(i) From the given data complete following statement:

| | |
|---|---|
| Sales | XXXX |
| Less: Variable costs | ₹ 6,00,000 |
| Contribution | XXXX |
| Less: Fixed Costs | XXXX |
| EBIT | XXXX |
| Less: Interest expenses | XXXX |
| EBT | XXXX |
| Less: Income tax | XXXX |
| EAT | XXXX |

(ii) Calculate Financial Leverage and Combined Leverage.

(iii) Calculate the percentage change in earning per share, if sales increases by 5%.

Notes

Notes

# CAPITAL STRUCTURE

THEORY SECTION

## Meaning and Objective

The Dictionary meaning of the word Capital is "money required to start or run the business" and Structure means "arrangement". The objective of this chapter is to give the answer to the following question:

"How to arrange the money required to start or run the business?"

We should arrange capital or money in such a manner that the wealth of the shareholders increases and wealth of the shareholders increases when the MPS of the shares increases. Other things being constant MPS will increase when the EPS increases. In short, raise money in such a manner which helps us to maximises the EPS.

## Scope

In this chapter we will learn:

1. How to select the Financial Plan.
2. Calculation of Indifference Level and its importance.
3. Calculation of Financial Break-even Level and its importance.

## Indifference Level

Indifference level or indifference point is that level of EBIT where equity shareholders are indifferent between two plans i.e. at indifference level of EBIT, the EPS of two financial plans is the same.

At Indifference Level,

EPS (plan 1) = EPS (plan 2)

## Financial Break Even Point / Financial Break Even Level (F-BEP)

F-BEP is that level of EBIT, where the equity shareholders break even i.e. they are neither at profit nor at loss. It is that level of EBIT, where EPS of a particular plan is zero. F-BEP is that minimum level of EBIT which a plan should generate else the equity shareholders

will be at a loss. F-BEP is a measure of Financial Risk. Higher the financial Break even, higher is the financial risk. F-BEP of 0 indicates no financial risk.

$$F - BEP = Interest + \frac{Preference\ Dividend}{(1 - tax\ rate)}$$

### Importance of Indifference level and F-BEP

Indifference level along with F-BEP helps in selection of a particular plan. If the expected EBIT is more than the Indifference Level, select that plan which has higher F-BEP as EPS will be more. If the expected EBIT is less than indifference level, then select that plan which has lower F-BEP as EPS will be more. If expected EBIT is equal to indifference level then go for any plan.

CLASSWORK SECTION

**Question 1**

The Adarsh Ltd. is considering methods to finance its investment proposal. It is estimated that initially ₹ 4,00,000 will be needed. Two alternative methods of raising funds are available to the firm: (a) Issue of 15% Loan amounting to ₹ 2,00,000 and issue of 2,000 equity shares of ₹ 100 each; and (b) Issue of 4,000 equity shares of ₹ 100 each. The appropriate tax rate is 35 per cent.

(i) Assuming operating profits (EBIT) of: (a) ₹ 70,000, and (b) ₹ 80,000, which financing proposal would you recommend and why?

(ii) Compute the indifference point of the two financial plans & also verify the same.

(iii) Calculate FBEP.

(iv) Also determine two EBIT – EPS co-ordinates for each plan.

**Question 2**

A new project is under consideration in Zip Ltd., which requires a capital investment of ₹ 4.50 crores. Interest on term loan is 12% and Corporate Tax rate is 50%. If the Debt Equity ratio insisted by the financing agencies is 2: 1, calculate the point of indifference for the project.

**Question 3**

X Ltd. is considering the following two alternative financing plans:

| | Plan – I (₹) | Plan – II (₹) |
|---|---|---|
| Equity shares of ₹ 10 each | 4,00,000 | 4,00,000 |
| 12% Debentures | 2,00,000 | - |
| Preference Shares of ₹ 100 each | - | 2,00,000 |
| | 6,00,000 | 6,00,000 |

The indifference point between the plans is ₹ 2, 40,000. Corporate tax rate is 30%. Calculate the rate of dividend on preference shares.

**Question 4**

The particulars relating to Raj Ltd. for the year ended 31 st March, 2022 are given as follows:

| | |
|---|---|
| Output (units at normal capacity) | 1,00,000 |
| Selling price per unit | ₹ 40 |
| Variable cost per unit | ₹ 20 |
| Fixed cost | ₹ 10,00,000 |

The capital structure of the company as on 31st March, 2022 is as follows:

| Particulars | Amount in ₹ |
|---|---|
| Equity share capital (1,00,000 shares of ₹ 10 each) | 10,00,000 |
| Reserves and surplus | 5,00,000 |
| Current liabilities | 5,00,000 |
| Total | 20,00,000 |

Raj Ltd. has decided to undertake an expansion project to use the market potential that will involve ₹ 20 lakhs. The company expects an increase in output by 50%. Fixed cost will be increased by ₹ 5,00,000 and variable cost per unit will be decreased by 15%. The additional output can be sold at the existing selling price without any adverse impact on the market.

The following alternative schemes for financing the proposed expansion program are planned:

| | | (Amount in ₹) |
|---|---|---|
| Alternative | Debt | Equity Shares |
| 1 | 5,00,000 | Balance |
| 2 | 10,00,000 | Balance |
| 3 | 14,00,000 | Balance |

Current market price per share is ₹ 200.

Slab wise interest rate for fund borrowed is as follows:

| Fund limit | Applicable interest rate |
|---|---|
| Up-to ₹ 5,00,000 | 10% |
| Over₹ 5,00,000 and up-to ₹ 10,00,000 | 15% |
| Over ₹ 10,00,000 | 20% |

Find out which of the above-mentioned alternatives would you recommend for Raj Ltd. with reference to the EPS, assuming a corporate tax rate is 40%?

**Question 5**

Ganapati Limited is considering three financing plans. The key information is as follows:

(a) Total investment to be raised ₹ 2, 00,000

(b) Plans of Financing Proportion:

| Plans | Equity | Debt | Preference Shares |
|---|---|---|---|
| A | 100% | - | - |
| B | 50% | 50% | - |
| C | 50% | - | 50% |

(c) Cost of debt 8%
Cost of preference shares 8%
(d) Tax rate 50%
(e) Equity shares of the face value of ₹ 10 each will be issued at a premium of ₹ 10 per share.
(f) Expected EBIT is ₹ 80,000.

You are required to determine for each plan:-

(i) Earnings per share (EPS)
(ii) The financial break-even point.
(iii) Indicate if any of the plans dominate and compute the EBIT range among the plans for indifference.

**Question 6**

(a) The existing capital structure of XYZ Ltd. is as under :-

| | |
|---|---|
| Equity Shares of ₹ 100 each | ₹ 40,00,000 |
| Retained Earnings | ₹ 10,00,000 |
| 9% Preference Shares | ₹ 25,00,000 |
| 7% Debentures | ₹ 25,00,000 |

The existing rate of return on the company's capital is 12% and the income-tax rate is 50%.

The company requires a sum of ₹ 25,00,000 to finance its expansion programme for which it is considering the following alternatives :

(i) Issue of 20,000 equity shares at a premium of ₹ 25 per share.
(ii) Issue of 10% preference shares.
(iii) Issue of 8% debentures.

It is estimated that the Price Earning ratios in the cases of equity, preference and debenture financing would be 20, 17 and 16 respectively.

Which of the above alternatives would you consider to be the best?

(b) Give reasons for your choice in (a) above.

**Question 7**

The following figures are made available to you:

| | (₹) |
|---|---|
| Net profit for the year/EBIT | 18,00,000 |
| Interest on secured debentures at 15% p.a. | 1,12,500 |
| (debentures were issued 3 months after the commencement of the year) | 16,87,500 |

| | |
|---|---|
| Income - tax at 35% | |
| Number of equity shares (₹ 10 each) | 1,00,000 |
| Market quotation of equity share | 109.70 |

The company has accumulated revenue reserves of ₹ 12,00,000. The company is examining a project calling for an investment obligation of ₹ 10,00,000 ; this investment is expected to earn the same rate of return as funds already employed.

You are informed that a debt equity ratio (Debt divided by debt plus equity) higher than 60% will cause the price earning ratio to come down by 25%. The interest rate on additional borrowals will cost company 300 basis points more than on their current borrowal on secured debentures.

You are required to advise the company on the probable price of the equity share, if:

(a) the additional investment were to be raised way of loans ; or

(b) the additional investment were to be raised by way of equity.

HOMEWORK SECTION

**Question 1**

Shahji Steels Limited requires ₹ 25,00,000 for a new plant. This plant is expected to yield earnings before interest and taxes of ₹ 5,00,000. While deciding about the financial plan, the company considers the objective of maximizing earnings per share. It has three alternatives to finance the project - by raising debt of ₹ 2,50,000 or ₹ 10,00,000 or ₹15,00,000 and the balance, in each case, by issuing equity shares. The company's share is currently selling at ₹ 150, but is expected to decline to ₹ 125 in case the funds are borrowed in excess of ₹ 10,00,000. The funds can be borrowed at the rate of 10 percent upto ₹ 2,50,000, at 15 percent over ₹ 2,50,000 and upto ₹ 10,00,000 and at 20 percent over ₹ 10,00,000. The tax rate applicable to the company is 50 percent. Which form of financing should the company choose?

**Question 2**

Ganesha Limited is setting up a project with a capital outlay of ₹ 60,00,000. It has two alternatives in financing the project cost.

Alternative-I: 100% equity finance by issuing equity shares of ₹ 10 each

Alternative-II: Debt-equity ratio 2:1 (issuing equity shares of ₹ 10 each)

The rate of interest payable on the debts is 18% p.a. The corporate tax rate is 40%. Calculate the indifference point between the two alternative methods of financing.

**Question 3**

A promoter is considering methods to finance establishment of a company. Initially, ₹ 2,00,000 will be needed. The promoter is considering two proposals for the purpose:

(a) issue of 15% Debentures of ₹ 1,00,000, and issue of 1,000 equity shares of ₹ 100 each; and

(b) issue of 2,000 equity shares of ₹ 100 each. The tax rate is 35 per cent.

(i) (a) Compute the indifference point of the above proposed financial plans.

(b) Show that the indifference point computed in (a) above is correct.

(ii) Initially, the company is expected to operate at a level of 1,00,000 units (selling price ₹ 2 per unit; variable cost, Re.1 per unit, and fixed operating costs, ₹ 50,000). Calculate the Estimated EPS. Which Plan should be selected.

(iii) Assuming everything to be the same as given in situation (ii) except that sales rises by 20 per cent from 1,00,000 units to 1,20,000 units.

Calculate the EPS without making income statement for the selected plan.

**Question 4**

The following particulars relating to Navya Ltd. for the year ended 31st March 2021 is given:

| | |
|---|---|
| Output | 1,00,000 units at normal capacity |
| Selling price per unit | ₹ 40 |
| Variable cost per unit | ₹ 20 |
| Fixed cost | ₹ 10,00,000 |

The capital structure of the company as on 31st March, 2021 is as follows:

| Particulars | ₹ |
|---|---|
| Equity share capital (1,00,000 shares of ₹ 10 each) | 10,00,000 |
| Reserves and surplus | 5,00,000 |
| 7% debentures | 10,00,000 |
| Current liabilities | 5,00,000 |
| Total | 30,00,000 |

Navya Ltd. has decided to undertake an expansion project to use the market potential, that will involve ₹ 10 lakhs. The company expects an increase in output by 50%. Fixed cost will be increased by ₹ 5,00,000 and variable cost per unit will be decreased by 10%. The additional output can be sold at the existing selling price without any adverse impact on the market.

The following alternative schemes for financing the proposed expansion programme are planned:

(i) Entirely by equity shares of ₹ 10 each at par.

(ii) ₹ 5 lakh by issue of equity shares of ₹ 10 each and the balance by issue of 6% debentures of ₹ 100 each at par.

(iii) Entirely by 6% debentures of ₹ 100 each at par.

FIND out which of the above-mentioned alternatives would you recommend for Navya Ltd. with reference to the risk and return involved, assuming a corporate tax of 40%.

**Question 5**

Sun Ltd. is considering two financing plans. Details of which are as under:

(i) Fund's requirement – ₹ 100 Lakhs

(ii) Financial Plan

| Plan | Equity | Debt |
|---|---|---|
| I | 100% | - |
| II | 25% | 75% |

(iii) Cost of debt – 12% p.a.

(iv) Tax Rate – 30%

(v) Equity Share ₹ 10 each, issued at a premium of ₹ 15 per share

(vi) Expected Earnings before Interest and Taxes (EBIT) ₹ 40 Lakhs You are required to compute:

(i) EPS in each of the plan

(ii) The Financial Break Even Point

(iii) Indifference point between Plan I and II

**Question 6**

Akash Limited provides you the following information:

| | (Rs.) |
|---|---|
| Profit (EBIT) | 2,80,000 |
| Less: Interest on Debenture @ 10% | (40,000) |
| EBT | 2,40,000 |
| Less Income Tax @ 50% | (1,20,000) |
| | 1,20,000 |
| No. of Equity Shares ( Rs. 10 each) | 30,000 |
| Earnings per share (EPS) | 4 |
| Price /EPS (PE) Ratio | 10 |

The company has reserves and surplus of Rs. 7,00,000 and required Rs. 4,00,000 further for modernization. Return on Capital Employed (ROCE) is constant. Debt (Debt/ Debt + Equity) Ratio higher than 40% will bring the P/E Ratio down to 8 and increase the interest rate on additional debts to 12%. You are required to ascertain the probable price of the share.

(i) If the additional capital are raised as debt; and

(ii) If the amount is raised by issuing equity shares at ruling market

**Question 7**

Yoyo Limited presently has ₹ 36,00,000 in debt outstanding bearing an interest rate of 10 per cent. It wishes to finance a ₹ 40,00,000 expansion programme and is considering three alternatives: additional debt at 12 per cent interest, preference shares with an 11 per cent dividend, and the issue of equity shares at ₹ 16 per share. The company presently has 8,00,000 shares outstanding and is in a 40 per cent tax bracket.

(a) If earnings before interest and taxes are presently ₹ 15,00,000, DETERMINE earnings per share for the three alternatives, assuming no immediate increase in profitability?

(b) ANALYSE which alternative do you prefer? COMPUTE how much would EBIT need to increase before the next alternative would be best?

Notes

Notes

# COST OF CAPITAL

THEORY SECTION

## Meaning and Objective

The minimum required rate of return expected by the investors on their investment is the cost of capital. Cost of capital acts as a cut-off rate in selection of long term investment proposals. It is also useful in capital structure decisions. Cost of capital is also known as cut-off rate, overall cost of capital, weighted average cost of capital, hurdle rate, composite cost of capital, WACC, K0, etc.

## Scope

In this chapter we will learn

(1) Calculation of Specific cost of Capital

(2) Calculation of Overall cost of Capital

(3) Capital structure theories

* **Specific cost of capital**

**(a) Cost of Debt (Kd)**

(i) Cost of irredeemable / perpetual debt

$$kd = \frac{\text{Interest}\,(1-\text{tax rate})}{\text{Net Proceeds}} \times 100$$

(ii) Cost of Redeemable Debt

$$kd = \frac{\text{Interest}\,(1-\text{tax rate}) + (RV-NP)/n}{(RV+NP)/2} \times 100$$

Where, RV is the redemption value and NP is the Net Proceeds.

**(b) Cost of Preference Shares (Kp)**

(i) Cost of irredeemable / perpetual preference shares

$$Kp = \frac{\text{Preference Dividend}}{\text{Net Proceeds}} \times 100$$

(ii) Cost of Redeemable Preference shares

$$Kp = \frac{\text{Preference Dividend} + (RV - NP)/n}{(RV + NP)/2} \times 100$$

Where, RV is the redemption value and NP is the Net Proceeds, DDT is dividend distribution Tax.

**(c) Cost of Equity (Ke)**

(i) Dividend Yield Approach / Dividend Price Approach

$$Ke\,(existing) = \frac{DPS}{MPS} \times 100 \text{ or } Ke\,(new) \frac{DPS}{\text{Net Proceeds}} \times 100$$

DPS is Expected Dividends per share

MPS is the Market price per share

This approach takes into account the fact that investor is prepared to pay a particular market price taking into account the expected dividend e.g. if the expected dividends are ₹ 5 and the prevailing market price is ₹ 20, then the cost of equity works out to 25%. Under this approach it is presumed that the investors only expects dividends while making the investments i.e. the investors does not aspire for capital appreciation. Secondly, this approach is based on the profits which are expected to be distributed among the shareholders rather than what is available for the investors.

(ii) Earnings Yield Approach/ Earnings Price Approach

$$Ke\,(existing) = \frac{EPS}{MPS} \times 100 \text{ or } Ke\,(new) \frac{EPS}{\text{Net Proceeds}} \times 100$$

EPS is Expected Earnings per share

MPS is the Market price per share

This approach removes the defect of the earlier approach i.e. the cost is calculated with reference to the amount available for Equity shareholders rather than amounts distributed. However, even this approach ignores he growth factor.

(iii) Dividend Yield Approach + Growth Model / Gordon's Formula / Dividend Discount Model / Constant Growth Model

$$Ke\,(existing) = \frac{D1}{P0} \times 100 + g \text{ or } Ke\,(new) \frac{D1}{\text{Net Proceeds}} \times 100 + g$$

Where, D1 is the expected dividend at the end of year 1
P0 is the market price of the share now
G is the growth in dividends

While dividend price approach assumes constant amount of dividend per share year after year. This method assumes dividend per share to change year after year at constant rate. This method is based on the assumption that equity shareholders are not just satisfied with present rate of dividend but they expect an increase in it every year at a constant rate.

This formula is also used to calculate the Fair Value / Equilibrium Price / Justifiable Price / Intrinsic Value / Theoretical Price of the share

$$P0 = \frac{D1}{(Ke - g)} x100$$

Assumptions

- Ke is assumed to be constant
- Growth in dividend is constant
- Ke > g

(iv) Earnings Yield Approach + Growth Model

$$Ke\,(existing) = \frac{E1}{P0} x\,100 + g \text{ or } Ke\,(new) \frac{E1}{Net\,Proceeds} x\ 100$$

Where, E1 is the expected dividend at the end of year 1
P0 is the market price of the share now
G is the growth in earnings

**(v) Realised Yield Approach**

According to this approach, the cost of equity capital should bedetermined on the basis of return actually realised by the investors in a company on their equity shares. Thus, according to this approach the past records in a given period regarding dividends and the actual capital apprecation in the value of the equity shares held by the shareholders should be taken to compute the cost of equity capital.

This approach gives fairly good results in case of companies with stable dividends and growth records. In case of such companies, it can be assumed with reasonable degree of certainty that the past behaviour will be repeated in the future also.

### (vi) Capital Asset Pricing Model (CAPM)

Any rate of return including cost of equity capital is affected by the risk. If an investment is more risky, the investor will demand higher compensation in the form of higher expected returns. The equity shareholders receive dividends after interest has been paid to the debt holders and preference dividend to the preference shareholders. This means their return will be volatile with reference to the change in the company's performance. The cost of equity capital will be higher than that of other sources to reflect this risk.

CAPM classifies the total risk associated with a security / asset into two classes i.e.

(i) the diversifiable risk or unsystematic risk and,

(ii) non-diversifiable risk or systematic risk. The diversifiable risk refers to the risk which can be eliminated by more and more diversification. On the other hand, non-diversifiable risk is that which affects all the firms at a particular point of time and hence cannot be eliminated e.g. risk of political uncertainties, risk of government policies, etc.

An investor can eliminate the diversifiable risk by diversification into more and more securities; however, the non diversifiable risk is the point where investor's attention is required. This non-diversifiable risk of a security is measured in relation to the market portfolio and is denoted by beta coefficient, β. In order to estimate the required rate of return of the equity investors, the risk associated with the shares as represented by β needs to be estimated.

As per CAPM,

$$Ke = Irf + (Rm - Irf)\ \beta$$

Where, Irf is the return from risk free securities

Rm = Return from the market portfolio

β = beta factor

(Rm - Irf) = Market risk premium

β is a measure of the systematic risk of a security.

β is an Index of how sensitive the returns of a security are to the market returns. β is a measure of how responsive the price of a share is to the market movement. If β = 1, it means the security exactly copies the market movement i.e. has same risk as the market. If β = 2 it means the share is twice as risky as market. If β = 0.5, it means that security is only half as risky as market i.e. only half of the market movement is reflected in the price of the share.

### (d) Cost of retained Earnings (Kr)

Generally, companies do not distribute the entire profits by way of dividends among the shareholders. A part of such profits is retained for future expansion and development. Hence, the equity shareholders block their money with the company in two ways (i) directly by subscribing to the shares and (ii) amount retained by the company. Apparently, retained earnings may appear to carry no cost since they represent funds which have not been raised from outside, but that is not the case. If earnings are not retained they will be distributed in the form of dividends and hence cost of retained earnings must therefore be viewed as the opportunity cost of the forgone dividends to the equity shareholders. Cost of retained earnings is equal to the income what a shareholder could have earned otherwise by investing the same in an alternative investment, if the company would have distributed the earnings by way of dividends instead of retaining it in the business. Therefore every shareholder expects from the company that much of income on the retained earnings for which he is deprived of the income arising on its alternative investment.Since it is very difficult to ascertain the opportunity cost forgone, in absence of information, it is assumed that the equity shareholders expected the same rate of return which they expect on their equity share capital. Hence, if no information is given Kr = Ke.

Note: While computing Kr floatation costs are to be ignored.

### * Weighted Average Cost of Capital

| Sources | Amount | Weights | Cost in % | W*C |
|---|---|---|---|---|
| Debt | xxx | xx | xxx | xx |
| Preference Share Capital | xxx | xx | xxx | xx |
| Equity Share Capital | xxx | xx | xxx | xx |
| Retained Earnings | xxx | xx | xxx | xx |
| | | | | WACC xxx |

### Types of Weights to ascertain WACC

#### 1. Book Value / Balance Sheet Value weights

In this case, to calculate the WACC Book Values or Balance Sheet Values of each source of finance are considered for ascertaining weights.

#### 2. Market Value weights

In this case, for calculating WACC, Market value of each source of Finance is considered for ascertaining weights. Between Market values and Book values preference is

to be given to Market Value as investors invest always at Market Values and not Book Values. While calculating WACC as per Market Value weights ignore Retained Earnings as the market value of Equity Share Capital includes the Value of Retained earnings.

### 3. Marginal Value Weights

Whenever we have to calculate WACC for any specific or additional project, Marginal Value Weights are considered. In this case, the proportion of additional funds raised is considered as weights to calculate WACC.

## * Capital Structure Theories

General assumptions of Capital structure theories

The relationship between the leverage, cost of capital and the value of the firm has been analysed and examined in different ways. However, the following assumptions have been made to understand this relationship.

(1) There are only two sources of funds i.e.equity and debt, which is having fixed interest. (No preference share capital)

(2) The total assets of the firm are given and there would be no change in the investing decision of the firm (Total assets of the firm remain the same)

(3) The firm has a policy of distributing the entire profits among the shareholders. (100% Payout Ratio)

(4) The operating profits of the firm are given and are expected to remain constant. (EBIT to remain constant)

(5) The Operating or the business risk of the firm is given and assumed to be constant. (Operating Leverage to remain same)

(6) There are no corporate or Personal taxes

(7) Kd is less than Ko

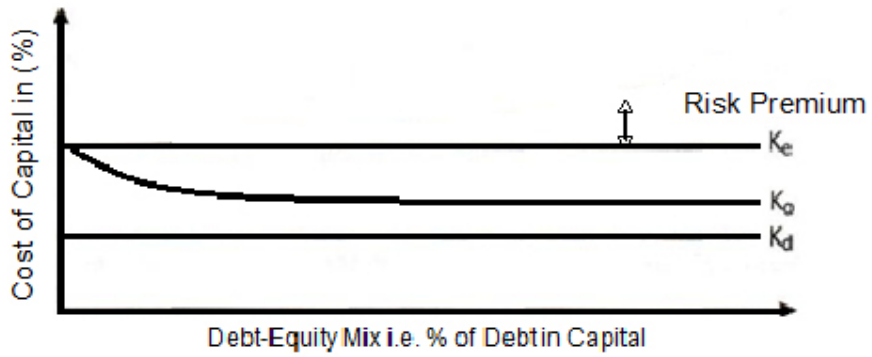
### Net Income Approach

This theory was suggested by David Durand. The NI approach to the relationship between Debt-Equity Mix, cost of Capital and Value of the firm is the simplest in approach and explanation. This theory states that there is a relationship between the capital structure and the Ko of the firm. If there will be change in the capital structure, WACC will definitely change.

Apart from the general assumptions the following additional assumptions are made by this theory

- Both Kd and Ke are assumed to remain same irrespective of the debt equity mix i.e. change in the capital structure doesn't affect the risk perception of the investors.

The NI approach start with the argument that change in the financial mix of the firm will lead to change in the WACC and hence it will affect the Overall Value of the firm. As Kd is less than Ke, the increased use of cheaper debt in the overall capital structure will result in magnified returns available to the shareholders. The increased returns to the shareholders will increase the total value of the equity and thus increases the total value of the firm. NI approach suggest that higher the degree of leverage, better it is, as the value of the firm would be higher. In other words, a firm can increase its value just by increasing the debt proportion in the capital structure.



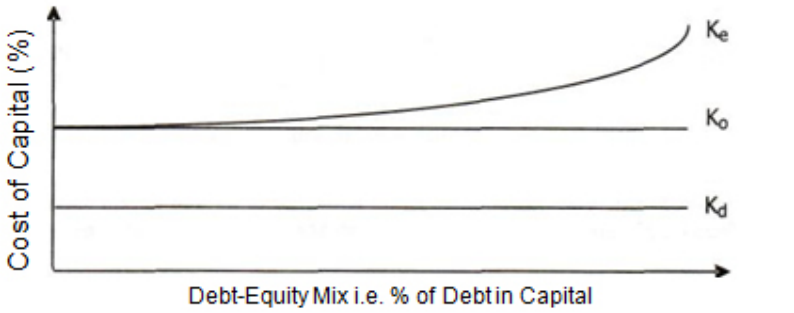

## Net Operating Income Approach

The NOI approach is opposite to the NI approach. This is also known as Independent Hypothesis. According to the NOI approach, the market value of the firm depends upon the net operating profit or EBIT and the overall cost of Capital, WACC. The financing mix or the capital structure is irrelevant and does not affect the value of the firm. The NOI approach has made the following assumptions

- The cost of the Debt, Kd, is taken to be constant
- The use of more and more debt in the capital structure increases the risk perception of the shareholders and thus their expectation in the form returns also increases. The increase in Ke is such as to completely offset the benefits of employing the cheaper debt.

As the debt proportion or the financial leverage increases, the risk of the equity shareholders also increases and thus Ke also increases. However, the increase in Ke, is such that the overall all value of the firm remains the same. It may be noted that for

an all equity firm the Ke is just equal to Ko. As the debt proportion increases, Ke also increases. However, the Ko remains constant because increase in Ke is just sufficient to offset the benefits of cheaper debt financing. Under the NOI approach Ko is constant and therefore there is no optimal Capital structure, rather every capital structure is as good as any other and every capital structure is optimum.




### Traditional Approach

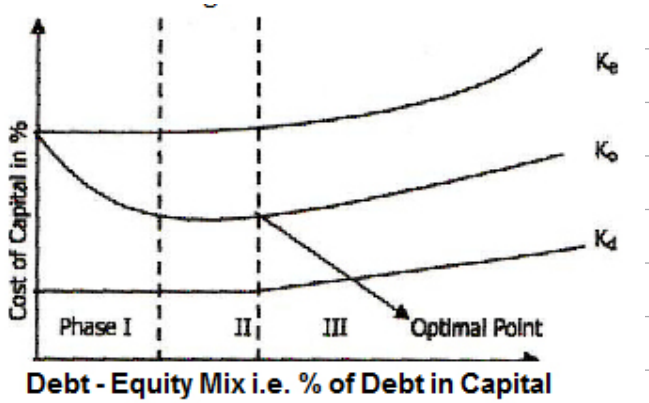
Traditional Approach is a practical viewpoint. The NI and the NOI approach hold extreme views on the relationship between the Debt Equity Mix, cost of capital and Value of the Firm. In practical situation, both these approaches seem to be unrealistic.

As per Traditional Approach the firm should make a judicious use of both the debt and the equity to achieve a capital structure which may be called the optimal capital structure. At this capital structure, the overall cost of capital, WACC, of the firm will be minimum and the value of the firm will be maximum.

The traditional view states that the value of the firm increases with increase in the Debt Equity mix but up to a certain limit only. Beyond this limit, the increase in the financial leverage will increase its WACC also, and the value of the firm will decrease.

When (cheaper) debt is introduced in the capital structure and the financial leverage increases, the Ke remains the same as the equity investors expect a minimum leverage in every firm. The Ke, doesn't increases even with the increase in the debt proportion. The argument for Ke, remaining unchanged may be that up to a particular degree of leverage, the interest charge may not be large enough to pose a real threat to the dividend payable to the shareholders. This constant Kd and Ke will make the Ko fall. Thus, it shows that the benefits of cheaper debts are available to the firm. This position doesn't continue when leverage in future increases.

The increase in leverage beyond the limit increases the risk perception of the equity investors also and as a result the Ke, starts increasing. However, the benefits of use of Debt in the capital structure will be so large, that even after off- setting the effects of increased Ke, the Ko may still go down or may become constant for some degree of FL. If the firm increases the FL further then the risk perception of the Debt investor will also increase. The already rising Ke and now increase in the Kd will result into increase of Ko. Therefore, the use of leverage beyond a point will have the effect of increase in the overall cost of Capital of the firm resulting into decrease in the value of the firm.




## Modigliani Miller Approach

MM have favoured the NOI approach i.e. the Value of the firm remains the same, irrespective of the Capital structure. There is nothing known as Optimum Capital Structure and for any Debt equity Mix the Ko remains the same and hence the value of the firm remains the same. This point they have proved with the help of a behavioural process known as arbitrage process.

MM model argues that, if two firms are alike in all aspect expect in their capital structure and Market Value, then the investors will develop a tendency to sell the shares of the overvalued firm (creating a selling pressure) and to buy the shares of the undervalued firm (creating buying pressure). This, buying and selling will continue till the two firms have same market value.

So as per MM, when two companies are identical, there exist a value known as equilibrium value and Ko known as equilibrium Ko.

Therefore, as per MM, if there are no taxes

Value of Levered Co. = Value of Unlevered Co.

MM model, if there are corporate taxes

Value of Levered Co. = Value of Unlevered Co. + Debt x tax rate.

The MM model works under the following set of assumptions

(1) There are 2 sources of finance – Debt and Equity.

(2) No corporate and personal taxes (later on this assumption was relaxed).

(3) Investors have all the full knowledge of the over valuation and under valuation of the firm.

(4) The Loan is available to the investors at the same rate of interest at which it is available to the company.

(5) Investors are rational wanting to earn arbitrage profits.

(6) There are no frictions in trading i.e. no transaction costs.

CLASSWORK SECTION

**Question 1**

(a) A company issues ₹ 10,00,000 16% Debentures of ₹ 100 each. The company is in 35% tax bracket. You are required to calculate the cost of debt after tax, if debentures are issued at (i) Par, (ii) 10% discount and (iii) 10% premium.

(b) If brokerage is paid at 2% what will be the cost of the debentures if the issue is at premium of 10%.

**Question 2**

A Company is considering raising of funds of about ₹ 100 Lakhs by one of the two alternative methods. Viz, 14% institutional term loan and 13% non - convertible debentures. The term loan option would attract no major incidental cost and can be ignored. The debentures would have to be issued at a discount of 2.5% and would involve cost of issue of 2% on face value.

ADVISE the company as to the better option based on the effective cost of capital in each case. Assume a tax rate of 50%.

**Question 3**

The share of ABC Ltd. is presently traded at ₹ 50 and the company is expected to pay dividends of ₹ 4 per share with a growth rate expected at 8% p.a. It plans to raise fresh equity share capital. The merchant banker has suggested that an under pricing of the Re. 1 is necessary in pricing the new issue besides involving a cost of 50 paise per share on misc. expenses. Find out the cost of existing shares as well as the new equity given that the dividend rate and growth rate are not expected to change.

**Question 4**

The Servex Company has the following capital structure on 30th June.

| | (₹) |
|---|---|
| Ordinary Shares (2,00,000 shares) | 40,00,000 |
| 10% Preference Shares | 10,00,000 |
| 14% Debentures | 30,00,000 |
| | 80,00,000 |

The share of the company sells for ₹ 20. It is expected that company will pay next year a dividend of ₹ 2 per share, which will grow at 7 per cent forever. Assume a 50 per cent tax rate.

You are required to:

(a) Compute a weighted average cost of capital based on the existing capital structure.

(b) Compute the new weighted average cost of capital if the company raises an additional ₹ 20 lakh debt by issuing 15 per cent Debentures. This would result in increasing the expected dividend to ₹ 3 and leave the growth rate unchanged, but the price of share will fall to ₹ 15 per share.

Use book value weights.

**Question 5**

| The latest Balance Sheet of D Ltd. is given below: | (₹ '000) |
|---|---|
| Ordinary shares (50000 shares) | 500 |
| Share Premium | 100 |
| Retained Profits | 600 |
| | 1,200 |
| 8% Preference Shares | 400 |
| 13% Perpetual debt (Face value ₹ 100 each) | 600 |
| | 2,200 |

The ordinary shares are currently priced at ₹ 39 ex-dividend each and ₹ 25 preference share is priced at ₹ 18 cum - dividend. The debentures are selling at 110 per cent ex-interest and tax is paid by D Ltd. at 40 per cent. D Ltd.'s cost of equity has been estimated at 19 per cent.

Calculated the weighted average cost of capital, (based on market value) of D Ltd.

**Question 6**

Masco Limited wishes to raise additional finance of ₹ 10 lakhs for meeting its investment plans. It has ₹ 2,10,000 in the form of retained earnings available for investment purposes. Further details are as following:

| | | |
|---|---|---|
| (1) | Debt / equity mix | 30%/70% |
| (2) | Cost of debt | |
| | Upto ₹ 1,80,000 | 10% (before tax) |
| | Beyond ₹ 1,80,000 | 16% (before tax) |
| (3) | Earnings per share | ₹ 4 |
| (4) | Dividend pay out | 50% of earnings |
| (5) | Expected growth rate in dividend | 10% |
| (6) | Current market price per share | ₹ 44 |
| (7) | Tax rate | 50% |

You are required:

(a) To determine the pattern for raising the additional finance.

(b) To determine the post-tax average cost of additional debt.

(c) To determine the cost of retained earnings and cost of equity, and

(d) Compute the overall weighted average after tax cost of additional finance.

(e) Also Calculate the maximum capital expenditure that can be inurred without fresh issue of equity chares.

**Question 7**

Equity shareholders funds is ₹ 1,00,000/-, ROE is 20%, Dividend payout ratio is 40%. Calculate growth rate. Assume ROE and payout ratio to remain the same.

**Question 8**

The Fincon Ltd. is planning an equity issue in the current year. It has an expected Earning per share (EPS) of ₹ 25 and proposes to pay a dividend of ₹ 15 per share at the current year-end. With a P/E ratio of 8, it wants to offer the issue at market price. The flotation cost is expected to be 10 per cent of the issue price.

Determine the required rate of return for equity shares (cost of equity) before issue and after the issue.

**Question 9**

ABC Ltd. has the following capital structure which is considered to be optimum as on 31st March, 2017.

| | (₹) |
|---|---|
| 14% Debentures | 30,000 |
| 11% Preference shares | 10,000 |
| Equity Shares (10,000 shares) | 1,60,000 |
| | 2,00,000 |

The company share has a market price of ₹ 23.60. Next year dividend per share is 50% of year 2017 EPS. The following is the trend of EPS for the preceding 10 years which is expected to continue in future.

| Year | EPS (₹) | Year | EPS (₹) |
|---|---|---|---|
| 2008 | 1.00 | 2013 | 1.61 |
| 2009 | 1.10 | 2014 | 1.77 |
| 2010 | 1.21 | 2015 | 1.95 |
| 2011 | 1.33 | 2016 | 2.15 |
| 2012 | 1.46 | 2017 | 2.36 |

The company issued new debentures carrying 16% rate of interest and the current market price of debenture is ₹ 96.

Preference share ₹ 9.20 (with annual dividend of ₹ 1.1 per share) were also issued. The company is in 50% tax bracket.

(A) Calculate after tax:
  (i) Cost of new debt
  (ii) Cost of new preference shares
  (iii) New equity share (assuming new equity from retained earnings)

(B) Calculate marginal cost of capital when no new shares are issued.

(C) How much can be spent for capital investment before new ordinary shares must be sold. Assuming that retained earnings for next year's investment are 50 percent of 2017. Earnings.

(D) What will the marginal cost of capital when the funds exceeds the amount calculated in (C), assuming new equity is issued at ₹ 20 per share?

**Question 10**

Assuming the corporate tax rate of 35 per cent, compute the after tax cost of capital in the following situations:

(i) Perpetual 15% Debentures of ₹ 1.000, sold at a premium of 10 per cent with no flotation costs.

(ii) 10 year 14% Debentures of ₹ 2.000, redeemable at par and issued with 5 percent flotation costs.

(iii) 10 year 14% Preference shares of ₹ 100, redeemable at premium of 5 per cent and issued with 5 per cent flotation costs. Dividend tax is 10 per cent.

(iv) An equity share selling at ₹ 50 and paying a dividend of ₹6 per share, which is expected to continue indefinitely.

(v) An equity share is selling at ₹ 120 per share. The expected EPS is ₹ 20 of which 50% is paid in dividends. The shareholders expect the company to earn a constant after tax rate of 10 per cent on its investments of retained earnings.

**Question 11**

Calculate the WACC using the following data by using:

(a) Market value weights

The capital structure of the company is as under:

| | (₹) |
|---|---|
| Debentures (₹ 100 per debenture) | 5,00,000 |
| Preference shares (₹100 per share) | 5,00,000 |
| Equity shares (₹ 10 per share) | 10,00,000 |
| | 20,00,000 |

The market prices of these securities are:

Debentures ₹ 105 per debenture

Preference shares ₹ 110 per preference share

Equity shares ₹ 24 each.

Additional information:

(1) ₹ 100 per debenture redeemable at par, 10% coupon rate, 4% floatation costs, 10 year maturity.

(2) ₹100 per preference share redeemable at par, 5% coupon rate, 2% floatation cost and 10 year maturity.

(3) Equity shares has ₹ 4 floatation cost and market price ₹ 24 per share. The next year expected dividend is ₹ 1 with annual growth of 5%. The firm has practice of paying all earnings in the form of dividend.

Corporate tax rate is 50%.

**Question 12**

Determine the Cost of Capital using the Book Value (BV) Ifrom the following information -

| Particulars | Book Value (inRs.) |
|---|---|
| Equity Shares | 1,20,00,000 |
| Retained Earnings | 30,00,000 |
| Preference Shares | 9,00,000 |
| Debentures | 36,00,000 |

Additional. Information:

1. Equity: Equity Shares are quoted at Rs. 130 per Share and a New Issue priced at Rs. 125 per Share will be fully subscribed, Floatation Costs will be Rs. 5 per Share.
2. Dividend: During the previous 4 years, Dividends have steadily increased from Rs. 10.60 to Rs. 14.19 per Share. Dividend at the end of the Current year is expected to be Rs. 15 per Share.
3. Preference Shares: 15% Preference Shares with Face Value of Rs. 100 would realize Rs. 105 per Share.
4. Debentures: The Company proposes to issue 11-year 15% Debentures but the yield on Debentures of similar maturity and risk class is 16%, Floatation Cost is 2% of face value.
5. Tax: Corporate Tax Rate is 35%. Ignore Dividend Tax.

**Question 13**

In March, 2021 Tiruv Ltd's share was sold for ₹ 219 per share. A long term earnings growth rate of 11.25% is anticipated. Tiruv Ltd. is expected to pay dividend of ₹5.04 per share.

(i) DETERMINE the rate of return an investor can expect to earn assuming that dividends are expected to grow along with earnings at 11.25% per year in perpetuity?

(ii) It is expected that Tiruv Ltd. will earn about 15% on book equity and shall retain 60% of earnings. In this case, whether, there would be any change in growth rate and cost of equity? ANALYSE.

**Question 14**

Y Ltd. retains ₹ 7,50,000 out of its current earnings. The expected rate of return to the shareholders, if they had invested the funds elsewhere is 10%. The brokerage is 3% and the shareholders come in 30% tax bracket. Calculate the cost of retained earnings.

**Question 15**

ABC Limited has the following book value capital structure:

| | |
|---|---|
| Equity Share Capital (150 million shares, ₹ 10 par) | ₹ 1,500 million |
| Reserves and Surplus | ₹ 2,250 million |
| 10.5% Preference Share Capital (1 million shares, ₹ 100 par) | ₹ 100 million |
| 9.5% Debentures (1.5 million debentures, ₹ 1,000 par) | ₹ 1,500 million |
| 8.5% Term Loans from Financial Institutions | ₹ 500 million |

The debentures of ABC Limited are redeemable after three years and are quoting at ₹ 981.05 per debenture. The applicable income tax rate for the company is 35%.

The current market price per equity share is ₹ 60. The prevailing default-risk free interest rate on 10- year GOI Treasury Bonds is 5.5%. The average market risk premium is 8%. The beta of the company is 1.1875.

The preferred stock of the company is redeemable after 5 years is currently selling at ₹ 98.15 per preference share.

**Required:**

Calculate weighted average cost of capital of the company using market value weights.

**Question 16**

Calculate Cost of Equity from the following data using realised yield approach.

| Year | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| DPS | 1 | 1 | 1.2 | 1.25 | 1.15 |
| Price per share [at the beginning] | 9 | 9.75 | 11.5 | 11 | 10.60 |

Notes

Notes

# CAPITAL STRUCTURE THEORIES

## CLASSWORK SECTION

**Question 1**

ABC, Ltd., is expecting an annual Earnings before the payment of Interest and Tax of ₹ 2 lacs. The company in its capital structure has ₹ 8 lacs in 10% debentures. The cost of equity or capitalisation rate is 12.5%. You are required to calculate the value of firm according to NI Approach. Also compute the overall cost of capital. If the firm borrows another ₹ 2,00,000. Calculate the Revised value and cost of capital of the company.

**Question 2**

ABC Ltd., is expecting an Earning before interest & tax of ₹ 4,00,000 and belongs to risk class of 10%. You are required to find out the value of firm & cost of equity capital if it employs 8% debt to the extent of 20%, 35% or 50% of the total financial requirement of ₹ 20,00,000.

Use NOI approach.

**Question 3**

Abhishek Ltd. with EBIT of ₹ 3,00,000 is evaluating a number of possible capital structures, given below. Which of the capital structure will you recommend, and why? Ignore tax

| Capital Structure | Debt ( ₹ ) | kd% | ke% |
|---|---|---|---|
| I | 3,00,000 | 10.0 | 12.0 |
| II | 4,00,000 | 10.0 | 12.5 |
| III | 5,00,000 | 11.0 | 13.5 |
| IV | 6,00,000 | 12.0 | 15.0 |
| V | 7,00,000 | 14.0 | 18.0 |

**Question 4**

Kee Ltd. and Lee Ltd. are identical in every respect except for capital structure. Kee Ltd. does not employ debt in its capital structure, whereas Lee Ltd. employs 12% debentures

amounting to Rs. 20 lakhs. Assuming that:

(i) All assumptions of MM model are met;

(ii) The income tax rate is 30%;

(iii) EBIT is Rs. 5,00,000 and

(iv) The equity capitalization rate of Kee Ltd. is 25%.

CALCULATE the average value of both the Companies.

**Question 5**

RES Ltd. is an all equity financed company with a market value of ₹ 25,00,000 and cost of equity, ke = 21%. The company wants to buyback equity shares worth ₹ 5,00,000 by issuing and raising 15% perpetual debt of the same amount. Rate of tax may be taken as 30%. After the capital restructuring and applying MM Model (with taxes), you are required to calculate:

(i) Market value of RES Ltd.

(ii) Cost of Equity ke

(iii) Weighted average cost of capital and comment on it.

**Question 6**

There are two company N Ltd. and M Ltd., having same earnings before interest and taxes i.e. EBIT of ₹ 20,000. M Ltd. is a levered company having a debt of ₹ 1,00,000 @ 7% rate of interest. The cost of equity of N Ltd. is 10% and of M Ltd. is 11.50%. Find out how arbitrage process will be carried on?

**Question 7**

There are two companies U Ltd. and L Ltd., having same NOI of ₹ 20,000 except that L Ltd. is a levered company having a debt of ₹1,00,000 @ 7% and cost of equity of U Ltd.& L Ltd. are 10% and 18% respectively.

Show how arbitrage process will work.

**Question 8**

The following are the costs and values for the firms A and B according to the traditional approach.

| | Firm A | Firm B |
|---|---|---|
| Total value of firm, V (in ₹) | 50,000 | 60,000 |
| Market value of debt, D (in ₹) | 0 | 30,000 |
| Market value of equity, E (in ₹) | 50,000 | 30,000 |

| | | |
|---|---|---|
| Expected net operating income (in ₹) | 5,000 | 5,000 |
| Cost of debt (in ₹) | 0 | 1,800 |
| Net income (in ₹) | 5,000 | 3,200 |
| Cost of equity, $K_e$ = NI/V | 10.00% | 10.70% |

(i) Compute the Equilibrium value for firm A and B in accordance with the M - M approach. Assume that (a) taxes do not exist and (b) the equilibrium value of Ke is 9.09%

(ii) Compute Value of Equity and Cost of Equity for both the firms.

**Question 9**

Leo Ltd. has a net operating income of ₹21,60,000 and the total capitalisation of ₹120 lakhs. The company is evaluating the options to introduce debt financing in the capital structure and the following information is available at various levels of debt value.

| Debt Value (₹) | Interest rate (%) | Equity Capitalisation rate (%) |
|---|---|---|
| 0 | N.A. | 12.00 |
| 10,00,000 | 7.00 | 12.50 |
| 20,00,000 | 7.00 | 13.00 |
| 30,00,000 | 7.50 | 13.50 |
| 40,00,000 | 7.50 | 14.00 |
| 50,00,000 | 8.00 | 15.00 |
| 60,00,000 | 8.50 | 16.00 |
| 70,00,000 | 9.00 | 17.00 |
| 80,00,000 | 10.00 | 20.00 |

You are required to COMPUTE the equity capitalization rate if MM approach is followed. Assume that the operates in zero tax regime and calculations to be based on book values.

**Question 10**

The proportion and required return of debt and equity was recorded for a company with its increased financial leverage as below:

| Debt (%) | Required return (Kd) (%) | Equity (%) | Required Return (Ke) (%) | Weighted Average Cost of Capital (WACC) (Ko) (%) |
|---|---|---|---|---|
| 0 | 5 | 100 | 15 | 15 |
| 20 | 6 | 80 | 16 | ? |
| 40 | 7 | 60 | 18 | ? |
| 60 | 10 | 40 | 23 | ? |
| 80 | 15 | 20 | 35 | ? |

You are required to complete the table and IDENTIFY which capital structure is most beneficial for this company. (Based on traditional theory, i.e., capital structure is relevant).

HOMEWORK SECTION

**Question 1**

Five years ago, Sona Limited issued 12 per cent irredeemable debentures at ₹ 103, at ₹ 3 premium to their par value of ₹ 100. The current market price of these debentures is ₹ 94. If the company pays corporate tax at a rate of 35 per cent what is its current cost of debenture capital?

**Question 2**

XYZ Ltd. issues 2,000 10% preference shares of ₹ 100 each at ₹ 95 each. The company proposes to redeem the preference shares at the end of 10th year from the date of issue. Calculate the cost of preference share?

**Question 3**

The following are the costs and values for the firms A and B according to the traditional approach:

| | Firm A | Firm B |
|---|---|---|
| Total value of firm, V | 50,000 | 60,000 |
| Market value of debt, D | 0 | 30,000 |
| Market value of equity, E | 50,000 | 30,000 |
| Expected net operating income | 5,000 | 5,000 |
| - Cost of debt | 0 | 1,800 |
| Net income | 5,000 | 3,200 |
| Cost of equity, ke | 10.00% | 10.67% |

Compute the equilibrium value for Firm A and B in accordance with the M - M approach. Assume that (i) taxes do not exist and (ii) the equilibrium value of k0 is 9.09%.

**Question 4**

There are two firms P and Q which are identical except P does not use any debt in its capital structure while Q has ₹ 8,00,000, 9% debentures in its capital structure. Both the firms have earning before interest and tax of ₹ 2,60,000 p.a. and the capitalisation rate is 10%. Assuming the corporate tax of 30%, calculate the value of these firms according to MM Hypothesis.

**Question 5**

The following details are provided by the GPS Limited:

| | (₹) |
|---|---|
| Equity Share Capital | 65,00,000 |
| 12% Preference Share Capital | 12,00,000 |
| 15% Redeemable Debentures | 20,00,000 |
| 10% Convertible Debentures | 8,00,000 |

The cost of equity capital for the company is 16.30% and Income Tax rate for the company is 30%.

You are required to calculate the Weighted Average Cost of Capital (WACC) of the company.

**Question 6**

From the following capital structure of a company, calculate the overall cost of capital, using (a) book value weights, and (b) market value weights

| Sources | Book Value | Market Value |
|---|---|---|
| Equity Share capital (₹10 shares) | 45,000 | 90,000 |
| Retained Earnings | 15,000 | ---- |
| Preference share capital | 10,000 | 15,000 |
| Debentures | 30,000 | 35,000 |

The after tax cost of different sources of finance is as follows:

Equity share capital – 14%

Preference share capital – 10%

Debentures – 5%

**Question 7**

XYZ Ltd., is expecting an EBIT of ₹ 3,00,000. The company presently raised its entire fund requirement of ₹ 20 lakhs by issue of equity at a capitalisation rate of 16%. The firm is now contemplating to redeem a part of capital by introducing debt financing. The firm has two options-to raise debt to the extent of 30% or 50% of total funds. It is expected that for debt financing upto 30% the rate of interest will be 10% and equity capitalisation rate is expected to increases to 17%. However, if firm opts for 50% debt then interest rate will be 12% and equity capitalisation rate will be 20%. You are required to compute value of firm and its overall cost of capital under different options. Use traditional approach.

**Question 8**

PQR Ltd. has the following capital structure on October 31, 2015:

| Sources of capital | (₹) |
|---|---|
| Equity Share Capital (2,00,000 Shares of ₹ 10 each) | 20,00,000 |
| Reserves & Surplus | 20,00,000 |
| 12% Preference Shares | 10,00,000 |
| 9% Debentures | 30,00,000 |
| | 80,00,000 |

The market price of equity share is ₹ 30. It is expected that the company will pay next year a dividend of ₹ 3 per share, which will grow at 7% forever. Assume 40% income tax rate.

You are required to compute weighted average cost of capital using market value weights.

**Question 9**

A company issued 40,000, 12% Redeemable Preference Share of ₹100 each at a premium of ₹ 5 each, redeemable after 10 years at a premium of ₹ 10 each. The floatation cost of each share is ₹ 2.

You are required to calculate cost of preference share capital ignoring dividend tax.

**Question 10**

You are required to determine the weighted average cost of capital of a firm using (i) book-value weights and (ii) market value weights. The following information is available for your perusal:

Present book value of the firm's capital structure is:

| Sources of capital | (₹) |
|---|---|
| Debentures of ₹ 100 each | 8,00,000 |
| Preference shares of ₹ 100 each | 2,00,000 |
| Equity shares of ₹ 10 each | 10,00,000 |
| | 20,00,000 |

All these securities are traded in the capital markets. Recent prices are:

Debentures @ ₹ 110, Preference shares @ ₹ 120 and Equity shares @ ₹ 22.

Anticipated external financing opportunities are as follows:

(i) ₹ 100 per debenture redeemable at par : 20 years maturity 8% coupon rate, 4% floatation costs, sale price ₹ 100.

(ii) ₹ 100 preference share redeemable at par : 15 years maturity, 10% dividend rate, 5% floatation costs, sale price ₹ 100.

(iii) Equity shares : ₹ 2 per share floatation costs, sale price ₹ 22.

In addition, the dividend expected on the equity share at the end of the year is ₹ 2 per share; the anticipated growth rate in dividends is 5% and the firm has the practice of paying all its earnings in the form of dividend. The corporate tax rate is 50%.

**Question 11**

ABC Ltd. wishes to raise additional finance of ₹ 20 lakhs for meeting its investments plan. The company has ₹ 4,00,000 in the form of retained earnings available for investment purposes. The following are the further details:

- Debt equity ratio 25 : 75.
- Cost of debt at the rate of 10% (before tax) upto ₹ 2,00,000 and 13% (before tax) beyond that.
- Earnings per share ₹ 12.
- Dividend payout 50% of earnings.
- Expected growth rate in dividend 10%.
- Current market price per share, ₹ 60.
- Company's tax rate is 30% and shareholder's personal tax rate is 20%.

**Required:**

(i) Calculate the post tax average cost of additional debt.

(ii) Calculate the cost of retained earnings and cost of equity.

(iii) Calculate the overall weighted average (after tax) cost of additional finance..

**Question 12**

PRI Ltd. and SHA Ltd. are identical, however, their capital structure (in market - value terms) differs as follows:

| Company | Debt | Equity |
|---|---|---|
| PRI Ltd. | 60% | 40% |
| SHA Ltd. | 20% | 80% |

The borrowing rate for both companies is 8% in a no - tax world and capital markets are assumed to be perfect.

(a) (i) If Mr. Rhi, owns 6% of the equity shares of PRI Ltd. DETERMINE his return if the Company has net operating income of ₹9,00,000 and the overall capitalization rate of the company (Ko) is 18%.

(ii) CALCULATE the implied required rate of return on equity of PRI Ltd.

(b) SHA Ltd. has the same net operating income as PRI Ltd.

(i) CALCULATE the implied required equity return of SHA Ltd.

(ii) ANALYSE why does it differ from that of PRI Ltd.

**Question 13**

ABC Limited has the following book value capital structure:

| | |
|---|---|
| Equity Share Capital (1 crore shares @ Rs.10 each) | Rs. 1,000 lakh |
| Reserves and Shares | Rs. 2,250 lakh |
| 9% Preference Shares Capital (5 lakh shares @ Rs.100 each) | Rs. 500 lakh |
| 8.5% Debentures (1.5 lakh debentures @ Rs. 1,000 each) | Rs. 1,500 lakh |
| 12% Term Loans from Financial Institutions | Rs. 500 lakh |

- The debentures of ABC Limited are redeemable at par after five years and are quoting at Rs.985 per debenture.
- The current market price per equity shares is Rs.60. The prevailing default-risk interest rate on 10-year GOI Treasury Bonds is 5.5%. The average market risk premium is 7%. The beta of the company is 1.85
- The preference shares of the company are redeemable at 10% premium after 5 years is currently selling at Rs. 102 per share.

The applicable income tax rate for the company is 35%.

Required:

CALCULATE weighted average cost of capital of the company using market value weights.

**Question 14**

P Ltd. has the following capital structure at book - value as on 31st March, 2020:

| Particulars | (₹) |
|---|---|
| Equity share capital (10,00,000 shares) | 3,00,00,000 |
| 11.5% Preference shares | 60,00,000 |
| 10% Debentures | 1,00,00,000 |
| | 4,60,00,000 |

The equity shares of the company are sold for ₹300. It is expected that the company will pay next year a dividend of ₹15 per equity share, which is expected to grow by 5% p.a. forever. Assume a 35% corporate tax rate.

Required:

(i) COMPUTE weighted average cost of capital (WACC) of the company based on the existing capital structure.

(ii) COMPUTE the new WACC, if the company raises an additional ₹50 lakhs debt by issuing 12% debentures. This would result in increasing the expected equity dividend to ₹20 and leave the growth rate unchanged, but the price of equity share will fall to ₹250 per shares.

**Question 15**

PK Ltd. has the following book-value capital structure as on March 31, 2020

| | (₹) |
|---|---|
| Equity share capital (10,00,000 shares) | 2,00,00,000 |
| 11.5% Preference shares | 60,00,000 |
| 10% Debentures | 1,00,00,000 |
| | 3,60,00,000 |

The equity shares of the company are sold for ₹ 200. It is expected that the company will pay next year a dividend of ₹ 10 per equity share, which is expected to grow by 5% p.a. forever. Assume a 35% corporate tax rate.

Required:

(i) COMPUTE weighted average cost of capital (WACC) of the company based on the existing capital structure.

(ii) COMPUTE the new WACC, if the company raises an additional ₹50 lakhs debt by issuing 12% debentures. This would result in increasing the expected equity dividend to ₹12.40 and leave the growth rate unchanged, but the price of equity share will fall to ₹ 160 per share.

**Question 16**

Amrit Corporation has the following book value capital structure:

| | |
|---|---|
| Equity Capital (50 lakh shares of ₹ 10 each). | ₹ 5,00,00000 |
| 15% Preference share (50,000 shares ₹ 100 each) | ₹ 50,00,000 |
| Retained earnings | ₹ 4,00,00,000 |
| Debentures 14% (2,50,000 debentures ₹ 100 each) | ₹ 2,50,00,000 |
| Term loan 13% | ₹ 4,00,00000 |

The companies last year earnings per share was ₹ 5, and it maintains a dividend pay-out ratio of 60% and returns on equity is 10%. The market price per share is ₹ 20.8. Preference share redeemable after 10 years is currently selling for ₹ 90 per share. Debentures redeemable after 6 years are currently selling for ₹ 75 per debenture. The income tax rate is 40%.

(a) CALCULATE the Weighted Average Cost of Capital (WACC) using market value proportions.

(b) DETERMINE the Marginal Cost of Capital (MACC) if it needs ₹ 5,00,00000 next year assuming the amount will be raised by 60% equity, 20% debt and 20% retained earnings. Equity issues will fetch a net price of ₹ 14 and cost of debt will be 13% before tax up to ₹ 40,00,000 and beyond ₹ 40,00,000 it will be 15% before tax.

**Question 17**

M/s. Navya Corporation has a capital structure of 40% debt and 60% equity. The company is presently considering several alternative investment proposals costing less than ₹ 20 lakhs. The corporation always raises the required funds without disturbing its present debt equity ratio.

The cost of raising the debt and equity are as under:

| Project cost | Cost of debt | Cost of equity |
|---|---|---|
| Upto ₹ 2 lakhs | 10% | 12% |
| Above ₹ 2 lakhs & upto to ₹ 5 lakhs | 11% | 13% |
| Above ₹ 5 lakhs & upto ₹10 lakhs | 12% | 14% |
| Above ₹10 lakhs & upto ₹ 20 lakhs | 13% | 14.5% |

Assuming the tax rate at 50%, CALCULATE:

(i) Cost of capital of two projects X and Y whose fund requirements are ₹ 6.5 lakhs and ₹ 14 lakhs respectively.

(ii) If a project is expected to give after tax return of 10%, DETERMINE under what conditions it would be acceptable?

**Question 18**

Blue Ltd., an all equity financed company is considering the repurchase of ₹ 275 lakhs equity shares and to replace it with 15% debentures of the same amount. Current market value of the company is ₹ 1,750 lakhs with its cost of capital of 20%. The company's Earnings before Interest and Taxes (EBIT) are expected to remain constant in future years. The company also has a policy of distributing its entire earnings as dividend.

Assuming the corporate tax rate as 30%, you are required to CALCULATE the impact on the following on account of the change in the capital structure as per Modigliani and Miller (MM) Approach:

(i) Market value of the company

(ii) Overall Cost of capital

(iii) Cost of equity

**Question 19**

The following is the extract of the Balance Sheet of M/s KD Ltd.:

| Particulars | Amount (₹) |
|---|---|
| Ordinary shares (Face Value ₹10/- per share) | 5,00,000 |
| Share Premium | 1,00,000 |

| | |
|---|---|
| Retained Profits | 6,00,000 |
| 8% Preference Shares (Face value ₹25/- per share) | 4,00,000 |
| 12% Debentures (Face value ₹100/- each) | 6,00,000 |
| | 22,00,000 |

The ordinary shares are currently priced at ₹39 ex - dividend and preference share is priced at ₹18 cum - dividend. The debentures are selling at 120 percent ex - interest. The applicable tax rate to KD Ltd. is 30 percent. KD Ltd.'s cost of equity has been estimated at 19 percent. Calculate the WACC (weighted average cost of capital) of KD Ltd. on the basis of market value.

**Question 20**

The details about two companies R Ltd. and S Ltd. having same operating risk are given below:

| Particulars | R Ltd. | S Ltd. |
|---|---|---|
| Profit before interest and tax | ₹ 10 lakhs | ₹ 10 lakhs |
| Equity share capital ₹ 10 each | ₹ 17 lakhs | ₹ 50 lakhs |
| Long term borrowings @ 10% | ₹ 33 lakhs | - |
| Cost of Equity (Ke) | 18% | 15% |

You are required to:

(1) Calculate the value of equity of both the companies on the basis of M.M. Approach without tax.

(2) Calculate the Total Value of both the companies on the basis of M.M. Approach without tax.

**Question 21**

The Capital structure of PQR Ltd. is as follows:

| | ₹ |
|---|---|
| 10% Debenture | 3,00,000 |
| 12% Preference Shares | 2,50,000 |
| Equity Share (face value ₹ 10 per share) | 5,00,000 |
| | 10,50,000 |

Additional Information:

(i) ₹ 100 per debenture redeemable at par has 2% floatation cost & 10 years of maturity. The market price per debenture is ₹ 110.

(ii) ₹ 100 per preference share redeemable at par has 3% floatation cost & 10 years of maturity. The market price per preference share is ₹ 108.

(iii) Equity share has ₹ 4 floatation cost and market price per share of ₹ 25. The next year expected dividend is ₹ 2 per share with annual growth of 5%. The firm has a practice of paying all earnings in the form of dividends.

(iv) Corporate Income Tax rate is 30%. Required:

Calculate Weighted Average Cost of Capital (WACC) using market value weights.

**Question 22**

A Company wants to raise additional finance of ₹ 5 crore in the next year. The company expects to retain ₹ 1 crore earning next year.

Further details are as follows:

(i) The amount will be raised by equity and debt in the ratio of 3: 1.

(ii) The additional issue of equity shares will result in price per share being fixed at ₹ 25.

(iii) The debt capital raised by way of term loan will cost 10% for the first ₹ 75 lakh and 12% for the next ₹ 50 lakh.

(iv) The net expected dividend on equity shares is ₹ 2.00 per share. The dividend is expected to grow at the rate of 5%.

(v) Income tax rate is 25%.

You are required:

(a) To determine the amount of equity and debt for raising additional finance.

(b) To determine the post-tax average cost of additional debt.

(c) To determine the cost of retained earnings and cost of equity.

(d) To compute the overall weighted average cost of additional finance after tax.

Notes

Notes

# CAPITAL BUDGETING

## THEORY SECTION

### Meaning and Objective

Decisions relating to long term assets / capital assets / fixed assets / long term projects are known as Capital Budgeting decisions. For e.g. setting up a new branch, purchase of machinery, manufacturing a new product, etc. The unique part of these decisions is that the outflows associated with the project are immediate and the inflows are spread over a number of years. Most of the capital budgeting decisions are irreversible decisions involving huge cash outflows. Once taken, the firm may not be able to revert back unless it is ready to absorb heavy losses. Therefore, the capital budgeting decisions should be taken only after considering and evaluating each and every minute detail of the project else the financial consequences will have far reaching effects.

This chapter revolves around two things, comparing the cash outflows to that of the cash inflows. Cash outflows will always be given in the question for that matter even cash inflows will be given, if not then the same can be calculated as follows:

| | | |
|---|---|---|
| Sales | | xx |
| **Less:** | Variable Cost | xx |
| | Fixed Cost | xx |
| | Cash flow before tax (CFBT / NPBDT) | xx |
| **Less:** | Depreciation | XX |
| | Net Profit before tax (NPBT) | xx |
| **Less:** | Tax | xx |
| | Net Profit after tax (NPAT) | xx |
| **Add:** | Depreciation | xx |
| | Cash Flows after tax (CFAT / CI) | xx |

### Scope

This chapter will teach us various methods for evaluating long term proposal.

Methods for evaluation

(a) Pay Back Period Approach (PBP)
(b) Net Present Value (NPV)
(c) Profitability Index (PI)
(d) Internal Rate of Return (IRR)
(e) Discounted Payback period (Discounted PBP)
(f) Average / Accounting Rate of Return (ARR)
(g) Modified IRR

**Pay back period**

The length of time taken to recover the original investment is the pay back period. For e.g. if the project requires a cash outflow of ₹10 Lacs which gets recovered say within 4 years then the payback period is 4 years.

**Decision Rule:**

Select that project whose payback period is less.

Limitations:

(a) It ignores Time Value of Money
(b) Post Payback period cash inflows are completely ignored i.e. all cash inflows are not considered.

**Net Present Value**

This method takes into consideration all the cash inflows related to the project and also incorporates the concept of time value of money.

$$NPV = PVCI - PVCO$$

In this method, all the related cash flows associated with the project are discounted and are bought to its present value by using a discounting factor rate which is the cost of capital or minimum required rate for the company.

**Decision Rule:**

(a) If there is only one project and it is to be decided whether it should be selected or not then the criterion is very simple. Accept the project if it has a positive NPV, Reject if the NPV is negative and if NPV is zero then we are indifferent.
(b) If the management has to select between two mutually exclusive projects, then the project with highest NPV is to be selected.

Profitability Index or Desirability Factor or cost benefit ratio

$$PI = \frac{PVCI\ (at\ coc)}{PVCO}$$

It is an extended version of NPV. It indicates that against every 1 rupee of outflow how much cash inflow the project generates in present value terms. PI technique is useful in capital rationing situation (money is in short supply).

**Decision Rule:**

(a) If PI > 1, select the project.

(b) If P < 1, reject the project.

(c) If PI = 1 , indifferent.

**Internal Rate of Return**

IRR is the rate which the project is expected to earn for the Co. Mathematically IRR is the discount rate which will equate the present value of the cash inflows with the present value of cash outflows, i.e. at IRR, PVCI – PVCO = 0.

**Decision Rule:**

(a) If IRR > Cost of Capital, accept the project.

(b) If IRR < Cost of Capital, reject the project.

(c) If IRR = Cost of Capital, indifferent.

**Discounted Payback Period**

Payback period has 2 limitations; time value of money is ignored and post pay back profitability is ignored. Discounted Payback period is an attempt to remove one such limitation. When time value is introduced to the payback period, it is known as Discounted Payback period.

**Average Rate of Return / Accounting Rate of Return**

$$ARR = \frac{Average\ Profit\ after\ tax}{Original\ Investment} \times 100$$

OR

$$ARR = \frac{Average\ Profit\ after\ tax}{Average\ Investment} \times 100$$

$$Where\ average\ investment\ is = \frac{Original\ investment + scrap\ value}{2}$$

It shows book profitability of the project. It indicaes Average NPAT earned by the project during its life time.

### Limitations

(a) Ignores time value of money.

(b) Based on accounting profit and not on cash profit.

### MODIFIED IRR

MIRR is superior to the regular IRR, MIRR assumes that project cash flows are reinvested at a certain re-investment rate, whereas the regular IRR assumes that project cash flows are reinvested at the project's own IRR. Since reinvestment at cost of capital is more realistic than reinvestment at IRR, MIRR reflects better the true profit-ability of a project.

CLASSWORK SECTION

**Question 1**

Explain payback approach and using that concept, determine which of the following projects should be taken up.

Project A : This project involves an initial investment of Z 12,000 and has an estimated life of 6 years. Estimated cash flows in each of the six years are as follows:

| Year | inflow (₹) | Year | Inflow (₹) |
|---|---|---|---|
| 1 | 2,500 | 5 | 3,000 |
| 2 | 3,500 | 6 | 2,000 |
| 3 | 4,000 | | |
| 4 | 4,000 | | |

Project B : This project entails an initial outlay of 28,000 and the economic life of this project is 6 years. Inflows in each year are as follows:

| Years | inflow (₹) |
|---|---|
| 1 | 6,000 |
| 2 | 6,000 |
| 3 | 6,000 |
| 4 | 6,000 |
| 5 | 6,000 |
| 6 | 6,000 |

**Question 2**

ABC Ltd. is considering investing in a project that costs ₹ 5,00,000. The estimated salvage value is Zero ; tax rate is 35 per cent. The company uses straight line depreciation for tax purposes and the proposed project has cash flows before tax (CFBT) as follows:

| Year | CFBT (₹) |
|---|---|
| 1 | 1,50,000 |
| 2 | 1,70,000 |
| 3 | 2,00,000 |
| 4 | 2,30,000 |
| 5 | 2,50,000 |

Calculate Average rate of return.

**Question 3**

ABC Ltd is a small company that is currently analyzing capital expenditure proposals for the purchase of equipment; the company uses the net present value technique to evaluate projects. The capital budget is limited to ₹ 500,000 which ABC Ltd believes is the maximum capital it can raise. The initial investment and projected net cash flows for each project are shown below. The cost of capital of ABC Ltd is 12%. You are required to compute the NPV of the different projects.

| | Project A | Project B |
|---|---|---|
| Initial Investment | 200,000 | 1,90,000 |
| Project Cash Inflows | | |
| Year 1 | 50,000 | 40,000 |
| 2 | 50,000 | 50,000 |
| 3 | 50,000 | 70,000 |
| 4 | 50,000 | 75,000 |
| 5 | 50,000 | 75,000 |

**Question 4**

A company is considering whether it should spend ₹4 lakhs on a project to manufacture and sell a new product. In addition investment in working capital will be₹50,000. The unit variable cost of the product is ₹6. It is expected that the new product can be sold at ₹10 per unit. The annual fixed costs (only cash) will be ₹20,000. The project will have a life six years with a scrap value of ₹20,000. The cost of capital of the company is 15%. To start with the company expects to sell at least 40,000 units during the first year.

Required:

Net present value of the project based on the sales expected during the first year and on the assumption that it will continue at the same level during the remaining years.

**Question 5**

Calculate the internal rate of return of an investment of ₹ 1,36,000 which yields the following cash inflows:

| Years | Cash inflows in (₹) |
|---|---|
| 1 | 30,000 |
| 2 | 40,000 |
| 3 | 60,000 |
| 4 | 30,000 |
| 5 | 20,000 |

**Question 6**

A company proposes to install a machine involving a Capital Cost of ₹ 3,60,000. The life of the machine is 5 years and its salvage value at the end of the life is nil. The machine will produce the net operating income after depreciation of ₹ 68,000 per annum. The Company's tax rate is 45%.

The Net Present Value factors for 5 years are as under:

| Discounting Rate : | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|
| Cumulative factor: | 3.43 | 3.35 | 3.27 | 3.20 | 3.13 |

You are required to calculate the internal rate of return of the proposal.

**Question 7**

Shiva Limited is planning its capital investment programme for next year. It has five projects all of which give a positive NPV at the company cut-off rate of 15 percent, the investment outflows and present values being as follows:

| Project | Investment | NPV@15% |
|---|---|---|
| | ₹'000 | ₹'000 |
| A | (50) | 15.4 |
| B | (40) | 18.7 |
| C | (25) | 10.1 |
| D | (30) | 11.2 |
| E | (35) | 19.3 |

The company is limited to a capital spending of ₹ 1, 20,000.

You are required to optimise the returns from a package of projects within the capital spending limit. The projects are independent of each other and are divisible (i.e., part-project is possible).

Also select the projects if they are indivisible.

**Question 8**

An investment of ₹ 1,36,000 yields the following cash inflows (profits before depreciation but after tax). Determine MIRR considering 8% as cost of capital.

| Years | Profit after tax and depreciation (₹) |
|---|---|
| 1 | 30,000 |
| 2 | 40,000 |
| 3 | 60,000 |
| 4 | 30,000 |
| 5 | 20,000 |
| | **1,80,000** |

**Question 9**

A Company is considering a proposal of installing a drying equipment. The equipment would involve a Cash outlay of ₹ 6,00,000 and net Working Capital of ₹ 80,000. The expected life of the project is 5 years without any salvage value. Assume that the company is allowed to charge depreciation on straight-line basis for Income-tax purpose.

The estimated before-tax cash inflows are given below:

| Year | Before tax cash inflows (in '000) | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| | 240 | 275 | 210 | 180 | 160 |

The applicable Income-tax rate to the Company is 35%. If the Company's opportunity Cost of Capital is 12%, calculate the equipment's discounted payback period, payback period, net present value and internal rate of return.

The PV factors at 12%, 14% and 15% are:

| Year | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| PV factor at 12% | 0.8929 | 0.7972 | 0.7118 | 0.6355 | 0.5674 |
| PV factor at 14% | 0.8772 | 0.7695 | 0.6750 | 0.5921 | 0.5194 |
| PV factor at 15% | 0.8696 | 0.75610 | 0.6575 | 0.5718 | 0.4972 |

**Question 10**

A company is considering the proposal of taking up a new project which requires an investment of ₹ 400 lakhs on machinery and other assets. The project is expected to yield the following earnings (before depreciation and taxes) over the next five years:

| Year | Earnings (₹ in lakhs) |
|---|---|
| 1 | 160 |
| 2 | 160 |
| 3 | 180 |
| 4 | 180 |
| 5 | 150 |

The cost of raising the additional capital is 12% and assets have to be depreciated at 20% on 'Written Down Value' basis. Income-tax applicable to the company is 50%.
You are required to calculate the net present value of the project and advise the management to take appropriate decision.

Note: Present values of Re. 1 at different rates of interest are as follows:

| Year | 10% | 12% | 14% | 16% |
|---|---|---|---|---|
| 1 | 0.91 | 0.89 | 0.88 | 0.86 |
| 2 | 0.83 | 0.80 | 0.77 | 0.74 |
| 3 | 0.75 | 0.71 | 0.67 | 0.64 |
| 4 | 0.68 | 0.64 | 0.59 | 0.55 |
| 5 | 0.62 | 0.57 | 0.52 | 0.48 |

**Question 11**

A hospital is considering to purchase a diagnostic machine costing ₹ 80,000. The projected life of the machine is 8 years and has an expected salvage value of ₹ 6,000 at the end of 8 years.

The annual operating cost of the machine is ₹ 7,500. It is expected to generate revenues of ₹40,000 per year for eight years. Presently, the hospital is outsourcing the diagnostic work and is earning commission income of ₹ 12,000 per annum; net of taxes.

Required:

Whether it would be profitable for the hospital to purchase the machine? Give your recommendation under:

(i) Net Present Value method

(ii) Profitability Index method. Assume Tax rate of 40%

PV factors at 10% are given below:

| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 |
|---|---|---|---|---|---|---|---|
| 0.909 | 0.826 | 0.751 | 0.683 | 0.621 | 0.564 | 0.513 | 0.467 |

**Question 12**

Given below are the data on a capital project 'M':

| | |
|---|---|
| Annual savings in cost | ₹ 60,000 |
| Useful life | 4 years |
| Internal rate of return | 15% |
| Profitability index | 1.064 |
| Salvage value | 0 |

You are required to calculate for this project M :

(i) Cost of project

(ii) Payback period

(iii) Cost of capital

(iv) Net present value

PV factors at different rates are given below:

| Discount factor | 15% | 14% | 13% | 12% |
|---|---|---|---|---|
| 1 year | 0.869 | 0.877 | 0.885 | 0.893 |
| 2 year | 0.756 | 0.769 | 0.783 | 0.797 |
| 3 year | 0.658 | 0.675 | 0.693 | 0.712 |
| 4 year | 0.572 | 0.592 | 0.613 | 0.636 |
| Total | 2.855 | 2.913 | 2.974 | 3.038 |

**Question 13**

A Ltd. is considering the purchase of a machine which will perform some operations which are at present performed by workers. The following details are available:

| | Machine X |
|---|---|
| | (₹) |
| Cost of machine | 1,50,000 |
| Estimated life of machine | 5 year |
| Estimated cost of maintenance p.a. | 7,000 |
| Estimated cost of indirect material, p.a. | 6,000 |
| Estimated savings in scrap p.a. | 10,000 |
| Estimated cost of supervision p.a. | 12,000 |
| Estimated savings in wages pa | 90,000 |

Depreciation will be charged on straight line basis. The tax rate is 30%.

Calculate:

(i) Average rate of return method, and

(ii) Present value index method assuming cost of capital being 10%.

(The present value of ₹ 1.00 @ 10% p.a. for 5 years is 3.79 and for 6 years is 4.354)

**Question 14**

City Clap Ltd. is in the business of providing housekeeping services. There is a proposal before the company to purchase a mechanized cleaning system for a sum of ₹ 40 lakhs. The present system of the company is to use manual labour for the cleaning job. You are provided with the following information:

Proposed Mechanized System:

| | |
|---|---|
| Cost of the machine | ₹ 40 lakhs |
| Life of the machine | 7 years |
| Depreciation (on straight line basis) | 15% |
| Operating cost of mechanized system | ₹ 20 lakhs per annum |

Present system (Manual):

| | |
|---|---|
| Manual labour | 350 persons |
| Cost of manual labour | ₹ 15,000 per person per annum |

The company has an after - tax cost of fund at 10% per annum.

The applicable tax rate is 50%.

PV factor for 7 years at 10% are as follows:

| Years | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| P.V. factor | 0.909 | 0.826 | 0.751 | 0.683 | 0.621 | 0.564 | 0.513 |

You are required to DETERMINE whether it is advisable to purchase the mechanized cleaning system.

Give your recommendations with workings.

**Question 15**

An existing company has a machine which has been in operation for two years, its estimated remaining useful life is 4 years with no residual value in the end. Its current market value is ₹ 3 lakhs. The management is considering a proposal to purchase an improved model of a machine gives increase output. The details are as under:

| Particulars | Existing Machine | New Machine |
|---|---|---|
| Purchase Price | ₹ 6,00,000 | ₹ 10,00,000 |
| Estimated Life | 6 years | 4 years |
| Residual Value | 0 | 0 |
| Annual Operating days | 300 | 300 |
| Operating hours per day | 6 | 6 |
| Selling price per unit | ₹ 10 | ₹ 10 |
| Material cost per unit | ₹ 2 | ₹ 2 |
| Output per hour in units | 20 | 40 |
| Labour cost per hour | ₹ 20 | ₹ 30 |
| Fixed overhead per annum excluding depreciation | ₹ 1,00,000 | ₹ 60,000 |
| Working Capital | ₹ 1,00,000 | ₹ 2,00,000 |
| Income-tax rate | 30% | 30% |

Assuming that - cost of capital is 10% and the company uses written down value of depreciation @ 20% and it has several machines in 20% block.

Advice the management on the Replacement of Machine as per the NPV method. The discounting factors table given below:

| Discounting Factors | Year 1 | Year 2 | Year 3 | Year 4 |
|---|---|---|---|---|
| 10% | 0.909 | 0.826 | 0.751 | 0.683 |

**Question 16**

XYZ Ltd. is planning to introduce a new product with a project life of 8 years. Initial equipment cost will be ₹ 1.75 crores. Additional equipment costing ₹ 12,50,000 will be purchased at the end of the third year from the cash inflow of this year. At the end of 8 years, the original equipment will have no resale value, but additional equipment can be sold for ₹ 1,25,000. A working capital of ₹ 20,00,000 will be needed and it will be released at the end of eighth year. The project will be financed with sufficient amount of equity capital.

The sales volumes over eight years have been estimated as follows:

| Year | 1 | 2 | 3 | 4-5 | 6-8 |
|---|---|---|---|---|---|
| Units | 72,000 | 1,08,000 | 2,60,000 | 2.70,000 | 1,80,000 |

A sales price of ₹ 120 per unit is expected and variable expenses will amount to 60% of sales revenue. Fixed cash operating costs will amount ₹ 18,00,000 per year. The loss of any year will be set off from the profits of subsequent two years. The company is subject to 30 per cent tax rate and considers 12 per cent to be an appropriate after tax cost of capital for this project.

The company follows straight line method of depreciation.

**Required:**

Calculate the net present value of the project and advise the management to take appropriate decision.

Note:

**The PV factors at 12% are**

| Year | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Units | .893 | .797 | .712 | .636 | .567 | .507 | .452 | .404 |

**Question 17**

Company X is forced to choose between two machines A and B. The two machines are designed differently, but have identical capacity and do exactly the same job. Machine A costs ₹ 1,50,000 and will last for 3 years. It costs ₹ 40,000 per year to run. Machine B is an 'economy' model costing only ₹ 1,00,000, but will last only for 2 years, and costs ₹ 60,000 per year to run. Ignore tax. Opportunity cost of capital is 10 per cent. Which machine company X should buy?

**Question 18**

XYZ Ltd. has decided to diversify its production and wants to invest its surplus funds on the most profitable project. It has under consideration only two projects - "A" and "B" The cost of project "A" is ₹ 100 lakhs and that of "B" is ₹ 150 lakhs. Both projects are expected to have a life of 8 years only and at the end of this period "A" will have a salvage value of ₹4 lakhs and "B" ₹ 14 lakhs. The running expenses of "A" will be ₹ 35 lakhs per year and that of "B" ₹ 20 lakhs per year. In either case the company expects a rate of return of 10%. The company's tax rate is 40%. Depreciation is charged on straight line basis. Which project should the company take up?

Note : Present value of annuity of Re.1 for eight years at 10% is 5.335 and present value of Re.1 received at the end of the eighth year is 0.467.

**Question 19**

Kishore chemical company is presently paying an outside firm Re.1 per gallon to dispose off the waste resulting from its manufacturing operations. At normal operating capacity, the waste is about 50,000 gallons per year.

After spending ₹60,000 on research, the company discovered that the waste could be sold for ₹10 per gallon if it was processed further. Additional processing would, however, require an investment of ₹6,00,000 in new equipment, which would have an estimated life of 10 years with no salvage value. Depreciation would be calculated by straight line method.

Except for the costs incurred in advertising ₹20,000 per year, no change in the present selling and administrative expenses is expected, if the new product is sold. The details of additional processing costs are as follows :

Variable : ₹ 5 per gallon of waste put into process.

Fixed : (excluding depreciation) : ₹30,000 per year.

In costing the new product, general administrative overheads will be allocated at the rate of 2 per gallon.

There will be no losses in processing, and it is assumed that the total waste processed in a given year will be sold in that very year. Estimates indicate that 40,000 gallons of the product could be sold each year.

The management when confronted with the choice disposing off the waste or processing it further and selling it, seeks your advice. Which alternative would you recommended? Assume that the firm's cost of capital is 15% and it pays on an average 35% tax on its income.

**Question 20**

The cash flows of projects C and D are reproduced below:

| Project | Cash Flow | | | | NPV at 10% | IRR |
|---|---|---|---|---|---|---|
| | $C_0$ | $C_1$ | $C_2$ | $C_3$ | | |
| C | - ₹ 10,000 | + 2,000 | + 4,000 | + 12,000 | + ₹ 4,139 | 26.5% |
| D | - ₹ 10,000 | + 10,000 | + 3,000 | + 3,000 | + ₹ 3,823 | 37.6% |

(i) Why there is a conflict of rankings?

(ii) Why should you recommend project C in spite of lower internal rate of return?

| Time | Period | | |
|---|---|---|---|
| | 1 | 2 | 3 |
| PVIF0.10, t | 0.9090 | 0.8264 | 0.7513 |
| PVIF0.14, t | 0.8772 | 0.7695 | 0.6750 |
| PVIF0.15, t | 0.8696 | 0.7561 | 0.6575 |
| PVIF0.30, t | 0.7692 | 0.5917 | 0.4552 |
| PVIF0.40, t | 0.7143 | 0.5102 | 0.3644 |

**Question 21**

A company wants to invest in a machinery that would cost ₹ 50,000 at the beginning of year 1. It is estimated that the net cash inflows from operations will be ₹ 18,000 per annum for 3 years, if the company opts to service a part of the machine at the end of year 1 at ₹ 10,000. In such a case, the scrap value at the end of year 3 will be ₹ 12,500. However, if the company decides not to service the part, then it will have to be replaced at the end of year 2 at ₹ 15,400. But in this case, the machine will work for the 4th year also and get operational cash inflow of ₹ 18,000 for the 4th year. It will have to be scrapped at the end of year 4 at ₹ 9,000. Assuming cost of capital at 10% and ignoring taxes, will you recommend the purchase of this machine based on the net present value of its cash flows?

If the supplier gives a discount of ₹ 5,000 for purchase, what would be your decision? (The present value factors at the end of years 0, 1, 2, 3, 4, 5 and 6 are respectively 1, 0.9091, 0.8264, 0.7513, 0.6830, 0.6209 and 0.5644).

**Question 22**

R plc is considering to modernize its production facilities and it has two proposals under consideration. The expected cash flows associated with these projects and their NPV as per discounting rate of 12% and IRR is as follows:

| Year | Cash Flow | |
|---|---|---|
| | Project A (₹) | Project B (₹) |
| 0 | (40,00,000) | (20,00,000) |
| 1 | 8,00,000 | 7,00,000 |
| 2 | 14,00,000 | 13,00,000 |
| 3 | 13,00,000 | 12,00,000 |
| 4 | 12,00,000 | |
| 5 | 11,00,000 | |
| 6 | 10,00,000 | |
| NPV @12% | 6,49,094 | 5,15,488 |
| IRR | 17.47% | 25.20% |

Which project should R plc accept?

**Question 23**

A Ltd. is an all equity financial company. The current market price of share is ₹ 180. It has just paid a dividend of ₹ 15 per share and expected future growth in dividend is 12%. Currently, it is evaluating a proposal requiring funds of ₹ 20 lakhs, with annual inflows of ₹ 10 lakhs for 3 years.

Find out the Net Present Value of the proposal, if

(i) It is financed from retained earnings ; and

(ii) It is financed by issuing fresh equity at market price with a floatation cost of 5% of issue price.

Notes

Notes

# COST OF CAPITAL II

## CLASSWORK SECTION

### Question 1

TT Ltd. issued 20,000, 10% convertible debenture of ₹100 each with a maturity period of 5 years. At maturity the debenture holders will have the option to convert debentures into equity shares of the company in ratio of 1:5 (5 shares for each debenture). The current market price of the equity share is ₹ 20 each and historically the growth rate of the share is 4% per annum. Assuming tax rate is 25%. Compute the cost of 10% convertible debenture using Approximation Method and Internal Rate of Return Method. [YTm]

PV Factor are as under:

| Year | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| PV Factor @ 10% | 0.909 | 0.826 | 0.751 | 0.683 | 0.621 |
| PV Factor @ 15% | 0.870 | 0.756 | 0.658 | 0.572 | 0.497 |

### Question 2

Institutional Development Bank (IDB) issued Zero interest deep discount bonds of face value of ₹1,00,000 each issued at ₹2,500 & repayable after 25 years. Compute the cost of debt if there is no corporate tax.

### Question 3

RBML is proposing to sell a 5 year bond of ₹5,000 at 8 per cent rate of interest per annum. The bond amount will be amortised equally over its life. Calculate the bond's present value of an investor if he expects a minimum rate of return of 6 per cent?

### Question 4

Mr. Mehra had purchased share of Alpha Limited for ₹ 1,000. He received dividend for a period of five years at the rent of 10 percent. At the end of the fifth year, he sold the share of Alpha Limited for ₹1,128. You are required to compute the cost of equity as per realised yield approach.

HOMEWORK SECTION

**Question 1**

A project requiring an investment of ₹ 10,00,000 and it yields profit after tax and depreciation which is as follows:

| Years | Profit after tax and depreciation (₹) |
|---|---|
| 1 | 50,000 |
| 2 | 75,000 |
| 3 | 1,25,000 |
| 4 | 1,30,000 |
| 5 | 80,000 |
| **Total** | **4,60,000** |

Suppose further that at the end of the 5th year, the plant and machinery of the project can be sold for ₹ 80,000. Determine Average Rate of Return.

**Question 2**

The Management of a Company has two alternative proposals under consideration. Project A requires a capital outlay of ₹12,00,000 and project 'B" requires ₹ 18,00,000. Both are estimated to provide a cash flow for five years:

Project A ₹ 4,00,000 per year and Project B ₹ 5,80,000 per year. The cost of capital is 10%. Show which of the two projects is preferable from the view point of (i) Net present value method,(ii) Present value index method (PI method), (iii) Internal rate of return method.

The present values of Re. 1 of 10%, 18% and 20% to be received annually for 5 years being 3.791, 3.127 and 2.991 respectively.

**Question 3**

The management of P Limited is considering selecting a machine out of two mutually exclusive machines. The company's cost of capital is 12 percent and corporate tax rate for the company is 30 percent. Details of the machines are as follows:

| | Machine – I | Machine – II |
|---|---|---|
| Cost of Machine | ₹10,00,000 | ₹15,00,000 |
| Expected life | 5 years | 6 years |
| Annual income before tax and depreciation | ₹3,45,000 | ₹4,55,000 |

Depreciation is to be charged on straight line basis.

You are required to:

(i) Calculate the net present value and internal rate of return for each machine.

(ii) Advise the management of P Limited as to which machine they should take up.

**Question 4**

WX Ltd. has a machine which has been in operation for 3 years. Its remaining estimated useful life is 8 years with no salvage value in the end. Its current market value is ₹ 2,00,000. The company is considering a proposal to purchase a new model of machine to replace the existing machine. The relevant information is as follows:

| | Existing Machine | New Machine |
|---|---|---|
| Cost of machine | ₹ 3,30,000 | ₹ 10,00,000 |
| Estimated life | 11 years | 8 years |
| Salvage value | Nil | ₹ 40,000 |
| Annual output | ₹ 30,000 unit | ₹ 75,000 units |
| Selling price per unit | ₹15 | ₹15 |
| Annual operating hours | ₹ 3,000 | ₹ 3,000 |
| Material cost per unit | ₹4 | ₹4 |
| Labour cost per hour | ₹40 | ₹ 70 |
| Indirect cash cost per annum | ₹ 50,000 | ₹ 65,000 |

The company follow the straight line method of depreciation. The corporate tax rate is 30 per cent and WX Ltd. does not make any investment, if it yields less than 12 per cent. Present value of annuity of Re. 1 at 12% rate of discount for 8 years is 4.968. Present value of ₹ 1 at 12% rate of discount, received at the end of 8th year is 0.404.

Advise WX Ltd. whether the existing machine should be replaced or not.

**Question 5**

Lockwood Limited wants to replace its old machine with a new automatic machine.

Two models A and B are available at the same cost of ₹ 5 lakhs each. Salvage value of the old machine is ₹ 1 lakh. The utilities of the existing machine can be used if the company purchases A. Additional cost of utilities to be purchased in that case are ₹ 1 lakh. If the company purchases B then all the existing utilities will have to be replaced with new utilities costing ₹ 2 lakhs. The salvage value of the old utilities will be ₹ 0.20 lakhs. The earnings after taxation are expected to be :

| Year A | (cash in-flows of) | | |
|---|---|---|---|
| | A ₹ | B ₹ | P.V. Factor @ 15% |
| 1 | 1,00,000 | 2,00,000 | 0.87 |
| 2 | 1,50,000 | 2,10,000 | 0.76 |
| 3 | 1,80,000 | 1,80,000 | 0.66 |
| 4 | 2,00,000 | 1,70,000 | 0.57 |
| 5 | 1,70,000 | 40,000 | 0.50 |

Salvage value at the end of year 5 for machine A is ₹ 50,000 and for Machine B is ₹ 60,000. The targeted return on capital is 15%. You are required to (i) Compute, for the two machines separately, net present value, discounted payback period and desirability factor and (ii) Advice which of the machines is to be selected?

**Question 6**

Elite Cooker Company is evaluating three investment situations: (1) produce a new line of aluminium skillets, (2) expand its existing cooker line to include several new sizes, and (3) develop a new, higher-quality line of cookers. If only the project in question is undertaken, the expected present values and the amounts of investment required are:

| Project | Investment required | Present value of Future Cash-Flows |
|---|---|---|
| | ₹ | ₹ |
| 1 | 2,00,000 | 2,90,000 |
| 2 | 1,15,000 | 1,85,000 |
| 3 | 2,70,000 | 4,00,000 |

If projects 1 and 2 are jointly undertaken, there will be no economies; the investments required and present values will simply be the sum of the parts. With projects 1 and 3, economies are possible in investment because one of the machines acquired can be used in both production processes. The total investment required for projects 1 and 3 combined is ₹ 4,40,000. If projects 2 and 3 are undertaken, there are economies to be achieved in marketing and producing the products but not in investment. The expected present value of future cash flows for projects 2 and 3 is ₹6,20,000. If all three projects are undertaken simultaneously, the economies noted will still hold. However, a ₹1,25,000 extension on the plant will be necessary, as space is not available for all three projects. Which project or projects should be chosen?

**Question 7**

The cash flows of two mutually exclusive Projects are as under:

| | $t_0$ | $t_1$ | $t_2$ | $t_3$ | $t_4$ | $t_5$ | $t_6$ |
|---|---|---|---|---|---|---|---|
| Project 'P' (₹) | (40,000) | 13,000 | 8,000 | 14,000 | 12,000 | 11,000 | 15,000 |
| Project 'J' (₹) | (20,000) | 7,000 | 13,000 | 12,000 | - | - | - |

**Required:**

(i) Estimate the net present value (NPV) of the Project 'P' and 'J' using 15% as the hurdle rate.

(ii) Estimate the internal rate of return (IRR) of the Project 'P' and 'J'.

(iii) Why there is a conflict in the project choice by using NPV and IRR criterion?

(iv) Which criteria you will use in such a situation? Estimate the value at that criterion. Make a project choice.

The present value interest factor values at different rates of discount are as under:

| Rate of discount | $t_0$ | $t_1$ | $t_2$ | $t_3$ | $t_4$ | $t_5$ | $t_6$ |
|---|---|---|---|---|---|---|---|
| 0.15 | 1.00 | 0.8696 | 0.7561 | 0.6575 | 0.5718 | 0.4972 | 0.4323 |
| 0.18 | 1.00 | 0.8475 | 0.7182 | 0.6086 | 0.5158 | 0.4371 | 0.3704 |
| 0.20 | 1.00 | 0.8333 | 0.6944 | 0.5787 | 0.4823 | 0.4019 | 0.3349 |
| 0.24 | 1.00 | 0.8065 | 0.6504 | 0.5245 | 0.4230 | 0.3411 | 0.2751 |
| 0.26 | 1.00 | 0.7937 | 0.6299 | 0.4999 | 0.3968 | 0.3149 | 0.2499 |

**Question 8**

A company proposes to install a machine involving a Capital Cost of ₹ 72,00,000. The life of the machine is 5 years and its salvage value at the end of the life is nil. The machine will produce the net operating income after depreciation of ₹ 13,60,000 per annum. The Company's tax rate is 35%.

The Net Present Value factors for 5 years are as under:

| Discounting Rate: | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|
| Cumulative factor: | 3.43 | 3.35 | 3.27 | 3.20 | 3.13 | 3.06 |

You are required to COMPUTE the internal rate of return (IRR) of the proposal.

**Question 9**

Superb Ltd. constructs customized parts for satellites to be launched by USA and Canada. The parts are constructed in eight locations (including the central headquarter) around the world. The Finance Director, Ms. Kuthrapali, chooses to implement video conferencing to speed up the budget process and save travel costs. She finds that, in earlier years, the company sent two officers from each location to the central headquarter to discuss the budget twice a year. The average travel cost per person, including air fare, hotels and meals, is ₹ 27,000 per trip. The cost of using video conferencing is ₹ 8,25,000 to set up a system at each location plus ₹ 300 per hour average cost of telephone time to transmit signals. A total 48 hours of transmission time will be needed to complete the budget each year. The company depreciates this type of equipment over five years by using straight line method. An alternative approach is to travel to local rented video conferencing facilities, which can be rented for ₹ 1,500 per hour plus ₹ 400 per hour average cost for telephone charges. You are Senior Officer of Finance Department. You have been asked by Ms. Kuthrapali to EVALUATE the proposal and SUGGEST if it would be worthwhile for the company to implement video conferencing.

**Question 10**

H Ltd. is considering a new product line to supplement its range of products. It is anticipated that the new product line will involve cash investments of ₹ 70,00,000 at time 0 and ₹ 1,00,00,000 in year 1. After-tax cash inflows of ₹ 25,00,000 are expected in year 2, ₹ 30,00,000 in year 3, ₹ 35,00,000 in year 4 and ₹ 40,00,000 each year thereafter through year 10. Although the product line might be viable after year 10, the company prefers to be conservative and end all calculations at that time.

(i) If the required rate of return is 15 per cent, FIND OUT the net present value of the project? is it acceptable?

(ii) COMPUTENPV if the required rate of return were 10 per cent?

(iii) COMPUTE the internal rate of return?

**Question 11**

A company is considering the proposal of taking up a new project which requires an investment of ₹800 lakhs on machinery and other assets. The project is expected to yield the following earnings (before depreciation and taxes) over the next five years:

| Year | Earnings (₹ in lakhs) |
|---|---|
| 1 | 320 |
| 2 | 320 |
| 3 | 360 |
| 4 | 360 |
| 5 | 300 |

The cost of raising the additional capital is 12% and assets have to be depreciated at 20% on written down value basis. The scrap value at the end of the five year period may be taken as zero. Income-tax applicable to the company is 40%.

You are required to CALCULATE the net present value of the project and advise the management to take appropriate decision. Also CALCULATE the Internal Rate of Return of the Project.

Note: Present values of Re. 1 at different rates of interest are as follows:

| Year | 10% | 12% | 14% | 16% | 20% |
|---|---|---|---|---|---|
| 1 | 0.91 | 0.89 | 0.88 | 0.86 | 0.83 |
| 2 | 0.83 | 0.80 | 0.77 | 0.74 | 0.69 |
| 3 | 0.75 | 0.71 | 0.67 | 0.64 | 0.58 |
| 4 | 0.68 | 0.64 | 0.59 | 0.55 | 0.48 |
| 5 | 0.62 | 0.57 | 0.52 | 0.48 | 0.40 |

**Question 12**

Alpha Limited is a manufacturer of computers. It wants to introduce artificial intelligence while making computers. The estimated annual saving from introduction of the artificial intelligence (AI) is as follows:

- reduction of five employees with annual salaries of ₹ 3,00,000 each
- reduction of ₹ 3,00,000 in production delays caused by inventory problem
- reduction in lost sales ₹ 2,50,000 and
- Gain due to timely billing ₹ 2,00,000

The purchase price of the system for installation of artificial intelligence is ₹ 20,00,000 and installation cost is ₹ 1,00,000. 80% of the purchase price will be paid in the year of purchase and remaining will be paid in next year.

The estimated life of the system is 5 years and it will be depreciated on a straight -line basis.

However, the operation of the new system requires two computer specialists with annual salaries of ₹ 5,00,000 per person.

In addition to above, annual maintenance and operating cost for five years are as below:

(Amount in ₹)

| Year | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Maintenance & Operating Cost | 2,00,000 | 1,80,000 | 1,60,000 | 1,40,000 | 1,20,000 |

Maintenance and operating cost are payable in advance.

The company's tax rate is 30% and its required rate of return is 15%.

| Year | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| PVIF 0.10, t | 0.909 | 0.826 | 0.751 | 0.683 | 0.621 |
| PVIF 0.12, t | 0.893 | 0.797 | 0.712 | 0.636 | 0.567 |
| PVIF 0.15, t | 0.870 | 0.756 | 0.658 | 0.572 | 0.497 |

Evaluate the project by using Net Present Value and Profitability Index.

**Question 13**

ANP Ltd. is providing the following information:

| | |
|---|---|
| Annual cost of saving | ₹ 96,000 |
| Useful life | 5 Years |
| Salvage value | zero |
| Internal rate of return | 15% |
| Profitability index | 1.05 |

Table of discount factor:

| Discount factor | Years | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | Total |
| 15% | 0.870 | 0.756 | 0.658 | 0.572 | 0.497 | 3.353 |
| 14% | 0.877 | 0.769 | 0.675 | 0.592 | 0.519 | 3.432 |
| 13% | 0.886 | 0.783 | 0.693 | 0.614 | 0.544 | 3.52 |

You are required to calculate:

(i) Cost of the project.

(ii) Pay back period

(iii) Net present value of the project

(iv) Cost of capital

**Question 14**

A firm is considering to install either of the two machines which are mutually exclusive.

| Year | D.f. (10%) | Purchase price | | Operating costs | |
|---|---|---|---|---|---|
| | | Machine X | Machine Y | Machine X | Machine Y |
| (0) | 1.0000 | ₹ 10,000 | ₹ 8,000 | ₹ | ₹ |
| (1) | | 0.9091 | | 2,000 | 2,500 |
| (2) | | 0.8264 | | 2,000 | 2,500 |
| (3) | | 0.7513 | | 2,000 | 2,500 |
| (4) | | 0.6830 | | 2,500 | 3,800 |
| (5) | | 0.6209 | | 2,500 | 3,800 |
| (6) | | 0.5645 | | 2,500 | 3,800 |
| (7) | | 0.5132 | | 3,000 | |
| (8) | | 0.4665 | | 3,000 | |
| (9) | | 0.4241 | | 3,000 | |
| (10) | | 0.3855 | | | 3,000 |

Machine X will recover salvage value of ₹1,500 in the year 10, while machine Y will recover ₹1000 in the 6th year. Determine which machine is cheaper at 10% cost of capital, assuming that both the machines are equally efficient.

**Question 15**

Development Finance Corporation issued zero interest deep discount bonds of face value of Rs. 1,50,000 each issued at Rs. 3,750 & repayable after 25 years. COMPUTE the cost of debt if there is no corporate tax.

**Question 16**

A company issues:

- 15% convertible debentures of ₹ 100 each at par with a maturity period of 6 years. On maturity, each debenture will be converted into 2 equity shares of the company. The risk - free rate of return is 10%, market risk premium is 18% and beta of the company is 1.25. The company has paid dividend of ₹ 12.76 per share. Five year ago, it paid dividend of ₹ 10 per share. Flotation cost is 5% of issue amount.
- 5% preference shares of ₹ 100 each at premium of 10%. These shares are redeemable after 10 years at par. Flotation cost is 6% of issue amount.

Assuming corporate tax rate is 40%.

(i) Calculate the cost of convertible debentures using the approximation method.

(ii) Use YTM method to calculate cost of preference shares.

| Year | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| PVIF 0.03, t | 0.971 | 0.943 | 0.915 | 0.888 | 0.863 | 0.837 | 0.813 | 0.789 | 0.766 | 0.744 |
| PVIF 0.05, t | 0.952 | 0.907 | 0.864 | 0.823 | 0.784 | 0.746 | 0.711 | 0.677 | 0.645 | 0.614 |
| PVIFA 0.03, t | 0.971 | 1.913 | 2.829 | 3.717 | 4.580 | 5.417 | 6.230 | 7.020 | 7.786 | 8.530 |
| PVIFA 0.05, t | 0.952 | 1.859 | 2.723 | 3.546 | 4.329 | 5.076 | 5.786 | 6.463 | 7.108 | 7.722 |

| Interest rate | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% |
|---|---|---|---|---|---|---|---|---|---|
| FVIF i, 5 | 1.051 | 1.104 | 1.159 | 1.217 | 1.276 | 1.338 | 1.403 | 1.469 | 1.539 |
| FVIF i, 6 | 1.062 | 1.126 | 1.194 | 1.265 | 1.340 | 1.419 | 1.501 | 1.587 | 1.677 |
| FVIF i, 7 | 1.072 | 1.149 | 1.230 | 1.316 | 1.407 | 1.504 | 1.606 | 1.714 | 1.828 |

Notes

Notes

# DIVIDEND DECISIONS

## CLASSWORK SECTION

### Question 1

The earnings per share of a company are ₹ 8 and the rate of capitalisation applicable to the company is 10%. The company has before it an option of adopting a payout ratio of 25% or 50% or 75%. Using Walter's formula of dividend payout compute the market value of the company's share if the productivity of retained earnings is (i) 15% (ii) 10%, and (iii) 5%.

What inference can be drawn from the above exercise?

### Question 2

The following figures are collected from the annual report of XYZ Ltd.:

| | ₹ |
|---|---|
| Net Profit | 30 lakhs |
| Outstanding 12% preference shares | 100 lakhs |
| No. of equity shares | 3 lakhs |
| Return on Investment | 20% |
| Cost of Capital [Ke] | 16% |

What should be the approximate dividend pay-out ratio so as to keep the share price at ₹ 42 by using Walter model?

### Question 3

The following information is supplied to you:

| | ₹ |
|---|---|
| Total Earnings | 2,00,000 |
| No. of equity shares (of ₹ 100 each) | 20,000 |
| Dividend paid | 1,50,000 |
| Price / Earnings ratio | 12.5 |

Applying Walter's Model

(i) Ascertain whether the company is following an optimal dividend policy.

(ii) Find out what should be the P/E ratio at which the dividend policy will have no effect on the value of the share.

(iii) Will your decision change, if the P/E ratio is 8 instead of 12.5?

**Question 4**

A firm paid dividend at ₹ 2 per share last year. The estimated growth of the dividends from the company is estimated to be 5% p.a. Determine the estimated market price of the equity share if the estimated growth rate of dividends (i) rises to 8%, and (ii) falls to 3%. Also find out the present market price of the share, given that the required rate of return of the equity investors is 15.5%.

**Question 5**

RST Ltd. has a capital of ₹ 10,00,000 in equity shares of ₹ 100 each. The shares are currently quoted at par. The company proposes to declare a dividend of ₹ 10 per share at the end of the current financial year. The capitalization rate for the risk class of which the company belongs is 12%. What will be the market price of the share at the end of the year, if

(i) A dividend is not declared?

(ii) A dividend is declared?

(iii) Assuming that the company pays the dividend and has net profits of ₹ 5,00,000 and makes new investments of ₹ 10,00,000 during the period, how many new shares must be issued? Use the MM model.

(iv) Assume everything same in situation (iii), how many new shares must be issued it dividend is not paid.

**Question 6**

M Ltd. belongs to a risk class for which the capitalization rate is 10%. It has 25,000 outstanding shares and the current market price is ₹ 100. It expects a net profit of ₹ 2,50,000 for the year and the Board is considering dividend of ₹ 5 per share.

M Ltd. requires to raise ₹ 5,00,000 for an approved investment expenditure. Show, how the MM approach affects the value of M Ltd. if dividends are paid or not paid.

**Question 7**

The following information regarding the equity shares of M ltd. is given:

| | |
|---|---|
| Market Price | ₹ 58.33 |
| Dividend per share | ₹ 5 |
| Multiplier | 7 |

According to the Graham & Dodd approach to the dividend policy, compute the EPS.

**Question 8**

The dividend payout ratio of H ltd. is 40%. If the company follows traditional approach to dividend policy with a multiplier of 9, what will be the P/E ratio?

**Question 9**

Given the last year's dividend is ₹ 9.80, speed of adjustment = 45%, target payout ratio 60% and EPS for current year ₹ 20. Calculate current year's dividend.

**Question 10**

Rishab Ltd has just paid out ₹5 as Divdend to its Shareholders. The past dividend trend of the Company indicates that the dividend outgo increases by 10% p.a. The Company foresees this growth rate for the next 2 years, after which the divdend outgo will increase by 12% p.a. for 3 years and thereafter, 12.50% for 2 years. After that point in time it is expected that annual increase in dividend will be fixed at 11% p.a. If the expected rate of return is 17.50% p.a., ascertain the Theoretical Market Price of the Share, assuming Dividend Outgo is the sole determinant of the Market Value.

**Question 11**

The beta coefficient of Target Ltd is 1.4. The company has been maintaining 8% rate of growth rate in dividends and earnings. The last dividend paid was ₹ 4 per share. The return on the government securities is 10% white return on the market portfolio is 15%. The current market price of one share of ₹ 36.

(a) What will be the equilbrium price per share of Target Ltd?

(b) Would you advice purchasing the share?

## HOMEWORK SECTION

### Question 1

The following information pertains to M/s XY Ltd.

| | |
|---|---|
| Earnings of the Company | ₹ 5,00,000 |
| Dividend Payout ratio | 60% |
| No. of shares outstanding | 1,00,000 |
| Equity capitalization rate | 12% |
| Rate of return on investment | 15% |

(i) What would be the market value per share as per Walter's model?

(ii) What is the optimum dividend payout ratio according to Walter's model and the market value of Company's share at that payout ratio?

### Question 2

XYZ is company having share capital of ₹ 10 lakhs of ₹ 10 each. It distributed current dividend of 20% per annum. Annual growth rate in dividend expected is 2%. The expected rate of return on its equity capital is 15%.

Calculate the market price of share.

### Question 3

With the help of following figures calculate the market price of a share of a company by using:

(i) Walter's formula

(ii) Dividend growth model (Gordon's formula)

| | |
|---|---|
| Earning per share (EPS) | ₹ 10 |
| Dividend per share (DPS) | ₹ 4 |
| Cost of capital (k) | 20% |
| Internal rate of return on investment | 25% |
| Retention Ratio | 60% |

## Question 4

Goldi locks Ltd. was started a year back with equity capital of ₹ 40 lakhs. The other details are as under:

| | |
|---|---|
| Earnings of the company | ₹ 4,00,000 |
| Price Earnings ratio | 12.5 |
| Dividend paid | ₹ 3,20,000 |
| Number of Shares | 40,000 |

Find the current market price of the share. Use Walter's Model.

Find whether the company's D/ P ratio is optimal, use Walter's formula.

## Question 5

The following information pertains to M/s XY Ltd.

| | |
|---|---|
| Earnings of the Company | ₹ 5,00,000 |
| Dividend Payout ratio | 60% |
| No. of shares outstanding | 1,00,000 |
| Equity capitalization rate | 12% |
| Rate of return on investment | 15% |

(i) What would be the market value per share as per Walter's model?

(ii) What is the optimum dividend payout ratio according to Walter's model and the market value of Company's share at that payout ratio?

## Question 6

X Ltd., has 8 lakhs equity shares outstanding at the beginning of the year. The current market price per share is ₹ 120. The Board of Directors of the company is contemplating ₹ 6.4 per share as dividend. The rate of capitalisation, appropriate to the risk-class to which the company belongs, is 9.6%:

(i) Based on M-M Approach, calculate the market price of the share of the company, when the dividend is – (a) declared; and (b) not declared.

(ii) How many new shares are to be issued by the company, if the company desires to fund an investment budget of ₹ 3.20 crores by the end of the year assuming net income for the year will be ₹ 1.60 crores?

## Question 7

ABC Ltd. has 50,000 outstanding shares. The current market price per share is ₹ 100 each. It hopes to make a net income of ₹ 5, 00,000 at the end of current year. The Company's Board is considering a dividend of ₹ 5 per share at the end of current

financial year. The company needs to raise ₹ 10,00,000 for an approved investment expenditure. The company belongs to a risk class for which the capitalization rate is 10%. Show, how the M-M approach affects the value of firm if the dividends are paid or not paid.

**Question 8**

The annual report of XYZ Ltd. provides the following information for the Financial Year 2019-20:

| Particulars | Amount (₹) |
|---|---|
| Net Profit | 50 lakhs |
| Outstanding 15% preference shares | 100 lakhs |
| No. of equity shares | 5 lakhs |
| Return on Investment | 20% |
| Cost of capital i.e. (Ke) | 16% |

CALCULATE price per share using Gordon's Model when dividend pay-out is-

(i) 25%;

(ii) 50%;

(iii) 100%;

**Question 9**

Following figures and information were extracted from the company A Ltd.

| | |
|---|---|
| Earnings of the company | ₹10,00,000 |
| Dividend paid | ₹6,00,000 |
| No. of shares outstanding | 2,00,000 |
| Price Earnings Ratio | 10 |
| Rate of return on investment | 20% |

You are required to calculate:

(i) Current Market price of the share

(ii) Capitalisation rate of its risk class

(iii) What should be the optimum pay-out ratio?

(iv) What should be the market price per share at optimal pay-out ratio? (use Walter's Model)

**Question 10**

The following information is taken from ABC Ltd.

| | |
|---|---|
| Net Profit for the year | ₹ 30,00,000 |
| 12% Preference share capital | ₹ 1,00,00,000 |
| Equity share capital (Share of ₹ 10 each) | ₹ 60,00,000 |
| Internal rate of return on investment | 22% |
| Cost of Equity Capital | 18% |
| Retention Ratio | 75% |

Calculate the market price of the share using:

(1) Gordon's Model

(2) Walter's Model

**Question 11**

The beta coefficient of Target Ltd., is 1.4. The company has been maintaining 8 per cent rate of growth in dividends and earnings. The last dividend paid was ₹ 4 per share. The return on government securities is 10 per cent while the return on market portfolio is 15 per cent. The current market price of one share of Target Ltd., is ₹ 36.

(a) What will be the equilibrium price per share of Target Ltd.?

(b) Would you advise purchasing the share?

Notes

Notes

# THEORY SECTION

Chapter 1

## SCOPE AND OBJECTIVES OF FINANCIAL MANAGEMENT

Q.1. What do you mean by Financial Management? Explain its basic aspects. Explain the two basic functions of Financial Management.

Ans. Financial Management is a managerial activity that deals with planning and controlling of a Firm's financial resources. Financial Management deals with procurement of funds and effective utilisation of funds in business. The two basic aspects / functions of Financial Management are explained below –

| Aspect | 1. Procurement of Funds | 2. Effective Utilisation of Funds |
|---|---|---|
| Also called | Capital Structure or Financing Decisions | Investing or Investment Decisions |
| Types | Funds can be obtained from various sources -<br>(a) Long Term Sources (Equity, Preference Capital, Debentures, Term Loans, etc.)<br>(b) Short Term Sources (Trade Credit, Short-Term Advances, Bank Finance for Working Capital, etc.) | Funds may be invested / utilised in -<br>(a) Fixed Assets, Capital Projects and other Long-term Investments,<br>(b) Current Assets, viz. Stock, Debtors, and other Short Term Investments. |
| Description | Funds procured from various sources have different characteristics in terms of risk, cost and control. | Funds invested in different types of assets, yield different rates of return. |
| Objective | While procuring funds from different sources, the objective is to minimize the cost of funds obtained. | While investing / utilizing the Funds, the objective is to maximize return on investment. |
| Activities | Procurement of funds involves the following -<br>(a) Identification of Sources of Finance.<br>(b) Determination of Finance Mix.<br>(c) Raising of Funds.<br>(d) Division of Profits between dividends and retention of profits, i.e. internal fund generation, and<br>(e) Proper balancing of risk, cost and control factors. | Investing / Utilisation of Funds involves -<br>(a) Identification of different investment and business opportunities and their returns,<br>(b) Evaluation of various projects based on different criteria / factors,<br>(c) Balancing between Fixed Assets and need for adequate Working Capital, etc. |

Q.2. What are the major considerations / aspects involved in procurement of funds?

Ans. The major considerations in procurement of funds are - (1) Risk (2) Cost and (3) Control. They differ with the type of fund. A comparative analysis of Debt and Equity

Funds is given below -

| Fund Type | Risk | Cost | Control |
|---|---|---|---|
| Own Funds (Equity) | **Low Risk -** no question of repayment of Capital except when the Company is under liquidation. Hence best from viewpoint of risk. | **Most expensive -** dividend expectations of Shareholders are higher than interest rates. Also, dividends are not tax-deductible. | **Dilution of control -** Since the capital base might be expanded and new Shareholders / public are involved. |
| Loan Funds (Debt) | High Risk - Capital should be repaid as per agreement, Interest should be paid irrespective of profits earned during a period. | **Comparatively cheaper -** prevailing interest rates are considered only to the extent of after tax impact. | **No dilution of control -** generally there is no voting power, except in special situations, e.g. default, etc. |

Q.3. Bring out the scope and significance of Financial Management.

Ans. 1. **Necessity:** Financial Management is essential wherever funds are involved in a centrally planned economy and also in a capitalist set-up. It attempts to use funds in the most productive manner, i.e. optimizing the output from the given input of funds. It focuses on effective utilisation of the most important resource in any activity, i.e. money.

2. **Pervasiveness:** Financial Management is necessary in all types of organizations, whether profit-oriented or not. It is a must for private as well as public enterprises, and all type of business forms.

3. **Primacy:** The strength of the finance function determines the strength of other functions since production, marketing, etc. are possible only with sound financial management. Hence Financial Management guarantees the survival of a business and constitutes a primary place in managerial attention.

Q.4. Trace the evolution of Financial Management.

Ans. **The three broad stages in the evolution of Financial Management are**

1. **Traditional Phase:** In this phase, Financial Management was considered necessary only for special, significant and occasional events, e.g. mergers and acquisitions, liquidation, etc. The focus of decision-making was primarily oriented towards Shareholders and Lenders (Loan Creditors).

2. **Transitional Phase:** In this phase, Financial Management was considered to meet the day-to-day decision-making requirements of Top Level Managers. The focus of decision-making was towards funds analysis, financial planning and control.

3. **Modern Phase:** Here, Financial Management is viewed as a supportive and facilitative function, not only for Top Management, but for all levels of

Managers. Financial Management decisions range from corporate strategies - mergers &takeovers, option pricing, capital budgeting, etc. to regular and procedural aspects of financial discipline and control.

Q.5. "Financial Management is more than mere procurement of funds". What do you think are the responsibilities of a Finance Manager?
Discuss the functions of a Finance Manager / Chief Financial Officer.

Ans. **All decisions involving management of funds come under the purview of the Finance Manager. This includes**

1. **Fund Requirement Estimation:**
   (a) The Finance Manager has to carefully estimate the Firm's requirements of Funds.
   (b) The purpose of funds (investment in Fixed Assets or Working Capital) and timing of funds (i.e. when it is required) should be determined, using techniques like budgetary control and long range planning.
2. **Capital Structure / Financing Decisions:**
   (a) The Finance Manager has to determine the proper mix / combination of procuring funds. Funds can be procured from various sources for short term and long-term purposes.
   (b) Decisions regarding Capital Structure (called Financing Decisions) should be taken to provide proper balance between - (i) Long-Term and Short-Term funds, and also (ii) Loan Funds and Own Funds.
   (c) Long-Term funds are required to (a) finance Fixed Assets and long-term Investments, and (b) provide for permanent needs of working capital. Short Term Funds are required for Working Capital purposes.
3. **Cash Management Decisions:**
   (a) The Finance Manager has to ensure that all sections / branches / factories /departments and units of the Firm have adequate funds (cash), to facilitate smooth flow of business operations.
   (b) He should also ensure that there is no excessive cash (idle funds) in any division at any point of time.
4. **Capital Budgeting / Investment Decisions:**
   (a) Funds procured should be invested / utilised effectively. The Finance Manager should prescribe the asset management policies, for Fixed Assets and Current Assets.
   (b) Long Term Funds should be invested - (i) in Fixed Assets / Projects after

proper Capital Budgeting evaluation, and (ii) in Permanent Working Capital after estimating the requirements carefully.

5. **Financial Analysis / Performance Evaluation:**

Financial Analysis helps in assessing how effectively the funds have been utilized and in identifying methods of improvement. So, the Finance Manager has to evaluate financial performance of various units of the Firm.

6. **Dividend Decisions:**

(a) The Finance Manager should assist the top management in deciding the dividend-payout and retention ratio, i.e. - (i) what amount of dividend should be paid to Shareholders, and (ii) what amount should be retained in the business itself.

(b) Dividend Decisions depend upon various factors like - (i) trend of earnings, (ii) requirement of funds for future growth, (iii) cash flow situation, (iv) trend of share prices, and (v) tax liability of Firm / Shareholders.

7. **Financial Negotiations / Liaison with Lenders:** The Finance Manager is required to interact and carry out negotiations with Financial Institutions, Banks, and Public Depositors. Negotiations especially with outside financiers require specialised skills.

8. **Market Impact Analysis:**

The Finance Manager has to monitor the Stock Exchange quotations and behaviour of share prices. This involves analysis of major trends in the stock market and judging their impact on the share price of the Firm.

Q.6. Explain the inter-relationship between Investment, Financing and Dividend Decisions.

Ans. 1. **Objective:** The underlying objective of all the three decisions viz. - Investment, Financing and Dividend decisions, is "maximization of Shareholders' wealth". The Finance Manager has to consider the joint impact of these three decisions on the market price of the Company's Shares.

2. **Linkage:**

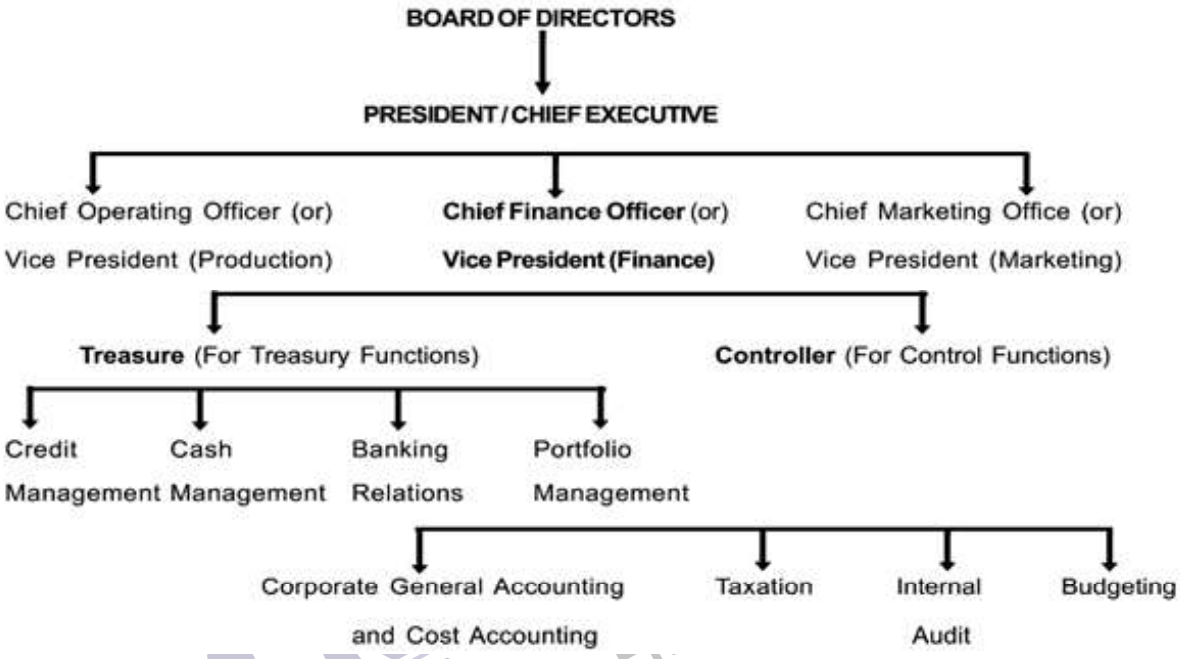
(a) A new project (investment) needs finance. Also, a Company may have to expand / develop its operations, which require funds. Hence Investment Decisions is based on the Financing Decision.

(b) The Financing decision is influenced by, and influences the Dividend decision, since Retained Earnings used in internal financing means reduction in dividends paid to Shareholders.

(c) So, the inter-relationship between the three types of decisions should be analysed jointly, in order to maximize the Shareholders' wealth.

Q.7. Bring out the position of the Finance Function in the Organisation Structure. / Draw atypical organisation chart depicting the Finance Function.

Ans. Broadly, the finance function can be specially classified into - (1) Treasury functions, and (2) Control functions. The Organisation Chart of finance function in a large organization may be as under -




Q.8. Explain the limitations of profit maximization objective of Financial Management.

Ans. Limitations of Profit Maximisation objective of financial management.

(a) Time factor is ignored.

(b) It is vague because it is not cleared whether the term relates to economics profit, accounting profit, profit after tax or before tax.

(c) The term maximisation is also ambiguous

(d) It ignore, the risk factor.

Q.9. Discuss emerging issues affecting the future role of Chief Financial Officer (CFO).

Ans. Emerging Issues/Priorities Affecting the Future Role of Chief Financial Officer (CFO)

(i) Regulation. Regulation requirements are increasing and CFOs have an increasingly personal stake in regulatory adherence.

(ii) Globalisation: The challenges of globalisation are creating a need for finance leaders to develop a finance function that works effectively on the global stage and that embraces diversity.

(iii) Technology: Technology is evolving very quickly, providing the potential for

CFOs to reconfigure finance processes and drive business insight through 'big data' and analytics.

(iv) Risk: The nature of the risks that organisations face is changing, requiring more effective risk management approaches and increasingly CFOs have a role to play in ensuring an appropriate corporate ethos.

(v) Transformation: There will be more pressure on CFOs to transform their finance functions to drive a better service to the business at zero cost impact.

(vi) Stakeholder Management: Stakeholder management and relationships will become important as increasingly CFOs become the face of the corporate brand.

(vii) Strategy: There will be a greater role to play in strategy validation and execution, because the environment is more complex and quick changing, calling on the analytical skills CFOs can bring.

(viii) Reporting: Reporting requirements will broaden and continue to be burdensome for CFOs.

(ix) Talent and Capability: A brighter spotlight will shine on talent, capability and behaviours in the top finance role.

Q.10.Difference between Wealth and Profit Maximization

Ans. Profit Maximization v/s Wealth Maximization

| | Profit Maximization | Wealth Maximization |
|---|---|---|
| 1. | Does not consider the effect of future cash flows, dividend decisions, EPS, etc. | Recognises the effect of all future cash flows, dividends, EPS, etc. |
| 2. | A Firm with Profit Maximisation objective may refrain from payment of dividend to its Shareholders. | A Firm with Wealth Maximisation objective may pay regular dividends to its Shareholders. |
| 3. | Ignores time pattern of returns. | Recognizes the time pattern of returns. |
| 4. | Focus on Short-Term. | Focus on Medium / Long-Term. |
| 5. | Does not consider the effect of uncertainty / risk. | Recognises the risk-return relationships. |
| 6. | Comparatively easy to determine the relationship between financial decisions and profits. | Offers no clear or specific relationship between financial decisions and share market prices. |

| | | |
|---|---|---|
| 7. | Leads to too naive decisions, e.g. (a) avoiding investments which result in immediate cash losses, but substantial revenues in the long-run, (b) postponing replacement expenditure to ensure short-term profits, etc. | Leads to systematic decisions using the tools and techniques of Capital Budgeting, Risk-Return Trade-off, Leverage Effect, etc. |
| 8. | Focus on Entity's short term gains and profits. | Focus on long-term wealth of Entity, Shareholders and Society as a whole. |

Q.11. Difference between Financial Accounting and Financial Management.

Ans. **Financial Accounting v/s Financial Management**

| | Financial Accounting | Financial Management |
|---|---|---|
| 1. | Financial Accounting generates information relating to operations of the Entity. | Financial Management seeks to use the information generated by the accounting function, for decision-making. |
| 2. | Financial Accounting is past-oriented, in the sense that transactions/ events which happen, are recorded. | Financial Management is future-oriented, i.e. to guide the Entity in future course of action. |
| 3. | Measurement, Recognition and Disclosure are the dominant aspects considered in accounting. | Procurement of Funds and their Effective Utilisation are the dominant aspects of Financial Management. |
| 4. | Measurement of Funds (i.e. Revenue, Expenses, etc.) is largely based on the accrual concept. | Decision-making requires the analysis of funds in terms of Cash Inflows and Cash Outflows. |
| 5. | Accounting is guided by principles, standards, legal requirements, etc. | Financial Management is guided by tools and techniques for decision-making. |

Q.12. Write Note on Scope of Financial Management.

Ans. **SCOPE OF FINANCIAL MANAGEMENT**

As an integral part of the overall management, financial management is mainly concerned with acquisition and use of funds by an organization. Based on financial management guru Ezra Solomon's concept of financial management, following aspects are taken up in detail under the study of financial management:

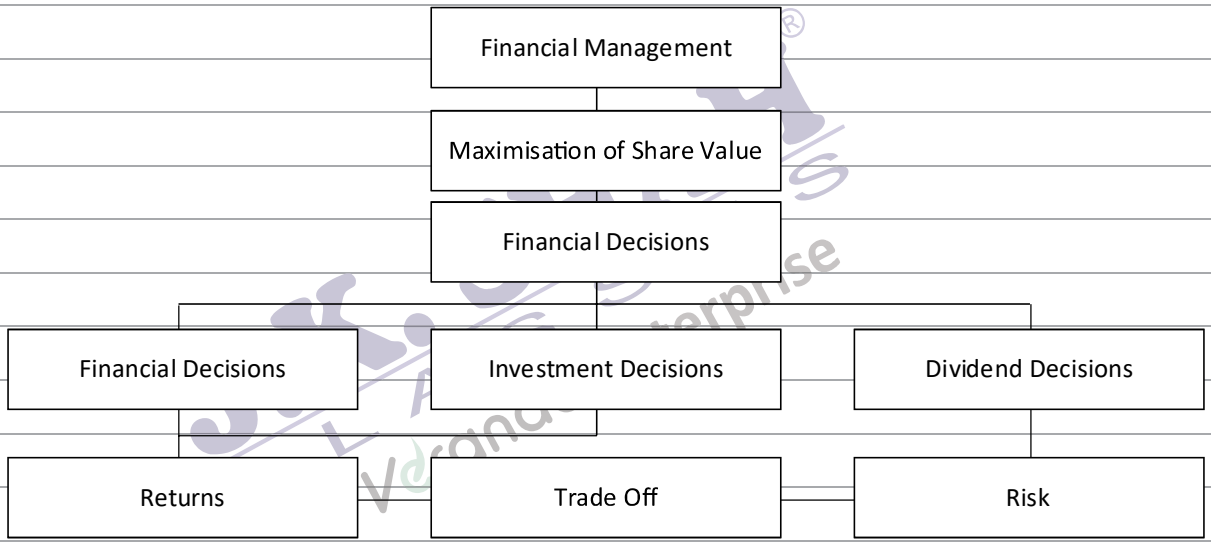
(a) Determination of size of the enterprise and determination of rate of growth.

(b) Determining the composition of assets of the enterprise.

(c) Determining the mix of enterprise's financing i.e. consideration of level of debt to equity, etc.

(d) Analysis, planning and control of financial affairs of the enterprise.

The scope of financial management has undergone changes over the years. Until the middle of this century, its scope was limited to procurement of funds under major events in the life of the enterprise such as promotion, expansion, merger, etc. In the modern times, the financial management includes besides procurement of funds, the three different kinds of decisions as well namely investment, financing and dividend. All the three types of decisions would be dealt in detail during the course of this chapter.




Q.13. Discuss Concept of Agency Problem and Agency Cost.

Ans. **AGENCY PROBLEM AND AGENCY COST**

Though in a sole proprietorship firm, partnership etc., owners participate in management but incorporate, owners are not active in management so, there is a separation between owner/ shareholders and managers. In theory managers should act in the best interest of shareholders, however in reality, managers may try to maximize their individual goal like salary, perks etc. So there is a principal agent relationship between managers and owners, which is known as Agency Problem. In a nutshell, Agency Problem is the chances that managers may place personal goals ahead of the goal of owners. Agency Problem leads to Agency Cost. Agency cost is the additional cost borne by the shareholders to monitor the manager and control their behaviour so as to maximise shareholders wealth. Generally, Agency Costs are of four types (i) monitoring (ii) bonding (iii) opportunity (iv) structuring

**Addressing the agency problem**

The agency problem arises if manager's interests are not aligned to the interests of the debt lender and equity investors. The agency problem of debt lender would be addressed by imposing negative covenants i.e. the managers cannot borrow beyond a point. This is one of the most important concepts of modern day finance and the application of this would be applied in the Credit Risk Management of Bank, Fund Raising, Valuing distressed companies.

Agency problem between the managers and shareholders can be addressed if the interests of the managers are aligned to the interests of the share- holders. It is easier said than done.

However, following efforts have been made to address these issues:

- Managerial compensation is linked to profit of the company to some extent and also with the long term objectives of the company.
- Employee is also designed to address the issue with the underlying assumption that maximisation of the stock price is the objective of the investors.
- Effecting monitoring can be done.

Q.14.Discuss role of CFO in today's world vis-à-vis in the past

Ans. Role of Finance executive in today's World vis-à-vis in the past

Today, the role of chief financial officer, or CFO, is no longer confined to accounting, financial reporting and risk management. It's about being a strategic business partner of the chief executive officer, or CEO. Some of the key differences that highlight the changing role of a CFO are as follows:-

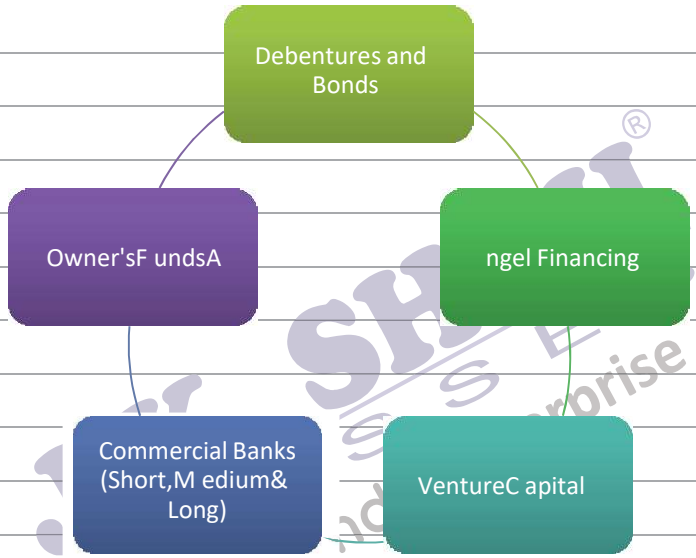
| What a CFO used to do? | What a CFO now does? |
|---|---|
| Budgeting | Budgeting |
| Forecasting | Forecasting |
| Accounting | Managing M&As |
| Treasury (cash management) | Profitability analysis (for example, by customer or product) |
| Preparing internal financial reports for management. | Pricing analysis |
| Preparing quarterly, annual filings for investors. | Decisions about outsourcing |
| Tax filing | Overseeing the IT function. |
| Tracking accounts payable and accounts receivable. | Overseeing the HR function. |

| | |
|---|---|
| Travel and entertainment expense management. | Strategic planning (sometimes overseeing this function). |
| | Regulatory compliance. |
| | Risk management. |

Q.15. Discuss Sources for Procurement of Funds.

Ans. **Procurement of Funds**

Since funds can be obtained from different sources therefore their procurement is always considered as a complex problem by business concerns. Some of the **sources for funds** for a business enterprise are:




In a global competitive scenario, it is not enough to depend on the available ways of raising finance but resource mobilization has to be undertaken through innovative ways on financial products which may meet the needs of investors. We are constantly seeing new and creative sources of funds which are helping the modern businesses to grow faster. For example: trading in Carbon Credits is turning out to be another source of funding.

Funds procured from different sources have different characteristics in terms of risk, cost and control. The cost of funds should be at the minimum level for that a proper balancing of risk and control factors must be carried out.

Another key consideration in choosing the source of new business finance is to strike a balance between equity and debt to ensure the funding structure suits the business.

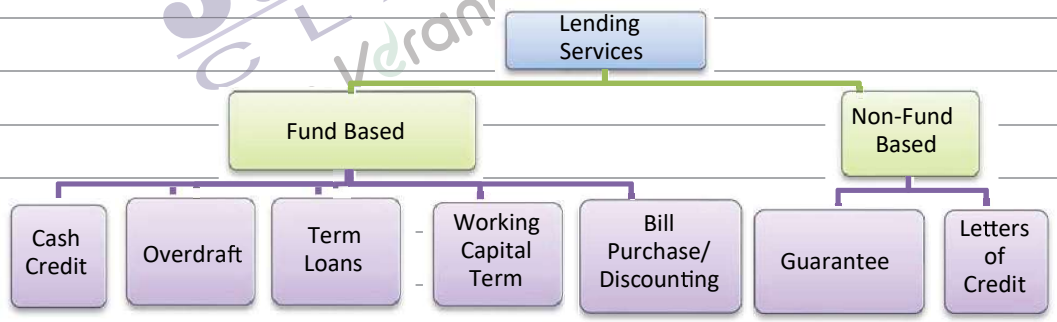
Let us discuss some of the sources of funds (discussed in detail in later chapters):

(a) **Equity:** The funds raised by the issue of equity shares are the best from the risk point of view for the firm, since there is no question of repayment of equity

capital except when the firm is under liquidation. From the cost point of view, however, equity capital is usually the most expensive source of funds. This is because the dividend expectations of shareholders are normally higher than prevalent interest rate and also because dividends are an appropriation of profit, not allowed as an expense under the Income Tax Act. Also the issue of new shares to public may dilute the control of the existing shareholders.

(b) **Debentures:** Debentures as a source of funds are comparatively cheaper than the shares because of their tax advantage. The interest the company pays on a debenture is free of tax, unlike a dividend payment which is made from the taxed profits. However, even when times are hard, interest on debenture loans must be paid whereas dividends need not be. However, debentures entail a high degree of risk since they have to be repaid as per the terms of agreement. Also, the interest payment has to be made whether or not the company makes profits.

(c) **Funding from Banks:** Commercial Banks play an important role in funding of the business enterprises. Apart from supporting businesses in their routine activities (deposits, payments etc.) they play an important role in meeting the long term and short term needs of a business enterprise. Different lending services provided by Commercial Banks are depicted as follows:-




(d) **International Funding:** Funding today is not limited to domestic market. With liberalization and globalization a business enterprise has options to raise capital from International markets also. Foreign Direct Investment (FDI) and Foreign Institutional Investors (FII) are two major routes for raising funds from foreign sources besides ADR's (American depository receipts) and GDR's (Global depository receipts). Obviously, the mechanism of procurement of funds has to be modified in the light of the requirements of foreign investors.

(e) **Angel Financing:** Angel Financing is a form of an equity-financing where an angel investor is a wealthy individual who provides capital for start-up or

expansion, in exchange for an ownership/equity in the company. Angel investors have idle cash available and are looking for a higher rate of return than what is given by traditional investments. Typically, angels, as they are known as, will invest around 25 to 60 per cent to help a company get started. This source of finance sometimes is the last option for startups which doesn't qualify for bank funding and are too small for venture capital financing.

Q.16. Explain in brief Importance of Financial Management.

Ans. **IMPORTANCE OF FINANCIAL MANAGEMENT**

Importance of Financial Management cannot be over-emphasized. It is, indeed, the key to successful business operations. Without proper administration of finance, no business enterprise can reach at its full potentials for growth and success. Money is to an enterprise, what oil is to an engine.

Financial management is all about planning investment, funding the investment, monitoring expenses against budget and managing gains from the investments. Financial management means management of all matters related to an organization's finances.

The best way to demonstrate the importance of good financial management is to describe some of the tasks that it involves:-

- **Taking care** not to over-invest in fixed assets
- **Balancing** cash-outflow with cash-inflows
- **Ensuring** that there is a sufficient level of short-term working capital
- **Setting** sales revenue targets that will deliver growth
- **Increasing** gross profit by setting the correct pricing for products or services
- **Controlling** the level of general and administrative expenses by finding more cost-efficient ways of running the day-to-day business operations, and
- **Tax planning** that will minimize the taxes a business has to pay.

Q.17. Explain Financial Distress with Insolvency.

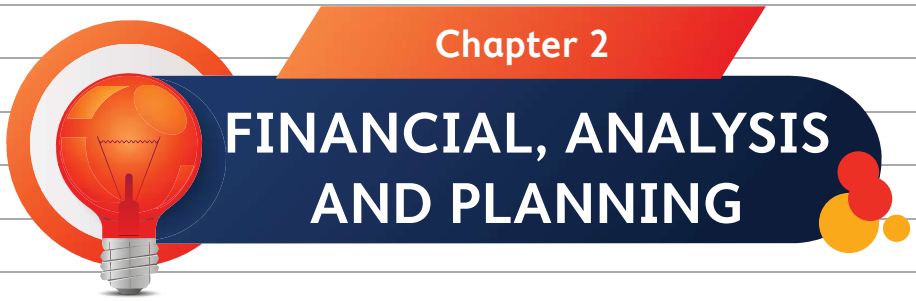
Ans. **FINANCIAL DISTRESS AND INSOLVENCY**

There are various factors like price of the product/ service, demand, price of inputs e.g. raw material, labour etc., which is to be managed by an organisation on a continuous basis. Proportion of debt also need to be managed by an organisation very delicately. Higher debt requires higher interest and if the cash inflow is not sufficient then it will put lot of pressure to the organisation. Both short term and long term creditors will put stress to the firm. If all the above factors are not well

managed by the firm, it can create situation known as distress, so financial distress is a position where Cash inflows of a firm are inadequate to meet all its current obligations.

Now if distress continues for a long period of time, firm may have to sell its asset, even many times at a lower price. Further when revenue is inadequate to revive the situation, firm will not be able to meet its obligations and become insolvent.

So, **insolvency basically means inability of a firm to repay various debts and is a result of continuous financial distress.**




Q.1. Who are the entities interest in Financial Statements Analysis?

Ans. Financial Statements consist of :

1. Profit and Loss Account,
2. Balance Sheet and
3. Cash Flow Statement, where applicable. Financial Statement Analysis is a meaningful interpretation of Financial Statements, in order to meet the information requirements of the parties who use such financial information.

The users of financial information include :

1. Management - for day to day decision making and also for performance evaluation.
2. Proprietor / Shareholders - for analysing performance, profitability and financial position. Prospective investors require track record of performance.
3. Lenders - Banks & Financial Institutions - for determining financial position of the company, Debt Service Coverage, etc.
4. Suppliers - to determine the credit worthless of the Company in order to grant credit.
5. Customers - to know the general business viability before entering into long – term contracts and arrangements.
6. Government - to ensure prompt collection of direct and indirect tax revenues, to evaluate performance and contribution to social objectives.
7. Research Scholars - for study, research and analysis purposes.

Q.2. What are the types of Financial Statement Analysis?

Ans. **Financial Statement Analysis may be of the following types :**

1. **Internal and External Analysis :**

| | Internal Analysis | External Analysis |
|---|---|---|
| (a) | It is done within the Company, i.e. by the Corporte Finance Department. | It is done by outside parties e.g. Bankers, Investors, Suppliers, etc. |
| (b) | It is more extensive and detailed. It looks into all aspects of functioning and performance, viz. Profitability, Liquidity, Solvency, Coverage, Leverage, Turnover, and Overall Return. | It is restricted according to the requirements of the user. For example, a Trade Creditor may be interested in the general profitability and financial standing. A Lender may be interest in Debt - Service Coverage, Interest Coverage, etc. |

2. **Inter - Firm and Intra - Firm analysis :**

| Inter - Firm Analysis | Intra - Firm Analysis |
|---|---|
| It involves comparison of Financial statements of one Firm, with other Firms in the same industry. | It involves comparison of Financial Statements of one Firm for different time periods or different divisions of the firm for the same year. |

3. **Horizontal and Vertical Analysis :**

| | Horizontal Analysis | Vertical Analysis |
|---|---|---|
| (a) | It involves comparison of Financial Statements of one year with other years. | It involves analysis of relationship between various items in the Financial Statements of one year. |
| (b) | Items are compared one a one-to-one basis, e.g. sales increase, comparative net profit for 2 years, etc. | Relationship between items i.e. ratios or percentages are considered under this analysis. |

Q.3. What is the significance of ratio analysis in decision - making?

Ans. **Ratio Analysis is a useful tool in the following aspects :**

1. **Evaluation of Liquidity :** The ability of a Firm to meet its short - term payment commitments is called liquidity. Current Ratio and Quick Ratio help to assess the short - term solvency (liquidity) of the Firm.

2. **Evaluation of Profitability :** Profitability Ratios, i.e. Gross Profit Ratio, Operating Profit Ratio, Net Profit ratio are basic indicators of the profitability of the Firm. In addition, various profitability indicators like Return on Capital Employed (ROCE), Earning Per Share (EPS), Return on Assets (ROA), etc. are used to assess the financial performance.

3. **Evaluation of Operating Efficiency :** Ratios throw light on the degree of efficiency in the management and utilisation of assets and resources. These are indicated by Activity or Performance or Turnover Ratios, e.g. Stock Turnover Ratio, Debtors Turnover Ratio, Fixed Assets Turnover Ratios, etc. These indicate the ability of the Firm to generate revenue (sales) per rupee of investment in its assets.

4. **Evaluation of Financial Strength :** Long - term solvency or financial strength his indicated by Capital Structure Ratios like Debt - Equity Ratio, Gearing Ratio, Leverage Ratios, etc. These ratios signify the effect of various sources of finance, e.g. Debt, Preference and Equity. They also show whether the Firm is exposed to serious financial strain or is justified in the use of debt funds.

5. **Inter - Firm & Intra - Firm comparison :** Comparison of the Firm's ratios with the industry average will help evaluate the Firm's position vis-a-vis the industry. It will help in anlaysing the Firm's strengths and weaknesses and take corrective action. Trend Analysis of ratios over a period of years will indicate the direction of the Firm's financial policies.

6. **Budgeting :** Ratios are not mere post - mortem of operations. They help in depicting future financial positions. Ratios have predictory value and are helpful in planning and forecasting the business activities of a Firm for future periods, e.g. estimation of working capital requirements.

Q.4. Discuss the Financial ratios for evaluating company performance on operating efficiency and liquidity position aspects.

Ans. **Financial ratios for evaluating company performance on operating efficiency and liquidity position aspects :**

1. **Operating efficiency :** Financial Ratio Analysis helps to determine degree of efficiency and effective utilisation of assets. We measure operational efficiency of an enterprise with the help of activity ratio. It helps to determine solvency position of an enterprise. Following are examples of activity ratio :

(1) Capital turnover ratio = $\frac{\text{Net Sales}}{\text{Capital employed}}$

(2) Total asset turnover ratio = $\frac{\text{Net Sales}}{\text{Total Asset}}$

(3) Fixed asset turnover ratio = $\frac{\text{Net Sales}}{\text{Fixed Asset}}$

2. **Liquidity positions:** Ratio analysis also helps to determine liquidity positions. A firm should be able to meet all its short turn obligations. It is current asset that yields funds in short period. Current assets should not only yield sufficient funds to meet current liabilities as they fall due but also enable the firm to carry on its day-to-day activity. If above qualities are present in an enterprise are then firm can be said to have good liquidity position. Current ratio, liquid ratio, Debt equity ratios mainly used to judge liquidity position. These ratios are particularly useful in credit analysis by banks and other suppliers of short term loans.

Q.5. Explain the need of debt-service coverage ratio.

Ans.
- This ratio is the vital indicator to the lender to assess the extent of ability of the borrower to service the loan in regard to timely payment of interest and repayment of principal amount.
- It shows whether the business is earning sufficient profits to pay not only the interest charges, but also the instalment due of the principal amount.
- Debt service coverage ratio of 1 : 2 is considered ideal by the financial institutions.
- This ratio will enable the lender to take correct view of the borrower's repayment capacity.
- The ratio is calculated as follows :

$$= \frac{\text{Earning available for debt service*}}{\text{Interest on Loan + Installment of the Principal amount}}$$

- Where earning available for debt service = Profit after tax + Depreciation +interest on Loan.

Q.6. Diagrammatically present the DU PONT CHART to calculate return on equity.

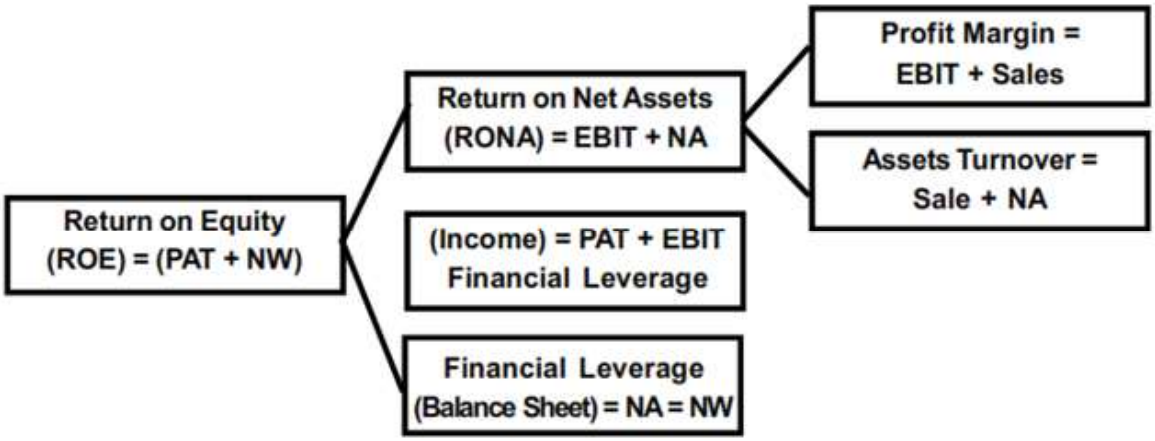
Ans. Du-Pont Chart was developed by the USA based company Du-Point.

This chart is a chart of financial ratios, which analyses the Net Profit Margin in terms of asset turn out.

This chart shows that the ROI is ascertained as a product of Net profit margin ratio and investment turnover ratio.

There are three components in the calculation of return on equity using the traditional Du Pont model- the net profit margin, asset turnover, and the equity multiplier. By examining each input individual, the sources of a company's return on equity can be discovered and compared to its competitors

Return of Equity = (Net Profit Margin) (Asset Turnover) (Equity Multiplier)




DU - Pont

Q.7. (i) How is return on capital employed calculated? What is its significance?

(ii) What is quick ratio? What does it signify?

Ans.

(i) Return on capital employed= $\frac{\text{Return}}{\text{Capital employed}} \times 100$

Return = Profit after tax

+ Tax

+ Interest

+ Non trading Expenses

- Non operating incomes

Capital employed = Equity share capital

+ Preference share capital

+ Reserves & surplus + P & L (Cr. Bal.) + Long term loans

+ Debentures

- Non trading investment - Fictitious Assets

- P & L (Dr. Bal)

Significance of ratio" Return on capital employed":

1. Overall profitability of the business is highlighted
2. Comparison of "Return on capital employed with rate of interest debt leads to financial leverage.

(ii) Quick ratio also termed as "acid test ratio" is one of the best measures of liquidity It is worked out as follows :

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

In the above formula

Quick Assets = Current Assets Inventories

Quick liabilities = Current liabilities - Bank - Overdraft - Cash credit

Quick ratio of 1 : 1 is an ideal ratio significance :

It indicates whether the firm is in a position to pay its current liabilities within a month or immediately.

Q.8. What do you mean by Stock Turnover ratio and Gearing ratio?

Ans. **Inventory / Stock turnover ratio**

It establishes the relationship between the cost of goods sold during the year and average inventory held during the year. It is calculated as follows:

$$\text{Inventory / Stock turnover Ratio} = \frac{\text{Sales / Turnover}}{\text{Average inventory}}$$

In above formula:

$$\text{Average Inventory} = \frac{\text{Opening Stock + Closing Stock}}{2}$$

This ratio indicates that how fast inventory is sold. A high ratio is good from the viewpoint of liquidity and a low ratio would indicate that inventory is not sold and remains in godown for a long time.

**Note :** Turnover is generally taken as cost of goods sold.

**Gearing Ratio:**

It is also called as "Capital Gearing Ratio". It shows the proportion of fixed interest (dividend) bearing capital to funds belonging to equity share-holders funds. This ratioindicate how much of the business is funded by borrowing.

It is calculated as follows:

$$\text{Capital Gearing Ratio} = \frac{\text{Preference Capital + Debentures + Long term loans}}{\text{Equity Share Capital + Reserves}}$$

This ratio helps to judge the long term solvency position of a firm.

Q.9. Explain the following ratios :

(i) Operating ratio (ii) Price earnings ratio

Ans. **(i) Operating Ratio :** A ratio that shows the efficiency of a company's management by comparing operating expense to net sales is called **Operating Ratio.** It is calculated as follows :

$$\frac{\text{Operating expenses}}{\text{Net Sales}}$$

The smaller the ratio, the greater the organization's ability to generate profit if revenues decrease, when using this ratio, however, investors should be aware that it doesn't take debt repayment or expansion into account.

**(ii) Price Earnings Ratio :** The price earnings ratio indicates the expectation of equity investors about earnings of the firm. It relates earnings to market price and is generally taken as a summary measure of growth potential of an investment, risk characteristics, shareholders orientation, corporate image and degree of liquidity. It is calculated as :

$$\text{P.E. Ratio} = \frac{\text{Market price per share}}{\text{Earnings per share}}$$

Q.10. Distinguish between Funds Flow Statement & Cash Flow Statement.

Ans.

| Funds Flow Statement | Cash Flow Statement |
|---|---|
| 1. It analyses the reasons for change in financial position between two Balance Sheets. | It ascertains the changes in the financial position between two accounting periods. |
| 2. It ascertains the changes in balance of Cash in hand and Cash at bank between two dates. | It analyses the reasons for changes in Cash and Bank balances on a particular date. |
| 3. It reveals the Sources and Application of funds. | It shows the Inflows and Outflows of cash. |
| 4. It helps to test whether Working Capital has been effectively used or not. | It is an important tool for short-term analysis. The two significant areas of analysis are cash generating efficiency and free cash flow. |

Q.11.Explain briefly the limitations of Financial ratios.

Ans. **Limitations of Financial Ratios**

The limitations of financial ratios are listed below:

(a) Diversified product lines'. Many businesses operate a large number of divisions in quite different industries. In such cases, ratios calculated on the basis of aggregate data cannot be used for inter-firm comparisons.

(b) Financial data are badly distorted by inflation-. Historical cost values may be substantially different from true values. Such distortions of financial data are also carried in the financial ratios.

(c) Seasonal factors may also influence financial data.

(d) To give a good shape to the popularly used financial ratios (like current ratio, debt- equity ratios, etc.)'. The business may make some year-end adjustments. Such window dressing can change the character of financial ratios which would be different had there been no such change.

(e) Differences in accounting policies and accounting period. It can make the accounting data of two firms non-comparable as also the accounting ratios.

(f) There is no standard set of ratios against which a firm's ratios can be compared: Sometimes a firm's ratios are compared with the industry average. But if a firm desires to be above the average, then industry average becomes a low standard. On the other hand, for a below average firm, industry averages become too high a standard to achieve.

Q.12. Summary of Ratios

**A. LIQUIDITY RATIOS - Short Term Solvency**

| | Ratio | Formula | Numerator | Denominator | Significance |
|---|---|---|---|---|---|
| 1 | Current Ratio | $\frac{\text{Current Assets}}{\text{Current Liabilities}}$ | Inventories / Stocks<br>(+) Debtors & B/R<br>(+) Cash & Bank<br>(+) Receivables<br>(+) Accruals<br>(+) Short Term Loans<br>(+) Marketable Investments / Short Term Securities | Sundry Creditors<br>(+) Outstanding Expenses<br>(+) Short Term Loans & Advances (Cr.)<br>(+) Bank Overdraft / Cash Credit<br>(+) Provision for Taxation | Ability to repay short – term liabilities promptly. Ideal Ratio is 2:1. Very high Ratio indicates existence of idle Current Assets. |

| | | | | | |
|---|---|---|---|---|---|
| | | | | (+) Proposed Dividend<br>(+) Unclaimed Dividend | |
| 2 | Quick Ratio | Quick Assets / Current Liabilities (also called Liquid Ratio [or] Acid Test Ratio) | Current Assets<br>(-) Inventories<br>(-) Prepaid Expenses | Current Liabilities<br>(-) Bank Overdraft<br>(-) Cash Credit | Ability to meet immediate liabilities. Ideal Ratio is 1:1 |
| 3 | Absolute Cash Ratio [or] Absolute Liquidity Ratio | Cash + Marketable Securities / Current Liabilities | Cash in Hand<br>(+) Cash at Bank (Dr)<br>(+) Marketable Investments / Short Term Securities | As per Item 1 above. | Availability of cash to meet short-term commitments. No ideal ratio as such. If Ratio > 1, it indicates very liquid resources, which are low in profitability. |
| 4 | Basic Defence Interval Measure (in days) | Quick Assets / Cash Expenses Per Day | Current Assets<br>(-) Inventories<br>(-) Prepaid Expenses | Annual Cash Expenses / 360<br>Cash Expenses = Total Expenses<br>(-) Depreciation & write-offs. | Ability to meet regular Cash Expenses. |

**B. CAPITAL STRUCTURE RATIOS - Indicator of Financing Techniques & Long-Term Solvency**

**Note:** For the Capital Structure Ratios, the following terms are used with the respective meanings assigned -

| | Term | Alternative Term | Formula for Computation |
|---|---|---|---|
| (a) | Debt | Borrowed Funds (or) Loan Funds | = Debentures + Long-Term Loans from Banks, Financial Institutions, etc. |

| | | | |
|---|---|---|---|
| (b) | Equity | Net Worth (or) Shareholders' Funds (or) Proprietors' Funds (or) Owners' Funds (or) Own Funds | = Equity Share Capital + Preference Share Capital + Reserves & Surplus Less: Miscellaneous Expenditure (as per B/Sheet) and Accumulated Losses. |
| (c) | Equity Shareholders Funds | - | = Equity as above Less Preference Share Capital, i.e.<br>= Equity Share Capital + Reserves & Surplus Less: Miscellaneous Expenditure (as per B/Sheet) and Accumulated Losses. |
| (d) | Total Funds | Long Term Funds (or) Capital Employed (or) Investment | = Debt + Equity [i.e. (a) + (b) as above].....Liability Route<br>= Fixed Assets + Net Working Capital.....Assets Route |

| | Ratio | Formula | Numerator | Denominator | Significance |
|---|---|---|---|---|---|
| 1 | Debt to Total Funds Ratio (or) Debt Ratio | $\frac{\text{Debt}}{\text{Total Funds}}$ | See (a) above. | See (d) above. | Indicator of use of external funds. Ideal Ratio is 67%. |
| 2 | Equity to Total Funds Ratio (or) Equity Ratio | $\frac{\text{Equity}}{\text{Total Funds}}$ | See (b) above. | See (d) above. | Indicates Long Term Solvency, mode of financing and extent of own funds used in operations. Ideal Ratio is 33%. |
| 3 | Debt – Equity Ratio | $\frac{\text{Dept}}{\text{Equity}}$ | See (a) above. | See (b) above. | Indicates the relationship between Debt & Equity. Ideal Ratio is 2:1. |

| | | | | | |
|---|---|---|---|---|---|
| 4 | Capital Gearing Ratio | Pref.Cap.+Debt / Equity Shareholders Funds | Preference Share Capital + Debt as per(a) above | See (c) above. | Shows proportion of Fixed Charge (Dividend or Interest) Bearing Capital to Equity Funds, and the extent of advantage or leverage enjoyed by Equity Shareholders. |
| 5 | Proprietary Ratio | Proprietary Funds / Total Assets | See (b) above. | Net Tangible Fixed Assets (+) Total Current Assets | Shows extent of Owners' Funds, i.e. Shareholders' Funds utilised in financing the assets of the business. |
| 6 | Debt to Total Assets Ratio | Dept Funds / Total Assets | See (a) above. | Same as above | Shows proportion of Total Assets financed with Debt, and hence, extent of Financial Leverage. |
| 7 | Fixed Asset to Long Term Fund Ratio | Fixed Asset / Long Term Funds | Net Fixed Assets, i.e. Gross Block (-) Depreciation | See (d) above. | Shows proportion of Fixed Assets (Long-Term Assets) financed by long-term funds. Indicates the financing approach followed by the Firm, i.e. Conservative, Matching or Aggressive. Ideal Ratio is less than one. |

## C. PROFITABILITY RATIOS BASED ON SALES

| | Ratio | Formula | Numerator | Denominator | Significance |
|---|---|---|---|---|---|
| 1 | Gross Profit Ratio | $\frac{\text{Gross Profit}}{\text{Sales}}$ | Gross Profit as per Trading Account. | Sales net of returns. | Indicator of Basic Profitability. |
| 2 | Operating Profit Ratio | $\frac{\text{Operating Profit}}{\text{Sales}}$ | Sales Less Cost of Sales [or] Net Profit as per P & L Account (+) Non-Operating Expenses (e.g. Loss on sale of assets, Preliminary Expenses written off, etc.) [See Note 2] (-) Non-Operating Incomes (e.g. Rent, Interest & Dividends received) | Sales net of returns. | Indicator of Operating Performance of business. |
| 3 | Net Profit Ratio | $\frac{\text{Net Profit}}{\text{Sales}}$ | Net Profit as per P & L A/c (either before tax or after tax, depending upon data). | Sales net of returns. | Indicator of Overall Profitability. |
| 4 | Contribution Sales Ratio [or] PV Ratio | $\frac{\text{Contribution}}{\text{Sales}}$ | Sales Less Variable Costs. | Sales net of returns. | Indicator of Profitability in Marginal Costing. |

**Notes:**

1. All the above ratios are expressed in percentage. The higher the ratio, the better it is for the business.
2. Depreciation is generally considered as an Operating Expense (Note: Operating, but Non-Cash Expenditure).
3. Operating Ratio (or) Operating Cost Ratio = $\frac{\text{Operating Cost}}{\text{Sales}}$ = 100% - Operating Profit Ratio. For this purpose, Sales Operating Costs = Materials + Labour + POH + AOH + SOH + Depreciation.

## D. COVERAGE RATIOS- Ability to Serve Fixed Liabilities

| | Ratio | Formula | Numerator | Denominator | Significance |
|---|---|---|---|---|---|
| 1 | Debt Service Coverage Ratio | $\frac{\text{Earnings for Debt Service}}{(\text{Interest + Instalment})}$ | Net Profit after Taxation (+) Interest on Debt Funds (+) Non-Cash Operating Exps (e.g. depreciation & amortizations) (+) Non-Operating Items / Adjustments (e.g. Loss on sale of Fixed Assets, etc.) | Interest + Principal, i.e. Interest on Debt (+) Instalment of Loan Principal | Indicates extent of current earnings available for meeting commitments of interest and instalment. Ideal Ratio must be between 2 to 3 times. |
| 2 | Interest Coverage Ratio | $\frac{\text{EBIT}}{\text{Interest}}$ | Earnings before Interest and Tax. | Interest on Debt | Indicates ability to meet interest obligations of the current year. Should be greater than 1. |
| 3 | Preference Dividend Coverage Ratio | $\frac{\text{EAT}}{\text{Pref. Dividend}}$ | Earnings after Tax. | Dividend on Preference Capital. | Indicates ability to pay dividend on Preference Capital. Should be greater than 1. |
| 4 | Fixed Charges Coverage Ratio | $\frac{\text{EBIT + Depreciation}}{\text{Long Interest} + \frac{\text{Instalment}}{100\% - \text{Tax Rate}}}$ | EBIT + Depreciation, i.e. Cash Flow before Interest and Tax | Interest + Instalment of Loan (pre-tax) | Indicates ability to meet all fixed financing charges. Should be greater than 1. |

## E. TURNOVER / ACTIVITY / PERFORMANCE RATIOS

| | Ratio | Formula | Numerator and Denominator | Significance |
|---|---|---|---|---|
| 1 | Raw Material Turnover Ratio | $\frac{\text{Cost of Raw Material Consumed}}{\text{Average Stock of Raw material}}$ | Nr: Opening Stock of Raw Materials (+) Purchases of Raw Materials (-) Closing Stock of Raw Materials<br>Dr: $\left(\frac{\text{Opening RM Stock + Closing RM Stock}}{2}\right)$ | Indicates how fast / regularly Raw Materials are used in production. |
| 2 | WIP Turnover Ratio | $\frac{\text{Factory Cost}}{\text{Average Stock of WIP}}$ | Nr: Materials Consumed + Wages + POH<br>Dr- : $\left(\frac{\text{Opening WIP + Closing WIP}}{2}\right)$ | Indicates the WIP movement / production cycle. |
| 3 | Finished Goods or Stock Turnover Ratio | $\frac{\text{Cost of Goods sold}}{\text{Avg Stock of Finished Goods}}$ | Nr: (a) For Manufacturers: Opg Stock of FG + Cost of Production (-) Clg Stock of FG.(b) For Traders: Opg Stock of FG + Cost of Goods Purchased (-) Clg Stock of FG.<br>Dr : $\left(\frac{\text{Opening FG Stock + Closing FG Stock}}{2}\right)$ | Indicates how fast inventory is used / sold. High T/O shows fast moving FG. Low T/O may mean dead or excessive stock. |
| 4 | Debtors Turnover Ratio | $\frac{\text{Credit Sales}}{\text{Avg A/c. receivable}}$ | Nr: Credit Sales net of returns<br>Dr: Avg Accounts Receivable (i.e. Debtors + B/R)<br>$\left(\frac{\text{Opening Drs \& B/R + Closing Drs BR}}{2}\right)$ | Indicates the speed of collection of Credit Sales / Debtors. |
| 5 | Creditors Turnover Ratio | $\frac{\text{Credit Purchases}}{\text{Avg A/c. Payable}}$ | Nr: Credit Purchases net of returns<br>Dr: Avg Accounts Payable (i.e. Creditors + B/P)<br>$\left(\frac{\text{Opening Crs \& B/P+ Closing Crs \& BP}}{2}\right)$ | Indicates speed / velocity of payment to Creditors. |

| | | | | |
|---|---|---|---|---|
| 6 | Working Capital Turnover Ratio | $\frac{\text{Turnover}}{\text{Net Working Capital}}$ [also called Operating Turnover (or) Cash Turnover Ratio] | Nr: Sales net of returns<br>Dr: Current Assets Less: Current Liabilities (Avg of Opg and Clg balances may be taken) | Ability to generate sales per rupee of Working Capital. |
| 7 | Fixed Assets Turnover Ratio | $\frac{\text{Turnover}}{\text{Net Fixed Assets}}$ | Nr: Sales net of returns<br>Dr: Net Fixed Assets(Avg of Opg and Clg balances may be taken) | Ability to generate sales per rupee of Fixed Assets. |
| 8 | Capital Turnover Ratio | $\frac{\text{Turnover}}{\text{Capital Employed}}$ | Nr: Sales net of returns<br>Dr: See Page 2.4 Point B(d)(Avg of Opg and Clg balances may be taken) | Ability to generate sales per rupee of long-term investment |

**Note:**

1. All the above T/O Ratios are expressed in times. Generally, the higher the T/O Ratio, the better it is.
2. In respect of RM, WIP and FG Stocks, Average Stock can also be calculated as $\frac{\text{(Max. Stock + Min. Stock)}}{2}$
3. Working Capital related T/O Ratios, i.e. Items 1 to 6 above, can also be expressed in terms of days as $\frac{365}{\text{T/O Ratio}}$

| Item | Computation |
|---|---|
| (a) Number of days Average Stock of Raw Materials held | $\frac{365}{\text{Creditors T/O Ratio}}$ |
| (b) Number of days Average Stock of WIP held | $\frac{365}{\text{WIPT/O Ratio}}$ |
| (c) Number of days Average Stock of Finished Goods held(or) Number of Days Sales in Inventory (or) Average Stock Velocity | $\frac{365}{\text{Finished Goods T/O Ratio}}$ |
| (d) Average Collection Period (of Debtors)(or) Number of Days Sales in Receivables | $\frac{365}{\text{Debtors T/O Ratio}}$ |
| (e) Average Payment Period (of Creditors) (or) Average Payment Velocity | $\frac{365}{\text{Creditors T/O Ratio}}$ |

| | | |
|---|---|---|
| (f) | Number of days Working Capital held[also called Operating Cycle or Cash Cycle or Working Capital Cycle] | $\frac{365}{\text{Working Capital T/O Ratio}}$ |

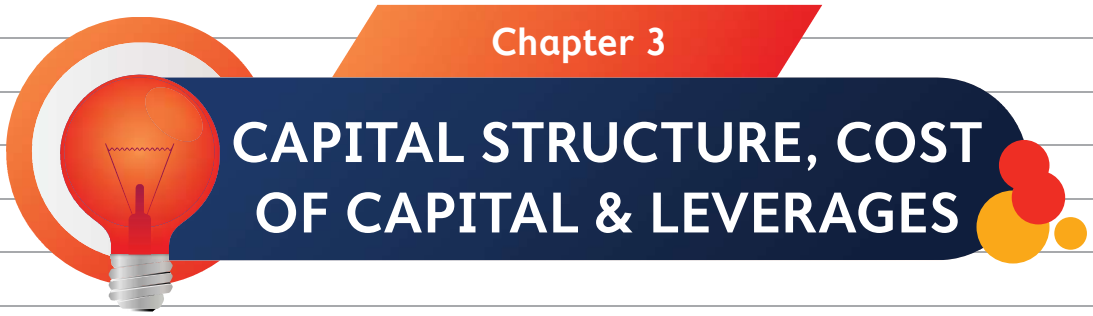
Generally, the shorter / lesser the number of days (as computed above), the better it is.

## F. OVERALL RETURN RATIOS - OWNERS' VIEW POINT

| | Ratio | Formula | Numerator | Denominator | Significance |
|---|---|---|---|---|---|
| 1 | Return on Investment (ROI) [or] Return on Capital Employed (ROCE) | Pre-tax ROCE:EBIT / Equity +Debt<br>EAT + Interest / Equity + Debt | • Pre-Tax or Post-Tax ROCE may be used.<br>• Pre-tax ROCE is generally preferred.<br>• Sometimes, Post Tax ROCE is computed using [EBIT x (1-Tax)] | Capital Employed = Investment = Equity + Debt [See Page 2.4 Pt B(d)] | Overall profitability of the business on the Total Funds Employed. |
| 2 | Return on Equity (ROE) [or] Return on Net Worth (RONW) | Pre-tax ROE: EBIT / Equity<br>Post-tax ROE: EAT / Equity | • Either pre-tax or post-tax ROE may be computed.<br>• Post-tax ROE is generally preferred for analysis purposes. | Equity (or) Net Worth (or) Shareholders' Funds (or) Proprietors' Funds (or) Owners' Funds (or) Own Funds [See Page 2.4 Pt B(b)] | Indicates profitability of Equity / Own Funds invested in the business. [Note 1] |

| | | | | | |
|---|---|---|---|---|---|
| 3 | Return on Assets (ROA) [Note 3] | Pre-tax ROA: $\frac{\text{EBT}}{\text{Avg. Total Assets}}$ Post-tax ROA: $\frac{\text{EAT}}{\text{Avg. Total Assets}}$ | • Pre-Tax or Post-Tax ROA may be taken.<br>• Pre-Tax ROA is generally preferred for analysis purposes.<br>• Sometimes, (EAT + Interest) is used. | Average, i.e. 1/2 of Opg & Clg Balances of any of the following items –<br>•Total Assets, (or)<br>•Tangible Assets, (or)<br>•Fixed Assets. | Indicates Net Income per rupee of Average Total Assets or Tangible or Fixed Assets. |
| 4 | Earnings Per Share (EPS) | $\frac{\text{Residual Earning}}{\text{No. of Equity Shares}}$ | Residual Earnings, i.e. EAT(-) Preference Dividend | Number of Equity Shares outstanding = $\frac{\text{Equity Capital}}{\text{Face Value}}$ | Income per Share, whether or not distributed as Dividends. |
| 5 | Dividend Per Share (DPS) | $\frac{\text{Total Equity Dividend}}{\text{Number of Equity Shares}}$ | Profits distributed to Equity Shareholders. | As per (4) above. | Profits Distributed per Equity Share. |
| 6 | Dividend Payout Ratio | $\frac{\text{Dividend per Share}}{\text{Earnings per Share}}$ | DPS as per (5) above | EPS as per (4) above. | % of EPS paid out, & balance retained. |
| 7 | Price Earnings Ratio (PERatio) | $\frac{\text{Market Price per Share}}{\text{Earnings per Share}}$ | Average Market Price (or Closing Market Price) as per Stock Exchange quotations.(Market Price per Share = MPS) | EPS as calculated in (4) above. | Indicates rel'ship between MPS and EPS, and Shareholders perception of the Company. |
| 8 | Dividend Yield (%) [Note 4] | $\frac{\text{Dividend}}{\text{Market Price per Share}}$ | Dividend | Average MPS (or Closing MPS) as per Stock Exchange quotations. | True Return on Investment, based on Market Value of Shares. |

| | | | | | |
|---|---|---|---|---|---|
| 9 | Book Value per Share | Net Worth / Number of Equity Shares | Equity (or) Net Worth [See Page 2.4 Point B(b)] | Number of Equity Shares Outstanding = Equity Capital / Face Value per Share<br>Face Value per Share | Basis of Valuation of Shares based on Book Values. |
| 10 | Market Value to Book Value (MVBV) | Market Price per Share / Book value per Share | Average MPS (or Closing MPS) as per Stock Exchange quotations. | Ratio as calculated in (9) above. | Higher ratio indicates better position for Shareholders in terms of return & capital gains. |



Chapter 3

# CAPITAL STRUCTURE, COST OF CAPITAL & LEVERAGES

**Q.1. What is meant by WACC? How is it computed?**

**Ans.** 1. WACC denotes the Weighted Average Cost of Capital. It is defined as the Overall Cost of Capital (i.e. on Long-Term Funds) computed by reference to the proportion of each component of capital as weights. It is denoted by Ko

2. Hence WACC = Sum of [Cost of Individual Components x Proportion in Capital]

3. The following format may be adopted for computation of WACC -

| Component | Proportion or % | Individual Cost | Multiplication |
|---|---|---|---|
| Debt | $W_d$ | After - Tax $K_d$ | $K_d \times W_d$ |
| Preference Capital | $W_p$ | $K_p$ | $K_p \times W_p$ |
| Equity Capital | $W_e$ | $K_e$ | $K_e \times W_e$ |
| **Total** | | | **$K_o$ = WACC = Total of above** |

**Note:** The proportion or percentage of each component of capital may be determined based on either Book Values or Market Values of Capital.

**Q.2. Outline the significance of the Weighted Average Cost of Capital.**

**Ans.** **1. Capital Budgeting:**

(a) Overall Cost of Capital (WACC) represents the cost of funds employed by the Company. It is useful for selecting and deciding investment options.

(b) WACC is used as the Cut-Off Rate (or Hurdle Rate) against which projects can be evaluated. A project can be considered viable only if the returns from the project are higher than the cost thereof, i.e. WACC.

**2. Value for Investors:** WACC represents the minimum rate of return at which a Company can produce value for its investors (Debt and Equity). If a Company's ROCE is less than its WACC, it means the Company is losing its value / wealth. Such a situation is most disadvantageous to Equity Shareholders.

**3. EVA:** WACC is useful in making Economic Value Added (EVA) calculations.

Q.3. Write short notes on Marginal Cost of Capital.

Ans. 1. Marginal Cost of Capital is the cost of raising an additional rupee of capital. It is derived when the Average Cost of Capital is computed with marginal weights.

2. The weights represent the proportion of funds the Firm intends to employ.

3. When funds are raised in the same proportion as at present and if the component costs remain unchanged, there will be no difference between Average Cost of Capital and Marginal Cost of Capital.

4. As the level of Capital Employed increases, the component costs may starting creasing. In such a case, both the WACC and Marginal Cost of Capital will increase. But Marginal Cost of Capital will rise at a faster rate.

Q.4. What is meant by EPS Indifference Point?

Ans. 1. Alternative modes of financing have different impact on EPS. A Firm is said tobe indifferent between two modes of financing, if the EPS under both options isthe same. This level of EBIT that results in equal EPS for two different financingoptions, is called EPS Equivalency Point or Indifference Point.

2. Indifference Point is computed by solving the following equation for EBIT.

$$\underbrace{\frac{(\text{EBIT} - \text{Interest}) \times (100 - \text{Tax Rate})}{\text{Number of Equity Shares}}}_{\text{Alternative 1, say, with Debt}} \underbrace{=}_{\text{EPS of 2 options}} \underbrace{\text{Equal EPS under both options}}_{\text{Alternative 2, say, No Debt}} = \frac{\text{EBIT} \times (100 - \text{Tax Rate})}{\text{Number of Equity Shares}}$$

3. When both the alternatives have the same EPS at a certain level of EBIT, (to be computed by solving the equation), the Company is said to be in different between the two alternatives.

4. **Interpretation based on EBIT – EPS Indifference Point:**

| Company's EBIT Level | Preferable method of financing | Reason |
|---|---|---|
| EBIT **below** the Indifference Point | Option with lower Debt and lower Interest burden. | When ROCE and EBIT are low, a high DOL should be properly managed with low DFL, lower borrowings and interest burden. |
| EBIT **equal** to the Indifference Point | Any method of financing can be chosen. | Same EPS under both alternatives. |
| EBIT **above** the Indifference Point | Option with higher Debt and higher Interest burden. | When ROCE and EBIT are high, use of Debt funds "is justified, and maximizes gain to Equity Shareholders by way of higher ROE and EPS (called Leverage Effect). |

**Note:** Indifference Point can be calculated only in respect of two financing options. When there are more than there two options, Indifference Point should be calculated for each combination of two options, e.g. A & B, B & C, C & A, etc.

Q.5. What is meant by Financial Break Even Point?

Ans. **1.** **Meaning:** It denotes the level of earnings, at which a Firm's EBIT is just sufficient to cover Interest, Tax and Preference Dividend. In other words, there is no Residual Earnings available to Equity Shareholders.

**2.** **Formula:** Financial Break Even Point is given by the formula:

$$\text{EBIT} = \text{Interest Charges} + \frac{\text{Preference Dividend}}{100\% - \text{Tax Rate}}$$

**3.** **Significance:**

(a) A Firm which is able to generate EBIT above the Financial BEP, will be able to meet the expectations of the Equity Shareholders and maximize the value / wealth.

(b) Financial BEP represents the minimum amount that the Firm has to earn, in order to generate any surplus for Equity Shareholders. Hence, the objective of the Firm to generate EBIT above the Financial BEP.

Q.6. What is meant by Capital Structure? What do you mean by Optimum Capital Structure?

Ans. **1.** **Capital Structure:** Capital Structure refers to the mix of sources from where the long-term funds required in a business may be raised. So, it refers to the proportion of Debt, Preference Capital and Equity Capital.

**2.** **Optimum Capital Structure:** One of the basic objectives of financial management is to maximise the value or wealth of the Firm. Capital Structure is optimum when the Firm has a combination of Equity and Debt so that the wealth of the Firm is maximum. At this level, Cost of Capital is minimum and Market Value of the Firm is maximum.

Q.7. Explain the other considerations in Capital Structure Planning

Ans. In addition to Risk, Cost and Control, the other considerations in Capital Structure Planning are as under :

1. Trading on Equity
2. Corporate Taxation

3. Government Policies
4. Legal requirements
5. Marketability
6. Flexibility
7. Size of Company
8. Purpose of financing
9. period of finance
10. Nature of Investors
11. Requirement of Investors
12. Provision for future growth

Q.8. What are the general assumptions in Capital Structure Theories?

Ans. The following are the general assumptions in Capital Structure Theories

1. The Firm has a perpetual life (i.e. Going Concern).
2. There are only two sources of funds viz. Debt and Equity. (No Preference Share Capital).
3. Total Assets of the Firm (i.e. Capital Employed) is constant. (No change in Capital Employed). However, Debt-Equity mix can be changed. This can be done by
   (a) Either by borrowing Debt to repurchase (redeem) Equity Shares or
   (b) By raising Equity Capital to retire (repay) debt.
4. Business Risk is constant and is not affected by the financing mix decision.(No change in Fixed Costs or Operating Risks).
5. The Firm earns Operating Profits and it is not expected to grow. (No Losses). [Note: Operating Profits = EBIT]
6. There are no corporate or personal taxes. (No taxation).
7. All Residual Earnings are distributed to Equity Shareholders (i.e. 100%Dividend Payout Ratio). (No Retained Earnings).[Note: Residual Earnings = EBT, since there is no Taxation and Preference Dividend.]
8. The Investors have the same subjective probability distribution of expected earnings. (No difference in Investors' expectations). [Note: Investors refer to both Debt and Equity Investors.]
9. Cost of Debt Kd (referred to as Debt Capitalisation Rate) is less than Cost of Equity Ke (referred to as Equity Capitalisation Rate) (i.e. Low Cost Debt).

Q.9. Explain the Net Income Approach of Durand.

Ans. **NET INCOME APPROACH**

This Theory advocates maximum possible borrowing in order to minimize WACC and maximise the value of the Firm.

When ROCE > Interest Rate on Debt, Financial Leverage works favourably, and hence use of Debt Funds is justified. The Gearing / Trading on Equity effect will be favourable to Equity Shareholders.


1. **Constant Kd and Ke:** Use of debt content does not change the risk perception of Investors (i.e. both Suppliers of Debt and Equity Investors). Hence, Kd and Ke remain constant at all levels of Debt-Equity Mix.
2. **Low-Cost Debt:** Debt is a cheaper source of finance than Equity due to Investors' risk expectations (and also tax saving effect.) Use of cheaper debt funds in the total capital structure will reduce the WACC, as Debt percentage increases in the Total Capital Structure.
3. **Favourable DFL:** As the Degree of Financial Leverage increases, WACC will decline with every increase in the debt content in Total Funds Employed.
4. **Effect on Firm Value:** Since Value of Firm = $\frac{\text{EBIT}}{100}$ the Value of Firm will increase for every decline in WACC.

   Where debt content is reduced, the reverse will happen, i.e. WACC will increase there by reducing the Value of the Firm.
5. **Maximum Use of Debt:** Thus, a Firm can increase its value and lower its Ko (WACC) by increasing the proportion of debt in the capital structure. Thus, Net Income Approach suggests the use of total or maximum possible debt financing, for minimising the cost of capital. Value of the Firm will be maximum at a point where WACC is minimum, i.e. point of maximum debt.

**Application:** The application of Net Income Approach for determining WACC involves the following steps -

| Step | Procedure |
|---|---|
| 1. | Determine EBIT (Net Operating Income) and EBT (Net Income). EBT = EBIT less Interest on Debt Funds. |
| 2. | Compute Market Value of Equity (E)= $\frac{\text{EBIT}}{\text{Cost of Equity}} = \frac{\text{EBT}}{K_e}$ |
| 3. | Compute Market Value of Debt (D)= $\frac{\text{Interest}}{\text{Cost of Debt}} = \frac{\text{Interest}}{K_d}$ |
| 4. | Compute Market Value of Firm (V) = E + D = Market Value of Equity + Market Value of Debt. |
| 5. | Compute Overall Cost of Capital ($K_o$) = $\frac{\text{EBIT}}{\text{Value of Firm}}$ |

Q.10. Explain the Net Operating Income Approach.

Ans. 1. **Increase in Ke :** Kd (Debt Capitalisation Rate) remains constant at various levels of Debt-Equity Mix. However, as Debt content increases, the expectations of Equity Investors also increases, due to higher financial risk. Therefore, Ke (Equity Capitalization Rate) increases as percentage of debt in Capital Employed increases.

2. **Set-off Effect:** Increase in financial risk causes the Equity Capitalisation Rate to increase. Thus, the advantage of using low-cost debt is set off exactly by increase in Equity Capitalisation Rate, i.e. Ke.

3. **Constant KQ :** Due to the set-off effect of low Kd advantage vs. increasing Ke disadvantage, the Overall Cost of Capital (Ko) remains constant for all degrees of Debt-Equity mix.

4. **Market Capitalisation:**

(a) The market (investors in Debt as well as Equity) capitalises the value of the Firm as a whole, without giving importance to the Debt-Equity mix. Hence Overall Cost of Capital is constant.

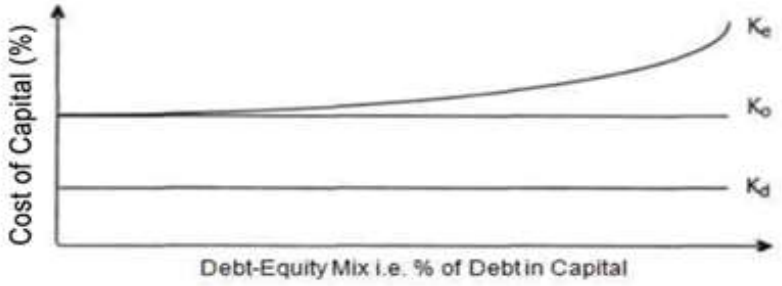
(b) The Market Value of the Firm is ascertained by capitalising the Net Operating Income (EBIT) at the Overall Cost of Capital Ko, which is constant. The Market Value of the Firm is not affected by Debt-Equity mix change. Hence, distinction between Debt and Equity is irrelevant.

5. **Optimum Capital Structure:** Since WACC is constant at all levels, every debt equity mix is as good as any other mix. There is no optimum capital structure. Every capital structure is optimal one.

**NET OPERATING INCOME THEORY**

This Theory states that WACC i.e. K0, is constant. The Market Value of the Firm is not affected by debt-equity mix change.

The advantage of using low-cost debt is set off by increase in Ko. Every debt-equity mix is an optimal one since Ko and Market Value will be constant at all levels.




**Application:** The application of Net Operating Income theory in determining Ke involves the following steps –

| Step | Procedure |
|---|---|
| 1. | Determine EBIT (Net Operating Income) and EBT (Net Income). EBT = EBIT less Interest on Debt Funds. |
| 2. | Compute Market Value of Firm (V) = $\frac{EBIT}{WACC} = \frac{EBIT}{K_O}$ |
| 3. | Compute Market Value of Debt (D) = $\frac{Interest}{Cost\ of\ Debt} = \frac{Interest}{K_d}$ |
| 4. | Compute Market Value of Equity (E) = V - D = Market Value of Firm (Less) Market Value of Debt. |
| 5. | Compute Cost of Equity Capital ($K_e$) = $\frac{EBIT}{Value\ of\ Firm} = \frac{EBT}{E}$ |

**Note:** Under Net Income Theory, the approach is V = E + D, in order to compute Ko. However, under Net Operating Income Theory, the approach is E = V - D, in order to compute Ke.

Q.11.Explain the Traditional Theory to Cost of Capital.

Ans. 1. **Change in Risk Perceptions:** As debt content increases, the Firm's financial risk increases, causing increase in the expectations of Equity Investors and therefore a rise in the Cost of Equity Capital Kg. Also additional loans can be taken only at a higher rate of interest. So Cost of Debt Kd also rises beyond a certain level of debt content.

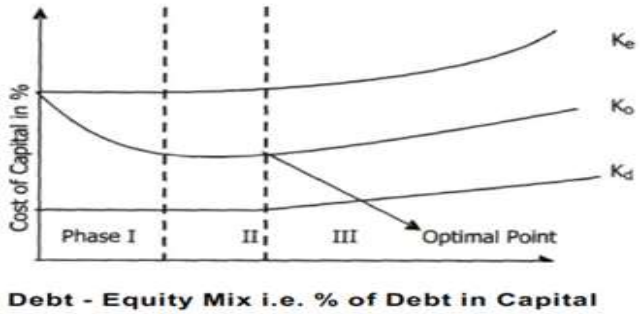
2. **Debt-Equity Mix v/s Cost:** Kd and Ke vary with change in Debt-Equity mix. However, increase in Cost of Equity is more steeper and higher than increase in cost of debt.

3. **Initial Leverage Effect:** Debt is a cheaper source of finance than equity due to tax saving effect and investor's risk expectations. Use of cheaper debt funds in total capital structure will reduce Ko initially. This is because the benefits of cheaper debt may be so large that even in off-setting the effect of increase in cost of equity, the WACC may go down.

4. **Set-Off Effect:** As more debt is employed, the risk perceptions of Equity Investors and Ke may increase. However, Kd may still remain constant, causing WACC to remain constant due to set-off effect, i.e. advantage of low-cost debts set-off exactly by the disadvantage of increasing cost of equity.

5. **Subsequent Risk Effect:** However, beyond an acceptable limit (called as the Optimal Point), the Cost of Debt Kd and Cost of Equity Ke start rising. This is because of the high financial risk associated with the Firm. The increasing C owing to increased financial risk and increasing Kd makes the Overall Cost of Capital Ko to increase.

6. **Optimal Capital Structure:** The Firm should strive to reach the optimal capital structure and maximise its total value through a judicious use of both debt and equity in the capital structure. At the optimal capital structure the overall cost of capital will be minimum and the value of the Firm is maximum.




**Application:** The computation of Ko is the same as that of Net Income Approach, except that Ke and Kd differ for different degrees of Debt-Equity mix. The least WACC should be selected for the optimal Capital Structure.

Q.12.Write short notes on Modigliani and Miller Approach.

Ans. This Approach is a refinement of the Net Operating Income Approach. The basic theory is essentially the same, but some additional propositions are made.

1. **Behaviour of Kd and Ke:** Kd is always less than Ke. Debt Capitalisation Rate (Kd) remains constant at various levels of Debt-Equity mix. However, Equity Capitalisation Rate Ke increases as debt content increases due to higher financial risk and higher expectations of Equity Investors.
2. **Perfect Market:** The Capital Markets are perfect. Investors are free to buy and sell securities. They are well informed about the risk and return on all type of securities. There are no transaction costs. The Investors behave rationally. These can borrow without restrictions on the same terms as the Firms do.
3. **Risk Classification:** Firms can be classified into "homogenous risk classes'. They belong to this class if expected earnings have identical risk characteristics (as per the investors' perceptions).
4. **Risk-Return Relationship:** Investors expect different returns for different risk categories. The higher the risk, the higher is the return expectation. For example, for a certain risk category L, the return expectation is 15% another category is considered as more riskier than L, the return expectation for that category will be n than 15% (say 21%).
5. **Constant WACC:** Risk and Return are directly related, i.e. the higher the risk, the higher the return. But all Firms in the same category have the same risk and have constant expected return. For every risk category (consisting of a number of Firms), the expected return of all investors (i.e. Debt and Equity) is the same.
6. **Market Capitalisation:**
   (a) The market (Investors in Debt as well as Equity) capitalises the value of the Firm as a whole, without giving importance to the debt-equity mix. Hence Overall Cost of Capital is constant for all degrees of debt-equity mix.
   (b) The Market Value of the Firm is ascertained by capitalising the Net Operating Income (EBIT) at the Overall Cost of Capital Ko, which is constant. The Market Value of the Firm is not affected by debt-equity mix change.
7. **Optimum Capital Structure:** Since WACC is constant at all levels, every debtequitymixisasgoodasanyothermix.Thereisnooptimumcapitalstructure. Everycapitalstructureisanoptimalone.
8. **WACC v/s Debt Equity Mix:** The Total Cost of Capital of a Firm (i.e. WACC or Ke) is independent of its methods and level of financing. Hence, Debt-Equity Mix is not relevant for determining WACC.

9. **WACC = Ke at 0% Debt:** Since WACC is constant, WACC at 0% Debt (i.e.100% Equity) should be the same as WACC at any other percentage of debt. Hence WACC = Ke when the Firm is financed purely by Equity. So, WACC of a Firm equals the Capitalisation Rate of pure equity stream of its class of risk.

**Propositions:** Modigliani and Miller make the following propositions

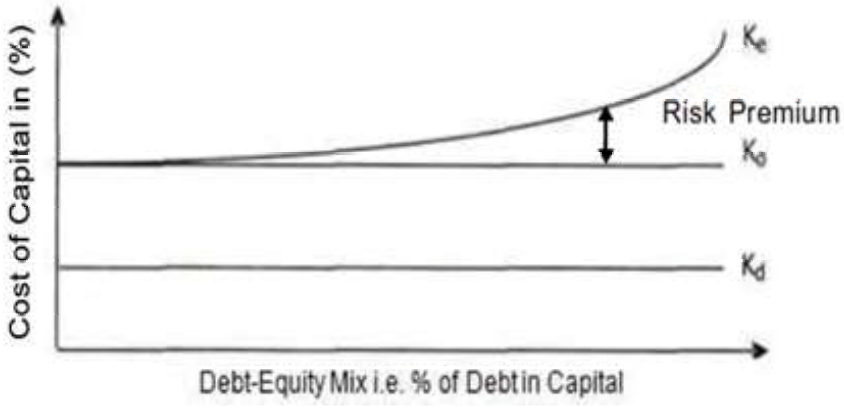
(A) **Constant WACC:** The Total Market Value of a Firm and its Cost of Capital are independent of its Capital Structure. The Total Market Value of the Firm is given by capitalising the expected stream of operating earnings (i.e. Net Operating Income) at a discount rate considered appropriate for its risk class.

(B) **Ke = Ko + Premium for Risk:** The Cost of Equity (Ke) is equal to Capitalisation Rate of Pure Equity Stream plus a premium for Financial Risk. The Financial Risk increases with more debt content in the capital structure. As a result, Ke increases in such a manner as to off-set exactly the use of less expensive source of debt funds.

$$\text{Cost of Equity} = \text{WACC} + \text{Risk Premium. So, } Ke = Ko + \frac{\text{Debit}}{\text{Equity}} (K_o - K_d)$$

(C) **Investment - Financing Decisions:** The cut off rate for investment purposes is completely independent of the mode of financing. Hence every investment proposal can be evaluated at the rate applicable for such type of Firms. Debt-Equity Mix is not relevant for Capital Budgeting decisions.

(D) **Leverage Adjustment:** Financial Leverage has no impact on market values, which remain constant for all Firms in the same risk class. In case such Firms had different market values, investors will buy and sell shares and set aside the leverage effect. Hence, Arbitrage will substitute personal leverage for corporate leverage.



Q.13.Explain the concept of Arbitrage under M & M Approach.

Ans. Modigliani and Miller argue that there is no difference in the market values of different Firms in the same risk class. They consider that Financial Leverage or use of debt in capital structure has no impact on Market Values. Their reasoning is as under

1. **Same Risk = Same KQ = Same Market Value:** Companies in different industries may have different risks, which will result in their earnings being capitalised at different rates. However, Companies in the same risk category will have the same expected earnings (EBIT). This EBIT will be capitalised at the WACC (for that risk category) and hence Market Values of all Companies in the same risk category (i.e. same WACC) will also be the same.
2. **Buying and Selling Effect:** In the same risk category (i.e. return expectation is the same), if the Market Values (as represented by Market Price per Share i.e. MPS) of different Companies were to be different, investors in the high MPS Company will sell their holding and buy the Shares of low MPS Company. This is because, in the capital market, the rational movement should be "buy at low prices and sell at high prices".
3. **Movement in Share Prices:** The buying and selling spree of Investors will lead to increase in demand of the low MPS Company's Shares, causing its share price to increase. Similarly, due to sale of holdings, the price of high MPS Company's Shares will fall.
4. **Arbitrage:** This movement in Share Prices will continue till both Companies' Share Prices settle at a constant. This is attributed to the arbitrage effect. Through the above procedure, investors will move from a Leveraged Firm to Unleveraged Firm and vice-versa, through the process of arbitrage. This will cease only when total Market Values of both Firms are the same.
5. **No Leverage Effect:** The arbitrage effect nullifies the effect of leverage that the Companies may possess. Hence, it is not possible for the Companies in the same risk class, to affect their market values and therefore their overall capitalisation rate by use of leverage.
6. **Constant Market Value and WACC:** Thus, for a Company in a particular risk class, the total Market Value must be same, irrespective of level of Debt in the Company's capital structure.

Q.14.What will be the effect of Taxation on the Value of the Firm under M & M Approach?

Ans. **1.** **Tax Saving:** When Taxes are paid on Corporate Income, use of Debt Funds is advantages due to the tax-saving effect of Interest Payment. Equity Dividends and Retained Earnings are not "deductible" as an expense for taxation purposes.

**2.** **Effect of Tax Saving:** When Corporate Taxation is included in the analysis

(a) Value of the Firm will increase, and

(b) Overall Cost of Capital will decrease.

**3.** **Tax Shield:** The effect of Tax Saving can be identified from the following relationships

(a) Total Earnings in Levered Firm = Total Earnings in Unlevered Firm +Interest on Debt x Tax Rate. [Here Total Earnings = EAT + Interest, i.e. the Earnings available for Equity and Debt - holders.]

(b) Value of the Levered Firm will be greater than that of the Unlevered Firm, to the extent of the Tax Shield. Hence, Value of Levered Firm = Value of Unlevered Firm + Debt x Tax Rate.

Q.15.Modigliani and Miller theory is not free of criticisms. Discuss.

Ans. Modigliani and Miller Theory is criticised on the following grounds 1.

1. The assumption of perfect market is not practical. In the real world, various imperfections exist, such as transaction costs for purchase and sale of securities, differential rates of interest, etc.
2. The argument that arbitrage nullifies the effect of leverage is not valid. Investors do not behave in such a calculated and rational way in switching from leveraged to unleveraged Firm or vice-versa.
3. The theory presumes the availability of free and upto date information on all aspects of the Company's functioning. In practice, investors have little or no knowledge about the Company's operations. Their dealings in shares are based not only upon the information on hand, but on other considerations also.

Q.16. Write short notes on Pecking Order Theory of Capital Structure.

Ans. (a) This Approach suggests that the Firm should use low-cost funds in order to minimize WACC and maximize its value.

(b) According to this theory, to minimize overall cost, the order of raising finance should be - (i) Internal Cash Accruals, (ii) Additional Debt, and(iii) Additional Equity. This is because issue cost of internally generated funds is the least, and the issue cost of equity is the highest.

(c) Therefore, a Firm should rely as much as possible, on internally generated funds. If these funds are not sufficient, the Firm will move to additional debt and then to additional equity.

**General Points:** The Pecking Order Theory of Capital Structure has the following aspects

(a) Low Dividend Payout Ratio, i.e. a sticky dividend policy,

(b) Preference for using internally generated funds,

(c) Aversion to the issue of Equity Shares, which will be the last resort for financing.

Q.17.Write short notes on Risk facing Equity Shareholders.

What do you understand by Business Risk and Financial Risk?

Ans. **1.** **Residual Earnings:** A Firm can raise funds through a combination of - (a) Debt, (b) Preference Capital, and (c) Equity Capital. Of the three sources, Equity Shareholders are entitled to Residual Earnings, i.e. after paying Interest on Debt, and Preference Dividend.

**2.** **Components:** Risk facing Equity Shareholders has two components (a) Business Risk, and (b) Financial Risk. A comparison is given below -

| Risk | Business Risk | Financial Risk |
|---|---|---|
| (a) **Meaning** | It is associated with the Firm's operations, and refers to the uncertainty about future Net Operating Income (EBIT). | It is the additional risk placed on Equity Shareholders due to the use of Debt Funds. |
| (b) **Measurement** | It can be measured by the standard deviation of the Basic Earning Power, i.e. ROCE. | It can be measured using ratios like Leverage Multiplier, Debt to Assets, etc. |
| (c) **Linked to** | Economic Climate. | Use of Debt Funds. |
| (d) **Reduction** | Every Firm would be susceptible to Business Risk due to changes in the overall economic climate & business operating conditions. | A Firm which is entirely financed by Equity (i.e. an Unlevered Firm) will have almost no Financial Risk. |

Q.18. Write short notes on "Trading on Equity" or "Gearing Effect".

Ans. 1. When ROCE > Interest Rate on Debt, the Company earns at a higher rate of return on its investment and pays a lower rate of return to the suppliers of long term debt funds.

2. The difference between EBIT and the cost of debt funds would enhance the

earnings of Equity Shareholders. This will maximize ROE and EPS, creating again to the Equity Shareholders.

3. Hence, gain from DFL arises due to
   (a) Excess of return on investment over effective cost (cost after considering taxation effect, since the interest cost on debt is tax-deductible expense) of Debt Funds.
   (b) Reduction in the number of Equity Shares issued due to the use of Debt Funds.
4. The use of low-cost Debt Funds when Basic Earning Power (ROCE) of the business is higher, thereby increasing the EPS and ROE, is called "Gearing Effect" or "Trading on Equity".

Q.19. Write Note on Features of Bonds or Debentures.

Ans. **Features of debentures or bonds:**

(i) **Face Value:** Debentures or Bonds are denominated with some value; this denominated value is called face value of the debenture. Interest is calculated on the face value of the debentures. E.g. If a company issue 9% Non- convertible debentures of ₹ 100 each, this means the face value is ₹ 100 and the interest @ 9%will be calculated on this face value.

(ii) **Interest (Coupon) Rate:** Each debenture bears a fixed interest (coupon) rate (except Zero coupon bond and Deep discount bond). Interest (coupon) rate is applied to face value of debenture to calculate interest, which is payable to the holders of debentures periodically.

(iii) **Maturity period:** Debentures or Bonds has a fixed maturity period for redemption. However, in case of irredeemable debentures maturity period is not defined and it is taken as infinite.

(iv) **Redemption Value:** Redeemable debentures or bonds are redeemed on its specified maturity date. Based on the debt covenants the redemption value is determined. Redemption value may vary from the face value of the debenture.

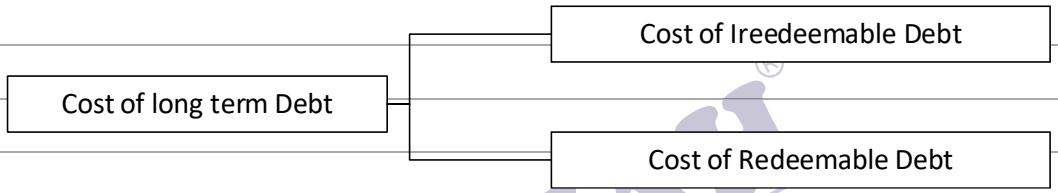
(v) **Benefit of tax shield:** The payment of interest to the debenture holders are allowed as expenses for the purpose of corporate tax determination. Hence, interest paid to the debenture holders save the tax liability of the company. Saving in the tax liability is also known as tax shield. The example given below will show you how interest paid by a company reduces the tax liability:

**Example:** There are two companies namely X Ltd. and Y Ltd. The capital of the X Ltd is fully financed by the shareholders whereas Y Ltd uses debt fund as well. The below is the profitability statement of both the companies:

| | X Ltd. (₹ in lakh) | Y Ltd. (₹ in lakh) |
|---|---|---|
| Earnings before interest and taxes (EBIT) | 100 | 100 |
| Interest paid to debenture holders | - | (40) |
| Profit before tax (PBT) | 100 | 60 |
| Tax @ 35% | (35) | (21) |
| Profit after tax (PAT) | 65 | 39 |

A comparison of the two companies shows that an interest payment of 40 by the Y Ltd. results in a tax shield (tax saving) of ₹ 14 lakh (₹ 40 lakh paid as interest × 35% tax rate).Therefore the effective interest is ₹ 26 lakh only.

Based on redemption (repayment of principal) on maturity the debts can be categorized into two types (i) Irredeemable debts and (ii) Redeemable debts.




Q.20.Difference between Book Value Weights & Market Value Weights

Ans. There is a choice weights between the book value (BV) and market value (MV).

**Book Value (BV):** Book value weights is operationally easy and convenient. While using BV, reserves such as share premium and retained profits are included in the BV of equity, in addition to the nominal value of share capital. Here the value of equity will generally not reflect historic asset values, as well as the future prospects of an organization.

**Market Value (MV):** Market value weight is more correct and represent a firm's capital structure. It is preferable to use MV weights for the equity. While using MV, reserves such as share premium and retained profits are ignored as they are in effect incorporated into the value of equity. It represents existing conditions and also take into consideration the impacts of changing market conditions and the current prices of various security. Similarly, in case of debt MV is better to be used rather than the BV of the debt, though the difference may not be very significant.

Q.21.What are Essential Features of Sound Capital Mix

Ans. **Essential Features of a Sound Capital Mix**

A sound or an appropriate capital structure should have the following essential features:

(i) Maximum possible use of leverage.

(ii) The capital structure should be flexible.

(iii) To avoid undue financial/business risk with the increase of debt.

(iv) The use of debt should be within the capacity of a firm. The firm should be in a position to meet its obligation in paying the loan and interest charges as and when due.

(v) It should involve minimum possible risk of loss of control.

(vi) It must avoid undue restrictions in agreement of debt.

(vii) The capital structure should be conservative. It should be composed of high grade securities and debt capacity of the company should never be exceeded.

(viii) The capital structure should be simple in the sense that it can be easily managed and also easily understood by the investors.

(ix) The debt should be used to the extent that it does not threaten the solvency of the firm.

Q.22.Write a Note on Under Capitalisation.

Ans. **Meaning**

1. Under-Capitalization is a situation, when the Company's actual capitalization is lower than its proper capitalization as warranted by its earning capacity.
2. Under-Capitalization normally occurs with Firms which have insufficient Capital, but large Secret Reserves in the form of considerable appreciation in the values of the Fixed Assets not brought into the books.

**Causes:** Under-Capitalisation arises due to following reasons –

1. Raising less money through issue of Shares or Debentures, than what is required for the Firm's operations.
2. Increase in Sales and activity levels, not adequately supported by increase in Capital Base (both Fixed Assets and Net Working Capital)

**Effects :** Under - capitalisation has the following effects –

1. It encourages acute competition. High profitability encourages new entrepreneurs to come into same type of business.
2. Higher Market Price of Shares than that of other similar Companies, because this Company's earning rate is considerably higher.Dividend Rate will be higher in comparison with other Companies in the same line of business. High Rate of Dividend encourages the Workers' Union to demand high wages.
3. Higher profits of the Company are viewed as higher prices for the Firm's products. So, Consumers may start feeling that they are being exploited.

4. Real Value of Shares is higher than the Book Value. Further, Management may resort to manipulate the Share Values.
5. Higher Market Price of Shares than that of other similar Companies, because this Company's earning rate is considerably higher. This invites more Government control and regulation on the Company, and higher taxation also.

**Remedies :** To avoid the evil consequences of under-capitalization, the following remedies are suggested –

1. The Shares of the Company should be split up. This will reduce Dividend per Share, though EPS shall remain unchanged.
2. Issue of Bonus Shares will reduce both Dividend per Share and the Average Rate of earning.
3. By revising upward the par value of shares in exchange of the existing shares held by them.

Q.23.Write short notes on Over - Capitalisation.

Ans. **Meaning :**

1. Over-Capitalisation is a situation, where a Firm has more Capital than what it needs, i.e. Assets are worth less than its Issued Share Capital, and Earnings are insufficient to pay Interest and Dividend.
2. Over- Capitalisation mainly arises when the existing Capital is not effectively utilized on account of fall in earning capacity of the Company, while the Company has raised funds more than its requirements.
3. Over - Capitalisation is mainly identified by the fall in payment of Interest and Dividend, leading to fall in value of the Shares of the Company.

**Causes :**

Over Capitalisation arises due to following reasons :

1. Raising more money through issue of Shares or Debentures, than what the Company can employ profitably.
2. Borrowing huge amounts at a rate higher than what the Company can earn, Causes(i.e. ROCE < Interest Rate on Debt)
3. Excessive payment for the acquisition of Fictitious Assets, like Goodwill, etc.
4. Improper provision for depreciation and replacement of assets, and distribution of dividends at a higher rate.
5. Wrong estimation of earnings and capitalisation.

**Effects**

Over - Capitalisation results into following consequences :

1. Considerable reduction in the rate of interest and dividend payments.
2. Reduction in Market Price of Shares.
3. Resorting of "window - dressing" and profit manipulation by book adjustments.
4. Need for re-organisation or re-construction, and sometimes even leading to liquidation.

**Remedies**

To avoid the evil consequences of over - capitalisation, the following remedies are **suggested :**

1. Through re-organisation.
2. Buyback of Shares.
3. Reduction in claims of Debenture holders and Creditors.
4. Value of Share may also be reduced. This will result in sufficient funds for the Company to carry out replacement of assets.

Q.24.Write notes on CAPM approach?.

Ans. **Capital Asset Pricing Model (CAPM) Approach**

CAPM model describes the risk-return trade-off for securities. It describes the linear relationship between risk and return of securities.

The risk to which a security is exposed, can be classified into two groups:

(i) **Unsystematic Risk:** This is also called company specific risk as the risk is related with the company's performance. This type of risk can be reduced or eliminated by diversification of the securities portfolio. This is also known as diversifiable risk.

(ii) **Systematic Risk:** It is the macro-economic or market specific risk under which a company operates. This type of risk cannot be eliminated by the diversification hence, it is non-diversifiable. The examples are inflation, Government policy, interest rate etc.

As diversifiable risk can be eliminated by an investor through diversification, the non-diversifiable risk is the risk which cannot be eliminated; therefore, a business should be concerned as per CAPM method, solely with non-diversifiable risk.

The non-diversifiable risks are assessed in terms of beta coefficient (b or $\beta$) through fitting regression equation between return of a security and the return on a market portfolio.

Thus, the cost of equity capital can be calculated under this approach as:

**Cost of Equity ($K_e$)= $R_f$ + ß ($R_m$ - $R_f$)**

Where,

Ke = Cost of equity capital

Rf = Risk free rate of return

β = Beta coefficient

$R_m$ = Rate of return on market portfolio

($R_m$ – $R_f$) = Market risk premium

Therefore, Required rate of return = Risk free rate + Risk premium

- The idea behind CAPM is that the investors need to be compensated in two ways - (i) Time value of money and (ii) Risk.
- The time value of money is represented by the risk-free rate in the formula and compensates the investors for placing money in any investment over a period of time.
- The other half of the formula represents risk and calculates the amount of compensation the investor needs for taking on additional risk. This is calculated by taking a risk measure (beta) which compares the returns of the asset to the market over a period of time and compares it with the market premium.

The CAPM says that the expected return of a security or a portfolio equals the rate on a risk-free security plus risk premium. If this expected return does not meet or beat the required return, then the investment should not be undertaken.

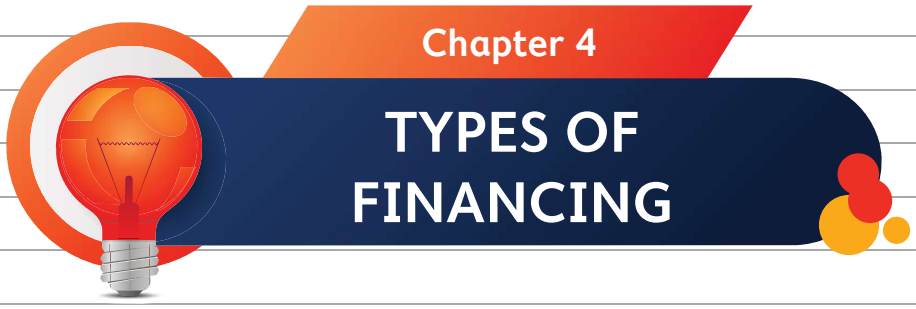
**The shortcomings of this approach are:**

(a) Estimation of beta with historical data is unrealistic; and

(b) Market imperfections may lead investors to unsystematic risk.

Despite these shortcomings, the CAPM is useful in calculating cost of equity, even when the firm is suffering losses.

The basic factor behind determining the cost of equity share capital is to measure the expectation of investors from the equity shares of that particular company. Therefore, the whole question of determining the cost of equity shares hinges upon the factors which go into the expectations of particular group of investors in a company of a particular risk class.



# Chapter 4
# TYPES OF FINANCING

Q.1. Write short notes on Equity Capital as a source of long-term finance.

Ans. Companies can raise finance by way of Equity Capital, subject to the regulations laid down in the Companies Act, SEBI Guidelines and related laws.

1. Features:

   **(a)** **Risk:** Generally, Equity Shares are to be paid off only upon liquidation. So risk is the least.

   **(b)** **Cost:** Equity Shareholders are entitled to Net Residual Income, i.e. Profit after Tax and Preference Dividend, and their expectations are high. Therefore, the Cost of Equity Capital is high.

   **(c)** **Control:** Equity Shareholders are Owners of the Company, and have control over the management of the Company.

2. Advantages: Equity Capital provides a security (Equity Base) to other suppliers of funds. So, a Company with a high Paid-Up Equity Capital can raise further funds from other sources easily.

   (a) It is a permanent source of finance. Generally, it is to be repaid only in the event of liquidation.

   (b) There are no committed payments to holders of Equity Shares. Dividends are discretionary and are not mandatory like Interest on Debentures.

3. Disadvantages:

   (a) Cost of Equity Shares is high, and also Floatation Costs (Issue Expenses) are higher.

   (b) Dividends are not tax-deductible, and hence there is no extra attraction for the Company to issue Equity Shares.

   (c) Investors find Equity Shares riskier due to uncertainty of dividends and capital gains.

   (d) Issue of new Equity Capital will reduce the EPS of existing Shareholders, unless profits are proportionately higher.

(e) Issue of new Equity Capital reduces the ownership and control of existing Shareholders.

Q.2. Write short notes on Preference Share Capital as a source of long-term finance. Discuss the advantages of Preference Share Capital as an instrument of raising funds.

Ans. Preference Shareholders enjoy priority or preference over Equity Shareholders, as regards–

1. Payment of dividend at a fixed rate, and
2. Repayment of Capital on the winding up of the Company.

1. Features:

(a) **Cumulative Option:** Preference Shares may be issued as cumulative, i.e. the dividend payable in a year of loss gets carried over to subsequent years till there are adequate profits to pay the accumulated dividends.

(b) **Redeemability & Convertibility:** Generally, Preference Shares carry a stipulation of repayment at the end of a time period. Sometimes, they may also carry the option of conversion into Equity Capital.

(c) **Preference Dividend:** Preference Dividend Rate is normally higher than the rate of interest on debentures, loans, etc. This is an appropriation of profits and not a charge against profits.

(d) **Hybrid Form of financing:** Preference Capital has features of both Debt and Equity. It can be compared with Debt since the rate of dividend is fixed and the Capital is repayable at the end of a period. It can also be likened to Equity because dividend is not tax-deductible.

2. Advantages:

(a) There is no dilution of EPS on the enlarged capital base. Issue of further Equity Capital will reduce the EPS, and therefore affect market perception about the Company.

(b) There is leveraging / gearing advantage as Preference Capital bears a fixed charge.

(c) There is no risk of takeover or loss of control.

(d) Preference Capital can be redeemed after a specified period.

3. Disadvantages:

(a) Preference Dividend is an appropriation of Profit, and is not deductible for tax purposes.

(b) Arrears of Fixed Cumulative Dividend may create a burden on the Company, when Equity Dividend is declared.

Q.3. How can a Company effectively use Retained Earnings as a source of finance? Explain the term "Ploughing back of Profits".

Ans. 1. It is a general practice of Companies to accumulate profits and plough them back into business. Such accumulated profits are called Retained Earnings. They belong to the Equity Shareholders, and increase the Net Worth of the Company.

2. Enterprises must hold back or retain a reasonable amount of profit every year for their expansion plans, and other legal requirements in this regard.

3. Profit-making Companies that undertake an expansion / diversification programme should invest a part of their accumulated reserves or cash profits for creation of capital assets. In other words, the surplus generated from operations, after meeting all the contractual, statutory and working requirements of funds, is available for further capital expenditure. This constitutes the Internal Fund Generation of the Company.

4. Retained Earnings entail almost no risk. There is no dilution of control in retaining profits.

Q.4. Write short notes on Lease Financing.

Ans. **1. Meaning:** Leasing is a contract where one party (Owner / Lessor / Leasing Company) purchases the assets and permits its use by another party (Lessee) over a specified period of time. Thus, leasing is an alternative to the purchase of an asset out of own or borrowed funds.

**2. Consideration:** The Lessee pays a specified rent (Lease Rental Charges) at periodical intervals as consideration for the use of the asset. This constitutes the Income of the Lessor.

**3. Types:** Lease may be classified into - (a) Financial Lease, and (b) Operating Lease. Some other types of Leases are - (a) Sale and Lease-back, (b) Sales Aid Lease, (c) Leveraged Lease, and (d) Open-ended and Closed-end Lease. (Refer Questions 6 to 8 below)

| Particulars | Finance Lease | Operating Lease |
|---|---|---|
| 1. Meaning | A Finance Lease is an arrangement to finance the use of equipment for a major part of its useful life. It is also called Capital Lease, as it is nothing but a loan in disguise. | A lease is classified as an Operating Lease if it does not secure for the Lessor the recovery of capital outlay plus a return on the funds invested, during the lease term. |
| 2. Term | Compared to an Operating Lease, a Financial Lease is longer-term in nature. | The term of Operating Lease is shorter than the asset's economic life. |
| 3. Risks and Rewards | Risks and Rewards incident to ownership are passed on to the Lessee. The Lessor only remains the legal owner of the asset. | The Lessee is only provided the use of the asset for a certain time. Risk incident to ownership belong wholly to the Lessor. |
| 4. Obsolescence | Lessee bears the risk of obsolescence. | All risks (including Obsolescence Risk) incidental to ownership belong wholly to the Lessor. |
| 5. Right to cancel | Lessor is interested in his rentals and not in the asset. He must get his principal back along with interest. So, the lease is generally non-cancellable by either party. | As the Lessor does not have difficulty in leasing the same asset to any other willing Lessor, the lease is kept cancellable by the Lessor. |
| 6. Cost of Repairs, etc. | Lessor enters into the transaction only as Financier. He does not bear the cost of repairs, maintenance or operations. | Usually, the Lessor bears cost of repairs, maintenance or operations. The lease is usually non-payout, since the |
| 7. Full pay-out | The lease is usually full pay-out, that is, the single lease repays the cost of the asset together with interest thereon. | Lessor expects to lease the same asset over and over again to several users. |

Q.6. Explain the concepts of - (1) Sale and Lease Back, and (2) Sales Aid Lease.

Ans. **1. Sales and Lease Back:**

(a) Here, the owner of an asset sells the asset to a party (Buyer), who in turn leases back the same asset to the owner in consideration of Lease Rentals. So, the asset is not physically exchanged, but is transferred by way of Book Entries only.

(b) In this transaction, the Seller assumes the role of Lessee and the Buyer assumes the role of a Lessor. The Seller gets the agreed Selling Price and the Buyer gets the Lease Rentals.

(c) The main advantage is that the Lessee can satisfy himself completely regarding the quality of the asset, and after possession of the asset, convert the sale into a lease agreement.

2. **Sales-Aid Lease:**

(a) Under this lease contract, the Lessor enters into a tie up with a Manufacturer (of Equipments / Assets) for marketing the latter's product through his own leasing operations, it is called a Sales-Aid-Lease.

(b) In consideration of the aid in sales, Manufacturers may grant either credit, or a commission to the Lessor. Thus, the Lessor earns from both sources, i.e. from the Lessee and the Manufacturer.

Q.7. Explain the concept of Leveraged Lease.

Ans. 1. Under a Leveraged Lease arrangement, the Lessor borrows a substantial portion of the purchase price of the Asset from a Lender, i.e. a Commercial Bank or a Financial Institution, with full recourse to the Lessee without recourse to the Lessor.

2. The Lease Agreement provides for the Lease Rentals to the paid b by the Lease and creation of mortgage/charge or the asset, in favor of the Lessor.

3. The transaction is routed through a Trustee who looks after the interest of the Lessor and the Lender.

4. The Trustee receives the rentals from the Lessee and passes on to the Lender, and the surplus left after satisfying the claims of the Lender, goes to the Lessor.

5. As owner of the asset, the Lessor is entitled to tax benefits by claim of Depreciation Allowance.

Q.8. Explain the concepts of Closed-End and Open – Ended Lease.

| Open Ended Lease | Closed End Lease |
|---|---|
| 1. It is a lease agreement that gives an option to the Lessee | It is a agreement that puts no obligation on the Lessee to purchase the Leased Asset at the end of the agreement. |
| 2. It is a variation of called as "Finance Lease". | It is also called as "True Lease" or "Walkaway Lease". |
| 3. Lessee bears the risk that the asset may depreciate more than what was expected, at the end of the lease. Lessee gains if the asset depreciates less than expected. | Lessee need not worry about rate of depreciation of the Leased Asset. |

Q.9. Write short notes on Venture Capital Financing.

Ans. 1. Meaning: Venture Capital Financing refers to financing of high risk ventures promoted by new, qualified entrepreneurs who require funds to give shape to their ideas. Here, a financier (called Venture Capitalist) invests in the Equity or Debt of an Entrepreneur (Promoter / Venture Capital Undertaking) who has a

potentially successful business idea, but does not have the desired track record or financial backing.

Generally, venture capital funding is associated with - (a) heavy initial investment businesses, e.g. energy conservation, quality upgradation, or (b) sunrise sectors like information technology.

2. Methods of Venture Capital Financing:

(a) **Equity Financing:** VCU's generally require funds for a longer period but may not be able to provide returns to the investors during initial stages. Hence, Equity Share Capital financing is advantageous. The Investor's contribution does not exceed 49% of the total Equity Capital of the VCU. Hence, the effective control and ownership remains with the entrepreneur.

(b) **Conditional Loan:** A Conditional Loan is repayable in the form of a royalty after the venture is able to generate sales. No interest is paid on such loans. The rate of royalty (say 2% to 15%) may be based on factors like - (i) gestation period, (ii) cash flow patterns, (iii) extent of risk,, etc. Sometimes, the VCU has a choice of paying a high rate of interest (say 20%) instead of royalty on sales once the activity becomes commercially sound.

(c) **Income Note:** It is a hybrid type of finance, which combines the features of both conventional loan & conditional loan. The VCU has to pay both interest and royalty on sales but at substantially low rates.

(d) **Participating Debentures:** Interest on such debentures is payable at three different rates based on the phase of operations - (i) Start-up and commissioning phase - NIL Interest, (ii) Initial Operations Stage - Low rate of interest, and (iii) After a particular level of operations - High rate of interest.

Q.10. What are the factors that a Venture Capitalist should consider before financing any risky project?

Ans. 1. **Expertise of Company's Management:** The success of a new project is highly dependent on the quality of the VCU's management team. VCC's expect that the VCU / Promoter / Entrepreneur should have a skilled team of Managers. Managements are also required to show a high level of commitments to the project.

2. **Expertise in production:** The Venture Capitalist should ensure that the

Entrepreneur and his team should have necessary technical ability to be able to develop and produce new product / service.

3. **Nature of new product / service:** The Venture Capitalist should consider whether the development and production of new product / service is technically feasible. They should employ experts in their respective fields to examine the idea proposed by the entrepreneur.
4. **Future Prospects:** Since the degree of risk involved in investing in the VCU is quite fairly high, the Venture Capitalist should seek to ensure that the prospects for future profits compensate for the risk. Therefore, they should seea detailed business plan setting out the future business strategy.
5. **Competition:** The Venture Capitalist should seek assurance that there is actually a market for the new product. Further, the Venture Capitalist should review the Market Research work carried out by the Entrepreneur.
6. **Risk borne by Entrepreneur:** The Venture Capitalist is expected to see that the Entrepreneur bears a high degree of risk. This will assure them that the Entrepreneur has the sufficient level of the commitment to project as they themselves will have a lot of loss, should the project fail.
7. **Exit Route:** The Venture Capitalist should try to establish a number of exit routes. These may include a sale of shares to the public, sale of shares to another business, or sale of share of original owners, etc.
8. **Board Membership:** In case of Companies, to ensure proper protection of their investment, the Venture Capitalist should require a place on the Board of Directors. This will enable them to have their say on all significant matters affecting the business.

Q.11. What do you mean by Bridge Finance?

Ans. 1. **Meaning:** Bridge Finance refers to loans taken by a Company usually from commercial banks, for a short period, pending disbursement of loans sanctioned by financial institutions.

2. **Sanction:**
   (a) When a Promoter or an enterprise approaches a financial institution for a long-term loan, there may be some normal time delays in project evaluation, administrative & procedural formalities and final sanction.
   (b) Since the project commencement cannot be delayed, the Promoter may start his activities after receiving "in-principle" approval from the term lending institution.

(c) To meet his temporary fund requirements for starting the project, the Promoter may arrange short-term loans from Commercial Banks or from the term lending institution itself.

(d) Such temporary finance, pending sanction of the long term loan, is called as "Bridge Finance".

(e) This Bridge Finance may be used for - (I) paying advance for factory land / machinery acquisition, (ii) purchase of equipments, etc.

3. Terms:

**(a) Interest:** The interest rate on Bridge Finance is higher when compared to term loans.

**(b) Repayment:** These are repaid or adjusted out of the term loans as and when disbursed by the concerned institutions.

**(c) Security:** These are secured by hypothecating movable assets, personal guarantees & promissory notes.

Q.12. What do you understand by Debt Securitisation?

Ans. 1. Securitisation:

(a) Securitisation is the process by which financial assets (e.g. Loan Receivables, Mortgage backed receivables, Credit Card balances, Hire Purchase Debtors, Trade Debtors, etc.) are transformed into securities. Securitisation is different from Factoring since the latter involves transfer of debts without transformation thereof into securities.

(b) Securitisation is a mode of financing, wherein securities are issued on the basis of a package of assets (called Asset Pool). In this method of recycling funds, assets generating steady cash flows are packaged together and against this asset pool, market securities can be issued.

2. Securitisation Process:

(a) Initial Lending / Origination Function: Originator gives various Loans to different Borrowers (Obligors). Borrowers have to repay the loans in EMI's (Interest + Principal). These EMI's constitute financial assets /receivables for the Originator.

(b) Securitisation Function: Financial Assets / Receivables or defined rights therein, are transferred, fully or partly, by the Originator to a SPE. SPE pays the Originator immediately in cash or in any other consideration for taking over the financial assets. The assets transferred are termed'

Securitised Assets' and the assets or rights retained by the Originator are called 'Retained Assets'.

(c) Financing Function: SPE finances the assets transferred to it by issue of securities such as Pass through Certificates (PTCs) and / or debt securities to Investors. These are generally sold to Investors (Mutual Funds, LIC, etc.), through Merchant Bankers.

Q.13. List the advantages of Securitisation.

| To the Originator | To the Investor |
|---|---|
| 1. The assets are shifted off the Balance Sheet, thus giving the Originator recourse to off-Balance Sheet funding.<br>2. It converts illiquid assets to liquid portfolio.<br>3. It facilitates better Balance Sheet management as assets are transferred off Balance Sheet facilitating satisfaction of capital adequacy norms.<br>4. The Originator's credit rating enhances | 1. Securities are tied up to definite assets (Asset Pool).<br>2. New investment avenues are opened up. |

Q.14. Briefly describe Trade Credit, Accruals and Advances as sources of Short Term Finance.

Ans. 1. TRADE CREDIT:

(a) **Meaning:** It represents credit granted by suppliers of goods, in the normal course of business. It is common to almost all business operations.

(b) **Forms:** It can be in the form of an 'Open Account', i.e. running / continuous account basis, or 'Bills Payable', i.e. bill-by-bill settlement basis.

(c) **Duration:** The duration of such trade credit is based on various factors including prevailing practices, and is usually between 15 to 90 days.

(d) **Advantages:**

- There is no explicit cost associated with Credit Period availed.
- It is available and keeps on rotating as long as the business is a going concern.
- It enhances automatically with the increase in the volume of business.

2. ACCRUED EXPENSES AND DEFERRED INCOME:

(a) Accrued Expenses represent liabilities which a Firm has to pay for the services which it has already received. Such expenses arise out of the day to day activities of the Firm, and represent a spontaneous source of finance.

(b) Deferred Income reflects the amount of funds received by a Firm in lieu of goods and services to be provided in the future. These receipts increase the Firm's liquidity, and are also considered to be an important source of spontaneous finance.

3. ADVANCES FROM CUSTOMERS:

(a) When the goods are costly or when considerable time period is involved, it is usual business practice to obtain advance money from customers, e.g. Construction of a bridge / building, Manufacture of a specialised equipment involving heavy cost based on customer's requirements

(b) This is a cost-free source of finance and hence substantially useful.

Q.15. What are the various forms of Bank Credit towards Working Capital needs of a Business?

Bank Credit towards Working Capital may be in the following forms :

Ans. 1. **Cash Credit:** This facility will be given by the Bank to the customer by giving certain amount of credit facility on continuous basis. The Borrower will not be allowed to exceed the limits sanctioned by the Bank. Cash Credit facility is generally granted against primary security of pledging of Stocks.

2. **Bank Overdraft:** It is a short-term borrowing facility made available to the Companies in case of urgent need of funds. Banks will impose limits on the amount lent. When the borrowed funds are no longer required, they can quickly and easily be repaid. Banks grant overdrafts with a right to call them in at short notice.

3. **Bills Acceptance:** To obtain finance under this type of arrangement, a Company draws a Bill of Exchange on the Bank. The Bank accepts the bill there by promising to pay out the amount of the bill at some specified future date.

4. **Line of Credit:** Line of Credit is a commitment by a Bank to lend a certain amount of funds on demand specifying the maximum amount.

5. **Letter of Credit:** It is an arrangement by which the Issuing Bank on the instructions of a customer or on its own behalf undertakes to pay or accept or negotiate or authorizes another Bank to do so against stipulated documents subject to compliance with specified terms and conditions.

6. **Bank Guarantees:** Bank Guarantees may be provided by Commercial Banks on behalf of their clients / Borrowers in favour of third parties, who will be the beneficiaries of the guarantees.

Q.16. Write short notes on pre-shipment finance for export, i.e. Packing Credit Facility.

Ans. 1. Meaning: Packing Credit is an advance extended by Banks to an Exporter, for the purpose of buying, manufacturing, processing, packing and shipping goods to overseas buyers.

2. Applicability:

(a) Packing Credit facility is offered on the basis of firm export order placed with the Exporter, by his foreign customer (buyer) or an irrevocable Letter of Credit (LC) opened in favour of the Exporter.

(b) An advance so taken by an Exporter should be settled within 180 days, by negotiation of export bills or receipt of export proceeds in an approved manner. Thus, Packing Credit is essentially a short-term advance.

3. Types of Packing Credit:

**(a) Clean Packing Credit:**

- There is no charge or control over Raw Materials or Finished Goods that constitute the supply.
- The Bank takes into consideration trade requirements, creditworthiness of exporter and its margin.
- The Bank should obtain Export Credit Guarantee Corporation (ECGC) Insurance Cover.

**(b) Packing Credit against hypothecation of goods:**

- Goods which constitute the supply are hypothecated to the Bank as security, with the stipulated margin.
- The goods are exported by the Borrower. The Bank does not have any effective possession of the same.
- The Exporter has to submit Stock Statements at the time of sanction, and also periodically and / or whenever there is any movement in stocks.

**(c) Packing Credit against pledge of goods:**

- Goods which constitute the supply are pledged to the Bank as security, with the stipulated margin.
- Goods shall be handed over to approved Clearing Agents, who ship the same from time to time as required by the Exporter.
- The effective possession of the goods so pledged lies with the Bank, and are kept under its lock and key.

4. Formalities and Requirements:

(a) **ECGC Guarantee:** Export Credit Guarantee Corporation (ECGC) guarantees the recovery of advance granted to an exporter, against payment of insurance premium. The Bank arranges for this insurance cover by recovering the same from the Exporter (Borrower's) account.

(b) **Forward Exchange Contract:** If the export bill is drawn in a foreign currency, the exporter should enter into a forward exchange contract with the bank, thereby avoiding risk involved in fluctuations of exchange rates.

(c) **Documents:** The documentary formalities specified by the Banker should be complied with.

Q.17. What are the various modes in which Post-Shipment Finance can be given for export trade?

Ans. Post-Shipment Finance, i.e. after shipment of goods, can be in the following forms

1. **Purchase / discounting of documentary export bills:**
Just like discounting / purchasing of local supply bills, Banks provide finance to exporters by purchasing export bills drawn payable at sight or by discounting usance export bills.

2. **Advance against export bills sent for collection:**
Banks also provide advance to Exporters, against export bills forwarded through them for collection.

3. **Advance against Duty Drawback, Cash Subsidy, etc.**
Banks also provide advance against Duty Drawback, Cash Subsidy, etc. receivable by Exporters against export performance. Such advances are of clean nature hence necessary precaution should be exercised.

Q.18. What do you understand by Commercial Paper?

Ans. Commercial Paper is a short-term, unsecured, usance promissory note issued by a Company, negotiable by endorsement and delivery, issued at a discount on face value, and redeemable at its face value. The difference between the initial investment and the maturity value, constitutes the income of the investor.

**Example:** A Company issues a Commercial Paper each having maturity value of ₹ 5,00,000. The Investor pays (say) ₹ 4,82,850 at the time of his investment. On maturity, the Company pays ₹ 5,00,000 (maturity value or redemption value) to the Investor. The Commercial Paper is said to be issued at a discount of ₹ 5,00,000 - ₹ 4,82,850 = ₹ 17,150. This constitutes the interest income of the investor.

Q.19. List the RBI Guidelines in respect of issue of "Commercial Paper".

Ans. Commercial Paper (CP) is an unsecured money market instrument issued in the form of a promissory note.

1. **Eligible Issuers of CP:** (a) Corporates, (b) Primary Dealers (PDs), and (c) All India Financial Institutions (FIs) that have been permitted to raise short-term resources under the umbrella limit fixed by RBI are eligible to issue CP.
2. **Investors for CP:** CP may be issued to and held by - (a) Individuals, (b) Banking Companies, (c) Other Corporate Bodies registered or incorporated in India, (d) Unincorporated Bodies, (e) Non-Resident Indians (NRIs), and (f) Foreign Institutional Investors (FIIs). Investment by FIIs should be within the limits set for their investments by SEBI.
3. **Maturity:** CP can be issued for maturities between a minimum of 7 days and a maximum up to one year from the date of issue. Maturity Date of the CP should not go beyond the date up to which the credit rating of the issuer is valid.
4. **Denominations:** CP can be issued in denominations of ₹ 5 Lakh or multiples thereof. Amount invested by a single investor should not be less than ₹ 5 Lakh (Face Value).
5. **Basic issue conditions for a Corporate:** A Corporate would be eligible to issue CP provided
   (a) Its tangible Net Worth, as per the latest audited Balance Sheet, is not less than ₹ 4 Crores,
   (b) It has been sanctioned Working Capital limit by Bank/s or Air-India Financial Institution/s,
6. **Credit Rating:** All eligible participants shall obtain the credit rating for issuance of CP from
   (a) Credit Rating Information Services of India Limited (CRISIL), or
   (b) Investment Information and Credit Rating Agency of India Limited (ICRA), or
   (c) Credit Analysis and Research Limited (CARE), or
   (d) FITCH Ratings India Private Limited, or
7. **Time Period:** The total amount of CP proposed to be issued should be raised within two weeks from the date on which the issue is open for subscription. Every CP issue shall be reported to the RBI, through the Issuing and Paying Agent (IPA) within three days from the date of completion of the issue.
8. **Issuing and Paying Agent (IPA):** Only a Scheduled Bank can act as an IPA for issuance of CP. Every Issuer must appoint an IPA for issuance of CP.

9. **Mode of Investment in CP:** The Investor in CP shall pay the discounted value (Issue Price) of the CP by means of a crossed account payee cheque to the account of the Issuer, through the IPA.
10. **Repayment of CP on Maturity:** On maturity of CP, when the CP is held in physical form, the holder of the CP shall present the instrument for payment to the Issuer, through the IPA. When the CP is held in demat form, the holder of the CP will get it redeemed through the depository and receive payment from the IPA.

Q.20. What are the advantages of Commercial Paper?

Ans. 1. **Simplicity:** Documentation involved in issue of Commercial Paper is simple and minimum.
2. **Cash Flow Management:** The Issuer Company can issue Commercial Paper with suitable maturity periods (not exceeding one year), tailored to match the cash flows of the Company.
3. **Alternative for bank finance:** A well-rated Company can diversify its sources of finance from Banks, to short-term money markets, at relatively cheaper cost.
4. **Returns to Investors:** CP's provide investors with higher returns than the banking system.
5. **Incentive for financial strength:** Companies which raise funds through CP become well-known in the financial world for their strengths. They are placed in a more favourable position for raising long-term capital also. So, there is an in built incentive for Companies to remain financially strong.

Q.21. What do you understand by Seed Capital Assistance?

Ans. 1. **Applicability:** Seed Capital Assistance Scheme is designed by IDBI for professionally or technically qualified entrepreneurs and / or persons possessing relevant experience, skills and entrepreneurial traits. All the projects eligible for financial assistance from IDBI directly or indirectly through refinance are eligible under the scheme.
2. **Amount of Finance:** The project cost should not exceed ₹ 2 Crores. The maximum assistance under the scheme will be - (a) 50% of the required Promoter's Contribution, or (b) Rs.15 Lakhs, whichever is lower.
3. **Interest and Charges:** The assistance is initially interest-free, but carries a service charge of 1% p.a. for the first five years and at increasing rate thereafter. When the financial position and profitability is favourable, IDBI may charge interest at a suitable rate even during the currency of the loan.

4. **Repayment:** The repayment schedule is fixed depending upon the repaying capacity of the unit with an initial moratorium of upto five years.
5. **Other Agencies:** For projects with a project cost exceeding ₹ 2 Crores, Seed Capital may be obtained from the Risk Capital and Technology Corporation Limited (RCTC). For small projects costing upto Rs.5 Lakhs, assistance under the National Equity Fund of the SIDBI may be availed.

Q.22. What do you understand by Deferred Payment Guarantee in case of Fixed Assets?

Ans. 1. Suppliers of Machinery may provide deferred credit facility under which payment for the purchase of machinery can be made over a period of time.
2. Sometimes, an initial down payment is made and the balance paid in suitable instalments. In some other cases, the entire cost of the machinery is financed and the Company is not required to contribute any amount initially towards acquisition of the machinery.
3. Normally, the Supplier of machinery insists that a Bank Guarantee should be furnished by the Buyer.
4. Deferred Payment Guarantee does not have a moratorium period for repayment. Hence, it is advisable only for an existing profit making Company.

Q.23. What do you mean by Deep Discount Bonds (DDB's)?

Ans. 1. Deep Discount Bonds is a form of zero-interest bonds, which are sold at a discounted value (i.e. below par) and on maturity, the Face Value is paid to investors.
2. For example, a Bond of a face value of Rs.1 Lakh may be issued for ₹ 2,700 initially. The Investor pays ₹ 2,700 at first. He gets the maturity value of ₹ 1 Lakh at the end of the holding period, say 25 years.
3. Sometimes, the Issuing Company may give options for redemption at periodical intervals say, after 5 years, 10 years, 15 years, 20 years, etc.
4. There is no interest payment during the lock-in / holding period.
5. These bonds can be traded in the market. Hence, the Investor can also sell the bonds in stock market and realise the difference between his initial investment and current market price.

Q.24. Write a brief note on some new financial instruments.

Ans. In addition to Deep Discount Bonds & Commercial Papers, the following are some new financial instruments

1. **Secured Premium Notes (SPN's):** Secured Premium Notes is issued along with a detachable warrant and is redeemable after a specified period, say 4 to7 years. There is an option to convert the SPN's into Equity Shares, within the time period specified by the Company.
2. **Zero interest Fully Convertible Debentures:**
   (a) These are fully-convertible debentures, which do not carry any interest.
   (b) The Debentures are compulsorily and automatically converted after a specified period of time, and its holders are entitled to new Equity Shares of the Company at a pre-determined price.
   (c) The Company is benefitted since no interest is to be paid on it. The Investor is benefited if the Market Price of the Company's Shares is very high, since he tends to get Equity Shares of the Company at an agreed lower rate.
3. **Zero Coupon Bonds:** Zero Coupon Bonds do not carry any interest. It is sold by the issuing Company at a discount. The difference between the discounted value and maturing or face value represents the interest to be earned by the investor on such bonds. It operates in the same manner as a DDB, but the lock in period is comparatively less.
4. **Double Option Bonds:**
   (a) This Bond has two parts in the form of two separate certificates, one for principal say ₹ 5,000 and other for interest (including Redemption Premium) say ₹ 16,500.
   (b) Both these certificates are listed on all major Stock Exchanges. The Investor has the facility of selling either one or both parts at any-time he wishes so.
   (c) These Bonds were first issued by the IDBI, with Face Value ₹ 5,000, Interest at 15% p.a. compounded half-yearly, and Maturity Period of 10 years.
5. **Option Bonds:** These are cumulative and non-cumulative bonds, where interest is payable on maturity or periodically. Redemption Premium is also offered to attract Investors. These were issued by Public Financial Institutions like IDBI, ICICI, etc.
6. **Inflation Bonds:** Inflation Bonds are bonds in which interest rate is adjusted or inflation. Thus, the Investor gets an interest free from the effects of inflation For example, if the interest rate is 11% and the inflation is 3%, the Investor will learn 14%, thereby the Investor is protected against inflation.

7. **Floating Rate Bonds:** In this type of bond, the interest rate is not fixed and is allowed to float depending upon the market conditions. This is an instrument used by the issuing Companies to hedge themselves against the volatility in the interest rates. Financial Institutions like IDBI, ICICI, etc. have raised funds from these bonds.

Q.25. Explain briefly the features of External Commercial Borrowings. (ECB)

Ans. 1. External Commercial Borrowings (ECB) refer to Commercial Loans, which maybe in the form of Bank Loans, Buyers Credit, Suppliers Credit, Securitised Instruments (e.g. Floating Rate Notes or Fixed Rate Bonds), availed from Non-Resident Lenders, with minimum average maturity of 3 years.

2. Borrowers can raise ECBs through internationally recognised sources like (a) International Banks, (b) International Capital Markets, (c) Multilateral Financial Institutions e.g. ADB, (d) Export Credit Agencies, (e) Suppliers of Equipment, (f) Foreign Collaborators, and (g) Foreign Equity Holders.

3. ECB's can be accessed through - (a) Automatic Route (for Companies registered under the Companies Act, and NGOs engaged in micro-finance activities), or (b) Approval Route (i.e. after obtaining RBI / Government Approval).

Q.26. List out a few financial instruments in the International Market.

Ans. **Financial Instruments:** Some of the various financial instruments dealt with in the international market are briefly described below:

**(a) External Commercial Borrowings (ECB):** ECBs refer to commercial loans (in the form of bank loans, buyers credit, suppliers credit, securitised instruments (e.g. floating rate notes and fixed rate bonds) availed from non-resident lenders with minimum average maturity of 3 years. Borrowers can raise ECBs through internationally recognised sources like (i) international banks, (ii) international capital markets, (iii) multilateral financial institutions such as the IFC, ADB etc, (iv) export credit agencies, (v) suppliers of equipment, (vi) foreign collaborators and (vii) foreign equity holders.

External Commercial Borrowings can be accessed under two routes viz

(i) Automatic route and (ii) Approval route. Under the Automatic route, there is no need to take the RBI/Government approval whereas such approval is necessary under the Approval route. Company's registered under the Companies Act and NGOs engaged in micro finance activities are eligible for the Automatic Route whereas Financial Institutions and Banks dealing

exclusively in infrastructure or export finance and the ones which had participated in the textile and steel sector restructuring packages as approved by the government are required to take the Approval Route.

(b) **Euro Bonds:** Euro bonds are debt instruments which are not denominated in the currency of the country in which they are issued e.g. a Yen note floated in Germany. Such bonds are generally issued in a bearer form rather than as registered bonds and in such cases they do not contain the investor's names or the country of their origin. These bonds are an attractive proposition to investors seeking privacy.

(c) **Foreign Bonds:** These are debt instruments issued by foreign corporations or foreign governments. Such bonds are exposed to default risk, especially the corporate bonds. These bonds are denominated in the currency of the country where they are issued, however, in case these bonds are issued in a currency other than the investors home currency, they are exposed to exchange rate risks. An example of a foreign bond 'A British firm placing Dollar denominated bonds in USA'.

(d) **Fully Hedged Bonds:** As mentioned above, in foreign bonds, the risk of currency fluctuations exists. Fully hedged bonds eliminate the risk by selling in forward markets the entire stream of principal and interest payments.

(e) **Medium Term Notes (MTN):** Certain issuers need frequent financing through the Bond route including that of the Euro bond. However, it may be costly and ineffective to go in for frequent issues. Instead, investors can follow the MTN programme. Under this programme, several lots of bonds can be issued, all having different features e.g. different coupon rates, different currencies etc. The timing of each lot can be decided keeping in mind the future market opportunities. The entire documentation and various regulatory approvals can be taken at one point of time.

(f) **Floating Rate Notes (FRN):** These are issued up to seven years maturity. Interest rates are adjusted to reflect the prevailing exchange rates. They provide cheaper money than foreign loans.

(g) **Euro Commercial Papers (ECP):** ECPs are short term money market instruments. They have maturity period of less than one year. They are usually designated in US Dollars.

(h) **Foreign Currency Option (FC):** A FC Option is the right (and not the obligation) to buy or sell, foreign currency at a certain specified price on or before a specified date. It provides a hedge against financial and economic risks.

(i) **Foreign Currency Futures:** FC Futures are obligations (and not the right) to buy or sell a specified foreign currency in the present for settlement at a future date.

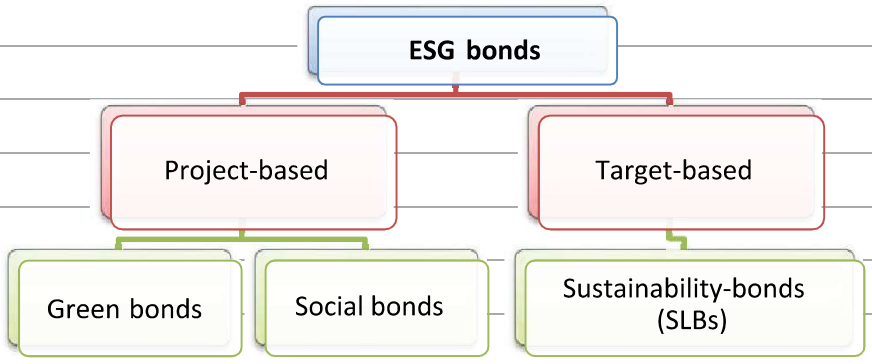
(j) **Foreign Euro Bonds:** In domestic capital markets of various countries the Bonds issues referred to above are known by different names such as Yankee Bonds in the US, Swiss Frances in Switzerland, Samurai Bonds in Tokyo and Bulldogs in UK.

(k) **Euro Convertible Bonds:** A convertible bond is a debt instrument which gives the holders of the bond an option to convert the bonds into a pre-determined number of equity shares of the company. Usually the price of the equity shares at the time of conversion will have a premium element. These bonds carry a fixed rate of interest and if the issuer company so desires may also include a Call Option (where the issuer company has the option of calling/ buying the bonds for redemption prior to the maturity date) or a Put Option (which gives the holder the option to put/sell his bonds to the issuer company at a pre-determined date and price).

(l) **Euro Convertible Zero Bonds:** These bonds are structured as a convertible bond. No interest is payable on the bonds. But conversion of bonds takes place on maturity at a pre- determined price. Usually there is a five years maturity period and they are treated as a deferred equity issue.

(m) **Euro Bonds with Equity Warrants:** These bonds carry a coupon rate determined by market rates. The warrants are detachable. Pure bonds are traded at a discount. Fixed Income Funds Management may like to invest for the purposes of regular income in this case.

(n) **Environmental, Social and Governance-linked bonds (ESG):** These bonds carry a responsibility of the issuer company to prioritize optimal environmental, social and governance (ESG) factors. Investing in ESG bonds is considered as socially responsible investing. ESG bonds can be project-based - green bonds and social bonds; and target-based - sustainability-linked bonds (SLBs).




- **Green bonds:** These are the most popular ESG bonds that are issued by a financial, non-financial or public institution, where the bond proceeds

are used to finance "green projects". Green projects are aimed at positive environmental and/or climate impact including the cultivation of eco-friendly technology. India is the second-largest green bond market. For example: Ghaziabad Municipal Corporation (GMC) becomes the first Municipal Corporation to raise ₹ 150 crore from Green Bond in the Year 2021.

- **Social bonds:** These bonds finance the socially impactful projects. The projects here are related to the social concerns such as Human rights, Equality, animal welfare etc. For example, "Vaccine bonds" are social bonds, issued to fund the vaccination of vulnerable childrens and protection of people in lower income countries.
- **Sustainability-linked bonds (SLBs):** These bonds are combination of green bonds and social bonds. Proceeds of SLBs are not meant for a specific project but for general corporate purpose to achieve Key Performance Indicator (KPIs). For example: UltraTech Cement raises US$ 400 million through India's first sustainability-linked bonds in year 2021. The company aims to reduce carbon emissions through the life of bond of 10 years.

Q.27. What do you understand by Euro Issues? Explain the operation of Global Depository Receipts, American Depository Receipts, etc.

Write short notes on Global Depository Receipts and American Depository Receipts.

Ans. **1. Global Depository Receipts: (GDR's):**

(a) A Depository Receipt (DR) is basically a negotiable certificate, denominated in US Dollars that represents a non-US Company's publicly traded local currency (say, Indian Rupee) Equity Shares.

(b) DR's are created when the local currency shares of an Indian Company are delivered to the depository's local custodian bank, against which the Depository Bank issues DR's in US Dollars.

(c) These DR's may be freely traded in the overseas markets like any other dollar denominated security through either a Foreign Stock Exchange or through Over the Counter (OTC) market or among a restricted group like Qualified Institutional Buyers (QIB's).

(d) GDR with Warrants are more attractive than plain GDRs due to additional value of attached warrants.

**2. American Depository Receipts: (ADR's):** Depository Receipts issued by a Company in the USA are known as ADR's. Such receipts have to be issued in accordance

with the provisions stipulated by the Securities Exchange Commission(SEC) of the USA, which is a regulatory body like the SEBI in India.

Q.28. Explain the concept of Indian Depository Receipts (IDRs).

Ans. 1. The concept of Depository Receipt Mechanism, which is used to raise funds in foreign currency has been applied in the Indian Capital Market through the issue of IDR's.

2. Foreign Companies can issue IDRs, to raise funds from the Indian Capital Market, in the same way as Indian Companies uses ADRs / GDRs to raise foreign capital.

3. IDR's are listed and traded in India, in the same manner as other Indian Securities.

| Basis of Difference | GDR | ADR |
|---|---|---|
| 1. Meaning | The depository receipts in the world market is called GDR. | The depository in the US market is called ADR. |
| 2. Voting Right | GDR's do not have voting rights. | ADR's may be with or without voting rights. |
| 3. Scope | GDR's are traded world wide. | ADR's are traded only in US. |
| 4. Preference | GDR's are trade world due to their easy operation. | ADR's provide certain stringent rules to be followed which makes them less preferred. |
| 5. Cost involved | The cost involved in operation of GDR is less than that of ADR. | The cost involved in operation of ADR is comparatively high due to formalities to be fulfilled under US GAAP & SEC. |

Q.29. Deep Discount Bonds vs. Zero Coupon Bonds:

Ans. Deep Discount Bonds (DDEs) are in the form of zero interest bonds. These bonds are sold at a discounted value and on maturity face value is paid to the investors. In such bonds, there is no interest payout during lock- in period.

IDBI was first to issue a Deep Discount Bonds (DDBs) in India in January 1992. The bond of a face value of ₹ 1 lakh was sold for ₹ 2,700 with a maturity period of 25 years. A zero coupon bond (ZCB) does not carry any interest but it is sold by the issuing company at a discount. The difference between discounted value and maturing or face value represents the interest to be earned by the investor on such bonds.

Q.30. Discuss different types of Bond

**Ans.** Bond is fixed income security created to raise fund. Bonds can be raised through Public Issue and through Private Placement.

Types of Bond

Based on call Bond can be divided as

(i) Callable bonds and (ii) Put table bonds

**(i) Callable bonds:** A callable bond has a call option which gives the issuer the right to redeem the bond before maturity at a predetermined price known as the call price (Generally at a premium).

**(ii) Put table bonds:** Put table bonds give the investor a put option (i.e. the right to sell the bond) back to the company before maturity.

Various Bonds with their salient feature are as follow:

**(i) Foreign Bonds**

| Sl. No. | Name of Bond | Salient Feature |
|---|---|---|
| 1 | Foreign Currency Convertible Bond (FCCB) | • This bond comes at a very low rate of interest.<br>• The advantage to the issuer is that the issuer can get foreign currency at a very low cost.<br>• The risk is that in case the bond has to be redeemed on the date of maturity, the issuer has to make the payment and at that time the issuer may not have the money. |
| 2 | Plain Vanilla Bond | • The issuer would pay the principal amount along with the interest rate.<br>• This type of bond would not have any options.<br>• This bond can be issued in the form of discounted bond or can be issued in the form of coupon bearing bond. |
| 3 | Convertible Floating Rate Notes (FRN) | • A convertible FRN with an option for the holder to convert it into longer term debt security with a specified coupon<br>• It protects an investor against falling interest rate<br>• The long- term debt security can be sold in the market and the investor can earn profit<br>• Capital gain is not applicable to FRN |
| 4 | Drop Lock Bond | • A Floating Rate Note with a normal floating rate<br>• The floating rate bond would be automatically converted into fixed rate bond if interest rate falls below a predetermined level<br>• The new fixed rate stays till the drop lock bond reaches its maturity<br>• The difference between the convertible floating rate note and drop lock bond is that the former is long option holder structure and the later one is the short option structure |

| | | |
|---|---|---|
| 5 | Variable Rate Demand Obligations | • A normal floating rate note with a nominal maturity<br>• The holder of the floating rate note can sell the obligation back to the trustee at: At par, Plus accrued interest<br>• It gives the investor an option to exit, so more liquid than the normal FRN |
| 6 | Yield Curve Note (YCN) | • A structured debt security<br>• Yield increases when prevailing interest rate declines<br>• Yield decreases when prevailing interest rate increases<br>• This is used to hedge the interest rate<br>• This works like inverse floater |
| 7 | Yankee Bond | • Bonds denominated in dollars<br>• Bonds issued by non- US banks and non- US corporations<br>• Bonds are issued in USA<br>• Bonds are to be registered in SEC (Securities and Exchange Commission)<br>• Bonds are issued in tranches<br>• Time taken can be up to 14 weeks<br>• Interest rate is dollar LIBOR (London Interbank Offered Rate) |
| 8 | Euro Bond | • Bonds issued or traded in a country using a currency other than the one in which the bond is denominated. This means that the bond uses a certain currency, but operates outside the jurisdiction of the central bank that issues that currency<br>• Eurobonds are issued by multinational corporations, for example, a British company may issue a Euro bonding Germany, denominating tin U.S. dollars<br>• It is important to note that the term has nothing to do with the euro, and the prefix "euro-" is used more generally to refer to deposit outside the jurisdiction of the domestic central bank |
| 9 | Samurai Bond | • Denominated in Japanese Yen (JPY)<br>• Issued in Tokyo<br>• Issuer Non- Japanese Company<br>• Regulations : Japanese<br>• Purpose : Access of capital available in Japanese market<br>• Issue proceeds can be used to fund Japanese operation<br>• Issue proceeds can be used to fund a company's local opportunities.<br>• It can also be used to hedge foreign exchange risk |

| | | |
|---|---|---|
| 10 | Bulldog Bond | • Denominated in Bulldog Pound Sterling/Great Britain Pound (GBP)<br>• Issued in London<br>• Issuer Non- UK Company<br>• Regulations : Great Britain<br>• Purpose : Access of capital available in UK market<br>• Issue proceeds can be used to fund UK operation<br>• Issue proceeds can be used to fund a company's local opportunities |

**(ii) Indian Bonds**

| Sl. No. | Name of Bond | Salient Feature |
|---|---|---|
| 1 | Masala Bond | Masala (means spice) bond is an Indian name used for Rupee denominated bond that Indian corporate borrowers can sell to investors in overseas markets.<br>• These bonds are issued outside India but denominated in Indian Rupees.<br>• NTPC raised ₹ 2,000 crore via masala bonds for its capital expenditure in the year 2016. |
| 2 | Municipal Bonds | Municipal bonds are used to finance urban infrastructure are increasingly evident in India.<br>• Ahmedabad Municipal Corporation issued a first historical Municipal Bond in Asia to raise ₹ 100 crore from the capital market for part financing a water supply project |
| 3 | Government or Treasury Bonds | Government or Treasury bonds are bonds issued by Government of India, Reserve Bank of India, any state Government or any other Government department. |

Q.31. Difference between Inter Corporate Deposits, Certificate of Deposit and Public Deposits :

Ans. **(1) Inter Corporate Deposits :** The companies can borrow funds for a short period say 6 months from other companies which have surplus liquidity.

The rate of interest on inter corporate deposits varies depending upon the amount involved and time period.

(2) **Certificate of Deposit (CD) :** The certificate of deposit is a document title similar to a time deposit receipt issued by a bank except that there is no prescribed interest rate on such funds.

The main advantage of CD is that banker is not required to encash the deposit before maturity period and the investor is assured of liquidity because he cancel the CD in secondary market.

(3) **Public Deposits :** Public deposits are very important source of short-term and medium term finances particularly due to credit squeeze by the Reserve Bank of India. A company can accept public deposits subject to the stipulations Reserve Bank of India from time to time maximum up to 35 per cent of its paid up capital and reserves, from the public and shareholders. These deposits may be accepted for a period of six months to three years. Public deposits are unsecured loans; they should not be used for acquiring fixed assets since they are to be repaid within a period of 3 years. These are mainly used to finance working capital requirements.

Q.32. Difference between Equity Shares and Preference Shares

Ans. Difference between Equity share and Preference are as follows:

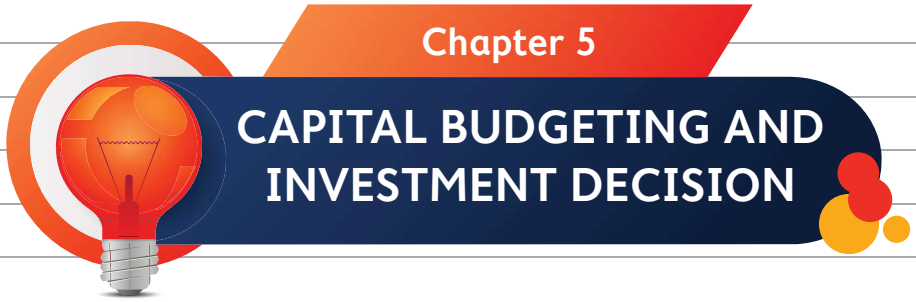
| Sl. No. | Basis of Distinction | Equity Share | Preference Share |
|---|---|---|---|
| 1 | Preference dividend | Equity Dividend is paid after preference dividend. | Payment of preference dividend is preferred over equity dividend |
| 2 | Rate of dividend | Fluctuating | Fixed |
| 3 | Convertibility | Not convertible | Convertible |
| 4 | Voting rights | Equity shareholders enjoy voting rights | They do not have ing rights |

Q.33. Sources of Finance based on Maturity of payment

Ans.

**Sources of Finance**

| Long Term | Medium Term | Short term |
|---|---|---|
| 1. Share capital or Equity Shares<br>2. Preference Shares<br>3. Retained earnings<br>4. Debentures / Bonds of different types<br>5. Loans from financial institutions<br>6. Loans from State Financial Corporations<br>7. Loans from commercial banks<br>8. Venture capital funding<br>9. Asset securitization<br>10. International financing like Euro-issues, Foreign currency loans | 1. Preference shares<br>2. Debentures / Bonds<br>3. Public deposits/ fixed deposits for duration of three years<br>4. Medium term loans from Commercial banks, Financial Institutions, State Financial Corporations<br>5. Lease financing / hire purchase financing<br>6. External commercial borrowings<br>7. Euro-issues<br>8. Foreign Currency bonds | 1. Trade credit<br>2. Accrued expenses and deferred income<br>3. Short term loans like Working Capital Loans from Commercial Banks.<br>4. Fixed Deposits for a period of 1 year or less<br>5. Advances received from customers<br>6. Various short term provisions |




Q.1. Write short notes on the Capital Budgeting Process.

Ans. **The Capital Budgeting Process consists of the following stages -**

| Stage | Procedure |
|---|---|
| **Planning** | * Identify various possible investment opportunities.<br>* Determine the ability of the management to exploit / utilize the opportunities.<br>* Reject opportunities which do not have much merit, and prepare Proposals in respect of investment opportunities which have reasonable value for the Firm. |
| **Evaluation** | * Determine the inflows and outflows relating to various proposals.<br>* Use appropriate technique (like NPV, IRR, MIRR, PI, etc.) to evaluate the proposals. |
| **Selection** | * Weigh the risk-return trade-off relating to various investment proposals.<br>* Compare WACC or Cost of Capital with the Return (ROCE) from various proposals.<br>* Choose that project which will maximize the Shareholders' wealth. |
| **Execution** | * After deciding on the project to be implemented, obtain the necessary funds for the project.<br>* Establish the infrastructure (assets, equipments, etc.), acquire the resources, and implement the project, according to the stipulated time-frame. |
| **Control** | * Obtain Feedback Reports (Capital Expenditure Progress Reports, Performance Reports, Internal Audit / Inspection Reports, etc.) to monitor the implementation of the project. |
| **Review** | * After the project is over, review the project- (a) to explain its success or failure, and (b) to generate ideas for new proposals to be undertaken in future. |

Q.2. What do you understand by Payback Period? How is it determined?

Ans. 1. **Meaning:** Payback Period represents the time period required for complete recovery of the initial investment in the project. It is the period within which the total cash inflows from the project equals the cost of investment in the project the lower the payback period, the better it is, since initial investment is recovered faster.

2. **Procedure for computation of Simple Payback Period:**

(a) Determine the Initial Investment (Cash Outflow) of the Project.

(b) Determine the CFAT (Cash Inflows) from the project for various years.

(c) Compute Payback Period as under -

**In case of Uniform CFAT per annum**

$$\text{Payback Period} = \frac{\text{Initial Investment}}{\text{CFAT per annum}}$$

**In case of Differential CFAT for various years**

- Compute cumulative CFAT at the end of every year.
- Determine the year in which Cumulative CFAT > Initial Investment.
- Compute Payback Period = Time at which Cumulative CFAT = Initial Investment (calculated on time proportion basis).

(d) Accept Project, if Payback Period is less than maximum or benchmark period, else reject the project.

Q.3. What do you mean by Payback Reciprocal? How is it used for project evaluation?

Ans. 1. **Meaning :** It is the reciprocal of Payback period. It is computed as

$$\frac{\text{Average Annual Cash Inflows (i.e. CFAT p.a.)}}{\text{Initial Investment}}$$

2. **Utility:** The Payback Reciprocal is considered to be an approximation of the Internal Rate of Return, if –

(a) The life of the project is atleast twice the Payback Period, and

(b) The project generates equal amount of the annual cash inflows.

3. **Example:** A project with an Initial Investment of ₹ 50 Lakhs and life of 10 years, generates CFAT of Rs.10 Lakhs per annum. Its Payback Reciprocal will be

$$\frac{\text{Rs.10 Lakhs}}{\text{Rs.50 Lakhs}} = 20\%$$

Q.4. Write a brief note on Accounting or Average rate of Return Method (ARR).

Ans. 1. **Meaning:** Accounting or Average Rate of Return (ARR) means the average annual yield on the project. In this method, Profit After Taxes (i.e. PAT, instead of CFAT) is used for evaluation.

2. **Formula : ARR =** $\frac{\text{Average PAT p.a.}}{\text{Net Initial Investment}}$

where Average PAT p.a. = $\frac{\text{Total PAT during Project Life}}{\text{Initial Investment less Salvage Value}}$

3. **Merits & Demerits:**

| Merits | Demerits |
|---|---|
| (a) Simple to understand.<br>(b) Easy to operate and compute.<br>(c) Income throughout the Project Life is considered. | (a) Does not consider Cash Inflows (CFAT), which is more important than PAT, in project evaluation.<br>(b) Takes a rough average of profits of future years. The pattern or fluctuations in profits are ignored.<br>(c) Ignores Time Value of Money, which is important in capital budgeting decisions. |

Q.5. What are the merits and demerits of the NPV method?

Ans. **A. ADVANTAGES:**

1. It considers the concept of Time Value of Money. Hence, it satisfies the basic criterion for project evaluation.
2. Unlike Payback Period, all cash flows (including post-payback returns) are considered.
3. NPV constitutes addition to the wealth of Shareholders, and thus focuses on the basic objective of financial management.
4. Since all Cash Flows are converted into their Present Value, different projects can be compared on NPV basis. Thus, each project can be evaluated independent of others, on its own merit.

**B. LIMITATIONS:**

1. It involves complex calculations in discounting and present value computations.
2. It involves forecasting cash flows and application of discount rate. Thus, accuracy of NPV depends on accurate estimation of these two factors which may be quite difficult in practice.
3. NPV and project ranking may differ at different discount rates, causing in consistency in decision-making.
4. It ignores the difference in initial outflows, size of different proposals, etc. while evaluating mutually exclusive projects.

Q.6. What is meant by Desirability Factor or Profitability Index?

Ans. 1. **Meaning:** Where different investment proposals each involving different Initial Investments and Cash Inflows are to be compared, the Profitability Index (PI) technique is used.

2. **Significance:** PI represents the amount obtained at the end of the project life, for every rupee invested in the project. The higher the PI, the better it is, since the greater is the return for every rupee of investment in the project.

3. **Decision Making or Acceptance Rule:**

| If | Decision |
|---|---|
| PI > 1 | Accept the Project. Surplus over and above the cut-off rate is obtained. |
| PI = 1 | Project generates Cash Flows at a rate just equal to the Cost of Capital. Hence, it may either be accepted or be rejected. This constitutes an Indifference Point. |
| PI < 1 | Reject the Project. The Project does not provide returns even equivalent to the cut-off rate. |

4. **Advantages:**

(a) This method considers the Time Value of Money.

(b) It is a better project evaluation technique than NPV, and helps in ranking projects where NPV is positive.

(c) It focuses on maximum return per rupee of investment, and is hence useful in case of investment in divisible projects, when funds are not fully available.

5. **Disadvantages:**

(a) It fails as a guide in resolving capital rationing problems, when projects are indivisible. Once a single large project with high NPV is selected, possibility of accepting several small projects which together may have higher NPV than the single project is excluded.

(b) Situations may arise where a project with a lower profitability index selected may generate cash flows in such a way that another project can be taken up one or two years later, the total NPV in such case being more than the one with a project with highest PI.

Q.7. Write short notes on the Modified Internal Rate of Return (MIRR).

Ans. Modified Internal Rate of Return is computed as under -

| Step | Procedure |
|---|---|
| 1 | Determine the total Cash Outflows & Inflows of the project and the time periods in which they occur. |
| 2 | Compute Terminal Value of all Cash Flows other than the Initial Investment. For this purpose, Terminal Value of a Cash Flow = Amount of Cash Flow x Re-investment Factor, where Reinvestment Factor = (1 + K)n where n = number of years balance remaining in the project. |
| 3 | Compute Total of Terminal Values as computed under Step 2. This is taken as the "Inflow" from the project, to be compared with the "Outflow", i.e. the initial investment. |
| 4 | Compute MIRR, i.e. Discount Rate such that PV of Terminal Value = Initial Investment. **Note:** For computing MIRR, the interpolation techniques applicable to IRR may be used. |

Q.8. Between NPV and IRR, which method is superior in project evaluation?

Ans. 1. **Causes for Conflict:** Generally, the higher the NPV, higher will be the IRR. However, NPV and IRR may give conflicting results in the evaluation of different projects, in the following situations (a)

(a) Initial Investment Disparity, i.e. different project sizes,

(b) Project Life Disparity, i.e. difference in project lives,

(c) Outflow Patterns, i.e. when Cash Outflows arise at different points of time during the Project Life, rather than as Initial Investment (Time 0) only.

(d) Cash Flow Disparity, i.e. when there is a huge difference between initial CFAT and later years' CFAT. A project with heavy initial CFAT than compared to later years will have higher IRR, and vice-versa.

2. **Superiority of NPV:** In case of conflicting decisions based on NPV and IRR, the NPV method must be preferred for decision-making, due to the comparative superiority of NPV, as given from the following points :

(a) NPV represents the surplus from the project, but IRR represents the point of no surplus-no deficit.

(b) NPV considers Ko as constant. Under IRR, the Discount Rate is determined by reverse working, by setting NPV = 0.

(c) NPV aids decision - making by itself, i.e. Projects with positive NPV are accepted. IRR by itself does not aid decision - making. For example, a Project with IRR = 18% will be accepted if Ko< 18%. However, the project will be rejected if Ko = 21% (say > 18%).

(d) NPV Method considers the timing differences in Cash Flows at the appropriate discount rate. IRR is greatly affected by the volatility / variance in Cash Flow patterns.

(e) IRR presumes that intermediate cash inflows will be re-invested at that rate (IRR), whereas in the case of NPV method, intermediate cash inflows are presumed to be re-invested at the cut-off rate. The latter presumption, viz.re-investment at the Cut-Off Rate, is more realistic than re-investment at IRR.

(f) There may be projects with negative IRR / Multiple IRR, etc. if Cash Outflows arise at different points of time. This leads to difficulty in interpretation. NPV does not pose such interpretation problems.

**Note:** Distinction between NPV and IRR may be given based on the above points.

Q.9. Explain how investment decisions are taken in a Capital Rationing situation.

Ans. **1. Resource Constraint:** There may be situations where a Firm has a number of projects that yield a positive NPV. However, the most important resource in investment decisions, i.e. funds, are not fully available to undertake all the projects. This is considered as a Resource Constraint situation.

**2. Capital Rationing:** In case of restricted availability of funds, the objective of the Firm is to maximize the wealth of Shareholders with the available funds. Such investment planning is called Capital Rationing. There are two possible situations of Capital Rationing:

(a) Generally, Firms fix up the maximum amount that can be invested in capital projects, during a given period of time, say a year. This budget ceiling imposed internally is called as Soft Capital Rationing.

(b) There may be a market constraint on the amount of funds available for investment during a period. This inability to obtain funds from the market, due to external factors is called Hard Capital Rationing.

**3. NPV Maximisation :** Whenever Capital Rationing situation arises, the Firm should allocate the limited funds available in such a way that maximizes the NPV of the Firm. The following principles may be applied in selecting the appropriate investment proposals / combinations -

| Nature | Indivisible Project | Divisible Project |
|---|---|---|
| Meaning | Investment should be made in full. Partial or Proportionate investment is not possible. | Partial Investment is also possible and proportionate NPV can be obtained in such projects. |

| | | |
|---|---|---|
| **Steps involved in decision-making** | • Determine the combination of projects to utilise amount available.<br>• Compute NPV of each combination.<br>• Select the combination with maximum NPV. | • Compute PI of various projects and rank them based on PI.<br>• Projects are selected based on maximum Profitability Index. |

Q.10. Distinguish between Net Present Value and Internal Rate of Return.

Ans. NPV and IRR Method differ in the following ways :

1. Under NPV, projects with positive NPV are accepted.
2. NPV measures both quality and scale of investment. IRR measures only quality of investment.
3. NPV provides an absolute measure in quantitative terms. IRR provides a relative measure in percentage.
4. Under NPV, cash flows are re-invested at the rate of cost of capital. Under IRR, cash flows are re-invested at the rate of IRR.

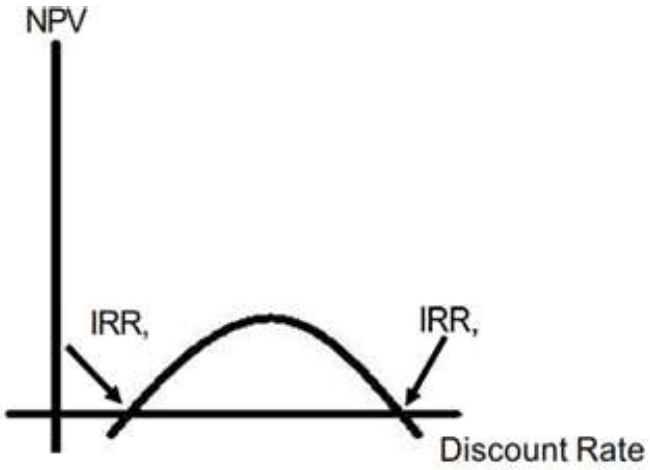
Q.11. Discuss the need for social cost benefit analysis.

Ans. Need for Social Cost Benefit Analysis :

1. The market price which is used to measure cost & benefit in project does not represent social values due to imperfections in market.
2. Monetary cost & benefit analysis falls to consider the external positive and negative effects of project.
3. Taxes and subsidies are transfer payments and therefore are not relevant in national economic profitability analysis.
4. The SCBA is essential for measuring the redistribution effect of benefit of a project, as benefit going to economically weaker sections is more important than one going to economically fairer section.
5. Merit wants are important appraisal criteria for SCBA.

Q.12. Explain the concept of multiple Internal rate of Return.

Ans. **Multiple Internal Rebate of Return :** In cases where project ash flows change signs or reverse during the life of a project for example, an initial cash outflow is followed by cash inflows and subsequently followed by a major cash outflow, there may be more than one internal rate of return (IRR).




The following graph of discount rate versus net present value (NPV) may be used as an illustration.

In such situations if the cost of capital is less than the two IRRs, a decision can be made easily, however, otherwise the IRR decision rule may turn out to be misleading as the project should only be invested if the cost of capital is between IRR1 and RR2To understand the concept of multiple IRRs it is necessary to understand the implicitre-investment assumption in both NPV and IRR techniques.

Some of the advantages of MIRR are :

1. This method makes use of concept of time value of money.
2. All the Cash Flows in the project are considered.

Some of the limitations of MIRR are :

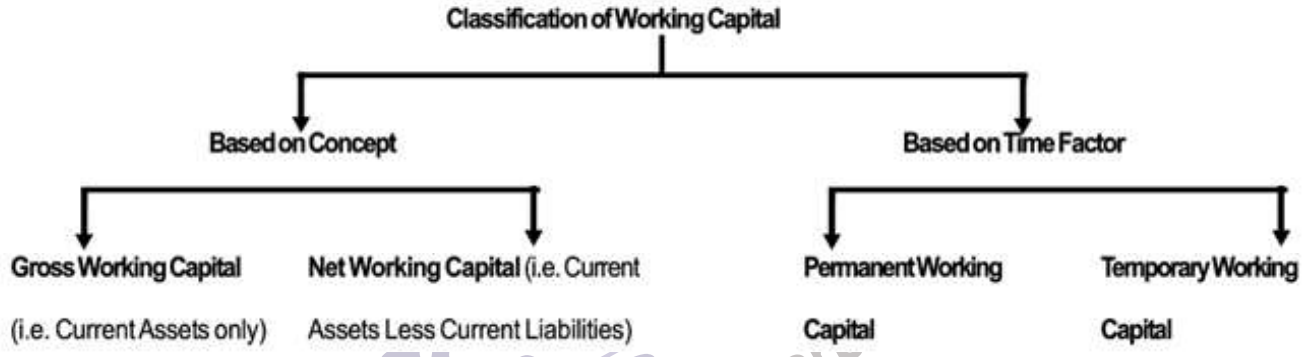
1. Calculation process is tedious.
2. The IRR approach creates a peculiar situation if we compare two projects with different inflow / outflow patterns.
3. In case of mutually exclusive projects decision based only on IRR may not be correct.

Chapter 6

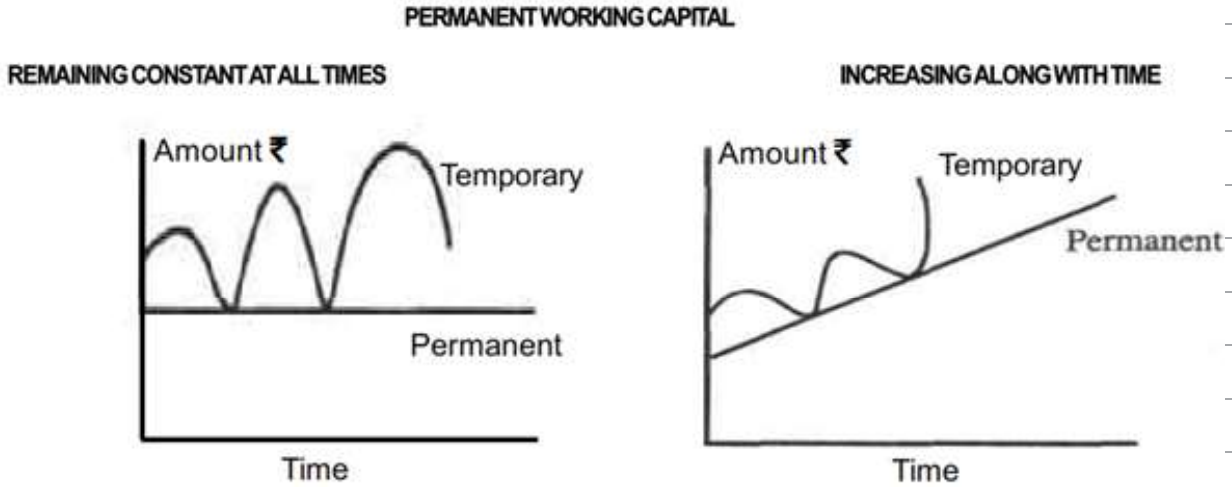
# ESTIMATION OF WORKING CAPITAL

Q.1. What are the various ways in which Working Capital can be classified?

Ans. Working Capital can be classified based on - (a) Concept or (b) Time Factor, as under -




There are two views as to the amount of Permanent Working Capital -



Q.2. The second and more logical view is that the Permanent Working Capital

| Particulars | Permanent Working Capital | Temporary Working Capital |
|---|---|---|
| 1. Meaning | It is the minimum level of investment required in the Working Capital of the business at any point of time and hence at all points of time. | It represents Working Capital requirements over and above Permanent Working Capital. |
| 2. Nature | It represents a long-term investment. | It represents a short-term investment. |
| 3. Also called | It is also called Fixed (or) Core (or) Hard Core Working Capital. | It is also called Fluctuating (or) Variable Working Capital. |
| 4. Amount | Generally, the amount of Permanent Working Capital increases along with sales and activity levels in the long-run. | The amount of Temporary Working Capital fluctuates (i.e. moves up and down) due to factors like peak season, trade cycle boom, etc. |

Q.3. Write short notes on Maximum Permissible Bank Finance.

Ans.

| Earlier Norms (Tandon Committee) | Recent Changes / New Credit System | |
|---|---|---|
| | Credit Required | Credit Scheme |
| Maximum Permissible Bank Finance shall be computed under any of the following methods - | upto ₹ 25 Lakhs | Credit limit will be computed after detailed discussions with the Borrower, without going into detailed evaluation. |
| I : 75% of (Current Assets - Current Liabilities) | | |
| II : 75% of Current Assets - Current Liabilities | ₹ 25 Lakhs, but upto ₹ 5 Crores | Credit Limit can be offered upto 20% of the projected Gross Sales of the Borrower. |
| III : 75% of (Total Current Assets - Core Current Assets) Current Liabilities | Large Borrowers not falling in the above categories | Cash Budget System may be used to identify the Working Capital needs. |

Q.4. Determinants of Working Capital

Ans. DETERMINANTS OF WORKING CAPITAL

1. **Cash** – Identify the cash balance which allows for the business to meet day-today expenses, but reduces cash holding costs.
2. **Inventory** – Identify the level of inventory which allows for uninterrupted production but reduces the investment in raw materials and hence increases cash flow; the techniques like Just in Time (JIT)and Economic order quantity (EOQ) are used for this.
3. **Receivables** – Identify the appropriate credit policy, i.e., credit terms which will attract customers, such that any impact on cash flows and the cash conversion cycle will be offset by increased revenue and hence Return on Capital (or vice versa). The tools like Discounts and allowances are used for this.
4. **Short-term Financing Options –** Inventory is ideally financed by credit granted by the supplier; dependent on the cash conversion cycle, it may however, be necessary to utilize a bank loan (or overdraft), or to "convert debtors to cash" through "factoring" in order to finance working capital requirements.
5. **Nature of Business -** For e.g. in a business of restaurant, most of the sales are in Cash. Therefore need for working capital is very less.
6. **Market and Demand Conditions -** For e.g. if an item's demand far exceeds its production, the working capital requirement would be less as investment in finished goods inventory would be very less.
7. **Technology and Manufacturing Policies -** For e.g. in some businesses the demand for goods is seasonal, in that case a business may follow a policy for steady production through out over the whole year or instead may choose policy of production only during the demand season.
8. **Operating Efficiency –** A company can reduce the working capital requirement by eliminating waste, improving coordination etc.
9. **Price Level Changes –** For e.g. rising prices necessitate the use of more funds for maintaining an existing level of activity. For the same level of current assets, higher cash outlays are required. Therefore the effect of rising prices is that a higher amount of working capital is required.

Q.5. Note on Operating Cycle.

Ans. **OPERATING OR WORKING CAPITAL CYCLE**

A useful tool for managing working capital is the operating cycle. The operating cycle analyzes the accounts receivable, inventory and accounts payablecycles in

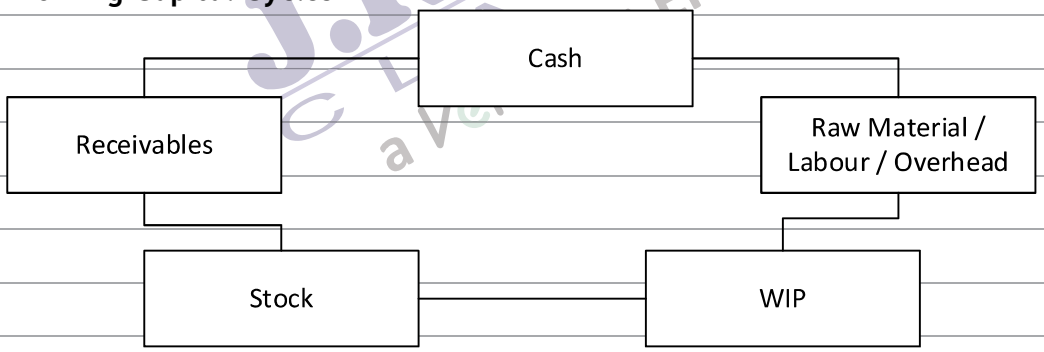
terms of number of days. For example:

- Accounts receivables are analyzed by the average number of days it takes to collect an account.
- Inventory is analyzed by the average number of days it takes to turn over the sale of a product (from the point it comes in the store to the point it is converted to cash or an account receivable).
- Accounts payables are analyzed by the average number of days it takes to pay a supplier invoice.

**Operating/Working Capital Cycle Definition**

Working Capital cycle indicates the length of time between a company's paying for materials, entering into stock and receiving the cash from sales of finished goods. It can be determined by adding the number of days required for each stage in the cycle. For example, a company holds raw materials on an average for 60 days, it gets credit from the supplier for 15 days, production process needs 15 days, finished goods are held for 30 days and 30 days credit is extended to debtors. The total of all these, 120 days, i.e., 60 – 15 + 15 + 30 + 30 days is the total working capital cycle.

**Working Capital Cycles**




The duration of working capital cycle may vary depending on the nature of the business. In the form of an equation, the operating cycle process can be expressed as follows:

**Operating Cycle = R + W + F + D – C**

Where,

R = Raw material storage period

W = Work-in-progress holding period

F = Finished goods storage period

D = Receivables (Debtors) collection period.

C = Credit period allowed by suppliers (Creditors).

**The various components of Operating Cycle may be calculated as shown below:**

(1) Raw Material Storage Period =

$$\frac{\text{Average stock of raw material}}{\text{Average Cost of Raw Material Consumption per day}}$$

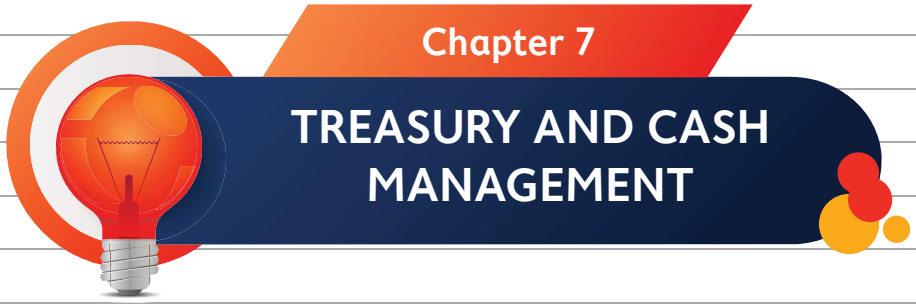
(2) Work-in-Progress holding period = $\frac{\text{Average Work-in-progress inventory}}{\text{Average Cost of Production per day}}$

(3) Finished Goods storage period = $\frac{\text{Average stock of finished goods}}{\text{Average Cost of Goods Sold per day}}$

(4) Receivables (Debtors) collection period = $\frac{\text{Average Receivables}}{\text{Average Credit Sales per day}}$

(5) Credit period allowed by suppliers (Creditors) =

$$\frac{\text{Average Payables}}{\text{Average Credit Purchases per day}}$$




Q.1. What is Treasury Management? What are its responsibilities? What are the functions of the Treasury Department?

Ans. Treasury Management refers to efficient management of liquidity and financial risk in business. The responsibilities of the Treasury Department are discharged through its functions. These are as under :

| Functions | Aspects |
|---|---|
| 1. Cash Management | (a) Planning or forecasting future cash requirements through Cash Budgets.<br>(b) Investment Planning or parking of surplus funds in marketable securities to optimise return. |
| 2. Currency Management | (a) Managing foreign currency risk exposure through hedging / forwards / futures.<br>(b) Timely settling or setting off of intra-group indebtedness, between divisions in various countries.<br>(c) Matching transactions of receipts and payments in the same currency to save transaction costs. |
| 3. Funding or Financing Management | (a) Planning of long-term, medium term and short-term cash needs.<br>(b) Participation in decisions concerning capital structure, dividend payout, etc.<br>(c) Obtaining the fund requirements from sources like Bank Loans, Public issues, etc. |
| 4. Banking Liaison | (a) Maintaining cordial and good relationships with Bankers and Financing Institutions.<br>(b) Co-coordinating, liaising and negotiating with the Lenders during the course of obtaining finance. |
| 5. Corporate Finance | Advising on various issues such as buy-back, mergers, acquisitions and divestments, and planning the financial needs thereof. |

| | | |
|---|---|---|
| 6. | Money Market Operations | (a) Banks obtain funds by competing in the Money Market for the deposits by the Companies. Public Authorities, High Net Worth Investors (HNI) and other Banks.<br>(b) Surplus Funds available with Companies can be invested in the Money Market, either directly or through Money Market Mutual Funds (MMMs). |

Q.2. Distinguish between Cash Flow Statements and Cash Budgets

Ans.

| Particulars | Cash Flow Statements | Cash Budgets |
|---|---|---|
| 1. Meaning | It is a statement which shows the manner in which funds (cash) has been utilised in Operational, Investing & Financing Activities. | It is a statement, which shows the plans for receipt and utilisation of cash for a certain specified future period of time. |
| 2. Time Period | It can be prepared either for a past financial period or projected into the future. | It is essentially a future-oriented statement. There is no Cash Budget for a past period. |
| 3. Nature of flows | It is a long-term cash forecasting tool, e.g. a year, 5 years, 10 years, etc. and is prepared on an annual basis. | It is essentially a short-term forecasting tool and is prepared on a monthly basis. |
| 4. Purposes | (a) Analysis of cash movements for a past period,<br>(b) Compliance with statutory requirements, where AS - 3 is applicable,<br>(c) Cash forecasting purpose, when prepared for future periods. | The purpose is primarily to serve internal management for forecasting future cash requirements, identifying cash surplus and shortage in future, short-term investment decisions, etc. |
| 5. Format | When statutory disclosure is required, Cash Flow Statements should conform to AS-3. | There is no specified mandatory format for Cash Budgets, as it is purely a internal document used for budgeting purposes. |

Q.3. Explain briefly, William J. Baumol's EOQ model for optimum cash balance.

Ans. The Baumol model on Optimum Cash Balance is similar to the Wilson's Model on Raw Material EOQ.

1. **Assumptions:** The Optimum Cash Balance model is based on the following assumptions-

   (a) **Uniform Cash Flows:** Cash payments arise uniformly during a year. For example, if Total Annual Cash Outflow is ₹ 36,00,000 and there are 300 working days, the average payment per day = $\frac{\text{Rs.36,00,000}}{300}$ = ₹ 12,000 per day.

   (b) **Fixed Transaction Costs:** Surplus cash can be invested in short-term marketable securities. However, for every purchase of securities (i.e. investments) and for every sale (i.e. disposal of investments), fixed

transaction costs are incurred, e.g. Brokerage, registration costs, clerical expenses, etc. Hence, these costs rise along with the number of transactions (i.e. purchase and sale of securities).

(c) **Fixed Holding Costs:** Surplus cash, if held by the Firm, entails loss of interest at a fixed rate. This constitutes the carrying costs of cash, i.e. the interest foregone on marketable securities.

(d) **Free Marketability:** Short-term instruments can be freely traded. The Firm can invest them at any time, and sell off/ dispose investments at any time.

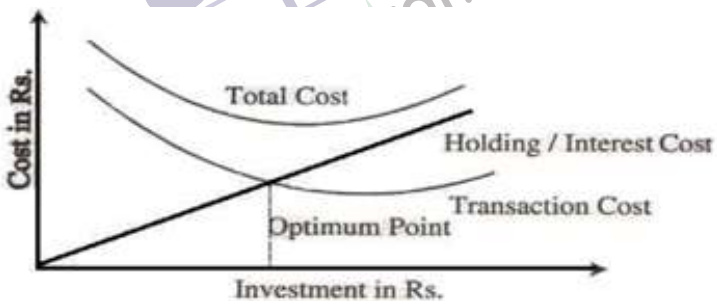
2. **Principle:** According to Baumol Model, Optimum Investment Size is that level of investment where the total of Transaction Costs per annum and Carrying Costs per annum are the minimum. [Note: At that level, these two costs are equal, and each of these constitutes half of the Total Costs.]

3. **Computation:** Optimum Investment Size = $\sqrt{\frac{2AT}{I}}$, where

A = Annual Cash Requirement,

T= Transaction Cost per purchase / sale of investment.

I = Interest Rate per rupee per annum.




Q.4. Write short notes on the Miller-Orr Cash Management Model.

Ans. 1. **Stochastic Cash Flow Assumption:**

(a) Under this model, cash payments are presumed at different amounts on different days, i.e. variable or stochastic, e.g. Wage and Salary payment arises in the first week, Telephone Bills fall due for payment once in a month, etc.

(b) With this assumption, this model is designed to determine the time and size of transfers between an Investment Account and Cash Account.

2. **Theory:** This model operates as under

(a) Cash Outflows / Payments are not uniform during the year.

(b) Upper and lower limits can be fixed for cash balances, as outflows do not exceed a certain limit on any day. These limits are determined based on fixed transaction costs, interest foregone on marketable securities and the degree of likely fluctuations in cash balances.

(c) When cash balance reaches the upper limit, surplus cash is invested in marketable securities, to bring down the cash balance to the average limit or return point.

(d) When cash balance touches the lower limit, investments (marketable securities) are disposed off so that cash balances goes up to the average limit or return point.

(e) During the period when Cash Balance stays between high and low limits, there are no transactions between cash and marketable securities.

Q.5. What are the principles involved in selection of marketable securities?

Ans. 1. **Marketable Securities:** Surplus cash can be invested in short-term instruments in order to earn interest. Such instruments are called Marketable Securities. Some examples are Government Treasury Bills (T–Bills), Short-term Deposits with Banks (Certificate of Deposits and Money at Call and at Short Notice),Inter-Corporate Deposits (ICD's), Commercial Papers (CP's), Money Market Mutual Funds (MMMFs), etc.

2. **Selection Criteria:** The selection of securities for short-term investment purposes, depends on

(a) **Safety:** Investment should be safe, i.e. guaranteed income and return of principal, when disposed off.

(b) **Maturity:** Matching maturity of investments with forecasted cash needs is essential. Prices of long term securities fluctuate more with changes in interest rates and are therefore, more risky.

(c) **Marketability:** It refers to the convenience, speed and cost at which a security can be converted into cash. If the security can be sold quickly without loss of time and price it is said to be highly liquid or marketable.

Q.6. Outline a few measures of Payment Management.

Ans. Quick collection of funds and Effective Control over Payments result in faster turnover of cash. This can be done by the following measures

1. Utilisation of Credit Period to the extent permissible, i.e. making payments to Creditors on the due date, except when the cash discount offered by Suppliers for early payment is substantial.
2. Use of draft (Bill of Exchange) instead of cheques.
3. Playing the Float - estimating accurately the time of presentation of issued cheques for encashment and thus utilising the float period by issuing more cheques, but having only such cash balance in the Bank Account as will be sufficient to honour those cheques that are actually expected to be presented on a particular date.

Q.7. Write short note on Different kinds of float with reference to management of cash.

Ans. **Different Kinds of Float with Reference to Management of Cash:** The term float is used to refer to the periods that affect cash as it moves through the different stages of the collection process. Four kinds of float can be identified:

(i) **Billing Float:** An invoice is the formal document that a seller prepares and sends to the purchaser as the payment request for goods sold or services provided. The time between the sale and the mailing of the invoice is the billing float.

(ii) **Mail Float:** This is the time when a cheque is being processed by post office, messenger service or other means of delivery.

(iii) **Cheque processing float:** This is the time required for the seller to sort, record and deposit the cheque after it has been received by the company.

(iv) **Bank processing float:** This is the time from the deposit of the cheque to the crediting of funds in the seller's account.

Q.8. What are basic needs for holding cash?

Ans. **Basic Needs or Considerations for holding Cash**

According to Lord Keynes, the basic considerations in determining the amount of cash or liquidity are -

1. **Transaction or Operation Needs:** Cash may be held sufficiently in order to meet day-to-day expenses, repayments, commitments, etc. If the forecast receipts or inflows do not arise as planned, the reserve cash balance will be available for meeting payment commitments.

2. **Speculative or Investment Needs:** Cash may be held in order to take advantage of profitable opportunities that may crop up, e.g. purchase of materials in bulk in case of temporary fall in price. Otherwise, such opportunities may be lost for want of ready cash.

3. **Precautionary or Safety Needs:** Cash may be held in order to provide safety against unexpected events and payments. Sufficient cash holding gives a sense of security or safety to the Firm.

Q.9. Difference between Concentration Banking System and Lock Box System.

Ans. Concentration Banking v/s Lock Box System

| Point | Concentration Banking | Lock Box System |
|---|---|---|
| How it operates? | (a) Identification of major customer locations.<br>(b) Opening separate Bank A/c in each place.<br>(c) Opening a Collection Centre (or Branch or Agent) to collect Cheques at each place.<br>(d) Deposit of Cheques in each Local Bank A/c, and collection through Local Clearing,<br>(e) Telegraphic / Electronic Transfer of Funds to Head Office / Centralised Bank A/c. | (a) Identification of major customer locations.<br>(b) Opening separate Bank A/c in each place.<br>(c) Obtaining a Post Office Box Number for each place.<br>(d) Instruction to customers to send Cheques to PO Box.<br>(e) Authorising Bank to operate PO Box, and collection of Cheques through Local Clearing,<br>(f) Telegraphic / Electronic Transfer of Funds to Head Office / Centralised Bank A/c. |
| When suitable | (a) When Customers are concentrated in a few areas / locations, and<br>(b) When Customers need to be reminded many times (say in person) towards payment. | (a) When Customers are concentrated in a few areas / locations, and<br>(b) When Customers pay promptly, i.e. without many reminders / contact efforts. |
| What are the Costs? | (a) Establishment Costs of Collection Centre,<br>(b) Fund Transfer Charges, if any. | (a) Post Office Box related Charges,<br>(b) Cheque Collection Services / Fund Transfer Charges. |

Advantages of both systems:

(a) **Reduction in Mailing Float:** Since remittances from customers are collected locally either in person or by local post / courier, Mailing Float is reduced substantially.

(b) **Reduction in Cheque Processing Float:** The Agent I Branch I Bank would prepare a list of remittances received and forward it to the Head Office as a Credit Advice. This reduces cheque processing float at the Company's office.

(c) **Reduction in Banking Processing Float:** Cheques are cleared locally, and the funds are made available faster. Time for clearance of outstation cheques is avoided.

(d) **Centralised Cash Management:** As surplus funds are transferred to Head Office Bank Account, idle funds in various locations are avoided. Centralised Cash Management ensures optimum use of funds available to the Company, and enables payment planning.

Q.10 Write a Note on Virtual Banking

Ans. Virtual Banking

1. **Meaning:** Virtual Banking denotes the provision of banking and related services through extensive use of information technology without direct recourse to the Bank by the customer. This Virtual Banking provides the convenience of electronic banking without actually visiting the Bank Branch I Office.

2. **Aspects I Initiatives:** Some aspects / initiatives under Virtual Banking Services are -
   (a) Automated Teller Machines (ATM) facility
   (b) Computerized settlement of Clearing Transactions,
   (c) Use of Magnetic Ink Character Recognition (MICR) technology,
   (d) Provision of inter-city clearing facilities and high value clearing facilities,
   (e) Electronic Clearing Service (ECS) Scheme,
   (f) Electronic Funds Transfer (EFT) Scheme,
   (g) Delivery V/s Payment (DVP) for Government Securities transactions,
   (h) Setting up of Indian Financial Network (INFINET).
   (i) Introduction of Centralized Funds Managements Scheme (CFMS), Securities Services System (SSS), Real Time Gross Settlements System (RTGS) and Structured Financial Messaging System (SFMS).

3. **Advantages:** The advantages of Virtual Banking Services are -
   (a) Lower cost of handling a transaction.

(b) Increased speed of response to customer requirements.

(c) Round the Clock access to transactions.

(d) Lower Cost of operating branch network along with the reduced staff cost, leading to cost efficiency.

(e) Improved services made available to the customer rapidly, accurately and at his convenience.

Q.11. What are Methods of Cash Flow Budgeting?

Ans. METHODS OF CASH FLOW BUDGETING

A cash budget can be prepared in the following ways:

1. **Receipts and Payments Method:** In this method all the expected receipts and payments for budget period are considered. All the cash inflow and out flow of all functional budgets including capital expenditure budgets are considered. Accruals and adjustments in accounts will not affect the cash flow budget. Anticipated cash inflow is added to the opening balance of cash and all cash payments are deducted from this to arrive at the closing balance of cash. This method is commonly used in business organizations.

2. **Adjusted Income Method:** In this method the annual cash flows are calculated by adjusting the sales revenues and cost figures for delays in receipts and payments (change in debtors and creditors) and eliminating non-cash items such as depreciation.

3. **Adjusted Balance Sheet Method:** In this method, the budgeted balance sheet is predicted by expressing each type of asset and short-term liabilities as percentage of the expected sales. The profit is also calculated as a percentage of sales, so that the increase in owner's equity can be forecasted. Known adjustments, maybe made to long-term liabilities and the balance sheet will then show if additional finance is needed.

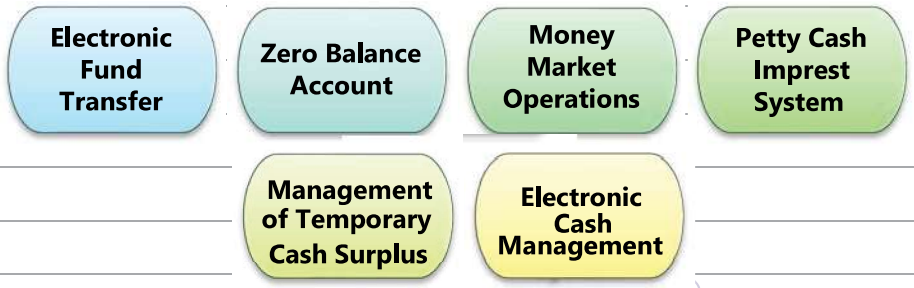
It is important to note that the capital budget will also be considered in the preparation of cash flow budget because the annual budget may disclose a need for new capital investments and also, the costs and revenues of any new projects coming on stream will need to be incorporated in the short-term budgets.

The Cash Budget can be prepared for short period or for long period.

Q.12. Discuss recent developments in cash management.

Ans. **RECENT DEVELOPMENTS IN CASH MANAGEMENT**

It is important to understand the latest developments in the field of cash management, since it has a great impact on how we manage our cash. Both technological advancement and desire to reduce cost of operations has led to some innovative techniques in managing cash. Some of them are:-




**Electronic Fund Transfer**

With the developments which took place in the Information technology, the present banking system is switching over to the computerisation of banks branches to offer efficient banking services and cash management services to their customers. The network will be linked to the different branches, banks. This will help the customers in the following ways:

- Instant updating of accounts.
- Quick transfer of funds.
- Instant information about foreign exchange rates.

**Zero Balance Account**

For efficient cash management some firms employ an extensive policy of substituting marketable securities for cash by the use of zero balance accounts. Every day the firm totals the cheques presented for payment against the account. The firm transfers the balance amount of cash (in excess of payments) in the account if any, for buying marketable securities. In case of shortage of cash, the firm sells the marketable securities.

**Money Market Operations**

One of the tasks of 'treasury function' of larger companies is the investment of surplus funds in the money market. The chief characteristic of money market banking is one of size. Banks obtain funds by competing in the money market for the deposits by the companies, public authorities, High Net worth Investors (HNI), and other banks.

Deposits are made for specific periods ranging from overnight to one year; highly competitive rates which reflect supply and demand on a daily, even hourly basis are quoted. Consequently, the rates can fluctuate quite dramatically, especially for the shorter-term deposits. Surplus funds can thus be invested in money market easily.

**Petty Cash Imprest System**

For better control on cash, generally the companies use petty cash imprest system wherein the day-to-day petty expenses are estimated taking into account past experience and future needs and generally a week's requirement of cash will be kept separate for making petty expenses. Again, the next week will commence with the pre-determined balance. This will reduce the strain of the management in managing petty cash expenses and help in the managing cash efficiently.

**Management of Temporary Cash Surplus**

Temporary cash surpluses can be profitably invested in the following:

- Short-term deposits in Banks and financial institutions.
- Short-term debt market instruments.
- Long-term debt instruments.
- Shares of Blue chip listed companies.

Choice of investment can be based on economic situation, volatility of returns and also the risk appetite of the organization.

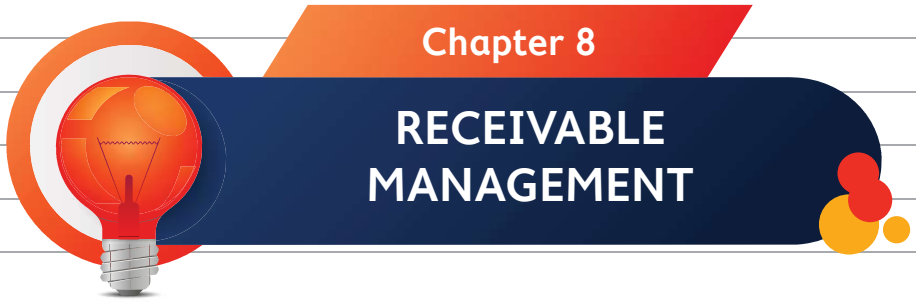
**Electronic Cash Management System**

Most of the cash management systems now-a-days are electronically based, since 'speed' is the essence of any cash management system. Electronically, transfer of data as well as funds play a key role in any cash management system. Various elements in the process of cash management are linked through a satellite. Various places that are interlinked may be the place where the instrument is collected, the place where cash is to be transferred in company's account, the place where the payment is to be transferred etc.

Certain networked cash management system may also provide a very limited access to third parties like parties having very regular dealings of receipts and payments with the company etc. A finance company accepting deposits from public through sub-brokers may give a limited access to sub-brokers to verify the collections made through him for determination of his commission among other things.

Electronic-scientific cash management results in:

- Significant saving in time.
- Increase in interest earned & decrease in interest expense.
- Reduces paper-work & hence manpower.
- Greater accounting accuracy as it allows easy detection of book-keeping errors.
- More control over time and funds.
- Supports electronic payments.
- Faster transfer of funds from one location to another, where required.
- Speedy conversion of various instruments into cash.
- Making available funds wherever required, whenever required.
- Reduction in the amount of 'idle float' to the maximum possible extent.
- Ensures no idle funds are placed at any place in the organization.
- It makes inter-bank balancing of funds much easier.
- It is a true form of centralized 'Cash Management'.
- Produces faster electronic reconciliation.
- Reduces the number of cheques issued.



# Chapter 8
# RECEIVABLE MANAGEMENT

Q.1. Write short notes on Ageing Schedule.

Ans. 1. **Meaning:** In a 'Ageing Schedule', the receivables are classified according to their age, i.e. period for which they have been outstanding, e.g. less than 30 days, 30-45 days, 45-60 days, above 60 days, etc.

2. **Role:** Preparation of Ageing Schedule helps management in the following ways :

(a) Analysis of quality of individual accounts,

(b) Intra-Firm and Inter-Firm comparison, i.e. comparing liquidity of present receivables with the past periods and also comparing current liquidity of receivables of one Firm with that of other Firms,

(c) Trend analysis of Debtors,

(d) Supplement to average collection period of receivables / sales analysis, and

(e) Recognition of recent increase and slump in sales.

Q.2. What are the approaches of financing Working Capital Requirements? Discuss the risk-return considerations in financing of Current Assets.

Ans. The various approaches to funding are as under –

| Approach | Matching Approach | Conservative Approach | Aggressive Approach |
|---|---|---|---|
| Long Term Funds used in | Fixed Assets & Permanent Working Capital. | Fixed Assets, Permanent Working Capital & part of Temporary Working Capital. | Fixed Assets and part of Permanent Working Capital. |
| Short Term Funds used in | Temporary Working Capital. | Balance part of Temporary Working Capital. | Balance part of Permanent Working Capital and entire Temporary Working Capital. |
| Effect on Liquidity | Well-balanced. | High Liquidity. | Low Liquidity. |
| Effect on Profitability | Comparatively well-balanced. | Low Profitability & Return on assets. | High return on assets but risky. |

Q.3. What are the various sources available for financing Working Capital requirements? List a few alternatives for external financing of Receivables.

Ans. Some sources of financing Working Capital are

1. **Trade Credit -** Credit period availed, use of Bills payable, Advances from Customers, etc.
2. **Bank Credit -** Cash Credit, Overdrafts, Supply Bills Discounting / Purchasing, working Capital Demand Loan, Loans against Book Debts, Loans against supply of bills to Government Departments, etc.
3. **Non-Bank Short- Term Borrowings -** Short-term Unsecured Loans.
4. Commercial Paper.
5. Debt Securitisation.
6. Pledging of Receivables.
7. Factoring of Receivables, Forfaiting, etc.

Q.4. Write short notes on Pledging of Receivables.

Ans. 1. In this method, Receivables (or) Book Debts are provided as a security for a Secured Loan.

2. The Lender analyses the quality of the Receivables and selects the acceptable accounts. A Lien is marked on the selected accounts / collaterals, and the percentage of financing is fixed, say 50 to 90%.

3. The Lender gives the amount of advance (say 90% of the amount of Receivables/ Book Debts) to the Selling Company, which is repaid at the end of the credit period, i.e. when the customer pays the amount due to the Selling Company.

4. Pledging of Receivables provides flexibility to the Borrower as well as the Lender. However, the cost of financing is higher when compared to Supply Bill Discounting / Factoring.

Q.5. What is Factoring? What are its advantages?

Ans. 1. **Meaning:** Factoring is an arrangement under which a Firm (called Borrower) receives advances against its receivables, from a financial institution (called Factor).The Factor also provides certain Allied Services, e.g. Debtors follow-up, Maintenance of Debtors Ledger, etc. on behalf of the Borrower.

2. **Types of Factoring :**

(a) Disclosed v/s Undisclosed Factoring: In Disclosed Factoring, all parties Factor, Borrower / Seller and the Buyer, is aware of the other's presence in the arrangement. However, in Undisclosed Factoring, the factoring arrangement is not known to the Buyer of goods.

(b) Recourse v/s Non-Recourse Factoring: In Recourse Factoring, in case of default by the customer, the risk of Bad Debts is borne by the Borrower and not the Factor. In Non-Recourse Factoring, the risk of bad debts is borne by the Factor himself. The rate of Commission is higher in case of Non-Recourse Factoring, to compensate the Factor for the additional risk borne by him.

In India, Factoring is always "disclosed" and "with recourse".

3. **Benefits:**

(a) **Convertibility:** Accounts receivables are easily converted into cash.

(b) **Pattern of Inflows:** Supply invoices are factored immediately. Hence, Cash Inflows follow the sale pattern.

(c) **Reduction in Collection and Administration Costs:** There is no need for a separate credit department since credit management may also be undertaken by the Factor.

(d) **Flexibility:** The Seller Firm may continue to finance its receivables continuously, on a more or less automatic basis. If value of sales increase or decrease, it can vary the financing proportionately.

(e) Compensating balances are not required in case of factoring, unlike Unsecured Loans. However, the Factor may not give 100% advance, he may reduce a reserve / margin and advance only the balance.

Q.6. What are the differences between Bills Discounting and Factoring?

Ans.

| Aspect | Bills Discounting | Factoring |
|---|---|---|
| 1. Parties | Buyer of Goods = Drawee.<br>Seller of Goods = Drawer.<br>Financier = Payee. | Buyer of Goods = Debtor.<br>Seller of Goods = Client.<br>Financier = Factor. |
| 2. Nature | Primarily a method of borrowing from Commercial Banks. | Primarily a method of management of Book Debts / Receivables. |
| 3. Pattern of financing | The entire amount of the Bill of Exchange is discounted and provided at the time of transaction itself. | Factor gives an advance (say 90%) at the time of transaction, and provides the balance (i.e. 10%), at the time of settlement / end of credit period. |
| 4. Additional Services | The Financier (Banker) provides advance / finance against the Bill of Exchange / invoice. | Factor provides financing services, and other services like Debtors follow-up, Debtors Ledger Maintenance, Collection Mechanism, Credit Reports on Debtors, etc. |
| 5. Income to Financier | Banker earns "Discounting Charges" on the transaction. | Factor earns "Interest" for the financing service, and "Commission" for other services rendered. |
| 6. Statute | Negotiable Instrument Act is applicable. | There is no specific Act as such. |

Q.7. What are the differences between Bills Discounting and Forfaiting?

Ans. **Meaning of Forfaiting**

'Forfait' is a French term which means "relinquish a right". Forfaiting is an arrangement of bill discounting in which a financial institution or bank buys the trade bills (invoices) or trade receivables from exporters of goods or services, where the exporter relinquish his right to receive payment from importer. Financial Institutions or banks provides immediate finance to exporter 'without recourse' basis in which risk and rewards related with the bills/ receivables transferred to the financial institutions/ banks. It is a unique credit facility arrangement where an overseas buyer (importer) can open a "letter of credit" (or other negotiable instruments) in favour of the exporter and can import goods and services on deferred payment terms.

**Functions of Forfaiting**

The functionality can be understood in the following manner:

(i) Exporter sells goods or services to an overseas buyer.

(ii) The overseas buyers i.e. the importer on the basis trade bills and import documents draws a letter of credit (or other negotiable instruments) through its bank (known as importer's bank).

(iii) The exporter on receiving the letter of credit (or other negotiable instruments) approaches to its bank (known as exporter's bank).

(iv) The exporter's bank buys the letter of credit (or other negotiable instruments) 'without recourse basis' and provides the exporter the payment for the bill.

**Features of Forfaiting**

The Salient features of forfaiting are:

- It motivates exporters to **explore new geographies** as payment is assured.
- An overseas buyer (importer) can import goods and services on **deferred payment terms.**
- The exporter enjoys **reduced transaction costs and complexities** of international trade transactions.
- The exporter gets to **compete in the international market** and can continue to put his working capital to good use to scale up operations.
- While importers avail of forfaiting facility from international financial institutions in order to **finance their imports at competitive rates.**

**Example of Forfaiting:**

Exim Bank of India's 'Buyer's Credit' is an example of forfaiting arrangement. Buyer's Credit programme facilitates exports for SMEs by providing credit to overseas buyer to import goods from India. It is offering financing of capital goods or services on deferred payment terms and provides non-recourse finance to Indian exporters by converting deferred credit contract into cash contract. It extends advance payments to Indian exporters on behalf of the overseas buyer.

Q.8. Discuss in brief Innovation in Receivables Management.

Ans. **1. Re-engineering Receivable Process:** In some of the organizations real cost reductions and performance improvements have been achieved by re-engineering in accounts receivable process. Re-engineering is a fundamental re-think and re-design of business processes by incorporating modern business approaches. The nature of accounts receivables is such that decisions made elsewhere in the organization are likely to affect the level of resources that are expended on the management of accounts receivables.

The following aspects provide an opportunity to improve the management of accounts receivables:

(a) **Centralisation**: Centralisation of high nature transactions of accounts receivables and payable is one of the practices for better efficiency. This focuses attention on specialized groups for speedy recovery.

(b) **Alternative Payment Strategies:** Alternative payment strategies in addition to traditional practices result into efficiencies in the management of accounts receivables. It is observed that payment of accounts outstanding is likely to be quicker where a number of payment alternatives are made available to customers. Besides, this convenient payment method is a marketing tool that is of benefit in attracting and retaining customers. The following alternative modes of payment may also be used along with traditional methods like Cheque Book etc., for making timely payment, added customer service, reducing remittance processing costs and improved cash flows and better debtor turnover.

(i) Direct debit: I.e., authorization for the transfer of funds from the purchaser's bank account.

(ii) Integrated Voice Response (IVR): This system uses human operators and a computer-based system to allow customers to make

payment over phone. This system has proved to be beneficial in the organisations processing a large number of payments regularly.

(iii) Collection by a third party: The payment can be collected by an authorized external firm. The payments can be made by cash, cheque, credit card or Electronic fund transfer. Banks may also be acting as collecting agents of their customers and directly depositing the collections in customers' bank accounts.

(iv) Lock Box Processing: Under this system an outsourced partner captures cheques and invoice data and transmits the file to the client firm for processing in that firm's systems.

(v) Payments via Internet using fund transfer methods like RTGS, NEFT, IPMS UPIs, App based payment like Paytm, Phone Pe, etc.

(c) **Customer Orientation:** Where individual customers or a group of customers have some strategic importance to the firm a case study approach may be followed to develop good customer relations. A critical study of this group may lead to formation of a strategy for prompt settlement of debt.

2. **Evaluation of Risk:** Risk evaluation is a major component in the establishment of an effective control mechanism. Once risks have been properly assessed controls can be introduced to either contain the risk to an acceptable level or to eliminate them entirely. This also provides an opportunity for removing inefficient practices. This involves a re-think of processes and questioning the way that tasks are performed. This also opens the way for efficiency and effectiveness benefits in the management of accounts receivables.

3. **Use of Latest Technology:** Technological developments now-a-days provides an opportunity for improvement in accounts receivables process. The major innovations available are the integration of systems used in the management of accounts receivables, the automation and the use of e- commerce.

(a) **E-commerce** refers to the use of computer and electronic telecommunication technologies, particularly on an inter- organisational level, to support trading in goods and services. It uses technologies such as Electronic Data Inter-change (EDI), Electronic Mail, Electronic Funds Transfer (EFT) and Electronic Catalogue Systems to allow the buyer and seller to transact business by exchange of information between computer application systems such as Amazon, Flipkart etc.

(b) **Automated Accounts Receivable Management Systems:** Now-a- days all the big companies develop and maintain automated receivable management systems. Manual systems of recording the transactions and managing receivables are not only cumbersome but ultimately costly also. These integrated systems automatically update all the accounting records affected by a transaction. For example, if a transaction of credit sale is to be recorded, the system increases the amount the customer owes to the firm, reduces the inventory for the item purchased, and records the sale. This system of a company allows the application and tracking of receivables and collections, using the automated receivables system allows the company to store important information for an unlimited number of customers and transactions, and accommodate efficient processing of customer payments and adjustments.

4. **Receivable Collection Practices:** The aim of debtors' collection should be to reduce, monitor and control the accounts receivable at the same time maintain customer goodwill. The fundamental rule of sound receivable management should be to reduce the time lag between the sale and collection. Any delays that lengthen this span causes receivables to unnecessary build up and increase the risk of bad debts. This is equally true for the delays caused by billing and collection procedures as it is for delays caused by the customer.

The following are major receivable collection procedures and practices:

(i) Issue of Invoice.

(ii) Open account or open-end credit.

(iii) Credit terms or time limits.

(iv) Periodic statements and follow ups.

(v) Use of payment incentives and penalties.

(vi) Record keeping and Continuous Audit.

(vii) Export Factoring: Factors provide comprehensive credit management, loss protection collection services and provision of working capital to the firms exporting internationally.

(viii) Business Process Outsourcing: This refers to a strategic business tool whereby an outside agency takes over the entire responsibility for managing a business process like collections in this case.

5. **Use of Financial tools/techniques:** The finance manager while managing accounts receivables uses a number of financial tools and techniques. Some of them have been described hereby as follows:

(i) **Credit analysis:** While determining the credit terms, the firm has to evaluate individual customers in respect of their credit worthiness and the possibility of bad debts. For this purpose, the firm has to ascertain credit rating of prospective customers.

Credit rating: An important task for the finance manager is to rate the various debtors who seek credit facility. This involves decisions regarding individual parties so as to ascertain how much credit can be extended and for how long. In foreign countries specialized agencies are engaged in the task of providing rating information regarding individual parties. Dun and Broad street is one such source.

The finance manager has to look into the credit-worthiness of a party and sanction credit limit only after he is convinced that the party is sound. This would involve an analysis of the financial status of the party, its reputation and previous record of meeting commitments.

The credit manager here has to employ a number of sources to obtain credit information. The following are the important sources:

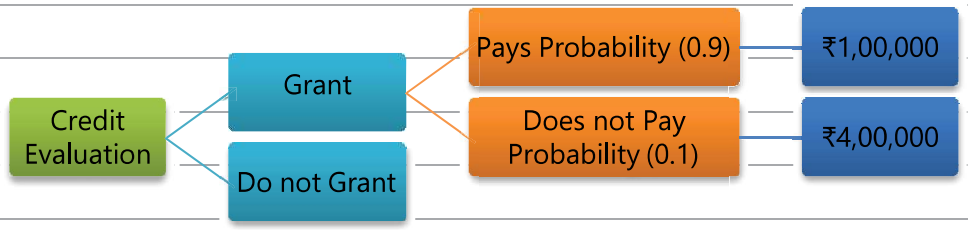
Trade references; Bank references; Credit bureau reports; Past experience; Published financial statements; and Salesman's interview and reports.

Once the credit-worthiness of a client is ascertained, the next question is to set a limit of the credit. This credit limit once set can be further enhanced as the favorable experience is gained while dealing with that client. In all such enquiries, the credit manager must be discreet and should always have the interest of high sales in view at the same time balancing any risk of non-collection.

(ii) **Decision tree analysis of granting credit:** The decision whether to grant credit or not is a decision involving costs and benefits. When a customer pays, the seller makes profit but when he fails to pay the amount of cost going into the product is also gone. If the relative chances of recovering the dues can be decided, it can form a probability distribution of payment or non-payment. If the chances of recovery are 9 out of 10 then probability of recovery is 0.9 and that of default is 0.1.

Credit evaluation of a customer shows that the probability of recovery is 0.9 and that of default is 0.1, the revenue from the order is ₹ 5 lakhs and

cost is ₹ 4 lakhs. The decision is whether credit should be granted or not. The analysis is presented in the following diagram.




The weighted net benefit is ₹ [1,00,000 × 0.9 i.e. 90,000 – 0.1 × 4,00,000 i.e. 40,000] = 50,000. So, credit should be granted.

(iii) **Control of receivables:** Another aspect of management of debtors is the control of receivables. Merely setting of standards and framing a credit policy is not sufficient; it is, equally important to control receivables by constant monitoring and follow ups.

(iv) **Collection policy:** Efficient and timely collection of debtors ensures that the bad debt losses are reduced to the minimum and the average collection period is shorter. If a firm spends more resources on collection of debts, it is likely to have smaller bad debts. Thus, a firm must work out the optimum amount that it should spend on collection of debtors. This involves a trade- off between the level of expenditure on the one hand and decrease in bad debt losses and investment in debtors on the other.

The collection cell of a firm has to work in a manner that it does not create too much resentment amongst the customers. On the other hand, it has to keep the amount of the outstanding in check. Hence, it has to work in a very smoothen manner and diplomatically.

It is important that clear-cut procedures regarding credit collection are set up. Such procedures must answer questions like the following:

(a) How long should a debtor balance be allowed to exist before collection process is started?

(b) What should be the procedure of follow up with defaulting customer? How reminders are to be sent and how should and at what frequency, each successive reminder be drafted?

(c) Should there be collection machinery whereby personal calls by company's representatives are made?

(d) What should be the procedure for dealing with doubtful accounts? Is legal action to be instituted or some escalation matrix to be followed ? How should account be handled?

Chapter 9

# DIVIDEND POLICY

Q.1 Meaning of Dividend and significance of Dividend Policy.

Ans. Meaning of Dividend : Dividend is that part of profit after tax which is distributed to the shareholders of the company. In other words, the profit earned by a company after paying taxes can be used for:

i. Distribution of dividend or

ii. Can be retained as surplus for future growth

**Significance of Dividend Policy : Dividend policy of the firm is governed by:**

**(i) Long Term Financing Decision**

Whether to retain or distribute the profits forms the basis of this decision. Since payment of cash dividend reduces the amount of funds necessary to finance profitable investment opportunities thereby restricting it to find other avenues of finance.

Under this purview, the decision is based on the following:

1. Whether the organization has opportunities in hand to invest the amount of profits, if retained?
2. Whether the return on such investment (ROI) will be higher than the expectations of shareholders i.e. Ke.

**(ii) Wealth Maximization Decision**

Under this head, we are facing the problem of amount of dividend to be distributed i.e. the Dividend Payout ratio (D/P) in relation to Market price of the shares (MPS).

1. Because of market imperfections and uncertainty, shareholders give higher value to near dividends than future dividends and capital gains. Payment of dividends influences the market price of the share. Higher dividends increase value of shares and low dividends decrease it. A proper balance has to be struck between the two approaches.
2. When the firm increases retained earnings, shareholders' dividends decrease and consequently market price is affected. Use of retained earnings to finance profitable investments increases future earnings per share.

On the other hand, increase in dividends may cause the firm to forego investment opportunities for lack of funds and thereby decrease the future earnings per share.

Q.2 Write a note on Forms of Dividend.

Ans. Generally, the dividend can take any of the following forms (depending upon some factors will be discussed later):

1. **Cash dividend:** It is the most common form of dividend. Cash here means cash, cheque, warrant, demand draft, pay order or directly through Electronic Clearing Service (ECS) but not in kind
2. **Stock dividend (Bonus Shares):** It is distribution of shares in lieu of cash dividend to existing shareholders. When the company issues further shares to its existing shareholders without consideration it is called bonus shares.

Advantages of Stock Dividend

There are many advantages both to the shareholders and to the company. Some of the important ones are listed as under:

(1) **To Share Holders:** (a) Tax benefit –At present there is no tax on dividend received. (b) Policy of paying fixed dividend per share and its continuation even after declaration of stock dividend will increase total cash dividend of the shareholders in future.

(2) **To Company:** (a) Conservation of cash for meeting profitable investment opportunities. (b) Cash deficiency and restrictions imposed by lenders to pay cash dividend.

Limitations of Stock Dividend

1. **To Shareholders:** Stock dividend does not affect the wealth of shareholders and therefore it has no value for them.
2. **To Company:** Stock dividends are more costly to administer than cash dividend. It is disadvantageous if periodic small stock dividends are declared by the company as earnings. Also, companies have to pay tax on distribution.

Q.3 What are determinants of Dividend Decisions.

Ans. The dividend policy is affected by the following factors:

1. **Availability of funds:** If the business is in requirement of funds, then retained earnings could be a good source. Since it saves the floatation cost and further the control will not be diluted as in case of further issue of share capital.

2. **Cost of capital:** If the financing requirements can be financed through debt (relatively cheaper source of finance), then it should be preferred to distribute more dividend but if the financing is to be done through fresh issue of equity shares, it is better to use retained earnings as much as possible.
3. **Capital structure:** An optimum Debt equity ratio should also be under consideration for the dividend decision.
4. **Stock price:** Stock price here means market price of the shares. Generally, higher dividends increase value of shares and low dividends decrease it.
5. **Investment opportunities in hand:** The dividend decision is also affected, if there are investment opportunities in hand, the company may prefer to retain more from the earnings
6. **Internal rate of return:** If the internal rate of return is more than the cost of retained earnings, it's better to distribute the earnings as much as possible.
7. **Trend of industry:** Few industries have been seen by investors for regular income, hence in such cases, the firm will have to pay dividend for survival.
8. **Expectation of shareholders:** The shareholders can be categorised in two categories: (i) those who invests for regular income, & (ii) those who invests for growth. Generally, the investor prefers current dividend more than the future growth.

Q.4 What are Practical considerations in Dividend Policy?

Ans. The formulation of dividend policy depends upon answers to the questions:

- Whether there should be a stable pattern of dividends over the years or
- Whether the company should treat each dividend decision completely independent.

The practical considerations in dividend policy of a company are briefly discussed below:

(a) **Financial Needs of The Company:** Retained earnings can be a source of finance for creating profitable investment opportunities. When internal rate of return of a company is greater than return required by shareholders, it would be advantageous for the shareholders to re-invest their earnings.

(b) **Constraints on Paying Dividends**

(i) Legal:

(ii) Liquidity:

(iii) Access to the Capital Market:

(iv) Investment Opportunities:

(c) **Desire of Shareholders:** The desire of shareholders (whether they prefer regular income by way of dividend or maximize their wealth by way of gaining on sale of the shares).

(d) **Stability of Dividends:** Regular payment of dividend annually even if the amount of dividend may fluctuate year to year may not be, related with earnings.

(i) Constant Dividend per Share:

(ii) Constant Percentage of Net Earnings:

(iii) Small Constant Dividend per Share plus Extra Dividend.

Q.5 Write a note on MM Hypothesis.

Ans. Modigliani – Miller theory was proposed by Franco Modigliani and Merton Miller in 1961. MM approach is in support of the irrelevance of dividends i.e. firm's dividend policy has no effect on its value of assets.

Assumptions of M.M Hypothesis

MM hypothesis is based on the following assumptions:

- **Perfect capital markets:** The firm operates in a market in which all investors are rational and information is freely available to all.
- **No taxes :** This assumption is necessary for the universal applicability of the theory, since, the tax rates or provisions to tax income may be different in different countries.
- **Fixed investment policy:** It is necessary to assume that all investment should be financed through equity only, since, implication after using debt as a source of finance may be difficult to understand. Further, the impact will be different in different cases.
- **No floatation or transaction cost:** Similarly, these costs may differ country to country or market to market.
- Risk of uncertainty does not exist. Investors are able to forecast future prices and dividend with certainty and one discount rate is appropriate for all securities and all time periods.

According to MM hypothesis

- Market value of equity shares of its firm depends solely on its earning power and is not influence by the manner in which its earnings are split between dividends and retained earnings.
- Market value of equity shares is not affected by dividend size.

### Advantages of MM Hypothesis

Various advantages of MM Hypothesis are as follows

1. This model is logically consistent.
2. It provides a satisfactory framework on dividend policy with the the concept of Arbitrage process.

### Limitations of MM Hypothesis

Various Limitations of MM Hypothesis are as follows

1. Validity of various assumptions is questionable.
2. This model may not be valid under uncertainty.

**Q.6 What are Assumptions of Walter Model?**

**Ans.** Assumptions of Walter Model

Walter approach is based on the following assumptions:

- All investments proposals of the firm are to be financed through retained earnings only
- 'r' rate of return & '$K_e$' cost of capital are constant
- Perfect capital markets: The firm operates in a market in which all investors are rational and information is freely available to all.
- No taxes or no tax discrimination between dividend income and capital appreciation (capital gain): This assumption is necessary for the universal applicability of the theory, since, the tax rates or provisions to tax income may be different in different countries.
- No floatation or transaction cost: Similarly, these costs may differ country to country or market to market.
- The firm has perpetual life

**Q.7 What are Advantages and Limitations of Walter Model?**

**Ans.** Advantages of Walter Model

1. The formula is simple to understand and easy to compute.
2. It can envisage different possible market prices in different situations and considers internal rate of return, market capitalisation rate and dividend payout ratio in the determination of market value of shares.

Limitations of Walter Model

1. The formula does not consider all the factors affecting dividend policy and share prices. Moreover, determination of market capitalisation rate is difficult.

2. Further, the formula ignores such factors as taxation, various legal and contractual obligations, management policy and attitude towards dividend policy and so on.

Q.8 What are Assumptions of Gordon Model?

Ans. Assumptions of Gordon Model

This model is based on the following assumptions:

- Firm is an all equity firm i.e. no debt
- IRR will remain constant, because change of IRR will change the growth rate and consequently the value will be affected. Hence this assumption is necessary.
- Ke will remains constant, because change in discount rate will affect the present value.
- Retention ratio (b), once decide upon, is constant i.e. constant dividend payout ratio will be followed.
- Growth rate (g= br) is also constant, since retention ratio and IRR will remain unchanged and growth, which is the function of these two variable will remain unaffected.
- Ke > g, this assumption is necessary.
- All investment proposals of the firm are to be financed through retained earnings only

Q.9 What are Advantages and Limitations of Gordon Model?

Ans. Advantages of Gordon Model

1. The dividend discount model is a useful heuristic model that relates the present stock price to the present value of its future cash flows .
2. This Model is easy to understand.

Limitations of Gordon Model

1. The dividend discount model, depends on projections about company growth rate and future capitalization rates of the remaining cash flows, which may be difficult to calculate accurately.
2. The true intrinsic value of a stock is unknowable.

Q.10 Write a Note on Traditional Model / Graham & Dodd Model.

Ans. According to the traditional position expounded by Graham & Dodd, the stock market places considerably more weight on dividends than on retained earnings.

Their view is expressed quantitatively in the following valuation model:

P = m (D + E/3)

Where,

P = Market price per share

D = Dividend per share

E = Earnings per share

m = a multiplier

Example

The earnings per share of a company is ₹ 30 and dividend payout ratio is 60%. Multiplier is 2.

Solution

P = 2 (18 + 30/3) = ₹ 56

Q.11 Write a Note on Linters Model

Ans. Linter model has two parameters:

i. The target payout ratio,

ii. The spread at which current dividends adjust to the target.

John Linter based his model on a series of interviews which he conducted with corporate managers in the mid 1950's.While developing the model, he considers the following assumptions:

1. Firm have a long term dividend payout ratio. They maintain a fixed dividend payout over a long term.
2. Managers are more concerned with changes in dividends than the absolute amounts of dividends.
3. Dividend changes follow changes in long run sustainable earnings.
4. Managers are reluctant to affect dividend changes that may have to be reversed. Under Linter's model, the current year's dividend is dependent on current year's earnings and last year's dividend.

Q.12 Write a Note on Stock Split

Ans. Meaning of Stock Splits

I. Stock split means splitting one share into many, say, one share of ₹ 500 in to 5 shares of ₹ 100. Stock splits is a tool used by the companies to regulate the prices of shares i.e. if a share price increases beyond a limit, it may become

less tradable, for e.g. suppose a company's share price increases from ₹ 50 to ₹ 1000 over the years, it is possible that it might goes out of range of many investors.

### II. Advantages of Stock Splits

Various advantages of Stock Splits are as follows:

1. It makes the share affordable to small investors.
2. Number of shares may increase the number of shareholders; hence the potential of investment may increase.

### III. Limitations of Stock Splits

Various limitations of Stock Splits are as follows:

1. Additional expenditure need to be incurred on the process of stock split.
2. Low share price may attract speculators or short term investors, which are generally not preferred by any company.

# TABLES

## PRESENT VALUE FACTOR OF A FUTURE AMOUNT OF RE. 1 i.e., $PVF_{(r\%, n)}$

| DF | r% | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yr. | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% | 11% | 12% | 13% | 14% | 15% |
| 1 | 0.990 | 0.980 | 0.971 | 0.962 | 0.952 | 0.943 | 0.935 | 0.926 | 0.917 | 0.909 | 0.901 | 0.893 | 0.885 | 0.877 | 0.870 |
| 2 | 0.980 | 0.961 | 0.943 | 0.925 | 0.907 | 0.890 | 0.873 | 0.857 | 0.842 | 0.826 | 0.812 | 0.797 | 0.783 | 0.769 | 0.756 |
| 3 | 0.971 | 0.942 | 0.915 | 0.889 | 0.864 | 0.840 | 0.816 | 0.794 | 0.772 | 0.751 | 0.731 | 0.712 | 0.693 | 0.675 | 0.658 |
| 4 | 0.961 | 0.924 | 0.888 | 0.855 | 0.823 | 0.792 | 0.763 | 0.735 | 0.708 | 0.683 | 0.659 | 0.636 | 0.613 | 0.592 | 0.572 |
| 5 | 0.951 | 0.906 | 0.863 | 0.822 | 0.784 | 0.747 | 0.713 | 0.681 | 0.650 | 0.621 | 0.593 | 0.567 | 0.543 | 0.519 | 0.497 |
| 6 | 0.942 | 0.888 | 0.837 | 0.790 | 0.746 | 0.705 | 0.666 | 0.630 | 0.596 | 0.564 | 0.535 | 0.507 | 0.480 | 0.456 | 0.432 |
| 7 | 0.933 | 0.871 | 0.813 | 0.760 | 0.711 | 0.665 | 0.623 | 0.583 | 0.547 | 0.513 | 0.482 | 0.452 | 0.425 | 0.400 | 0.376 |
| 8 | 0.923 | 0.853 | 0.789 | 0.731 | 0.677 | 0.627 | 0.582 | 0.540 | 0.502 | 0.467 | 0.434 | 0.404 | 0.376 | 0.351 | 0.327 |
| 9 | 0.914 | 0.837 | 0.766 | 0.703 | 0.645 | 0.592 | 0.544 | 0.500 | 0.460 | 0.424 | 0.391 | 0.361 | 0.333 | 0.308 | 0.284 |
| 10 | 0.905 | 0.820 | 0.744 | 0.676 | 0.614 | 0.558 | 0.508 | 0.463 | 0.422 | 0.386 | 0.352 | 0.322 | 0.295 | 0.270 | 0.247 |
| 11 | 0.896 | 0.804 | 0.722 | 0.650 | 0.585 | 0.527 | 0.475 | 0.429 | 0.388 | 0.350 | 0.317 | 0.287 | 0.261 | 0.237 | 0.215 |
| 12 | 0.887 | 0.788 | 0.701 | 0.625 | 0.557 | 0.497 | 0.444 | 0.397 | 0.356 | 0.319 | 0.286 | 0.257 | 0.231 | 0.208 | 0.187 |
| 13 | 0.879 | 0.773 | 0.681 | 0.601 | 0.530 | 0.469 | 0.415 | 0.368 | 0.326 | 0.290 | 0.58 | 0.229 | 0.204 | 0.182 | 0.163 |
| 14 | 0.870 | 0.758 | 0.661 | 0.577 | 0.505 | 0.442 | 0.388 | 0.340 | 0.299 | 0.263 | 0.232 | 0.205 | 0.181 | 0.160 | 0.141 |
| 15 | 0.861 | 0.743 | 0.642 | 0.555 | 0.481 | 0.417 | 0.362 | 0.315 | 0.275 | 0.239 | 0.209 | 0.183 | 0.160 | 0.140 | 0.123 |
| 16 | 0.853 | 0.728 | 0.623 | 0.534 | 0.458 | 0.394 | 0.339 | 0.292 | 0.252 | 0.218 | 0.188 | 0.163 | 0.141 | 0.123 | 0.107 |
| 17 | 0.844 | 0.714 | 0.605 | 0.513 | 0.436 | 0.371 | 0.317 | 0.270 | 0.231 | 0.198 | 0.170 | 0.146 | 0.125 | 0.108 | 0.093 |
| 18 | 0.836 | 0.700 | 0.587 | 0.494 | 0.416 | 0.350 | 0.296 | 0.250 | 0.212 | 0.180 | 0.153 | 0.130 | 0.111 | 0.095 | 0.081 |
| 19 | 0.828 | 0.686 | 0.570 | 0.475 | 0.396 | 0.331 | 0.277 | 0.232 | 0.194 | 0.164 | 0.138 | 0.116 | 0.098 | 0.083 | 0.070 |
| 20 | 0.820 | 0.673 | 0.554 | 0.456 | 0.377 | 0.312 | 0.258 | 0.215 | 0.178 | 0.149 | 0.124 | 0.104 | 0.087 | 0.073 | 0.061 |

| DF | r% | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yr. | 16% | 17% | 18% | 19% | 20% | 21% | 22% | 23% | 24% | 25% | 26% | 27% | 28% | 29% | 30% |
| 1 | 0.862 | 0.855 | 0.847 | 0.840 | 0.833 | 0.826 | 0.820 | 0.813 | 0.806 | 0.800 | 0.794 | 0.787 | 0.781 | 0.775 | 0.769 |
| 2 | 0.743 | 0.731 | 0.718 | 0.706 | 0.694 | 0.683 | 0.682 | 0.661 | 0.650 | 0.640 | 0.630 | 0.620 | 0.610 | 0.601 | 0.592 |
| 3 | 0.641 | 0.624 | 0.609 | 0.593 | 0.579 | 0.564 | 0.551 | 0.537 | 0.524 | 0.512 | 0.500 | 0.488 | 0.477 | 0.466 | 0.455 |
| 4 | 0.552 | 0.534 | 0.516 | 0.499 | 0.482 | 0.467 | 0.451 | 0.437 | 0.423 | 0.410 | 0.397 | 0.384 | 0.373 | 0.361 | 0.350 |
| 5 | 0.476 | 0.456 | 0.437 | 0.419 | 0.402 | 0.386 | 0.370 | 0.355 | 0.341 | 0.328 | 0.315 | 0.303 | 0.291 | 0.280 | 0.269 |
| 6 | 0.410 | 0.390 | 0.370 | 0.352 | 0.335 | 0.319 | 0.303 | 0.289 | 0.275 | 0.262 | 0.250 | 0.238 | 0.227 | 0.217 | 0.207 |
| 7 | 0.354 | 0.333 | 0.314 | 0.296 | 0.279 | 0.263 | 0.249 | 0.235 | 0.222 | 0.210 | 0.198 | 0.188 | 0.175 | 0.168 | 0.159 |
| 8 | 0.305 | 0.285 | 0.266 | 0.249 | 0.233 | 0.218 | 0.204 | 0.191 | 0.179 | 0.168 | 0.157 | 0.148 | 0.139 | 0.130 | 0.123 |
| 9 | 0.263 | 0.243 | 0.225 | 0.209 | 0.194 | 0.180 | 0.167 | 0.155 | 0.144 | 0.134 | 0.125 | 0.116 | 0.108 | 0.101 | 0.94 |
| 10 | 0.227 | 0.208 | 0.191 | 0.176 | 0.162 | 0.149 | 0.137 | 0.126 | 0.116 | 0.104 | 0.99 | 0.92 | 0.85 | 0.78 | 0.73 |
| 11 | 0.195 | 0.178 | 0.162 | 0.148 | 0.135 | 0.123 | 0.112 | 0.103 | 0.94 | 0.86 | 0.79 | 0.72 | 0.66 | 0.61 | 0.56 |
| 12 | 0.168 | 0.152 | 0.137 | 0.124 | 0.112 | 0.102 | 0.92 | 0.83 | 0.76 | 0.69 | 0.62 | 0.57 | 0.52 | 0.47 | 0.43 |
| 13 | 0.145 | 0.130 | 0.116 | 0.104 | 0.093 | 0.84 | 0.75 | 0.68 | 0.61 | 0.55 | 0.50 | 0.45 | 0.40 | 0.37 | 0.33 |
| 14 | 0.125 | 0.111 | 0.099 | 0.088 | 0.078 | 0.69 | 0.62 | 0.55 | 0.49 | 0.44 | 0.39 | 0.35 | 0.32 | 0.28 | 0.25 |
| 15 | 0.108 | 0.095 | 0.084 | 0.074 | 0.065 | 0.057 | 0.51 | 0.045 | 0.040 | 0.035 | 0.031 | 0.028 | 0.025 | 0.022 | 0.020 |
| 16 | 0.093 | 0.081 | 0.071 | 0.062 | 0.054 | 0.047 | 0.042 | 0.036 | 0.032 | 0.028 | 0.025 | 0.022 | 0.019 | 0.017 | 0.015 |
| 17 | 0.080 | 0.069 | 0.060 | 0.052 | 0.045 | 0.039 | 0.034 | 0.030 | 0.026 | 0.023 | 0.120 | 0.017 | 0.015 | 0.13 | 0.012 |
| 18 | 0.69 | 0.059 | 0.051 | 0.044 | 0.038 | 0.032 | 0.028 | 0.024 | 0.021 | 0.018 | 0.016 | 0.014 | 0.012 | 0.010 | 0.009 |
| 19 | 0.060 | 0.051 | 0.043 | 0.037 | 0.031 | 0.027 | 0.023 | 0.020 | 0.017 | 0.014 | 0.012 | 0.011 | 0.009 | 0.008 | 0.007 |
| 20 | 0.051 | 0.043 | 0.037 | 0.031 | 0.026 | 0.022 | 0.019 | 0.016 | 0.014 | 0.012 | 0.010 | 0.008 | 0.007 | 0.006 | 0.005 |

## PRESENT VALUE FACTOR OF AN ANNUITY FACTOR OF RE. 1 i.e., $PVAF_{(r\%, n)}$

| DF | r% | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yr. | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% | 11% | 12% | 13% | 14% | 15% |
| 1 | 0.990 | 0.980 | 0.971 | 0.962 | 0.952 | 0.943 | 0.935 | 0.926 | 0.917 | 0.909 | 0.901 | 0.893 | 0.885 | 0.877 | 0.870 |
| 2 | 1.970 | 1.942 | 1.913 | 1.886 | 1.859 | 1.833 | 1.808 | 1.783 | 1.759 | 1.736 | 1.713 | 1.690 | 1.668 | 1.647 | 1.626 |
| 3 | 2.941 | 2.884 | 2.829 | 2.775 | 2.273 | 2.673 | 2.624 | 2.577 | 2.531 | 2.487 | 2.444 | 2.402 | 2.361 | 2.322 | 2.283 |
| 4 | 3.902 | 3.808 | 3.717 | 3.630 | 3.546 | 3.465 | 3.387 | 3.312 | 3.240 | 3.170 | 3.102 | 3.037 | 2.974 | 2.914 | 2.855 |
| 5 | 4.853 | 4.713 | 4.580 | 4.452 | 4.329 | 4.212 | 4.100 | 3.993 | 3.890 | 3.791 | 3.696 | 3.605 | 3.517 | 3.433 | 3.352 |
| 6 | 5.795 | 5.601 | 5.417 | 5.242 | 5.076 | 4.917 | 4.766 | 4.623 | 4.486 | 4.355 | 4.231 | 4.111 | 3.998 | .889 | 3.784 |
| 7 | 6.728 | 6.472 | 6.230 | 6.002 | 5.786 | 5.582 | 5.389 | 5.206 | 5.033 | 4.868 | 4.712 | 4.564 | 4.423 | 4.288 | 4.160 |
| 8 | 7.562 | 7.325 | 7.020 | 6.733 | 6.463 | 6.210 | 5.971 | 5.747 | 5.535 | 5.335 | 5.146 | 4.968 | 4.799 | 4.639 | 4.487 |
| 9 | 8.566 | 8.162 | 7.785 | 7.435 | 7.108 | 6.802 | 6.515 | 6.247 | 5.995 | 5.759 | 5.537 | 5.328 | 5.132 | 4.946 | 4.772 |
| 10 | 9.471 | 8.983 | 8.530 | 8.111 | 7.722 | 7.360 | 7.024 | 6.710 | 6.418 | 6.145 | 5.889 | 5.650 | 5.426 | 5.216 | 5.019 |
| 11 | 10.368 | 9.987 | 9.253 | 8.760 | 8.306 | 7.887 | 7.499 | 7.139 | 6.805 | 6.495 | 6.207 | 5.938 | 5.687 | 5.453 | 5.234 |
| 12 | 11.255 | 10.575 | 9.954 | 9.385 | 8.863 | 8.384 | 7.943 | 7.536 | 7.161 | 6.814 | 6.492 | 6.194 | 5.918 | 5.660 | 5.421 |
| 13 | 12.314 | 11.348 | 10.635 | 9.986 | 9.394 | 8.853 | 8.358 | 7.904 | 7.487 | 7.103 | 6.750 | 6.424 | 6.122 | 6.842 | 5.583 |
| 14 | 13.004 | 12.106 | 11.296 | 10.563 | 9.899 | 9.295 | 8.745 | 8.244 | 7.786 | 7.367 | 6.982 | 6.628 | 6.303 | 6.002 | 5.724 |
| 15 | 13.865 | 12.849 | 11.938 | 11.118 | 10.380 | 9.712 | 9.108 | 8.559 | 8.060 | 7.606 | 7.191 | 6.811 | 6.462 | 6.142 | 5.847 |
| 16 | 14.718 | 13.578 | 12.561 | 11.652 | 10.838 | 10.106 | 9.447 | 8.851 | 8.312 | 7.824 | 7.379 | 6.974 | 6.604 | 6.265 | 5.954 |
| 17 | 15.562 | 15.292 | 13.166 | 12.166 | 11.274 | 10.477 | 9.763 | 9.122 | 8.544 | 8.022 | 7.549 | 7.120 | 6.729 | 6.373 | 6.047 |
| 18 | 16.398 | 14.992 | 13.754 | 12.659 | 11.690 | 10.828 | 10.059 | 9.372 | 8.756 | 8.201 | 7.702 | 7.250 | 6.840 | 6.467 | 6.128 |
| 19 | 17.226 | 15.678 | 14.324 | 13.134 | 12.085 | 11.158 | 10.336 | 9.604 | 8.950 | 8.365 | 7.893 | 7.366 | 6.938 | 6.550 | 6.198 |
| 20 | 18.046 | 16.351 | 14.877 | 13.590 | 12.462 | 11.470 | 10.594 | 9.818 | 9.128 | 8.514 | 7.963 | 7.469 | 7.025 | 6.623 | 6.259 |

| DF | r% | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yr. | 16% | 17% | 18% | 19% | 20% | 21% | 22% | 23% | 24% | 25% | 26% | 27% | 28% | 29% | 30% |
| 1 | 0.862 | 0.855 | 0.847 | 0.850 | 0.833 | 0.826 | 0.820 | 0.813 | 0.806 | 0.800 | 0.794 | 0.787 | 0.781 | 0.775 | 0.769 |
| 2 | 1.605 | 1.585 | 1.566 | 1.547 | 1.528 | 1.509 | 1.492 | 1.474 | 1.457 | 1.440 | 1.424 | 1.407 | 1.392 | 1.376 | 1.361 |
| 3 | 2.246 | 2.210 | 2.174 | 2.140 | 2.106 | 2.074 | 2.042 | 2.011 | 1.981 | 1.952 | 1.923 | 1.896 | 1.868 | 1.842 | 1.816 |
| 4 | 2.798 | 2.743 | 2.690 | 2.639 | 2.589 | 2.540 | 2.494 | 2.448 | 2.404 | 2.362 | 2.320 | 2.280 | 2.241 | 2.203 | 2.166 |
| 5 | 3.274 | 3.199 | 3.127 | 3.058 | 2.991 | 2.926 | 2.864 | 2.803 | 2.745 | 2.689 | 2.635 | 2.583 | 2.532 | 2.483 | 2.436 |
| 6 | 3.685 | 3.589 | 3.498 | 3.410 | 3.326 | 3.245 | 3.167 | 3.092 | 3.020 | 2.951 | 2.885 | 2.821 | 2.759 | 2.700 | 2.643 |
| 7 | 4.039 | 3.922 | 3.812 | 3.706 | 3.605 | 3.508 | 3.416 | 3.327 | 3.242 | 3.161 | 3.083 | 3.009 | 2.937 | 2.868 | 2.802 |
| 8 | 4.344 | 4.207 | 4.078 | 3.954 | 3.837 | 3.726 | 3.619 | 3.518 | 3.421 | 3.329 | 3.241 | 3.156 | 3.076 | 2.999 | 2.925 |
| 9 | 4.607 | 4.451 | 4.303 | 4.163 | 4.031 | 3.905 | 3.786 | 3.673 | 3.566 | 3.463 | 3.366 | 3.273 | 3.184 | 3.100 | 3.019 |
| 10 | 4.833 | 4.659 | 4.494 | 4.339 | 4.193 | 4.054 | 3.923 | 3.799 | 3.682 | 3.570 | 3.465 | 3.364 | 3.269 | 3.178 | 3.092 |
| 11 | 5.029 | 4.836 | 4.656 | 4.487 | 4.327 | 4.177 | 1.035 | 3.092 | 3.776 | 3.656 | 3.544 | 3.437 | 3.335 | 3.239 | 3.147 |
| 12 | 5.197 | 4.988 | 4.793 | 4.611 | 4.439 | 4.278 | 4.127 | 3.985 | 3.851 | 3.725 | 3.606 | 3.493 | 3.387 | 3.286 | 3.190 |
| 13 | 5.342 | 5.118 | 4.910 | 4.715 | 4.533 | 4.362 | 4.203 | 4.053 | 3.912 | 3.780 | 3.656 | 3.538 | 3.427 | 3.322 | 3.223 |
| 14 | 5.468 | 5.229 | 5.008 | 4.802 | 4.611 | 4.432 | 4.265 | 4.108 | 3.962 | 3.824 | 3.695 | 3.573 | 3.459 | 3.351 | 3.249 |
| 15 | 5.575 | 5.324 | 5.092 | 4.876 | 4.675 | 4.489 | 4.315 | 4.153 | 4.001 | 3.859 | 3.726 | 3.601 | 6.483 | 3.373 | 3.268 |
| 16 | 5.669 | 5.405 | 5.162 | 4.938 | 4.730 | 4.536 | 4.357 | 4.189 | 4.033 | 3.887 | 3.751 | 3.623 | 3.503 | 3.390 | 3.283 |
| 17 | 5.749 | 5.475 | 5.222 | 4.990 | 4.775 | 4.576 | 4.391 | 4.219 | 4.059 | 3.910 | 3.771 | 3.640 | 3.518 | 3.403 | 3.295 |
| 18 | 5.818 | 5.534 | 5.273 | 5.033 | 4.812 | 4.608 | 4.419 | 4.243 | 4.080 | 3.928 | 3.786 | 3.654 | 3.529 | 3.413 | 3.311 |
| 19 | 5.877 | 5.585 | 5.316 | 5.070 | 4.844 | 4.635 | 4.442 | 4.263 | 4.097 | 3.942 | 3.799 | 3.664 | 3.539 | 3.421 | 3.311 |
| 20 | 5.929 | 5.628 | 5.353 | 5.101 | 4.870 | 4.657 | 4.460 | 4.279 | 4.110 | 3.954 | 3.808 | 3.673 | 3.546 | 3.427 | 3.316 |

# LAST MINUTE REVISION

## 1. ACCOUNTING RATIOS

### 1) CURRENT ASSETS

a) Those assets which are converted into cash within a period of one year

b) List of Current Assets

| Particulars | Rs. |
|---|---|
| Cash and Bank | XXX |
| Bills Receivables and Debtors | XXX |
| Short Term Investment | XXX |
| Marketable Securities | XXX |
| Short Term Loans and Advances | XXX |
| **QUICK ASSETS** | XXX |
| Stock | XXX |
| Prepaid Expenses | XXX |
| **CURRENT ASSETS** | XXX |

### 2) CURRENT LIABILITIES

a) Those Liabilities which are settled or paid within one year

b) List of Current Liabilities

| Particulars | Rs. |
|---|---|
| Creditors | XXX |
| Bills Payables | XXX |
| Outstanding Expenses | XXX |
| Short Term Loans | XXX |
| Provision for Tax | XXX |
| **QUICK LIABILITIES** | XXX |
| Bank Overdraft | XXX |
| CURRENT LIABILITIES | XXX |
| **CURRENT ASSETS** | XXX |

3) WORKING CAPITAL = CURRENT ASSETS – CURRENT LIABILITIES

4) Average would generally mean (Opening + Closing )/2

5) ANALYSIS OF LIABILITY SIDE

| Particulars | Rs. |
|---|---|
| SHAREHOLDERS FUNDS/NET WORTH/EQUITY/OWNERS FUNDS/ | |
| PROPRIETORS FUNDS | |
| Equity Share Capital | XXX |
| Add: Reserves and Surplus | XXX |
| Less: Miscellaneous Expenses not w/off | (XX) |
| **EQUITY SHAREHOLDERS FUNDS** | XXX |
| Add: Preference Share Capital | XXX |
| (A) | XXX |
| **BORROWED FUNDS/LOAN FUNDS/DEBT** | |
| Secured Loans | XXX |
| Unsecured Loans | XXX |
| (B) | XXX |
| **CAPITAL EMPLOYED/TOTAL SOURCES OF FUNDS (A+B)** | **XXXX** |

6) ANALYSIS OF ASSET SIDE

| | | |
|---|---|---|
| FIXED ASSETS | | |
| Gross Block | XXX | |
| Less: Provision for Depreciation | (XXX) | |
| Net Block/ WDV | | XXX |
| LONG TERM INVESTMENTS | | XXX |
| CURRENT ASSETS | | XXX |
| | TOTAL ASSETS | XXX |
| LESS: CURRENT LIABILITIES | | (XX) |
| | CAPITAL EMPLOYED | XXX |
| LESS: DEBT | | (XX) |
| | SHAREHOLDERS FUNDS | XXX |

## 7) ANALSIS OF PROFIT AND LOSS STATEMENT

| Particulars | Rs. |
|---|---|
| Sales | XXX |
| Less: COGS | XXX |
| **GROSS PROFIT** | XXX |
| Less: Operating Expenses | XXX |
| **OPERATING PROFITS** | XXX |
| Add: Non Operating Incomes | XXX |
| Less: Non Operating Expenses | XXX |
| **PROFIT BEFORE INTEREST AND TAXES (PBIT/EBIT)** | XXX |
| Less: Interest | XXX |
| **PROFIT BEFORE TAX (PBT/EBT)** | XXX |
| Less : Tax | XXX |
| **PROFIT AFTER TAX (PAT/EAT)** | XXX |
| Less: Preference Dividend (PD) | XXX |
| **EARNINGS FOR EQUITY SHAREHOLDERS** | XXX |
| Equity Dividend | XXX |
| **RETAINED EARNINGS** | XXX |

## 8) COGS

a) Sales – Gross Profit

b) Opening Stock of FG + Purchases of FG + Direct Expenses – Closing Stock of FG

c) RM Consumed + Direct Wages + Manufacturing Overheads + Opening Stock of FG – Closing Stock of FG

d) RM Consumed = Opening Stock of RM + Purchases of RM – Closing stock of RM

## 9) IMPORTANT FORMULAS

| NAME OF THE RATIO | FORMULA |
|---|---|
| CURRENT RATIO | $= \frac{\text{(Current Assets)}}{\text{(Current Liabilities)}}$ |
| QUICK RATIO | $= \frac{\text{Quick Assets}}{\text{Quick Liabilities}}$ |
| SUPER QUICK RATIO | $= \frac{\text{Cash \& Bank+Marketable Securites}}{\text{Current Liabilities}}$ |

| | |
|---|---|
| DEBT RATIO | $= \frac{\text{Debt}}{\text{Capital Employed}}$ |
| DEBT – EQUITY RATIO | $= \frac{\text{Debt}}{\text{Equity}}$ |
| CAPITAL GEARING RATIO | $= \frac{\text{Debt+Preference Share Capital}}{\text{Equity Shareholders Funds}}$ |
| PROPRIETARY RATIO | $= \frac{\text{Proprietors Funds}}{\text{Total Assets}}$ |
| CAPITAL EMPLOYED TURNOVER | $= \frac{\text{Sales}}{\text{Capital Employed}}$ |
| FIXED ASSETS TURNOVER | $= \frac{\text{Sales}}{\text{Fixed Assets}}$ |
| WORKING CAPITAL TURNOVER | $= \frac{\text{Sales}}{\text{Working Capital}}$ |
| STOCK TURNOVER | $= \frac{\text{COGS}}{\text{Average Stock}}$ |
| DEBTORS TURNOVER | $= \frac{\text{Credit Sales}}{\text{Average Debtors}}$ |
| CREDITORS TURNOVER | $= \frac{\text{Credit Purchases}}{\text{Average Creditors}}$ |
| RETURN ON CAPITAL EMPLOYED (ROCE/ROI) | $= \frac{\text{EBIT}}{\text{Capital Employed}} \times 100$<br>Or<br>$= \frac{\text{EBIT (1-tax rate)}}{\text{Capital Employed}} \times 100$ |
| RETURN ON EQUITY (ROE) | $= \frac{\text{Earnings after tax}}{\text{Equity}} \times 100$ |
| GROSS PROFIT RATIO | $= \frac{\text{Gross Profit}}{\text{Sales}} \times 100$ |
| OPERATING PROFIT RATIO | $= \frac{\text{Operating Profit}}{\text{Sales}} \times 100$ |

| | |
|---|---|
| ADMINISTRATIVE EXPENSE RATIO | $= \frac{\text{Admin Expenses}}{\text{Total Assets}} \times 100$ |
| SELLING EXPENSES RATIO | $= \frac{\text{Selling expenses}}{\text{Sales}} \times 100$ |
| NET PROFIT RATIO | $= \frac{\text{NPAT}}{\text{Sales}} \times 100$ |
| EARNINGS PER SHARE (EPS) | $= \frac{\text{Earnings for Equity shareholders}}{\text{no. of equity shares}}$ |
| DIVIDEND PER SHARE (DPS) | $= \frac{\text{Equity Dividend}}{\text{no. of equity shares}}$ |
| RETENTION RATIO | $= \frac{\text{EPS-DPS}}{\text{EPS}} \times 100$ |
| BOOK VALUE PER SHARE/BALANCE SHEET VALUE PER SHARE (BVPS) | $= \frac{\text{Equity Shareholders Funds}}{\text{no. of equity shares}}$ |
| PRICE EARNINGS RATIO (PE) | $= \frac{\text{MPS}}{\text{EPS}}$ |
| EARNINGS PRICE RATIO/ EARNINGS YIELD RATIO | $= \frac{\text{EPS}}{\text{MPS}} \times 100$ |
| DIVIDEND PRICE RATIO/ DIVIDEND YIELD RATIO | $= \frac{\text{DPS}}{\text{MPS}} \times 100$ |
| INTEREST COVERAGE RATIO | $= \frac{\text{EAT}}{\text{Preference Dividend}}$ |
| DEBT SERVICE COVERAGE RATIO | $= \frac{\text{EAT+Depreciation+Amortisation+Interest}}{\text{Annual Installment of Loan+ Interest}}$ |
| | |

# 2. LEVERAGES

## 1) INCOME STATEMENT FOR CALCULATION OF LEVERAGES

| Particulars | Rs. |
|---|---|
| Sales | XXX |
| Less: Variable Cost | XXX |
| **CONTRIBUTION** | XXX |
| Less: Operating Fixed Cost | XXX |
| **PROFIT BEFORE INTEREST AND TAXES (PBIT/EBIT)** | XXX |
| **Less: Interest** | XXX |
| **PROFIT BEFORE TAX (PBT/EBT)** | XXX |
| Less : Tax | XXX |
| **PROFIT AFTER TAX (PAT/EAT)** | XXX |
| **Less: Preference Dividend (PD)** | XXX |
| **EARNINGS FOR EQUITY SHAREHOLDERS** | XXX |
| **No of Equity shares** | XXX |
| **EPS** | XXX |

## 2) IMPORTANT FORMULAS

| NAME OF THE RATIO | Formula |
|---|---|
| OPERATING LEVERAGE (OL/DOL) | $= \frac{\text{Contribution}}{\text{EBIT}}$ or $= \frac{\%\text{ change in EBIT}}{\%\text{ change in Sales}}$ |

| | |
|---|---|
| FINANCIAL LEVERAGE (FL/DFL) | $= \frac{\text{EBIT}}{\text{EBT} - \{\frac{\text{PD(incl.DDT)}}{(1-\text{tax rate})}\}}$ Or $= \frac{\%\text{ change in EBIT}}{\%\text{ change in Sales}}$ |
| **COMBINED LEVERAGE (CL/DCL)** | $= \frac{\text{Contribution}}{\text{EBT} - \{\frac{\text{PD(incl.DDT)}}{(1-\text{tax rate})}\}}$ Or = OL X FL |
| PROFIT VOLUME RATIO | $= \frac{\text{Contribution}}{\text{Sales}} \times 100$ |

# 3. CAPITAL STRUCTURE

## 1) INCOME STATEMENT FOR SELECTION OF PLANS

| Particulars | Plan I | Plan II |
|---|---|---|
| Sales | XXX | XXX |
| Less: Variable Cost | XXX | XXX |
| **CONTRIBUTION** | XXX | XXX |
| Less: Operating Fixed Cost | XXX | XXX |
| **PROFIT BEFORE INTEREST AND TAXES (PBIT/EBIT)** | XXX | XXX |
| Less: Interest | XXX | XXX |
| **PROFIT BEFORE TAX (PBT/EBT)** | XXX | XXX |
| Less : Tax | XXX | XXX |
| **PROFIT AFTER TAX (PAT/EAT)** | XXX | XXX |
| Less: Preference Dividend (PD) | XXX | XXX |
| **EARNINGS FOR EQUITY SHAREHOLDERS** | XXX | XXX |
| No of Equity shares | XXX | XXX |
| **EPS** | XXX | XXX |

CONCLUSION: SELECT PLAN WHICH MAXIMISES THE EPS

## 2) IMPORTANT FORMULAS

| NAME OF THE RATIO | FORMULA |
|---|---|
| INDIFFERENCE LEVEL | $\frac{(EBIT-Interest)(1-t)-PD}{\text{No of Equity shares of Plan 1}} = \frac{(EBIT-Interest)(1-t)-PD}{\text{No of Equity shares of Plan 2}}$<br>Here the unknown variable is EBIT, once found the same will be known as indifference level of EBIT |
| FINANCIAL BREAK EVEN POINT (F-BEP) | $F-BEP=Interest+\frac{PD}{(1-t)}$ |

# 4. COST OF CAPITAL

## 1) STATEMENT TO CALCULATE WACC

CALCULATION OF WACC

| SOURCES | AMOUNTS | W | COST IN % | W X COST= WACC |
|---|---|---|---|---|
| EQUITY SHARE CAPITAL | XXX | XX | Ke | XXX |
| RETAINED EARNINGS | XXX | XX | Kr | XXX |
| PREFERENCE SHARE CAPITAL | XXX | XX | Kp | XXX |
| DEBENTURES/LOANS | XXX | XX | Kd | XXX |

## 2) CALCULATION OF SPECIFIC COST OF CAPITAL

| Name of the Ratio | Formula |
|---|---|
| COST OF DEBT – IRREDEEMABLE | $Kd = \frac{\text{Interest } (1-t)}{\text{Net Proceeds}}$ |
| COST OF DEBT – REDEEMABLE | $Kd = \frac{\text{Interest } (1-t) + \frac{RV-NP}{n}}{\frac{RV+NP}{2}}$ Where, NP is net proceeds at the time of issue which is issue price – floatation cost |
| COST OF PREFERENCE SHARES – IRREDEEMABLE | $Kp = \frac{PD}{\text{Net Proceeds}}$ |
| COST OF PREFERENCE SHARES – REDEEMABLE | $Kp = \frac{PD + \frac{RV-NP}{n}}{\frac{RV+NP}{2}}$ Where, PD = preference dividend |
| COST OF EQUITY SHARES | |
| DIVIDEND YIELD APPROACH | $Ke = \frac{DPS}{MPS} = \frac{D}{P0}$ Where D is expected DPS and P0 is price of the share today |

| | |
|---|---|
| DIVIDEND YIELD APPROACH + GROWTH MODEL | $Ke = \frac{D1}{P0} + g$<br>Where , D1 is expected dividend at the end of year 1 and g = growth rate in dividend which is assumed to be constant |
| EARNINGS YIELD APPROACH | $Ke = \frac{EPS}{MPS} + \frac{E}{P0}$<br>Where D is expected DPS and P0 is price of the share today |
| EARNINGS YIELD APPROACH + GROWTH MODEL | $Ke = \frac{E1}{P0} + g$<br>Where , D1 is expected dividend at the end of year 1 and g = growth rate in dividend which is assumed to be constant |
| CAPITAL ASSET PRICING MODEL (CAPM) | $Ke = Rf + (Rm - Rf)\beta$<br>Rf = Returns from risk free securities<br>Rm = Expected returns from the market<br>(Rm-Rf) is market risk premium<br>$\beta$ is a measure of systematic risk of a security in relation to market risk |
| REALISED YIELD APPROACH | $Ke = \frac{(P1-P0)+D1}{P0}$ |
| COST OF RETAINED EARNINGS IS THE OPPORTUNITY COST FORGONE BY THE EXISINTING EQUITY SHAREHOLDERS AND IN ABSENCE OF INFORMATION IT IS BE ASSUMED THAT Kr = Ke | |

## TYPES OF WEIGHTS

| BOOK VALUE WEIGHTS | MARKET VALUE WEIGHTS | MARGINAL VALUE WEIGHTS |
|---|---|---|
| Whenever we take book values of each source of finance to calculate WACC, the weights calculated are called Book Value weights | Whenever we take market values of each source of finance to calculate WACC, the weights arrived are called Market Value Weights | When we have to calculate WACC for new project or additional funds we follow marginal value weights |

## 3) CAPITAL STRUCTURE THEORIES

| INCOME STATEMENT FOR CAPITAL STRUCTURE THEORIES | |
|---|---|
| EBIT | Xxx |
| Less: Interest | Xxx |
| EBT/EAT/EARNINGS FOR EQUITY SHAREHOLDERS/DIVIDEND | Xxx |

| FORMULAS FOR CAPITAL STRUCTURE THEORIES | |
|---|---|
| VALUE OF DEBT (D) | $D = \frac{\text{Interest}}{Kd}$ |
| VALUE OF EQUITY ( E) | $E = \frac{\text{Dividend}}{Ke}$ |
| VALUE OF THE FIRM (V) | $V = E + D$<br>OR<br>$V = \frac{EBIT}{Ko}$<br>(IF THERE ARE NO TAXES)<br>OR<br>$V = \frac{EBIT(1-t)}{Ko}$<br>(IF THERE ARE TAXES) |

| | |
|---|---|
| VALUE OF THE FIRMS AS PER MM APPROACH | VALUE OF UNLEVERED CO.<br>$V = \frac{EBIT(1-t)}{Ko=Ke}$<br>VALUE OF LEVERED CO.<br>= VALUE OF UNLEVERED CO. + DEBT X TAX RATE |

# 5. CAPITAL BUDGETING

## 1) ESTIMATED INCOME STATEMENT FOR CALCULATION OF CASH FLOWS

| Particulars | Rs |
|---|---|
| Sales | XXX |
| Less: Variable Cost | XXX |
| Less: Operating Fixed Cost | XXX |
| **PROFIT BEFORE DEPRECIATION AND TAXES/ CASH FLOWS BEFORE TAX (CFBT)** | XXX |
| Less: Depreciation | XXX |
| **PROFIT BEFORE TAX (PBT/EBT)** | XXX |
| Less : Tax | XXX |
| **PROFIT AFTER TAX (PAT/EAT)** | XXX |
| Add: Depreciation | XXX |
| **CASH FLOWS AFTER TAX (CFAT) / FVCI** | XXX |

## 2) TECHNIQUES FOR EVALUATING LONG TERM PROJECTS

<table>
<tr><td colspan="2">1) PAY BACK PERIOD</td></tr>
<tr><td>IF CASH INFLOWS ARE EVEN (ANNUITY)<br><br>$PBP = \frac{\text{(ORIGINAL INVESTMENT)}}{\text{ANNUITY}}$</td><td>IF CASH INFLOWS ARE UNEVEN<br><br><table><tr><th>YEAR</th><th>FVCI</th><th>CUMMULATIVE</th></tr><tr><td>1</td><td>XXX</td><td>XXX</td></tr><tr><td>2</td><td>XXX</td><td>XXX</td></tr><tr><td>3</td><td>XXX</td><td>XXX</td></tr><tr><td>4</td><td>XXX</td><td>XXX</td></tr></table></td></tr>
<tr><td>2) NET PRESENT VALUE</td><td>NPV = PVCI –PVCO<br>(Discounting is always to be done using Ko)</td></tr>
<tr><td>3) PROFITABILITY INDEX/PRESENT VALUE INDEX/BENEFIT COST RATIO/ DESIREABILITY FACTOR (PI)</td><td>$PI = \frac{PVCI}{PVCO}$</td></tr>
</table>

<table>
<tr><td>4) INTERNAL RATE OF RETURN (IRR)</td><td>It is the discounting rate where PVCI = PVCO</td></tr>
<tr><td>5) DISCOUNTED PAY BACK PERIOD</td><td><table><tr><th>YEAR</th><th>PVCI</th><th>CUMMULATIVE</th></tr><tr><td>1</td><td>XXX</td><td>XXX</td></tr><tr><td>2</td><td>XXX</td><td>XXX</td></tr><tr><td>3</td><td>XXX</td><td>XXX</td></tr><tr><td>4</td><td>XXX</td><td>XXX</td></tr></table></td></tr>
<tr><td>6) AVERAGE RATE OF RETURN/ ACCOUNTING RATE OF RETURN</td><td>$ARR = \frac{\text{Average NPAT}}{\text{Original Investment}} \times 100$<br>or<br>$ARR = \frac{\text{Average NPAT}}{\text{Average Investment}} \times 100$<br>Average Investment = (Cost + Scrap)/2</td></tr>
</table>

## DECISION CRITERIA OF CAPITAL BUDGETING TECHNIQUES

| METHOD | FOR INDEPENDENT PROJECT | FOR MUTUALLY EXCLUSIVE PROJECT |
|---|---|---|
| PBP | (1) When PBP is < Target PBP : Accept<br>(2) When PBP is > Target PBP : Reject | Project with least Payback period should be selected |
| ARR | (1) When ARR is less than Target Rate of Return : Accept<br>(2) When ARR is greater than Target Rate of Return : Reject | Project with highest possible ARR |
| NPV | (1) If NPV is Positive : Accept<br>(2) If NPV is Negative : Reject | Select the Project which gives highest possible NPV |
| IRR | (1) If IRR > Ko : Accept<br>(2) If IRR < Ko : Reject | Select the Project which gives highest possible IRR |
| PI | (1) If PI > 1 : Accept<br>(2) If PI < 1 : Reject | Select the Project which gives highest possible PI |

# 6. WORKING CAPITAL ESTIMATION

## 1. CALCULATION OF OPERATING CYCLE PERIOD

| Particulars | Period |
|---|---|
| Stock holding period of RM | XXX |
| Stock conversion period of WIP | XXX |
| Stock holding period of FG | XXX |
| **Debt collection period** | XXX |
| **Gross Duration** | XXX |
| **Creditors payment period** | (XXX) |
| **Net Duration** | XXX |

| | |
|---|---|
| **Stock holding period of RM** | $= \frac{\text{Average Stock of RM}}{\text{RM Consumed}} \times 365 \text{ or } 52 \text{ or } 12$ |
| Stock conversion period of WIP | $= \frac{\text{Average Stock of WIP}}{\text{COP}} \times 365 \text{ or } 52 \text{ or } 12$ |
| Stock holding period of FG | $= \frac{\text{Average Stock of FG}}{\text{COGS}} \times 365 \text{ or } 52 \text{ or } 12$ |
| Debt collection period | $= \frac{\text{Average Debtors}}{\text{Credit Sales}} \times 365 \text{ or } 52 \text{ or } 12$ |
| **Creditors payment period** | $= \frac{\text{Average Creditors}}{\text{Credit Purchases}} \times 365 \text{ or } 52 \text{ or } 12$ |

## 2) PROFORMA OF STATEMENT TO DETERMINE WORKING CAPITAL REQUIREMENT

| Particulars | Amount |
|---|---|
| **CURRENT ASSETS** | |
| Stock of Raw Material | XXX |
| Stock of WIP | XXX |
| Stock of FG | XXX |
| Debtors | XXX |
| Cash/Bank | XXX |
| Other Current Assets | XXX |
| (A) | **XXX** |
| **CURRENT LIABILITIES** | XXX |
| Creditors | XXX |
| **Other Current Liabilities** | XXX |
| Provision for Tax | XXX |
| Outstanding Expenses | XXX |
| Bank O/D | XXX |
| (B) | **XXX** |
| **WORKING CAPITAL (A-B)** | **XXX** |
| Add : Margin of Safety | **XXX** |
| **TOTAL WORKING CAPITAL** | **XXX** |

## 3) INCOME STATEMENT FOR ESTIMATING WORKING CAPITAL REQUIREMENT

| Particulars | Amount |
|---|---|
| Raw Material Consumed | XXX |
| Direct Wages | XXX |
| Manufacturing Expense/ Factory OH | XXX |
| Depreciation ( do not consider if WC is on Cash Cost basis) | XXX |
| **Cost of production(COP/COGS/COS)** | **XXX** |
| Admin Expenses | XXX |
| Selling Expenses | XXX |
| **Total Cost** | **XXX** |
| Add : Profit | **XXX** |
| Sales | XXX |

**INCOME STATEMENT SHOULD BE RESTRICTED ONLY TILL TOTAL COST IF ESTIMATION IS TO BE DONE ON CASH COST BASIS.**

# 7. RECEIVEABLES MANAGEMENT

## 1) Income Statement to determine the best credit policy

| Particulars | Existing Credit Policy | Proposed Credit Policy |
|---|---|---|
| Credit Sales p.a | xxx | xxx |
| Less : Variable Cost | xxx | xxx |
| CONTRIBUTION | xxx | xxx |
| Less : Bad Debts | xxx | xxx |
| Less : Administrative Cost | xxx | xxx |
| Less : Discount | xxx | xxx |
| NPBT | xxx | xxx |
| Less : Tax | xxx | xxx |
| NPAT (A) | xxx | xxx |
| | | |
| Investment in Debtors (Variable cost * credit period/12 or 365 or 52) | xxx | xxx |
| Interest Lost/ Cost of Carrying Debtors (B) | xxx | xxx |
| (A) - (B) | xxx | Xxx |

**CONCLUSION: IF PROFIT INCREASES THEN IT WILL BE ADVISABLE TO GO FOR PROPOSED CREDIT POLICY OR ELSE NOT.**

## 2) Evaluation of Factoring Proposal

| Particulars | Rs. |
|---|---|
| **ANNUAL SAVINGS (BENEFITS) ON TAKING FACTORING SERVICES** | |
| - Savings in Administrative Cost | XXX |
| - Savings in Loss due to Bad debts | XXX |
| - Interest saved due to reduction in Average Collection Period | XXX |
| {Annual Credit Sales x Rate of Interest x (Present Collection Period | |
| - Guaranteed Payment period by Factor)/360} | |
| (A) | XXX |

| | |
|---|---|
| **ANNUAL COST OF FACTORING TO THE FIRM** | |
| - Annual Factoring Commission | XXX |
| - Interest charged by Factor on Advance | XXX |
| {(Annual credit sales - Factor Reserve - Factoring Commission) x Guaranteed period/360} x Interest rate charged by Factor | |
| **(B)** | XXX |
| **NET ANNUAL BENEFITS/ANNUAL COST TO THE FIRM (A)-(B)** | XXXX |
| | |
| **Effective Cost of Factoring in % = Net Annual Cost of Factoring / Amount available for Advance x 100** | XX% |

## 8. CASH BUDGET

### A) Calculation of Optimum Cash Balance as per William J Baumal Model

Optimum Cash Balance = $\sqrt{(2AT)/O}$

Where

A = Annual Cash Requirement

T = Transfer Cost per Transfer

O = Opportunity Cost in % term per annum.

# 9. RISK ANALYSIS IN CAPITAL BUDGETING

## 1) RISK ADJUSTED DISCOUNT RATE

### Calculation of RANPV

| Year | FVCI | DF @ RADR | PVCI |
|---|---|---|---|
| 1 | XXX | XXXX | XXX |
| 2 | XXX | XXXX | XXX |
| 3 | XXX | XXXX | XXX |
| 4 | XXX | XXXX | XXX |
| | | **Total PVCI** | **XXXX** |
| | | **Less: PVCO** | **XXXX** |
| | | **RANPV** | **XXXX** |

## 2) CERTAINITY EQUIVALENT

| Year | Uncertain Cash Flows | CE Factor | Certain Cash Flows | DF @ Risk Free Rate | PVCI |
|---|---|---|---|---|---|
| 1 | XXX | XXX | XXX | XXX | XXX |
| 2 | XXX | XXX | XXX | XXX | XXX |
| 3 | XXX | XXX | XXX | XXX | XXX |
| 4 | XXX | XXX | XXX | XXX | XXX |
| | | | | **Total PVCI** | **XXXX** |
| | | | | **Less: PVCO** | **XXXX** |
| | | | | **NPV** | **XXXX** |

## 3) PROBABILTY DISTRIBUTION APPROACH

### CALCULATION OF EXPECTED NPV

### Step :1 Calculation of Expected Cash Inflows

| Year 1 | | | Year 2 | | | Year 3 | | |
|---|---|---|---|---|---|---|---|---|
| Estimated Cash Inflows | Probability | Expected Cash Inflows | Estimated Cash Inflows | Probability | Expected Cash Inflows | Estimated Cash Inflows | Probability | Expected Cash Inflows |
| XXX | XXX | XXX | XXX | XXX | XXX | XXX | XXX | XXX |
| XXX | XXX | XXX | XXX | XXX | XXX | XXX | XXX | XXX |
| XXX | XXX | XXX | XXX | XXX | XXX | XXX | XXX | XXX |

**Step : 2 Calculation of Expected NPV**

| Year | Expected Cash Inflows | DF @ | PVCI |
|---|---|---|---|
| 1 | XXX | XXXX | XXX |
| 2 | XXX | XXXX | XXX |
| 3 | XXX | XXXX | XXX |
| | | Total PVCI | **XXXX** |
| | | **Less: PVCO** | **XXXX** |
| | | **Expected NPV** | **XXXX** |

## ALTERNATIVE TO CALCULATE EXPECTED NPV AND STANDARD DEVIATION OF NPV

| Calculation of Expected NPV | | | Calculation of Standard Deviation of NPV | | |
|---|---|---|---|---|---|
| Estimated NPV | Probabilty | Expected NPV | (Est. NPV - Exp. NPV) | P | $\sum$ P(Est. NPV - Exp. NPV) |
| XXX | XXX | XXX | XXX | XXX | XXX |
| XXX | XXX | XXX | XXX | XXX | XXX |
| XXX | XXX | XXX | XXX | XXX | XXX |
| XXX | XXX | XXX | XXX | XXX | XXX |
| | Expected NPV | XXX | | Variance | XXX |
| | | | | Standard Deviation | $\sqrt{}$ variance |

# 10. DIVIDEND POLICY

| NAME OF THE RATIO | Formula |
|---|---|
| WALTER'S FORMULA | $Po = \frac{D+(E-D)r/Ke}{Ke}$<br>Where,<br>Po = Expected MPS<br>D = Expected DPS<br>E= Expected EPS<br>R= Return on Equity/Productivity of Retained Earnings<br>Ke= Desired rate of return by Equity shareholders/ Cost of Equity/Capitalisation Rate |
| GORDON'S FORMULA | $Po = \frac{D1}{Ke-g}$<br>Where,<br>D1 =Expected Dividend of Year 1 and G= growth rate in Dividend<br>G= retention ratio (b) x return on Equity (r )<br>D1 = Do(1+g) or D1 = E1 x Dividend Payout ratio |
| GRAHAM AND DODD MODEL/ TRADITION APPROACH | $Po=m \times \left(D+\frac{E}{3}\right)$<br>Where, M is the multiplier |
| MM APPROACH | $Po = \frac{P1+D1}{1+Ke}$ |
| LINTNER'S MODEL | Current year DPS = Last year DPS +{ (Current EPS* Target Payout Ratio)-Last DPS}* Adjustment Factor |

# EXPERT LEVEL QUESTIONS

## LEVERAGE

**Question 1**

The net sales of A Ltd. is ₹ 30 crores. Earnings before interest and tax of the company as a percentage of net sales is 12%. The capital employed comprises ₹ 10 crores of equity, ₹ 2 crores of 13% Cumulative Preference Share Capital and 15% Debentures of ₹ 6 crores. Income-tax rate is 40%.

(i) Calculate the Return-on-equity for the company and indicate its segments due to the presence of Preference Share Capital and Borrowing (Debentures).

(ii) Calculate the Operating Leverage of the Company given that combined leverage is 3.

**Question 2**

The following information is related to Yizi Company Ltd. for the year ended 31st March, 2021:

| | |
|---|---|
| Equity share capital (of ₹ 10 each) | ₹ 50 lakhs |
| 12% Bonds of ₹ 1,000 ea | ₹ 37 lakhs |
| Sales | ₹ 84 lakhs |
| Fixed cost (excluding interest) | ₹ 6.96 lakhs |
| Financial leverage | 1.49 |
| Profit-volume Ratio | 27.55% |
| Income Tax Applicable | 40% |

You are required to CALCULATE:

(i) Operating Leverage;

(ii) Combined leverage; and

(iii) Earnings per share.

Show calculations up-to two decimal points.

**Question 3**

Following information has been extracted from the accounts of newly incorporated Textyl Pvt. Ltd. for the Financial Year 2020-21:

| | |
|---|---|
| Sales | ₹ 15,00,000 |
| P/V ratio | 70% |
| Operating Leverage | 1.4 times |
| Financial Leverage | 1.25 times |

Using the concept of leverage, find out and verify in each case:

(i) The percentage change in taxable income if sales increase by 15%.

(ii) The percentage change in EBIT if sales decrease by 10%.

(iii) The percentage change in taxable income if EBIT increase by 15%.

# CAPITAL STRUCTURE

**Question 1**

Alpha Company is contemplating conversion of 500 14% convertible bonds of ₹ 1,000 each. Market price of the bond is ₹ 1,080. Bond indenture provides that one bond will be exchanged for 10 shares. Price earning ratio before redemption is 20 : 1 and anticipated price - earning ratio after redemption is 25 : 1. Number of shares outstanding prior to redemption are 10,000. EBIT amounts to ₹ 2,00,000. The company is in the 35% tax bracket. Should the company convert bonds into shares? Give reasons.

**Question 2**

The following figures of Theta Limited are presented as under:

| | | Rs. |
|---|---|---|
| Earnings before Interest and Tax | | 23,00,000 |
| Less: Debenture Interest @ 8% | 80,000 | |
| Long Term Loan Interest @ 11% | 2,20,000 | 3,00,000 |
| | | 20,00,000 |
| Less: Income Tax | | 10,00,000 |
| Earnings after tax | | 10,00,000 |

| | |
|---|---|
| No. of Equity Shares of Rs. 10 each | 5,00,000 |
| EPS | Rs. 2 |
| Market Price of Share | Rs. 20 |
| P/E Ratio | 10 |

The company has undistributed reserves and surplus of Rs. 20 lakhs. It is in need of Rs. 30 lakhs to pay off debentures and modernize its plants. It seeks your advice on the following alternative modes of raising finance.

Alternative 1 - Raising entire amount as term loan from banks @ 12%.

Alternative 2 - Raising part of the funds by issue of 1,00,000 shares of Rs. 20 each and the rest by term loan at 12 percent.

The company expects to improve its rate of return by 2 percent as a result of modernization, but P/E ratio is likely to go down to 8 if the entire amount is raised as term loan.

(i) Advise the company on the financial plan to be selected.

(ii) If it is assumed that there will be no change in the P/E ratio if either of the two alternatives is adopted, would your advice still hold good?

**Question 3**

A Company needs Rs. 31,25,000 for the construction of new plant. The following three plans are feasible:

Plan-I The Company may issue 3,12,500 equity shares at Rs. 10 per share.

Plan-II The Company may issue 1,56,250 ordinary equity shares at Rs. 10 per share and 15,625 debentures of Rs,. 100 denomination bearing a 8% rate of interest.

Plan-III The Company may issue 1,56,250 equity shares at Rs. 10 per share and 15,625 preference shares at Rs. 100 per share bearing a 8% rate of dividend.

(i) if the Company's earnings before interest and taxes are Rs. 62,500,Rs. 1,25,000, Rs.2,50,000, Rs. 3,75,000 and Rs. 6,25,000, what are the earnings per shareunder each of three financial plans ?Assume a Corporate Income tax rate of 40%.

(ii) Which alternative would you recommend and why?

(iii) Determine the EBIT-EPS indifference points by formulae between Financing Plan I and Plan II and Plan I and Plan III.

**Question 4**

Best of Luck Ltd., a profit making company, has a paid-up capital of Rs. 100 lakhs consisting of 10 lakhs ordinary shares of Rs. 10 each. Currently, it is earning an annual pre-tax profit of Rs. 60 lakhs. The company's shares are listed and are quoted in the range of Rs. 50 to Rs. 80.The management wants to diversify production and has approved a project which will cost Rs. 50 lakhs and which is expected to yield a pre-tax income of Rs. 40 lakhs per annum. To raise this additional capital, the following options are under consideration of the management:

(a) To issue equity share capital for the entire additional amount. It is expected that the new shares (face value of Rs. 10) can be sold at a premium of Rs. 15.

(b) To issue 16% non-convertible debentures of Rs. 100 each for the entire amount.

(c) To issue equity capital for Rs. 25 lakhs (face value of Rs. 10) and 16% non-convertible debentures for the balance amount. In this case, the company can issue shares at a premium of Rs. 40 each.

You are required to advise the management as to how the additional capital can be raised, keeping in mind that the management wants to maximise the earnings per share to maintain its goodwill. The company is paying income tax at 50%.

# COST OF CAPITAL

**Question 1**

ABC Limited has the following book value capital structure:

| | |
|---|---|
| Equity Share Capital (150 million shares, ₹ 10 par) | ₹ 1,500 million |
| Reserves and Surplus | ₹ 2,250 million |
| 10.5% Preference Share Capital (1 million shares, ₹ 100 par) | ₹ 100 million |
| 9.5% Debentures (1.5 million debentures, ₹ 1,000 par) | ₹ 1,500 million |
| 8.5% Term Loans from Financial Institutions | ₹ 500 million |

The debentures of ABC Limited are redeemable after three years and are quoting at ₹ 981.05 per debenture. The applicable income tax rate for the company is 35%.

The current market price per equity share is ₹ 60. The prevailing default-risk free interest rate on 10- year GOI Treasury Bonds is 5.5%. The average market risk premium is 8%. The beta of the company is 1.1875.

The preferred stock of the company is redeemable after 5 years is currently selling at ₹ 98.15 per preference share.

Required:

(i) Calculate weighted average cost of capital of the company using market value weights.

(ii) Define the marginal cost of capital schedule for the firm if it raises ₹ 750 million for a new project. The firm plans to have a debt of 20% of the newly raised capital. The beta of new project is 1.4375. The debt capital will be raised through term loans, it will carry interest rate of 9.5% for the first ₹ 100 million and 10% for the next ₹ 50 million.

**Question 2**

XYZ Ltd. has the following book value capital structure:

| | |
|---|---|
| Equity Capital (in shares of Rs. 10 each, fully paid up- at par) | Rs. 15 crores |
| 11% Preference Capital (in shares of Rs. 100 each, fully paid up- at par) | Rs. 1 crore |
| Retained Earnings | Rs. 20 crores |
| 13.5% Debentures (of Rs. 100 each) | Rs. 10 crores |
| 15% Term Loans | Rs. 12.5 crores |

The next expected dividend on equity shares per share is Rs. 3.60; the dividend per share is expected to grow at the rate of 7%. The market price per share is Rs. 40.

Preference stock, redeemable after ten years, is currently selling at Rs. 75 per share.

Debentures, redeemable after six years, are selling at Rs. 80 per debenture.

The Income tax rate for the company is 40%.

(i) Required

Calculate the current weighted average cost of capital using:

(a) Book value proportions; and

(b) Market value proportions.

(ii) Define the weighted marginal cost of capital schedule for the company, if it raises Rs. 10 crores next year, given the following information:

(a) the amount will be raised by equity and debt in equal proportions;

(b) the company expects to retain Rs. 1.5 crores earnings next year;

(c) the additional issue of equity shares will result in the net price per share being fixed at Rs. 32;

(d) the debt capital raised by way of term loans will cost 15% for the first Rs. 2.5 crores and 16% for the next Rs. 2.5 crores.

**Question 3**

Kalyanam Ltd. has an operating profit of ₹ 34,50,000 and has employed Debt which gives total Interest Charge of ₹ 7,50,000. The firm has an existing Cost of Equity and Cost of Debt as 16% and 8% respectively. The firm has a new proposal before it, which requires funds of ₹ 75 Lakhs and is expected to bring an additional profit of ₹ 14,25,000. To finance the proposal, the firm is expecting to issue an additional debt at 8% and will not be issuing any new equity shares in the market. Assume no tax culture.

You are required to CALCULATE the Weighted Average Cost of Capital (WACC) of Kalyanam Ltd.:

(i) Before the new Proposal

(ii) After the new Proposal

**Question 4**

A company issued 10,000, 15% Convertible debentures of ₹ 100 each with a maturity period of 5 years. At maturity, the debenture holders will have an option to convert the debentures into equity shares of the company in the ratio of 1:10 (10 shares for each debenture). The current market price of the equity shares is ₹ 12 each and historically the growth rate of the shares is 5% per annum. Compute the cost of debentures assuming 35% tax rate.

**Determination of Redemption value:**

**Higher of**

(i) The cash value of debentures = ₹ 100

(ii) Value of equity shares = 10 shares × ₹ 12 (1+0.05)5

= 10 shares × 15.312 = ₹ 153.12

₹ 153.12 will be taken as redemption value as it is higher than the cash option and is more attractive to the investors.

Calculation of Cost of Convertible debenture (using approximation method):

$$K_d = \frac{I(1-t)+\frac{(RV-NP)}{n}}{\frac{(RV+NP)}{2}} = \frac{15(1-0.35)+\frac{(153.12-100)}{5}}{\frac{(153.12+100)}{2}} = \frac{9.75+10.62}{126.53} = 16.09\%$$

**Question 5**

Bounce Ltd. evaluates all its capital projects using discounting rate of 15%. Its capital structure consists of equity share capital, retained earnings, bank term loan and debentures redeemable at par.

Rate of interest on bank term loan is 1.5 times that of debenture. Remaining tenure of debenture and bank loan is 3 years and 5 years respectively. Book value of equity share capital, retained earnings and bank loan is ₹ 10,00,000, ₹ 15,00,000 and ₹ 10,00,000 respectively. Debentures which are having book value of ₹ 15,00,000 are currently trading at ₹ 97 per debenture. The ongoing P/E multiple for the shares of the company stands at 5. You are required to CALCULATE the rate of interest on bank loan and debentures if tax rate applicable is 25%.

# CAPITAL STRUCTURE THEORY

**Question 1**

One-Third of the Total Market Value of Hari Limited consists of Loan Stock, which has a cost of 10%. Another Company, Guru Limited, is identical in every respect to Hari Limited, except that its Capital Structure is all-equity, and its Cost of Equity is 16%. According to Modigliani and Miller, if we ignored taxation and tax relief on Debt Capital, what would be the Cost of Equity of Hari Limited?

**Question 2**

Z Ltd.'s operating income (before interest and tax) is Rs. 9,00,000. The firm's cost of debt is 10per cent and currently firm employs Rs. 30,00,000 of debt. The overall cost of capital of firm is 12 per cent.

Required: Calculate cost of equity.

# DIVIDEND DECISION

**Question 1**

A&R Ltd. is a large-cap multinational company listed in BSE in India with a face value of ₹ 100 per share. The company is expected to grow @ 15% p.a. for next four years then 5% for an indefinite period. The shareholders expect 20% return on their share investments. Company paid ₹ 120 as dividend per share for the FY 2020-21. The shares of the company traded at an average price of ₹ 3,122/- on last day. FIND out the intrinsic value of per share and state whether shares are overpriced or underpriced.

**Question 2**

In May, 2020 shares of RT Ltd. was sold for ₹ 1,460 per share. A long term earnings growth rate of 7.5% is anticipated. RT Ltd. is expected to pay dividend of ₹ 20 per share.

(i) CALCULATE rate of return an investor can expect to earn assuming that dividends are expected to grow along with earnings at 7.5% per year in perpetuity?

(ii) It is expected that RT Ltd. will earn about 10% on retained earnings and shall retain 60% of earnings. In this case, STATE whether, there would be any change in growth rate and cost of Equity?

# CAPITAL BUDGETING

**Question 1**

A company wants to invest in a machinery that would cost ₹ 50,000 at the beginning of year 1. It is estimated that the net cash inflows from operations will be ₹ 18,000 per annum for 3 years, if the company opts to service a part of the machine at the end of year 1 at ₹ 10,000. In such a case, the scrap value at the end of year 3 will be 12,500. However, if the company decides not to service the part, then it will have to be replaced at the end of year 2 at ₹ 15,400. But in this case, the machine will work for the 4th year also and get operational cash inflow of ₹ 18,000 for the 4th year. It will have to be scrapped at the end of year 4 at ₹ 9,000. Assuming cost of capital at 10% and ignoring taxes, will you recommend the purchase of this machine based on the net present value of its cash flows?

If the supplier gives a discount of ₹ 5,000 for purchase, what would be your decision? (The present value factors at the end of years 0, 1, 2, 3, 4, 5 and 6 are respectively 1, 0.9091, 0.8264, 0.7513, 0.6830, 0.6209 and 0.5644).

**Question 2**

Nine Gems Ltd has just installed Machine R at a cost of Rs. 2 Lakhs. The machine has a 5-year life with no Residual Value. The annual volume of production is estimated at 1,50,000 units, which can be sold at 6 per unit. Annual Operating costs are estimated at Rs. 2 Lakhs (excluding depreciation) at this output level. Fixed Costs are estimated at Rs. 3 per unit for the same level of production.

The Company has just come across another model Machine S, capable of giving the same output at an annual operating cost of Rs. 1.80 Lakhs (excluding depreciation). There will be no change in Fixed Costs. Machine S costs Rs. 2.50 Lakhs, its Residual Value will be Nil after a useful life of 5 years.

Nine Gems Ltd has an offer for sale of Machine R for Rs. 1,00,000. The cost of dismantling and removal will be 30,000. As the Company has not yet commenced operations, it wants to dispose off Machine R and install Machine S.

The Company will be a zero-tax Company for 7 years in view of Incentives and Allowances available. Cost of Capital is 14%.

Advise whether the Company should opt for replacement. Will your answer be different if the Company has not installed Machine R and is in the process of selecting either R or S?

**Question 3**

Cello Limited is considering buying a new machine which would have a useful economic life of five years, a cost of ₹ 1,25,000 and a scrap value of ₹ 30,000, with 80 per cent of the cost being payable at the start of the project and 20 per cent at the end of the first year. The machine would produce 50,000 units per annum of a new product with an estimated selling price of ₹ 3 per unit. Direct costs would be ₹ 1.75 per unit and annual fixed costs, including depreciation calculated on a straight- line basis, would be ₹ 40,000 per annum.

In the first year and the second year, special sales promotion expenditure, not included in the above costs, would be incurred, amounting to ₹ 10,000 and ₹ 15,000 respectively. CALCULATE NPV of the project for investment appraisal, assuming the company's cost of capital is 10 percent.

**Question 4**

A large profit making company is considering the installation of a machine to process the waste produced by one of its existing manufacturing process to be converted into a marketable product. At present, the waste is removed by a contractor for disposal on payment by the company of ₹ 150 lakh per annum for the next four years. The contract can be terminated upon installation of the aforesaid machine on payment of a compensation of ₹ 90 lakh before the processing operation starts. This compensation is not allowed as deduction for tax purposes.

The machine required for carrying out the processing will cost ₹ 600 lakh to be financed by a loan repayable in 4 equal instalments commencing from end of the year- 1. The interest rate is 14% per annum. At the end of the 4th year, the machine can be sold for ₹ 60 lakh and the cost of dismantling and removal will be ₹ 45 lakh.

Sales and direct costs of the product emerging from waste processing for 4 years are estimated as under:

**(₹ In lakh)**

| Year | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Sales | 966 | 966 | 1,254 | 1,254 |
| Material consumption | 90 | 120 | 255 | 255 |
| Wages | 225 | 225 | 255 | 300 |
| Other expenses | 120 | 135 | 162 | 210 |
| Factory overheads | 165 | 180 | 330 | 435 |
| Depreciation (as per income tax rules) | 150 | 114 | 84 | 63 |

Initial stock of materials required before commencement of the processing operations is ₹ 60 lakh at the start of year 1. The stock levels of materials to be maintained at the end of year 1, 2 and 3 will be ₹ 165 lakh and the stocks at the end of year 4 will be nil. The storage of materials will utilise space which would otherwise have been rented out for ₹ 30 lakh per annum. Labour costs include wages of 40 workers, whose transfer to this process will reduce idle time payments of ₹ 45 lakh in the year- 1 and ₹ 30 lakh in the year- 2. Factory overheads include apportionment of general factory overheads except to the extent of insurance charges of ₹ 90 lakh per annum payable on this venture. The company's tax rate is 30%. Ignore tax on Capital profit.

Present value factors for four years are as under:

| Year | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| PV factors @14% | 0.877 | 0.769 | 0.674 | 0.592 |

ADVISE the management on the desirability of installing the machine for processing the waste. All calculations should form part of the answer.

**Question 5**

The General Manager of Merry Ltd. is considering the replacement of five-year-old equipment. The company has to incur excessive maintenance cost of the equipment. The equipment has zero written down value. It can be modernized at a cost of ₹ 1,40,000 enhancing its economic life to 5 years. The equipment could be sold for ₹ 30,000 after 5 years. The modernization would help in material handling and in reducing labour, maintenance & repairs costs.

The company has another alternative to buy a new machine at a cost of ₹ 3,50,000 with an economic life of 5 years and salvage value of ₹ 60,000. The new machine is expected to be more efficient in reducing costs of material handling, labour, maintenance & repairs, etc. The annual cost are as follows:

| | Existing Equipment (₹) | Modernization (₹) | New Machine (₹) |
|---|---|---|---|
| Wages & Salaries | 45,000 | 35,500 | 15,000 |
| Supervision | 20,000 | 10,000 | 7,000 |
| Maintenance | 25,000 | 5,000 | 2,500 |
| Power | 30,000 | 20,000 | 15,000 |
| | 1,20,000 | 70,500 | 39,500 |

Assuming tax rate of 50% and required rate of return of 10%, should the company modernize the equipment or buy a new machine?

PV factor at 10% are as follows:

| Year | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| PVF | 0.909 | 0.826 | 0.751 | 0.683 | 0.621 |

**Question 6**

XYZ Ltd. is presently all equity financed. The directors of the company have been evaluating investment in a project which will require ₹270 lakhs capital expenditure on new machinery. They expect the capital investment to provide annual cash flows of ₹42 lakhs indefinitely which is net of all tax adjustments. The discount rate which it applies to such investment decisions is 14% net.

The directors of the company believe that the current capital structure fails to take advantage of tax benefits of debt and propose to finance the new project with undated perpetual debt secured on the company's assets. The company intends to issue sufficient debt to cover the cost of capital expenditure and the after tax cost of issue.

The current annual gross rate of interest required by the market on corporate undated debt of similar risk is 10%. The after tax costs of issue are expected to be 10 lakhs. Company's tax rate is 30%.

You are REQUIRED to:

(i) Calculate the adjusted present value of the investment,

(ii) Calculate the adjusted discount rate and

(iii) Explain the circumstances under which this adjusted discount rate may be used to evaluate future investments.

# ACCOUTING RATIOS

**Question 1**

The balance sheet of XYZ company is given below :

(Rs. in lacs)

| Liabilities | Amount | Assets | Amount |
|---|---|---|---|
| Equity Share Capital | 250 | Fixed Assets | 400 |
| General Reserve | 280 | Investment | 50 |
| P&L A/c (current year) | 30 | Stock | 460 |
| Secured loans-Long term | 300 | Debtors | 460 |
| Secured loans-Short term | 360 | Cash in hand | 10 |
| Creditors | 150 | Misc. expenditure (not written off) | |
| Other liabilities | 30 | | 20 |
| | **1400** | | **1400** |

**Additional Information:**

(a) From the Profit and Loss Account Rs. 90 lacs was transferred to General Reserve during the year.

(b) Interest cost amounted to Rs. 120 lacs.

(c) Taxation @ 40%

You are required to calculate (i) Debt equity ratio (ii) Current ratio (iii) Interest coverage ratio.

**Question 2**

XYZ Company's details are as under:

Revenue: ₹ 29,261; Net Income: ₹ 4,212; Assets: ₹ 27,987; Shareholders' Equity: ₹ 13,572.

Compute Return on equity by Du Pont Model?

**Question 3**

From the following information, you are required to PREPARE a summarised Balance Sheet for Rudra Ltd. for the year ended 31st March, 2022

| | |
|---|---|
| Debt Equity Ratio | 1:1 |
| Current Ratio | 3:1 |
| Acid Test Ratio | 8:3 |
| Fixed Asset Turnover (on the basis of sales) | 4 |
| Stock Turnover (on the basis of sales) | 6 |
| Cash in hand | 5,00,000 |
| Stock to Debtor | 1:1 |
| Sales to Net Worth | 4 |
| Capital to Reserve | 1:2 |
| Gross Profit | 20% of Cost |
| COGS to Creditor | 10:1 |

Interest for entire year is yet to be paid on Long Term loan @ 10%.

# ESTIMATION OF WORKING CAPITAL

**Question 1**

The following data relating to an auto component manufacturing company is available for the year 20X4:

| | |
|---|---|
| Raw material held in storage | 20 days |
| Receivables collection period | 30 days |
| Conversion process period (raw material - 100%, other costs - 50% complete) | |
| 10 days Finished goods storage period | 45 days |
| Credit period from suppliers | 60 days |
| Advance payment to suppliers | 5 days |
| Total cash operating expenses per annum | Rs.800 lakhs |

75% of the total cash operating expenses are for raw material. 360 days are assumed in a year.

You are required to calculate:

(i) Each item of current assets and current liabilities,

(ii) The working capital requirement, if the company wants to maintain a cash balance of Rs. 10 lakhs at all times.

**Question 2**

The following information is available for Excel Ltd.

| | Amount (Rs.) |
|---|---|
| Average stock of raw materials and stores | 2,00,000 |
| Average work-in-progress inventory | 3,00,000 |
| Average finished goods inventory | 1,80,000 |
| Average accounts receivable | 3,00,000 |
| Average accounts payable | 1,80,000 |
| Average raw materials and stores purchased on credit and consumed per day | 10,000 |
| Average work-in-progress value of raw materials committed per day | 12,500 |
| Average cost of goods sold per day | 18,000 |
| Average sales per day | 20,000 |

Calculate the duration of operating cycle.

**Question 3**

The following annual figures relate to manufacturing entity:

| | | |
|---|---|---|
| A. | Sales at one month credit | 84,00,000 |
| B. | Material consumption | 60% of sales value |
| C. | Wages (paid in a lag of 15 days) | 12,00,000 |
| D. | Cash Manufacturing Expenses | 3,00,000 |
| E. | Administrative Expenses | 2,40,000 |
| F. | Creditors extend 3 months credit for payment. | |
| G. | Cash manufacturing and administrative expenses are paid 1 months in arrear. | |

The company maintains stock of raw material equal to economic order quantity. The company incurs ₹ 100 as per ordering cost per order and opportunity cost of capital is 15% p.a. The optimum cash balance is determined using Baumol's model. The bank charges ₹ 10 for each cash withdrawal. Finished goods are held in stock for 1 month. The company maintains a bank balance of ₹12,00,000 on an average. Creditors are paid through net banking and all other expenses are incurred in cash which is withdrawn from bank.

Assuming a 20% safety margin, you are required to ESTIMATE the amount of working capital that needs to be invested by the Company.

# RECEIVABLES MANAGEMENT

**Question 1**

Easy Limited specializes in the manufacture of a computer component. The component is currently sold for Rs. 1,000 and its variable cost is Rs. 800. For the year ended 31.3.2014 the company sold on an average 400 components per month.

At present the company grants one month credit to its customers. The company is thinking of extending the same to two months on account of which the following is expected:

Increase in Sales 25%

Increase in Stock Rs.2,00,000

Increase in Creditors Rs.50,000

You advise the company on whether or not to extend the credit terms if:

(a) All customers avail the extended credit period of two months and

(b) Existing customers do not avail the credit terms but only the new customers avail the same.

Assume in this case the entire increase in sales is attributable to the new customers. The company expects a minimum return of 40% on the investment.

**Question 2**

A trader whose current sales are in the region of Rs. 6 lakhs per annum and an average collection period of 30 days wants to pursue a more liberal policy to improve sales. A study made by a management consultant reveals the following information:-

| Credit Policy | Increase in collection period | Increase in sales | Present default anticipated |
|---|---|---|---|
| A | 10 days | Rs. 30,000 | 1.5% |
| B | 20days | Rs. 48,000 | 2% |
| C | 30days | Rs. 75,000 | 3% |
| D | 45days | Rs. 90,000 | 4% |

The selling price per unit is Rs. 3. Average cost per unit is Rs. 2.25 and variable costs per unit are Rs. 2. The current bad debt loss is 1%.Required return on additional investment is 20%.Assumea 360 days year.

(A) Which option would you recommend?

(B) Give change in working based on incremental approach.

# CASH BUDGET

Question 1

A new manufacturing company is to be incorporated from January 1, 2015. Its authorised capital will be Rs. 2 crores divided into 20 lakh equity shares of Rs. 10 each. It intends to raise capital by issuing equity shares of Rs. 1 crore (fully paid) on 1stJanuary. Besides, a loan of Rs. 13 lakhs @ 12%per annum will be obtained from a financial institution on 1stJanuary and further borrowings will be made at same rate of interest on the first day of the month in which borrowing is required. All borrowings will be repaid along with interest on the expiry of one year. The company will make payment for the following assets in January.

| | Rs. (in lakhs) |
|---|---|
| Plant and Machinery | 20 |
| Land and Building | 40 |
| Furniture | 10 |
| Motor Vehicles | 10 |
| Stock of Raw Materials | 10 |

The following further details are available:

(1) Projected Sales (January-June):

| | ( Rs. in lakhs) | | ( Rs. in lakhs) |
|---|---|---|---|
| January | 30 | April | 40 |
| February | 35 | May | 40 |
| March | 35 | June | 45 |

(2) Gross profit margin will be 25% on sales.

(3) The company will make credit sales only and these will be collected in the second month following sales.

(4) Creditors will be paid in the first month following credit purchases. There will be credit purchases only.

(5) The company will keep minimum stock of raw materials of Rs. 10 lakhs.

(6) Depreciation will be charged @ 10% per annum on cost on all fixed assets.

(7) Payment of preliminary expenses of Rs. 1 lakh will be made in January.

(8) Wages and salaries will be Rs. 2 lakhs each month and will be paid on the first day of the next month.

(9) Administrative expenses of Rs.1 lakh per month will be paid in the month of the incurrence.

Assume no minimum required cash balance.

You are required to prepare the monthly cash budget (January-June), the projected Income Statement for the 6 months period and the projected Balance Sheet as on 30th June, 2015.

## Question 2

Prachi Ltd is a manufacturing company producing and selling a range of cleaning products to wholesale customers. It has three suppliers and two customers. Prachi Ltd relies on its cleared funds forecast to manage its cash.

You are an accounting technician for the company and have been asked to prepare a cleared funds forecast for the period Saturday 7 August to Wednesday 11 August 2021 inclusive. You have been provided with the following information:

**(1) Receipts from customers**

| | Credit terms | Payment method | 7 Aug 2021 sales | 7 Jul 2021 sales |
|---|---|---|---|---|
| W Ltd | 1 calendar month | BACS | ₹ 150,000 | ₹ 130,000 |
| X Ltd | None | Cheque | ₹ 180,000 | ₹ 160,000 |

(a) Receipt of money by BACS (Bankers' Automated Clearing Services) is instantaneous.

(b) X Ltd's cheque will be paid into Prachi Ltd's bank account on the same day as the sale is made and will clear on the third day following this (excluding day of payment).

**(2) Payments to suppliers**

| Supplier name | Credit terms | Payment method | 7 Aug 2021 purchases | 7 Jul 2021 purchases | 7 Jun 2021 purchases |
|---|---|---|---|---|---|
| A Ltd | 1 calendar month | Standing order | ₹ 65,000 | ₹ 55,000 | ₹ 45,000 |
| B Ltd | 2 calendar months | Cheque | ₹ 85,000 | ₹ 80,000 | ₹ 75,000 |
| C Ltd | None | Cheque | ₹ 95,000 | ₹ 90,000 | ₹ 85,000 |

(a) Prachi Ltd has set up a standing order for ₹ 45,000 a month to pay for supplies from A Ltd. This will leave Prachi's bank account on 7 August. Every few months,

an adjustment is made to reflect the actual cost of supplies purchased (you do NOT need to make this adjustment).

(b) Prachi Ltd will send out, by post, cheques to B Ltd and C Ltd on 7 August. The amounts will leave its bank account on the second day following this (excluding the day of posting).

**(3) Wages and salaries**

| | July 2021 | August 2021 |
|---|---|---|
| Weekly wages | ₹ 12,000 | ₹ 13,000 |
| Monthly salaries | ₹ 56,000 | ₹ 59,000 |

(a) Factory workers are paid cash wages (weekly). They will be paid one week's wages, on 11 August, for the last week's work done in July (i.e. they work a week in hand).

(b) All the office workers are paid salaries (monthly) by BACS. Salaries for July will be paid on 7 August.

**(4) Other miscellaneous payments**

(a) Every Saturday morning, the petty cashier withdraws ₹ 200 from the company bank account for the petty cash. The money leaves Prachi's bank account straight away.

(b) The room cleaner is paid ₹ 30 from petty cash every Monday morning.

(c) Office stationery will be ordered by telephone on Sunday 8 August to the value of ₹ 300. This is paid for by company debit card. Such payments are generally seen to leave the company account on the next working day.

(d) Five new softwares will be ordered over the Internet on 10 August at a total cost of ₹ 6,500. A cheque will be sent out on the same day. The amount will leave Prachi Ltd's bank account on the second day following this (excluding the day of posting).

**(5) Other information**

The balance on Prachi's bank account will be ₹ 200,000 on 7 August 2021. This represents both the book balance and the cleared funds.

PREPARE a cleared funds forecast for the period Saturday 7th August to Wednesday 11th August 2021 inclusive using the information provided. Show clearly the uncleared funds float each day.