

Assignment 1

Q1. d) IRR is the most reliable means of choosing between mutually exclusive projects

Q2. a) $\frac{\text{Market price of share}}{\text{Earning per share}}$

Q3. d) All of the above

Q4. Cash flow from operating

$$= 800000 + (63,30,000 - 230000)$$

$$= \cancel{900000} 910000$$

$\therefore$ (C) $\cancel{900000}$ 9,00,000

Q5. i) Cash flow = Sales - GST - Tax

$$= 2300 - 1500 - \left\{ \frac{40 \times 1000}{100} \right\}$$

$$= 600$$

ii) Discount rate = 20%

$$\text{NPV} = \text{PV of inflow} - \left\{ \text{PV of outflow} \right\}$$

$$= \frac{1300}{(1+0.2)} - \frac{1300}{1+0.2} - \frac{40 \times 1000}{100(1.02)}$$

$$= 800$$

iii) If the suppliers allow you for paying at date d then the NPV will increase now as the outflow is discounted for 2 years, due to which the NPV of outflow falls.

Q6. Following ratios can measure Business efficiency :-

① Inventory turnover period -

$$= \frac{\text{Inventories} \times 365}{\text{Cost of sales}}$$

→ This indicates how long inventory is used for on average. If this is less rapid than other companies in same industry, it may indicate an inefficiently large holding.

② Trade receivable turnover period -

$$= \frac{\text{Trade receivable} \times 365}{\text{Credit sales}}$$

→ This measures the average length of time taken for trade receivables to settle their balances.

→ A short period is good as it will be better for company's cashflow if their debtors pay off as soon as possible.

⑧ Trade payable turnover = $\frac{\text{Payables}}{\text{period} \times \text{credit purchases}}$

- The time taken by a company to pay for goods after their purchase
- The No. of days of payable show how effectively payments of bill is arranged

Q7. Ratio analysis is a very useful technique for the interpretation of financial statements, but it has following limitations

1. diverts attention →

It diverts attention from the figures and statements themselves. It is important to look at aspects such as the sheer size of the company under consideration. It is also important to look at information in the notes which is not usually reflected in the ratios.

2. Different Industries →

There can be peculiarities of the trade which make it difficult to interpret of certain ratios. A property company, say, might appear to have a very low return on capital employed. One reason for this is that the value of the

properties shown in the statement of financial position will be updated on a regular basis, thus increasing capital employed. This will make it difficult to compare results with a business whose assets have not been revalued.

3. Creative Accounting →

The statements could have been deliberately distorted by so called creative accounting. This involves the deliberate abuse of the subjectively inherent in accounting to select accounting policies or make assumptions which tend to bias the figures in the direction chosen by management.

4. Appropriate comparison →

Different accounting policies and some other external factors can affect comparisons. Two similar businesses could be affected to different extents by currency movements.

Q8. i) * Beta is a measurement of market risk or volatility.

* It indicates how much can the price of a stock can move up or down with respect to other stocks.

* A beta of 1 indicates the stock moves identically to the overall market.

* A beta indicates the volatility of a stock's price in comparison to the overall stock market.

* A beta > 1 $\rightarrow$ stock's prices are swinging more widely (more volatility) than the overall market.

* A beta < 1 $\rightarrow$ less volatile stock prices than the overall market.

* Beta says nothing about the price paid for the stock in relation to fundamental factors like new product discoveries, future cash flows or changes in company leadership.

* stock's beta may be changed over time since it compares the stock's return with the returns of the overall market.

ii) Geared beta = 1.1;

Debt: Equity = 1:2; Tax = 30%.

$$\text{Geared beta} = \text{Ungeared beta} \times \left\{ 1 + \left(\frac{\text{debt}}{\text{equity}} \right) \times (1 - t) \right\}$$

$$= 1.1 = x \times \left\{ 1 + \frac{1}{2} \times (1 - 0.3) \right\}$$

$$1.1 = x \times \left\{ 1 + 0.5 \times 0.7 \right\}$$

$$1.1 = x \times 1.35 \quad \rightarrow \quad x = \frac{1.1}{1.35} = 0.81481$$

Sol: Debt = 2 : 2 $\Rightarrow$ 1 : 1
Equity = 1 : 1

gearing beta = $0.814 \times \left\{ 1 + \left(\frac{1}{1} \right) \times 0.7 \right\}$
= 1.8852

Q9. The true statement is $\rightarrow$

B. In general the market value of investment firm is not correlated to the net present value.

Q10. i) $\rightarrow$ The goal of shareholder wealth maximization specifies how financial decisions should be made.

$\rightarrow$ In practice, not all management decisions are consistent with this objective.

$\rightarrow$ There can be sometimes divergences b/w wealth maximization goal and the actual goals pursued by management. The primary reason for this divergence has been attributed to separation of ownership and control (management) in corporation.

$\rightarrow$ Separation of ownership and control has permitted managers to pursue goals more consistent with their own self-interests as long as they satisfy shareholders sufficiently to maintain control of the corporation.

→ Instead of seeking to maximize some objective (such as shareholder wealth), managers "satisfice", or seek acceptable levels of performance, while maximizing their own welfare.

→ Maximization of their own personal welfare (or utility) may lead managers to be concerned with long-run survival (job security).

→ The concern for long-run survival of the firm may lead managers to minimize the amount of risk incurred by the firm, since unfavourable outcomes can lead to their dismissal or possible firm bankruptcy.

ii) Dividend / share (DPS) = ₹ 10

Market price / share (MPS) = ₹ 70

Growth rate (g) = 8%

Risk free rate = 6%

Equity risk premium = 5%

Dividend yield (d) = $(DPS / MPS) \times 100$
= 14.2857%

→ Cost of Equity = $d + g$

= 22.2857%

But, Cost of Equity = Risk free + Beta x (equity risk premium)

22.2857 = 6% + Beta x 5%

Beta = 3.25714

Here, Beta is measure of systematic risk of the company. If systematic risk increases by 80%, then beta also increases by 80%.

$$\text{New Beta} = \text{Beta} \times (1.8)$$

→ β

$$\beta = 5.86286$$

$$\text{Now, } \left. \begin{array}{l} \text{cost of equity} \\ \text{equity} \end{array} \right\} = \left. \begin{array}{l} \text{risk free rate} \\ \text{equity risk premium} \end{array} \right\} + \text{New beta} \times \text{market return}$$

$$\begin{aligned} \text{cost of equity} &= 6\% + 5.86286 \times 5\% \\ &= 35.31428\% \end{aligned}$$

$$\text{Also, } \left. \begin{array}{l} \text{cost of equity} \\ \text{equity} \end{array} \right\} = d + g$$

$$35.31428 = (DPS/y) \times 100 + 8\%$$

$$y = 36.61089$$

∴ Hence, the MPS of stock falls to ₹ 36.61089.

Q11. i) β measures the systematic risk associated with a stock and indicates how volatile a stock's price is as compared to the overall market experience.

ii) Consider a company,

$$\beta_x = \frac{\text{cov}(x, \text{market})}{\text{Var market}}$$

Var

market

$\sigma_{x,M}$

σ_M^2

$$\beta_x = \frac{\sigma_{x,M}}{\sigma_M^2}$$

where $\rho_{x,M} \rightarrow$ is the correlation

coefficient b/w the individual company's stock return & that of the market

σ_M & σ_x are standard devⁿ of the market index & company's stock return respectively.

or (iii) As an active stock market investor, β of i is preferred over $-i$

iv) govt bonds have a beta of 0.

Q12. i) $D/E = 1:1$
 $R_F = 7\%$ $\rightarrow R_0$
 Equity risk premium = 5%

$$CRA = 9\%$$

$$\beta = 1.5$$

$$t = 25\%$$

$$\text{Cost of Equity} = R_F + R_D \times \beta$$

$$= 7 + (5 \times 1.5)$$

$$= 14.5\%$$

$$\text{Net cost of debt} = CRA (1 - t)$$

$$= 6.75\%$$

$$WACC = \frac{\text{Net cost of debt} \times \text{MV of debt}}{\text{MV of debt} + \text{MV of Eq}} + \frac{\text{Cost of Equity} \times \text{MV of Equity}}{\text{MV of debt} + \text{MV of Eq}}$$

$$= \frac{6.75 \times 10000}{10000 + 10000} + \frac{14.5 \times 10000}{10000 + 10000}$$

$$= \frac{675 + 1450}{20000}$$

$$= \frac{2125}{20000}$$

$$= 10.625\%$$

ii) If all debt is repaid, we need to pay firm β ungeared in order to find Required return to equity

$$= B_{geared} = B_{ungeared} \left(1 + \frac{n}{e} (1-t) \right)$$

$$= 1.5 = B_{ungeared} (1 + (1.45\%))$$

$$= \underline{B_{ungeared} = 0.857}$$

$$R_{eq} = R_f + \{ R_p \times B_{ungeared} \}$$

$$(2 \times 2) = 4 + (5 \times 0.857)$$

$$R_{eq} = 11.285\% \quad \text{--- Answer}$$

Q13. (i) NPV @ IRR = 15%

$$\text{Annuity factor} = \frac{1 - \left(\frac{1}{1.15} \right)^4}{0.15}$$

$$= 2.855$$

$$NPV = (40000 \times 2.855) - (OF \text{ at } t_0)$$

$$0 = 114200 - OF$$

$$\boxed{OF = 114200}$$

PI = $\frac{NPV}{\text{out flows}}$

$$1.064 = \frac{NPV + 1}{114200}$$

this gives,

$$= NPV = ₹ 7308.8$$

iii) Cost of capital : (i)

$$7308.8 = 40000 \left\{ \frac{1 - (1+i)^{-4}}{i} \right\} - 114200$$

$$= 121308.8i = 40000 - 114200(1+i)^{-4}$$

Rate of $i = 12\%$

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iii) Cost of project = ₹ 1,14,200

iv) Payback = Outflow / to survival cost saving

a) $b = 000$ 2.86 years

Q14(i) a) 2 current ratio :- Ratio of current assets to current liabilities

It is used to assess whether the company will be able to pay its bills over the next few years

b) Debtors' Turnover period

$$\text{Accounts Receivable turnover} = \frac{\text{Avg accounts receivable}}{\text{Net Credit Sales}}$$

This is an accounting measure that qualifies a company's effectiveness in collecting its receivables.

ii) → Xylo Ltd. should use the quick ratio to ascertain whether the company would be able to meet its short term liabilities.

$$\rightarrow \text{Quick ratio} = \frac{\text{current assets} - \text{inventories}}{\text{current liabilities}}$$

→ This ratio deals with short-term of liquidity.

Q15. i) An investor would buy shares in this company as it offers a dividend yield of 4%. Even though shares are riskier in nature in terms of high volatility in returns as compared to a risk free security such as that of a government bond, it also offers a potential high return to the investor for the high level of risk taken.

Cost of equity = dividend + growth
 yield (here = 0)
 $= 4\% + 0$
 $= 4\%$

Net cost of debt = $8\% (1 - t)$
 $= 8\% (\because t = 0)$

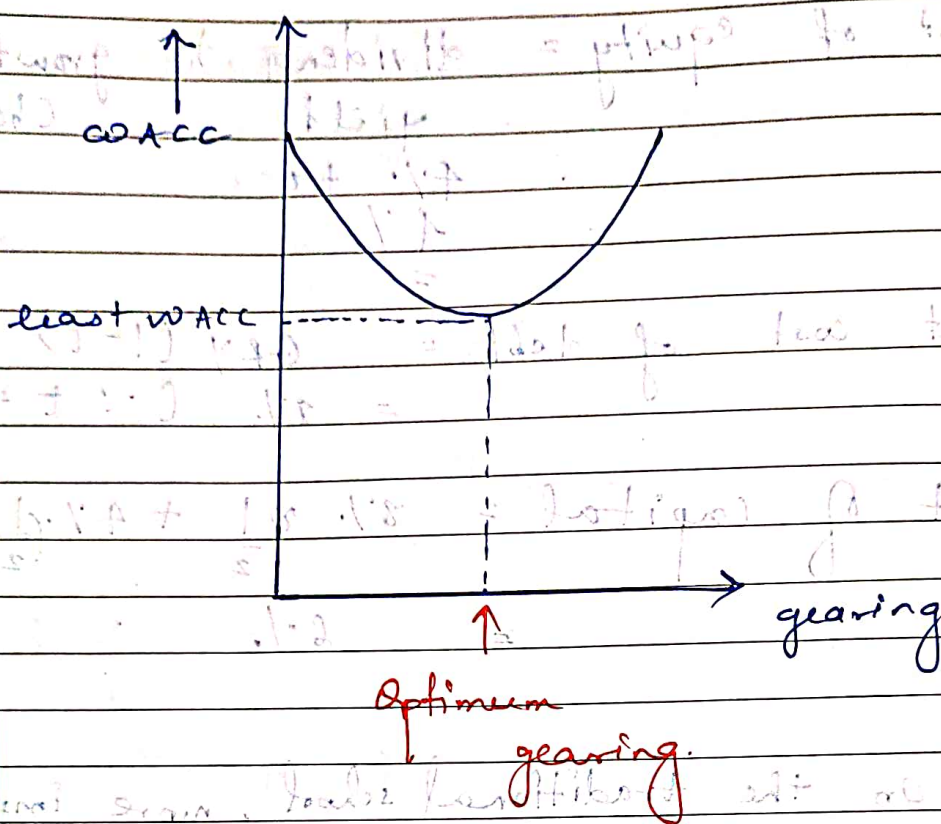
Cost of capital = $8\% \times \frac{1}{2} + 4\% \times \left(\frac{1}{2}\right)$
 $= 6\%$

ii) In the traditional school, more important was determining the amount of debt that a company could safely take on without risking bankruptcy in a severe recession.

Since debt is cheaper than equity, it is often desirable to increase the weight - age of the former in the capital structure in order to decrease WACC & consequently increase the valuation of the company.

3. But as and when gearing increases, the risk to investors (which includes both debt and equity financiers) also increases & so do their required returns.

4. Hence initially, when a company borrows shares, WACC falls due to favorable leverage but beyond a point WACC begins to increase.

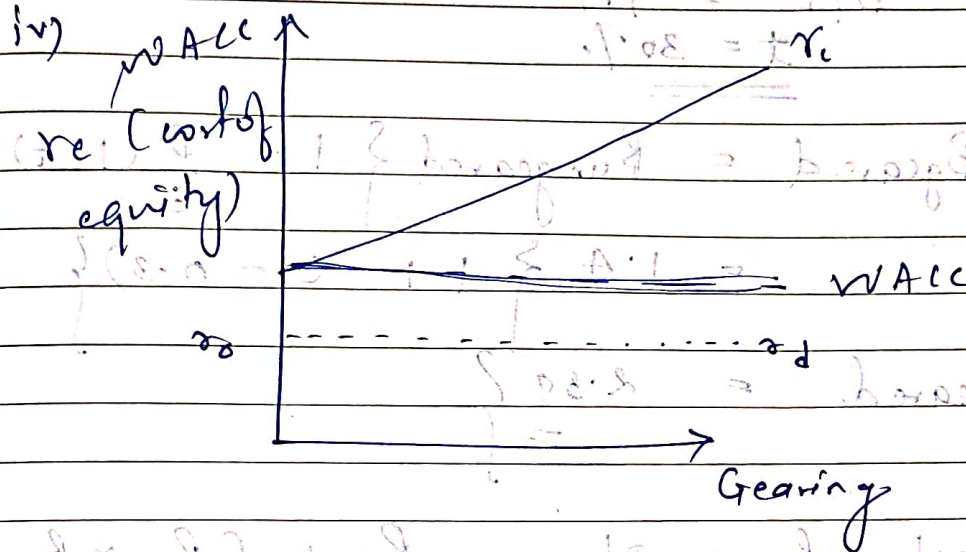


iii) Modigliani & Miller's first relevance proposition states that market value of the company is primarily dependent on its investment decisions and not its financing decisions.

→ It is professed that gearing will be irrelevant to the value of the company, thereby its WACC.

→ Its underlying assumptions include:
1. No taxes.
2. Unlimited personal and company borrowing is possible at a constant rate of interest.
3. Debt is risk-free.

- there are no agency costs
- there are no information asymmetries



Cost of capital using MM's first proposition.

v) a. $R_F = 6\%$

R_p (eq risk premium) = 5%

= $\beta_{\text{ungeared}} = 1.4$

= Cost of equity = $R_F + (R_p \times \beta)$
 $= 6 + (5 \times 1.4)$

Ans. $\rightarrow$ Cost of Equity = 13%

= b. Market Cap. = 100 m

Market debt value = 50%

= $D/E = 1:1$

$t = 30\%$

= $B_{geared} = B_{ungeared} \left\{ 1 + \frac{D}{E} (1-t) \right\}$

$= 1.4 \left\{ 1 + (1-0.3) \right\}$

= $\left\{ B_{geared} = 2.38 \right\}$

c. Cost of equity = $R_F + (R_p \times B_{geared})$

$= 6 + (5 \times 2.38)$

$\therefore$ Cost of equity = 17.9%