

Assignment -1
Unit 3 & 4

~~A1)~~ B) - IRR is less popular than NPV as a measure of project worth.

~~A2)~~ A) - Market price per share / earnings per share

~~A3)~~ D) - All of the above

~~A4)~~ D) - 10,00,000

~~A5) i)~~ Cash inflow = 2500

Cash outflow = 1500

~~Then~~ Total cashflow = 1000

tax rate = 40%

$i = 20\%$

$$\therefore 1000(1 - 40\%) = 600$$

ii) $PV \text{ of inflow} = 2500(1 + 20\%)^{-1}$
 $= 2083.3$

$$P.V \text{ of outflow} = 1500(1 + 20\%)^{-1}$$
$$= 1250$$

$$NPV = PV \text{ of inflow} - PV \text{ of outflow}$$
$$= 2083.3 - 1250$$
$$= 833.333$$

iii) If the supplier allows payment to be delayed then $PV \text{ of outflow} = 1500 \times (1.20)^{-2}$
 $= 1041.6667$

$$\Rightarrow NPV = 2083.33 - 1041.6667$$

$$NPV = 1041.6667$$

- 13) The efficiency ratios are related to the liquidity ratios. They give an insight into the effectiveness of the company's management of the components of working capital (current assets less current liabilities).

Inventory turnover period -
defined as -

$$\text{Stock turnover period} = \frac{\text{inventories}}{\text{Cost of sales}} \times 365$$

- This is an attempt to assess how much inventory the company holds in relation to the scale of the company's operations. The ratio attempts to show how long inventory is held for on average.
- One difficulty with the ratio is that the figure for inventories may be subject to seasonal variation. Also, the value placed on inventories will depend upon the accounting method used.

Trade receivables turnover period -

$$= \frac{\text{Trade receivables}}{\text{Credit sales}} \times 100$$

- It is desirable for this period to be as short as possible.
- It can, however, be difficult to press for speedier payment, as this could damage the company's relationship with its customers.
- If sales cannot be broken down then ratios will be distorted.

A similar ratio can be used to assess payables -

$$\text{Payables turnover period} = \frac{\text{Payables}}{\text{credit purchase}} \times 365$$

→ It can be difficult to calculate this ratio in real world because companies do not disclose their purchases figure. It is possible to obtain a basic estimate of the period by using cost of sales as a surrogate for purchases.

A7). Some limitations of ratio analysis can be -

→ It diverts attention from the figures and statements themselves - It is important to look at figures such as the sheer size of the company. A larger company will have more bargaining power.

It is also important to look at the notes which are generally not reflected in the ratios.

→ The statements could be deliberately distorted - This involves deliberate abuse of subjective interest in accounting to select accounting policies or, make assumptions which can lead to a bias in the figures in the direction chosen by the management.

→ The peculiarities of trade can make it difficult to interpret certain ratios - A property ^{company} might have very low return on capital employed as the value of properties shown in statement of financial position will be updated on a regular basis. Thus, making it increase everyday. This makes it difficult to compare results with a business whose assets haven't been revalued.

A8) → CAPM divides the volatility of a stock's price into 2 parts of ~~people~~ specific risk & systematic risk.

- Specific risk can be diversified away.
- Systematic risk cannot be eliminated by diversification.
- There is an underlying cycle of business which will tend to hit or affect the business at the same time.
- Inflation rate.
- Tax and change in tax.
- Unforeseen future events.

ii) geared beta = 1.1

$$D:E = 1:2$$

$$t = 30\%$$

Ungeared beta = β_{ug}

$$\beta_g = \beta_{ug} \left(\frac{1 + \frac{D}{E} (1-t)}{1} \right)$$

$$1.1 = \beta_{ug} \left(\frac{1 + \frac{1}{2} (1-30\%)}{1} \right)$$

$$1.1 = \beta_{ug} \left(\frac{1 + \frac{1}{2} (70\%)}{1} \right)$$

$$\beta_{ug} = 0.81482$$

Beared Geared beta with revised D:E ratio

$$\beta_g = \beta_{ug} \left(\frac{1 + \frac{D}{E} (1-t)}{1} \right)$$

$$= 0.81482 \left(\frac{1 + \frac{2}{2} (70\%)}{1} \right)$$

$$\beta_g = 1.3851851$$

Date: 15

A9). D - In general the market value of investment trust is not correlated to the net present value.

110) It may be difficult for the directors to do so. There are many ways in which maximisation of shareholders wealth may not be in the directors best interests.

- Shareholders can diversify risk in a way that directors can't. Hence, directors may be more risk averse in decision making than shareholders would prefer.
- Many directors have sufficient integrity to overcome any such pressures, but it will be difficult to distinguish them from those who haven't.

11) Current stock price = 70
Current dps = 10.
growth = 8%
risk free rate = 6%.
MRP = 5%.

$$\text{Return on equity} = \text{MRP} + \text{Risk free rate} \\ = 11\%$$

$$\begin{aligned} \text{Required return on equity} &= \text{dividend yield} \times 100 + \text{growth} \\ \text{of company} &= \frac{10}{70} \times 100 + 8\% \\ &= 22.2857\% \end{aligned}$$

$$\begin{aligned} \text{cost of equity} &= R_f + \text{MRP} = 22.085\% = 6\% + 5\% \text{ b.} \\ \therefore R &= 2.88096 \end{aligned}$$

Systematic risk increases by 80%. $\therefore \beta$ increases by 8%.

$$\therefore \text{cost of equity} = 15\% + 6.80\% \times 5.8571 \quad \therefore \text{new } \beta = 0.8571$$

$$\text{New MRP} = 12\% \quad = 38.6034000$$

$$\text{increase} = 70 \times (1 + y\%) > 126 \therefore y\% = \frac{126 - 70}{70} \times 100 = 88\%$$

Alt) i) Beta is a way of measuring systematic risk. It is the measure of volatility of an individual stock compared to the market as a whole.

$$\text{Beta} = \frac{\sigma_{im}}{\sigma_m^2}$$

σ_{im} is the covariance of the individual stock of the market & σ_m^2 is the variance.

ii) Beta can be determined by understanding the return provided by a stock in comparison to the return of the market as a whole.

iii) I would invest in a stock with a beta 1 as that will amplify the return of the market and it is expected that market prices will grow in positive direction.

iv) Fixed deposit or government treasury bonds.

iv) Cash.

Alt) Debt : Equity = 1:1, Risk free return = 7%,
equity risk premium = 5%, cost of debt = 9%,
 $R = 1.5\%$, $t = 0.5$.

$$\begin{aligned}\text{Cost of equity} &= R_F + \text{Equity Risk Premium} \times R \\ &= 7\% + 5\% \times 1.5 \\ &= 14.5\%\end{aligned}$$

i) Net cost of debt = gross cost of debt $(1 - \text{tax})$.
 $= 9\% (1 - 25\%)$
 $= 6.75\%$

$$WACC = \text{cost of equity} \times \frac{\text{Market value of E} + \text{cost of debt}}{\text{M.V of E} + \text{M.V of debt}}$$

$$\downarrow$$

$$\times \frac{\text{M.V of debt}}{\text{M.V of E} + \text{M.V of debt}}$$

$$= 14.5\% \times \frac{1}{1+1} + 6.75\% \times \frac{1}{1+1}$$

$$= 7.25 + 3.375$$

$$= 10.625\%$$

ii) Ungeared beta $B_{\text{un}} = B_{\text{ug}} \left(1 + \frac{D}{E} (1 - t) \right)$

$$1.5 = B_{\text{ug}} \times (1 + 1 (1 - 25\%))$$

$$\Rightarrow B_{\text{ug}} = 0.85714$$

$$R_E = R_F + MRP \times B$$

$$= 7\% + 5\% \times 0.85714$$

$$R_E = 11.285\%$$

113) Annual cost saving = ₹40,000

Useful life = 4 years

IRR = 15%

PI = 1.064

Salvage value = 0

ii) At IRR,

$$PV \text{ of outflow} = PV \text{ of Inflows}$$

$$\therefore \text{Cost of project} = 290000 \times 2.855$$

114) (i) Current ratio - Ratio of current assets to current liabilities.

This ratio is used to assess whether the company will be able to pay its bills over the next few months. It provides a comparison of an estimate of amount of money due to be received in a short term with an estimate of the amount of money to be paid.

b) Debtor's turnover period - Measure of avg. length of time taken for debtors to settle their balance.

$$\text{Debtor's turnover period} = \frac{\text{Trade receivables} \times 365}{\text{credit sales}}$$

It is used to measure how effective a company is in extending credits as well as collecting debts. It is desirable for the period to be as short as possible.

ii) The finance manager should track the quick ratio.

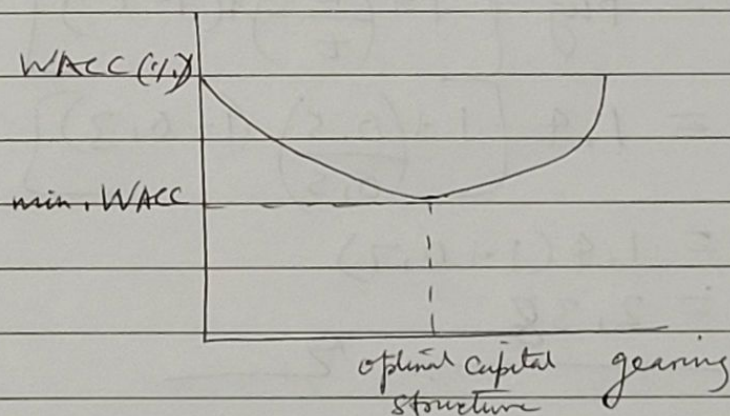
$$\text{Quick ratio} = \frac{\text{Current assets} - \text{inventories (stocks)}}{\text{Current liabilities}}$$

A15) i) Investors will invest in the shares of this company.

- To diversify the portfolio (minimise systemic risk).
- To maximise return as they would be believing in earning higher returns (increasing idiosyncratic risk).
- Other reasons specific to the investors eg. ~~at~~ own faith & beliefs.

The suitable cost of capital is higher than 6%.

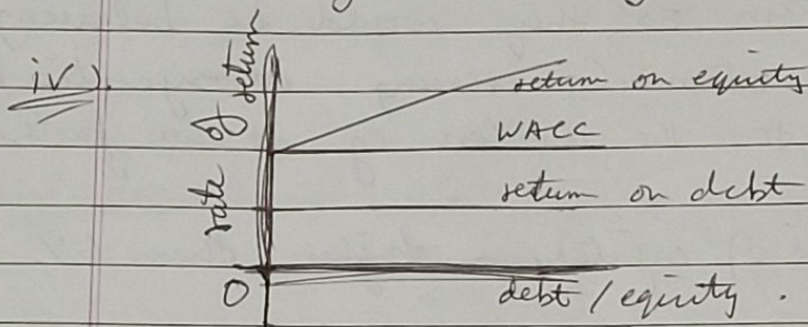
ii) Debt is cheaper than equity finance, so as gearing increases, the WACC should fall. However, increasing the proportion of debt finance increases the risk to shareholders, so shareholders demand a greater return for this increased risk. $\therefore$ beyond a certain level of gearing, the downward effect of WACC of increasing the debt finance in the business will be more than offset by the increase in the return required by shareholders.



iii) 1st proposition of Modigliani & Miller: The market value of any firm is independent of the capital structure. The assumptions are -

- No taxes in economy
- Debt is risk-free
- No agency costs.
- Unlimited personal & company

- Unlimited personal & company borrowing is possible at same interest
- No information asymmetries.



WACC remains constant as gearing increases, and the cost of equity also increases (enough to offset increasing proportion of cheaper debt).

v) a) Cost of equity = risk-free return + beta

$$= 6\% + 1.4(5\%)$$

$$= 13\%$$

b)

$$B_g = B_{ug} \left[1 + \left(\frac{D}{E} \right) \times (1 - t) \right]$$

$$B_g = 1.4 \left[1 + \left(\frac{0.5}{0.5} \right) \cdot (1 - 0.3) \right]$$

$$= 1.4(1 + 0.7)$$

$$B_g = 2.38$$

c) Cost of equity = $6\% + (2.38 \times 5\%)$

$$= 17.9\%$$

X ————— X ————— X