

ASSIGNMENT 1

BUSINESS FINANCE-2

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FY SECTION B
ROLL NO: 85

1) D. IRR is the most reliable means of choosing between mutually exclusive projects.

2) A. Market price of share / Earning per share.

3) D. All of the above.

4) A. 12,00,000

5) Sales = 2500

Costs = 1500

Tax rate = 40%

Discount rate = 20%

i) Cashflow from the project at date 1 includes :-

a) An inflow of 2500 due to sales.

b) An outflow of 1500 due to costs.

c) An outflow of 40% of (sales - costs) due to tax.

$$\begin{aligned}\text{Therefore, net cash inflow at date 1} &= (\text{sales} - \text{costs})(1 - \text{tax rate}) \\ &= (2500 - 1500)(1 - 0.4) \\ &= \underline{\underline{600}}\end{aligned}$$

[This includes :-

i) net inflow of $2500 - 1500 = 1000$

ii) net outflow of $40\% \text{ of } 1000 = 400$]

ii) NPV of the project = $2500 - 1500 = \underline{\underline{1000}}$

iii) New NPV = $\frac{2500 - 1500}{(1 + \text{discount rate})}$

$$= \frac{2500 - 1500}{1 + 0.2}$$

$$= 2500 - 1250$$

$$= \underline{\underline{1250}}$$

∴ the NPV increases by 1250 compared to the previous question.

6) To measure business efficiency, the following ratios can be used:-

i) Inventory turnover period

It is 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. Inventories include finished goods, work-in-progress, and raw materials.

This ratio can be used because it attempts to show how long inventory is held for on average. An inventory turnover period that is less rapid than other countries companies in the same industry might indicate an inefficiently large inventory holding.

ii) Trade receivables turnover period

This is a measure of the average length of time taken for trade receivables to settle their balance.

$$\text{trade receivables turnover period} = \frac{\text{trade receivables}}{\text{credit sales}} \times 365$$

This ratio can be used because as it is a measure of the average length of time taken for trade receivables to settle their balance, it is desirable that

this period be as short as possible. It will be better for the company's cashflow if those owing the company money pay as quickly as possible.

7) Limitations of ratio analysis are:-

i) 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. A larger company will have more bargaining power and may be able to enjoy economies of scale. It is also important to look at ~~different~~ information in the notes which is not usually reflected in the ratios. If someone is suing the company for damages, this will be disclosed in a note stating the amount claimed and possibly giving an indication of the expected outcome. There will not be any mention of the matter in the statement of financial position itself.

ii) Comparisons can be affected by different accounting policies or by other external factors. $\neq$

If, for example, two haulage companies use different methods for the calculation of depreciation then any ratios based on their financial statements might not be comparable. Similarly, two similar businesses could be affected to different extents by currency movements. A vehicle distributor selling Japanese cars will be exposed to movements in the value of Yen to a much greater extent than a distributor of British cars.

iii) There could be peculiarities of the trade which make it difficult to interpret 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.

iv) The statements could have been deliberately distorted by so called creative accounting.

This involves the deliberate abuse of the subjectivity inherent in accounting to select accounting policies or make assumptions which tend to bias the figures in the direction chosen by management.

8) i) Stocks trade at different betas in the stock market because:-

a) Different companies have different capital structures.

β values changes with respect to the level of gearing of a company. Therefore, the beta values of stocks of different companies with different gearing would be different from each other.

b) The business risk associated with different companies are ~~are~~ different.

Different companies in different sectors have different business risks, which leads to a difference in the betas of their stocks.

$$\text{ii) } \beta_{\text{geared}} = 1.1$$

$$\frac{\text{Debt}}{\text{Equity}} = 1:2$$

$$\text{Corporate tax rate} = 30\%$$

$$\beta_{\text{geared}} = \beta_{\text{ungeared}} \left[1 + \frac{\text{debt}}{\text{equity}} (1 - \text{tax rate}) \right]$$

$$\Rightarrow 1.1 = \beta_{\text{ungeared}} \left[1 + \frac{1}{2} (1 - 0.3) \right]$$

$$\Rightarrow 1.1 = \beta_{\text{ungeared}} \left[1 + \frac{0.7}{2} \right]$$

$$\Rightarrow 1.1 = \beta_{\text{ungeared}} \times 1.35$$

$$\Rightarrow \beta_{\text{ungeared}} = \frac{1.1}{1.35}$$

$$\Rightarrow \underline{\beta_{\text{ungeared}} = 0.815}$$

If the debt equity ratio is 2:2,

$$\beta_{\text{geared}} = \beta_{\text{ungeared}} \left[1 + \frac{\text{debt}}{\text{equity}} (1 - \text{tax rate}) \right]$$

$$= 0.815 \left[1 + \frac{2}{2} (1 - 0.3) \right]$$

$$= 0.815 \times 1.7$$

$$= \underline{\underline{1.385}}$$

9) ~~A) to~~ B) In general the market value of investment trust is higher than the net present value.

10) i) * In order to increase shareholder wealth, the company may take up projects ~~so~~ that would, in the long run, reap profits, but may not be profitable in the short term. This may not be in the best interest of the creditors (who have provided loans to the company) because creditors are only interested in the short term gains of the company and they would need immediate profits for the company so that the company would be able to pay back as soon as possible.

* This may lead to the creditors increasing the rate of interest fearing default and this would be disadvantageous to the company.

* The consumers and other stakeholders of the company may assume that they are not of importance to the company and that they are being exploited.

ii) Market price of share = Rs. 70

Dividend per share = Rs. 10

Growth rate = 8%

Risk free rate = 6%

Market risk premium = 5%

Required return

$$\text{Dividend yield} = \frac{\text{Dividend per share}}{\text{Market price of share}} \times 100$$

$$= \frac{10 \times 100}{70} = \frac{1000}{70} = \underline{\underline{14.2857\%}}$$

$$\begin{aligned}\text{Required return on equity} &= \text{dividend yield} + \text{growth rate} \\ &= 14.2857 + 8 \\ &= \underline{\underline{22.2857\%}}\end{aligned}$$

Also,

$$\text{required return on equity} = \text{risk free rate} + \left(\text{market risk} \times \beta \right)_{\text{premium}}$$

$$\Rightarrow 22.2857 = 6 + 5\beta$$

$$\Rightarrow 5\beta = 16.2857$$

$$\Rightarrow \underline{\underline{\beta = 3.26}}$$

β is a measure of systematic risk,
so if systematic risk is increased by 80%,

$$\beta_{\text{increased}} = \beta (1 + 0.8)$$

$$= 0.9$$

$$= 1.8\beta$$

$$= 1.8 \times 3.26$$

$$= \underline{\underline{5.863}}$$

$$\begin{aligned}\text{Therefore, the new required return on equity} &= 6 + (5 \times 5.863) \\ &= 35.315\%\end{aligned}$$

$$\Rightarrow 35.315 = \text{new dividend yield} + 8$$

$$\begin{aligned}\Rightarrow \text{new dividend yield} &= 35.315 - 8 \\ &= \underline{\underline{27.315\%}}\end{aligned}$$

$$\Rightarrow 27.315 = \frac{10}{\text{new market price of share}} \times 100$$

$$\Rightarrow \text{new market price of share} = \frac{10}{0.27315} = \underline{\underline{36.6099 \text{ Rs}}}$$

Therefore, if the systematic risk is increased by 80%, the share price will decrease by $(70 - 36.6099) = \text{Rs. } 33.3901$

- ii) i) Beta represents the volatility of the individual share compared to the market as a whole. It is a measure of systematic risk.

$$\beta_i = \sigma_{im} / \sigma_m^2$$

where σ_m^2 is the variance of the market index and σ_{im} is the covariance between the individual stock's return and that of the market.

An alternative expression for β is :-

$$\beta_i = \frac{\rho_{im} \sigma_i}{\sigma_m}$$

where ρ_{im} is the correlation between the individual stock's return and that of the market.

σ_i and σ_m are the standard deviations of the individual stock and the market index respectively.

ii) Beta can be determined using the above formula.

iii) A beta of 1 indicates that the stock's price tends to move with the market, whereas a beta of -1 would signify a stock whose performance is counter cyclical, offsetting the overall market experience.

As an active stock market investor, it would be better to invest in a stock of beta 1.

iv) Treasury bills, government bonds.

$$12) \frac{\text{debt}}{\text{equity}} = \frac{1}{1}$$

risk free rate = 7%

equity risk premium = 5%

gross cost of debt = 9%

Beta (β) = 1.5

tax rate = 25%

$$\begin{aligned} \text{i) Net cost of debt} &= \text{gross cost of debt} (1 - \text{tax rate}) \\ &= \frac{9}{100} (1 - 0.25) \end{aligned}$$

$$= \frac{9 \times 0.75}{100}$$

$$= 6.75\%$$

$$\begin{aligned} \text{Cost of equity} &= \text{risk free rate} + (\text{market risk premium} \times \beta) \\ &= 7 + (5 \times 1.5) \\ &= 14.5\% \end{aligned}$$

$$\begin{aligned}
 \text{Weighted average cost of capital (WACC)} &= \left(\frac{\text{net cost of debt} \times \text{debt}}{\text{debt} + \text{equity}} \right) \\
 &\quad + \left(\frac{\text{cost of equity} \times \text{equity}}{\text{debt} + \text{equity}} \right) \\
 &= \left(6.75 \times \frac{1}{2} \right) + \left(14.5 \times \frac{1}{2} \right) \\
 &= \frac{1}{2} (6.75 + 14.5) \\
 &= \underline{\underline{10.625\%}}
 \end{aligned}$$

ii) If ABC repays all debt, only the ~~β~~ ungeared beta remains.

$$\beta_{\text{geared}} = \beta_{\text{ungeared}} \left[1 + \frac{\text{debt}}{\text{equity}} (1 - \text{tax rate}) \right]$$

$$\Rightarrow 1.5 = \beta_{\text{ungeared}} \left[1 + \frac{1}{1} (1 - 0.25) \right]$$

$$\Rightarrow 1.5 = \beta_{\text{ungeared}} \times 1.75$$

$$\Rightarrow \beta_{\text{ungeared}} = \frac{1.5}{1.75}$$

$$\Rightarrow \beta_{\text{ungeared}} = \underline{\underline{0.857}}$$

Therefore, new required return to equity = risk free rate + (equity risk premium $\times \beta_{\text{unlevered}}$)

$$= 7 + (5 \times 0.857)$$

$$= \underline{\underline{11.285\%}}$$

- 14) i) a) Current ratio is equal to the current assets divided by ~~the~~ current liabilities of a company.

$$\text{Current ratio} = \frac{\text{current assets}}{\text{current liabilities}}$$

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 the amount of money due to be received in the short term with an estimate of the amount of money to be paid. Normally, a low ratio might indicate that a company may have problems paying its creditors. An excessively high ratio may indicate that the management has too much money tied up in unproductive short-term assets.

- b) Debtors turnover ^{period} ~~ratio~~ is a measure of the average length of time taken for trade receivables to settle their balance.

$$\text{Debtors turnover period} = \frac{\text{trade receivables}}{\text{credit sales}} \times 365$$

It is used to measure the average length of time taken for trade receivables to settle their balance. It is desirable for this period to be as short as possible. It will be better for the company's cashflow if those owing the

company money pay as quickly as possible.

ii) It should track the quick ratio.

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

This ratio is aimed at looking at short-term liquidity. It focuses on ~~so~~ readily realisable cash. It considers what would happen if all creditors and debtors' accounts were settled immediately.

A quick ratio of much less than one might be a sign that the company may struggle to pay its creditors. The quick ratio is also known as the acid test, or the liquidity ratio.

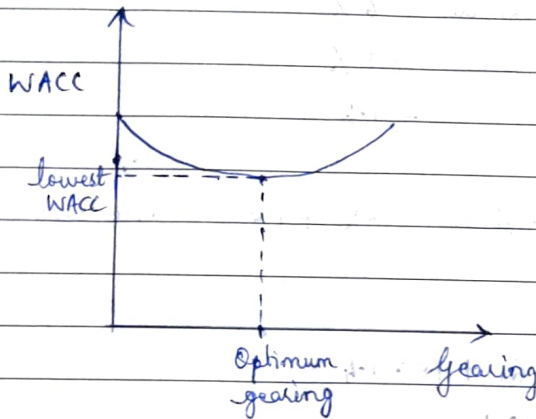
15) i) Insufficient information.

ii) The traditional view of the effect of gearing says that the capital structure of a company is relevant, change in capital structure shall affect WACC, and thereby the valuation of the company.

When gearing increases, the ~~risk to~~ WACC decreases. But, as gearing increases, the risk to the investors also increases and so their required return increases.

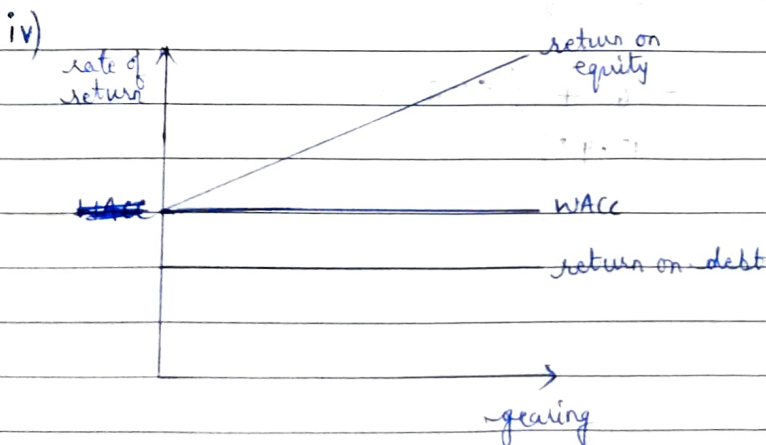
~~ie~~, when gearing increases, the risk borne by equity shareholders also increases, thereby they would require higher rate of return, thereby increasing the cost of ~~so~~ equity.

Initially when company borrows, WACC will ~~de~~ decrease (due to favourable leverage), but beyond a point, WACC begins to increase.



iii) Modigliani and Miller's first irrelevance proposition was that gearing will be irrelevant to the value of the company, ~~thereby WACC~~ would remain same irrespective of the capital structure, given certain assumptions. The assumptions are:-

- The company has only debt and equity financing.
- No taxes.
- Perfect information is available to all, no information asymmetry.
- Loan is available to all at same rate of interest.
- There is no agency cost.
- Interest rate will be constant.



v) a) risk free rate of return = 6%
 equity risk premium = 5%
 $\beta_{\text{ungeared}} = 1.4$

$$\begin{aligned}\text{Cost of equity} &= \text{risk free rate} + (\text{equity risk premium} \times \beta_{\text{ungeared}}) \\ &= 6 + (5 \times 1.4) \\ &= \underline{\underline{13\%}}\end{aligned}$$

b) Total market capitalization = 100m

Book value of debt = 40%

Market value of debt = 50%

Tax rate = 30%

$$\begin{aligned}\beta_{\text{geared}} &= \beta_{\text{ungeared}} \times \left(1 + \frac{\text{debt}}{\text{equity}} (1 - \text{tax rate})\right) \\ &= 1.4 \times \left(1 + \frac{1}{1} (1 - 0.3)\right) \\ &= 1.4 (1 + 0.7) \\ &= 1.4 \times 1.7 \\ &= \underline{\underline{2.38}}\end{aligned}$$

c) Cost of equity = risk free rate + (equity risk premium ~~3~~ $\times \beta_{\text{geared}}$)

$$\begin{aligned}&= 6 + (5 \times 2.38) \\ &= \underline{\underline{17.9\%}}\end{aligned}$$