

Business Finance 2 Assignment Questions - 1

1. D $\rightarrow$ IRR is the most reliable means of choosing between mutually exclusive projects.

2. A $\rightarrow$ Market Price of share / Earning per share

3. D $\rightarrow$ All of the above

4. D $\rightarrow$ 10,00,000

5. i) $EBIT = \text{Sales} - \text{Costs}$
 $= 2500 - 1500$
 $= 1000$

Taxes = 40% of 1000
 $= 400$

Cash flow from the project = Net operating profit after tax (NOPAT)

$NOPAT = EBIT - \text{Taxes}$
 $= 1000 - 400$
 $\Rightarrow \boxed{600}$

ii) Present Value of Inflow = $\frac{600}{1.2} = 500$

$NPV = \text{PV of Outflow} - \text{PV of Inflow}$

iii) NPV will go up.

6. To measure the efficiency of the business, I will analyse Efficiency Ratios. These are:-

- Inventory 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. A less rapid Inventory turnover period, than other companies in the same industry might face an inefficiently large inventory holding.

- Trade Receivable Turnover period = $\frac{\text{Trade Receivables}}{\text{Credit Sales}} \times 365$

This is a measure of 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 as it will be better for the company's cash-flow.

- Trade Payables Turnover Period = $\frac{\text{Trade payables}}{\text{credit purchases}} \times 365$

This ratio indicates the average number of days credit that a company has from its suppliers. A high ratio may indicate that the company is able to obtain a long credit period from its suppliers, which will be of benefits to its cash-flow.

7. The limitations of Ratio Analysis are:

- Diverts attention
 - It diverts attention from the figures and statements themselves, as it does not consider the size of the company.
- Appropriate comparison
 - Comparisons can be affected by different accounting policies or by other external factors, so ratio analysis may not be useful in presenting appropriate comparison.
- Different Industries
 - There could be peculiarities of the trade which make it difficult to interpret certain ratios.
- Creative Accounting
 - Ratio analysis may not show the true picture if there is an opportunity for management to apply bias towards few accounting policies and assumption which is called creative accounting.

8. i) Stocks trade at different betas in stock market because of different debt Ratio, Brand value.

Some stocks are used more for speculative purposes hence more volatile.

$$ii) \text{Gearing Beta} = \text{Ungeared Beta} + \left(1 + \frac{D}{E} * (1 - \text{Tax})\right)$$

$$1.1 = \text{Ungeared Beta} + \left(1 + \frac{1}{2} * 0.7\right)$$

$$\text{Ungeared Beta} \Rightarrow 0.8148$$

$$\text{New Gearing Beta} = 0.8148 + \left(1 + \frac{2}{2} * 0.7\right)$$

$$\Rightarrow 1.385$$

9. A) In general the market value of investment trust is lower than the net present value.

10. i) The first problem is that the directors are often perceived as having their own interests that are at odds with those of the shareholders. They might have an interest in enhancing their own rewards at the expense of the shareholders or of avoiding acceptable risks to put their job security before the wellbeing of the shareholders.

The second problem is in measuring Shareholder wealth. This is clearly indicated by the share price, but that can be a volatile indicator, that is not necessarily affected by just the company's efforts to manage the shareholders' wealth.

ii) Price of the share = 70
 $Div_0 = 10$
 Growth (g) = 8%
 Risk free rate = 6%
 Risk premium = 5%

Expected dividend = $Div_1 = Div_0 * (1+g) = 10 * 1.08 = 10.8$

Return on Equity = $\left(\frac{Div_1}{Price} \right) + g$
 $= \left(\frac{10.8}{70} \right) + 0.08 = 23.43\%$

Also,

Return on Equity = Risk free rate + (Beta $\times$ Eq. Risk premium)

$23.43 = 6 + 5 * Beta$

$Beta = 3.486$

Now, systematic risk is increased by 80%, i.e., Beta is increased by 80%.

New Beta = 6.275

So, New Return on Equity

$= 6 + (5 * 6.275)$

$\Rightarrow 37.375\%$

New Share Price

$= \frac{Div_1}{R_E - g} = \frac{10.8}{0.37375 - 0.08}$

$\Rightarrow Rs. 36.77$

★ Share price is expected to fall from current level of Rs. 70 to Rs 36.77 by 33.23%

11. i) The Beta of a project is a measure of the systematic risk of the project relative to a diversified portfolio of all risky assets (i.e. the market).

The market would have a beta of 1.

The beta of the company (B_p) is $\frac{?}{?}$

$$B_p = \frac{\sigma_{pm}}{\sigma_m^2}$$

ii) The beta of the company may be measured by:

- considering the industry beta based on a range of companies undertaking similar activities.
- looking at the company's historical returns on equity and comparing against market returns, but subject to significant variation for example dependent upon the time period considered.
- estimating, based on knowledge of the company and its industry and how the industry might react to changes in the market.

iii) A stock with a beta of 1 implies that the stock behaves in line with the market. Depending on expectations of market movements, as an aggressive investor, I may wish to invest in stocks with higher positive beta to maximise short term gains.

A stock with a negative beta of 1 signifies that the stock behaves opposite to the market. If the market index improves, the stock will lose value and vice-versa. These may be attractive in the short to medium term.

iv) 'Cash' is likely to have a beta of 0.

$$\begin{aligned} 12. \text{ i) Cost of Equity} &= \text{Risk free rate} + (\text{beta} \times \text{Equity risk premium}) \\ &= 7\% + (1.5 \times 5\%) \\ &= 14.5\% \end{aligned}$$

$$\begin{aligned} \text{Cost of Debt} &= \text{Gross Cost of Debt} \times (1 - \text{Tax Rate}) \\ &= 9\% \times (1 - 25\%) \\ &= 6.75\% \end{aligned}$$

$$\text{WACC} = (0.5 \times 14.5\%) + (0.5 \times 6.75\%)$$

$$\Rightarrow 10.625\%$$

$$\begin{aligned} \text{ii) } \beta_g &= \beta_u \times \left[1 + \frac{D}{E}(1-t) \right] \Rightarrow 1.5 = \beta_u \times \left[1 + \frac{1}{1}(1-25\%) \right] \\ 1.5 &= \text{Ungeared beta} \times 1.75 \end{aligned}$$

$$\text{ungeared beta} \Rightarrow 0.857143$$

$$\begin{aligned} \text{New cost of equity} &= \text{Risk free rate} + (\text{Ungeared beta} \times \text{Equity risk premium}) \\ &= 7\% + (0.857143 \times 5\%) \end{aligned}$$

$$\Rightarrow 11.29\%$$

13.

i)

$$(i) NPV = ₹ 7,309, (ii) \text{ Cost of Capital} = 12\%$$

$$(iii) \text{ Cost of Project} = ₹ 1,14,200, (iv) \text{ Payback} = 2.855 \text{ years}$$

$$PV \text{ of Cash Outflows} = PV \text{ of Cash Inflows}$$

$$\begin{aligned} \text{Cost of Project} &= ₹ 40,000 \times \left(\frac{1}{1.15} + \frac{1}{(1.15)^2} + \frac{1}{(1.15)^3} + \frac{1}{(1.15)^4} \right) \\ &= ₹ 40,000 \times 2.855 \\ &= ₹ 1,14,200 \end{aligned}$$

$$\text{Profitability Index} = \frac{P.V. \text{ of Cash Inflows at Cost of Cap.}}{\text{Cost of Project}}$$

$$\begin{aligned} P.V. \text{ of Cash Inflows at COC} &= ₹ 1,14,200 \times 1.064 \\ &= ₹ 1,21,509 \end{aligned}$$

$$\begin{aligned} NPV \text{ at COC} &= ₹ 1,21,509 - ₹ 1,14,200 \\ &= ₹ 7,309 \end{aligned}$$

$$\begin{aligned} \text{Cumulative PVAF at COC} &= \frac{PV \text{ of Cash Inflows}}{\text{Annual Cash Inflows}} \\ &= \frac{1,21,509}{40,000} = \underline{3.038} = \frac{1}{1.12} + \frac{1}{(1.12)^2} + \frac{1}{(1.12)^3} + \frac{1}{(1.12)^4} \end{aligned}$$

$$\text{Hence Cost of Capital} = 12\%$$

$$\text{Payback Period} = \frac{\text{Cost of Project}}{\text{Annual Cost Saving}} = 2.855 \text{ years}$$

14. i)

a) Current Ratio

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

→ This is a liquidity ratio that measures a company's ability to pay short term obligations or those due within one year.

$$\text{b) Debtors Turnover period} = \frac{\text{Debtors (Trade Receivables)}}{\text{Credit Sales}} \times 365$$

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

→ 'Debtors Turnover period' is also called 'Trade Receivables Turnover Period'.

ii) The finance manager of Xylo Ltd. should track the 'quick ratio.'

$$\text{Quick Ratio} = \frac{\text{Current Assets} - \text{Inventories}}{\text{Current Liabilities}}$$

15.

i)

Investors will invest in the shares of this company:

- To diversify the portfolio as to minimise systematic risk
- To maximise return as they would be believing in earning higher returns.
- Other reasons specific to the investor, eg strategic holding, personal attachment with the company, etc.

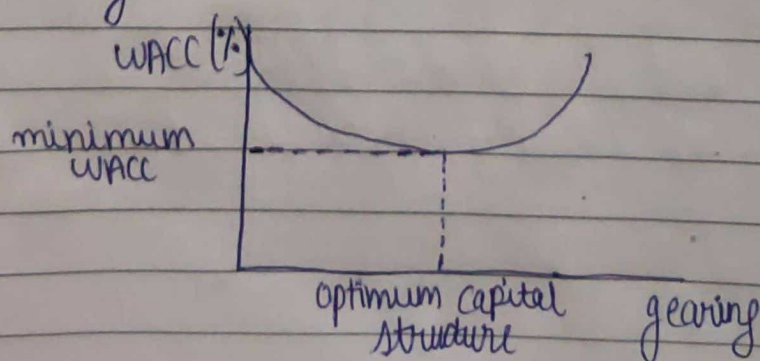
The suitable cost of capital is slightly higher than 6%. ($8\% \times 0.5 + 4\% \times 0.5$)

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 on the WACC of increasing the debt finance in the business will be more than offset by the increase in the return required by shareholders.

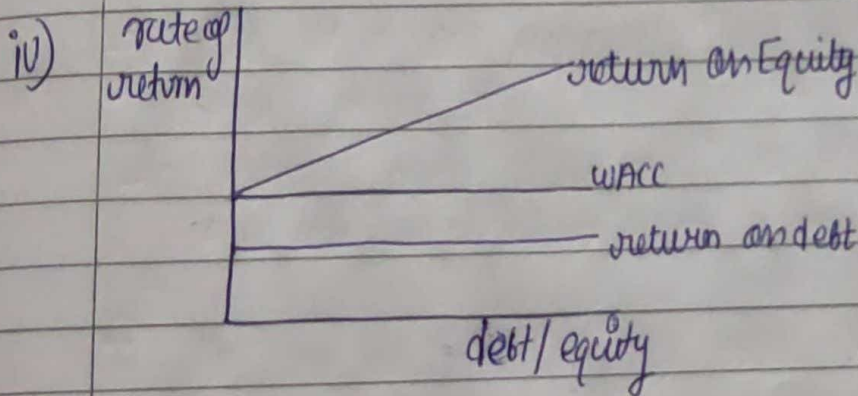


iii) First proposition of Modigliani and Miller $\frac{0}{0}$

→ The market value of any firm is independent of its Capital structure.

The following are the assumptions:

- There are no taxes in the economy.
- Unlimited personal and company borrowing is possible at the same rate of interest
- Debt is risk free
- There are no agency costs
- There are no information asymmetries.



WACC remains constant as gearing increases. As gearing increases, the cost of equity increases by just enough to offset the increasing proportion of the cheaper debt.

v) a) Cost of Equity = Risk free return + (Beta $\times$ Equity Risk premium)

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

$$= 6\% + 7\%$$

$\Rightarrow \boxed{13\%}$

$$b) \beta_{\text{levered}} = \beta_{\text{unlevered}} \times \left[1 + \frac{D}{E} \times (1 - \text{tax rate}) \right]$$

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

$$= 1.4 \times (1 + 0.7)$$

$$= 1.4 \times 1.7$$

$$\Rightarrow \underline{2.38}$$

$$c) \text{Cost of Equity} = \text{risk free return} + (\text{beta} \times \text{equity risk premium})$$

$$= 6\% + (2.38 \times 5\%)$$

$$\Rightarrow \underline{17.9\%}$$