

BUSINESS FINANCE ASSIGNMENT 1

Q.1. Which of the following statements is NOT true about IRR method of appraisal.

→ D. IRR is the most reliable means of choosing between exclusive projects

Q.2. Which one of the following is the correct formula for the price earnings ratio?

→ A. Market Price of Share / Earning per share

Q.3. While calculating Inventory Turnover period, Inventories include:

→ D. All of the above.

Q.4. The following figures were taken from a company's accounts: What is the company's cash inflow from operating activities for the year ended 2019?

→ D. 10,00,000 (Operating Cash Flow = Operating Income + Depreciation - Taxes + Change in Working Capital)

Q.5. Solution:

$$\begin{aligned} \text{(i) Sales - Cost} &= \text{Earning Before Interest} \\ &= 2500 - 1500 \\ &= 1000 \end{aligned}$$

$$\text{Less Taxes (40\% of 500)} = 400$$

$$\text{Net operating profit after Tax} = 1000 - 400$$

$$\therefore \text{Net Operating Profit after Tax} = 600$$

$$(ii) \text{ PV of inflow} = \frac{600}{(1+20\%)}$$

$$= 500$$

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

(iii) NPV will go up.

Q.6. If we want to measure any business efficiency then we can use these ratios:

A] 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 ~~why~~ 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. An inventory turnover period that is less than rapid than other companies in the same industry might indicate an inefficiently large inventory holding. This ratio will vary enormously between businesses.

B] Trade receivables turnover Period:

This is a measure of the average length of time taken receivables to settle their balance:

$$\text{Trade receivables Turnover Period} = \frac{\text{Trade Receivables}}{\text{Credit Sales}} \times 365$$

Again, ~~this~~ is desirable for this period to be as short as possible. It will be better for the

company's cash flow if these owing the company money pay as quickly as possible. It can, however be difficult to press for speedier payment. Doing so could damage the company's relationships with its customers. If the company sells goods for cash and for credit, then it is important to divide the trade receivables figure by credit sales only. If sales cannot be broken down then the ratio will be distorted. If you are analysing a real set of financial statements, then many companies will have sales that are generally either all on credit or all for cash (in which case the ratio would not apply). A similar ratio can be used to assess payables:

$$\text{Payables Turnover} = \frac{\text{Payables}}{\text{Period}} \times 365$$

Q.7. Ratio analysis is a very useful technique for the interpretation of financial statements. It does, however, have its limitations. Some of these are outlined below:

- 1) It diverts attention from the figures and statements themselves.
- 2) Comparisons can be affected by different accounting policies or by other external factors.
- 3) There could be peculiarities of the trade which make it difficult to interpret certain ratios.
- 4) The statements could have been deliberately distorted by so called creative accounting.

Q.8. (i) Beta (β) is the unit to express systematic Risk. Beta can be regarded as a measure of the systematic Risk associated with a particular stock and we can estimate the cost of equity for a particular company as being $R_{e_i} = R_f + [E(R_m) + R_f] \times \beta_i$. Beta indicates how volatile a stock's price is in comparison to the overall stock market. A Beta greater than 1 indicates a stock's price swings more widely (ie. more volatile) than the overall market. A Beta less than 1 indicates that a stock's price is less volatile than the overall market. A Beta of 1 indicates the stock moves identically to the overall market.

(ii). Solution :

$$\begin{aligned} \beta_{\text{geared}} &= 1.1 \\ \frac{\text{Debt}}{\text{Equity}} &= \frac{1}{2} \end{aligned}$$

$$\text{Tax} = 30\%$$

We know that,

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

$$1.1 = \beta_{\text{ungeared}} \left[1 + \frac{1}{2} (1 - 30\%) \right]$$

$$\therefore \beta_{\text{ungeared}} = 0.8148$$

For $D : E = 2 : 2$

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

$$\beta_{\text{geared}} = 0.8148 \left[1 + \frac{2}{2} (1 - 30\%) \right]$$

$$\therefore \beta_{\text{geared}} = 1.38516$$

Q.9. Which of the following statements is true?
 → D. In general the market value of investment trust is not correlated to the net present value.

Q.10. (i) In market based financial systems, such as the UK and the US there are large equity and bond markets, shareholders are owners of the company and the company's objective is to maximise shareholder wealth within external constraints. In these countries, company managers are accountable to the shareholders. Managers are duty-bound to act in shareholders' interests, to protect the investors and to enable the financial markets to operate efficiently.

(ii). Dividend per share = ₹10.

Growth = 8%

$R_f = 6\%$

Market Risk Premium (MRP) = 5%

$$R_e = R_f + \text{MRP} \times \beta$$

$$10 = 6\% + 5\% \times \beta$$

$$\underline{\underline{\beta = 90.90}}$$

Q.11. (i) We can compare individual stocks with the overall market by assessing the β (Beta) of the stock.

$$\beta = \frac{\text{Covariance } (R_e, R_m)}{\text{Variance } (R_m)}$$

Where R_e = the return on an individual stock

R_m = the return on the overall market.

Covariance = how changes in a stock's market returns are related to changes in the market's returns.

Variance = how far the market's data points spread out from their average value.

Beta (β) is the unit to measure systematic risk

Aggressive stocks have high betas, betas greater than 1. Their returns tend to respond more than one-for-one to returns on the overall market.

The betas of defensive stocks are less than 1. The returns of these stocks vary less than one-for-one with market returns. The average beta of all stocks is 1.

(ii) Beta can be calculated by,

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

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

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

(iii) As an active stock market investor, I would invest in a stock with a beta -1.

(iv) A zero beta portfolio would have the same expected Return as the Risk-free rate.

Q.12. Given that,

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

$$(R_f) \text{ Risk free} = 7\%$$

$$(R_m) \text{ Equity Risk Premium} = 5\%$$

$$\text{Cost of debt} = 9\%$$

$$(\beta) \text{ Beta} = 1.5$$

$$\text{Tax} = 25\%$$

Solution -

$$\text{Required Return } (R_e) = R_f + \text{ERP} \times \beta$$

On Equity

$$= 7\% + 5\% \times 1.5$$

$$\therefore R_e = 14.5\%$$

$$\text{Net cost of Debt} = 9\% (1 - 25\%)$$

$$= 6.75\%$$

$$(i) \text{ WACC} = R_e \times \frac{D}{E} + \text{Net cost of Debt} \times \frac{D}{E}$$

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

$$\therefore \text{WACC} = 0.2125$$

(ii) Required Return on Equity when company is 100% equity financed.

As per CAPM,

$$R_e = R_f + \text{ERP} \times \beta$$

Here Beta will be ungeared because company is 100% equity financed

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

$$1.5 = \beta_{\text{ungeared}} \left[1 + \frac{1}{1} (1 - 25\%) \right]$$

$$\therefore \beta_{\text{ungeared}} = 0.8571$$

$$\text{So, } R_e = R_f + \text{ERP} \times \beta$$

$$= 7\% + 5\% \times 0.8571$$

$$= 0.1128$$

$$\therefore R_e = 11.28\%$$

$\therefore$ If ABC Pvt. Ltd were to repay all debt, then the required return to equity will be 11.28%.

Q.13.

Annual Cost Saving = ₹ 40,000

Useful life = 4 years

I.R.R = 15%

Profitability Index (PI) = 1.064

Salvage Value = 0

(iii) At IRR,

Present Value of Cash Outflows = Present Value of Cash Inflows.

$d = 15\%$

$V = \frac{1-d}{1+d}$

Hence,

Cost of Project = ₹ 40,000 × 2.855 (Formula Discount Rate)

$a_n = \frac{1-V^n}{i}$

$a_n = 2.855$

∴ Cost of Project = ₹ 1,14,200

(i) PI = 1.064.

Profitability Index = $\frac{\text{PV of Future Cash Flows}}{\text{Initial Investment in Project}}$

1.064 = $\frac{\text{PV of Future Cash Flows}}{1,14,200}$

∴ PV of Future Flows = ₹ 1,21,509

∴ NPV = ₹ 1,21,509 - ₹ 1,14,200

∴ NPV = ₹ 7309

(ii) Cumulative P.V.A.F at Cost of Capital = $\frac{\text{Present Value of Cash Inflows}}{\text{Annual Cash Inflows}}$

= $\frac{1,21,509}{40,000}$

= 3.038.

Reference to Cumulative P.V.A.F table gives us the cost of capital 12%.

(ii)
$$\text{Payback Period} = \frac{\text{Initial Investment}}{\text{Cash Flow per year}}$$

$$= \frac{1,14,200}{40,000}$$

$$= 2.855 \text{ years}$$

$\therefore \text{Payback Period} = 2.855 \text{ years}$

Q.14. (i)

(a) Current Ratio

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

Use :

- 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 over the same period.

(b) Debtors Turnover Period

$$\text{Debtors Turnover Period} = \frac{\text{Debtors (Trade Receivables)}}{\text{Credit sales}} \times 365$$

Uses:

- This is a measure of the average length of time taken for debtors (trade receivables) to settle their balance. It is desirable for this period to be as short as possible.

(ii) The finance manager should track the quick ratio

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

Q.15. (i)

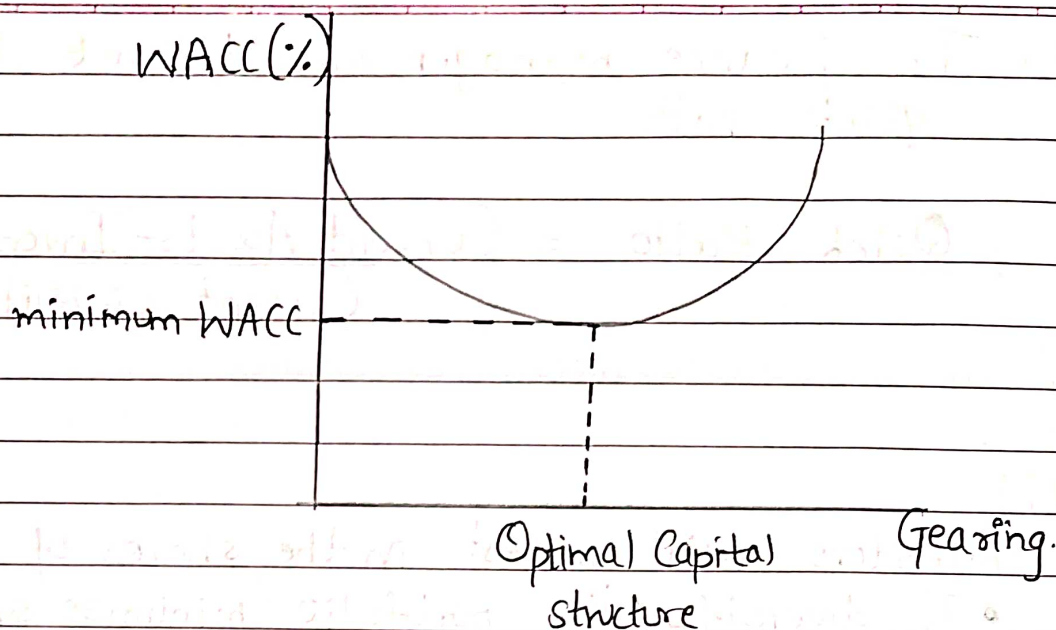
Investors will invest in the shares of this company:

- To diversify the portfolio (minimise systematic risk).
- To maximise return as they would be believing in earning higher returns (increasing idiosyncratic risk).
- Other reasons specific to the investor, e.g. strategic holding, personal attachment with the company, own faiths and beliefs.

The suitable cost of Capital is anything slightly higher than 6% ($8\% \times 0.5 + 4\% \times 0.5$)
i.e. 0.000216

(ii)

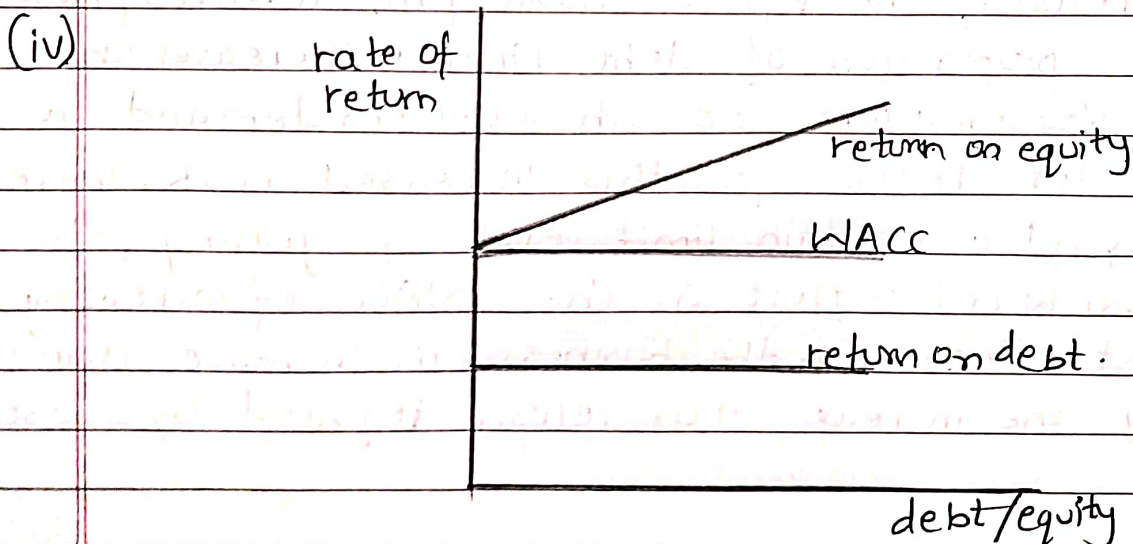
Debt is cheaper than equity finance, so as gearing increases, the WACC should fall. However, increasing the proportion of debt finance increases the risk to shareholders so shareholders demand a greater return for this increased risk. Therefore beyond a certain limit level of gearing, the downward effect 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:
The market value of any firm is independent of its capital structure.

The following are the assumptions:

- There are no taxes in the company.
- 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)

$$\begin{aligned}\text{Cost of equity} &= \text{Risk free return} + \text{beta} \times \text{ERP} \\ &= 6\% + 1.4 \times 5\% \\ &= 13\%\end{aligned}$$

$$\therefore \text{Cost of equity} = 13\%$$

(b) Gearing equity beta = ~~the~~ $\beta_{\text{ungeared}} \times \left[1 + \frac{D}{E} (1 - \text{tax}) \right]$

Here the Debt : Equity ratio is based on market capitalization, therefore,

$$\begin{aligned}\text{Gearing equity beta} &= 1.4 \times \left[1 + \frac{0.5}{0.5} (1 - 30\%) \right] \\ &= 1.4 \times (1 + 0.7) \\ &= 2.38.\end{aligned}$$

$$\beta_{\text{geared}} = 2.38$$

(c)

$$\text{Cost of equity} = \text{Risk free return} + \text{beta} \times \text{Equity Risk Premium}$$

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

$$\therefore \text{Cost of Equity} = 17.9\%$$