

Business Finance Assignment 3 & 4.

1. **B.D.** IRR is the most reliable means of choosing bet. mutually exclusive projects

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

3. D. All of the above

4. A. 12,00,000 ($\because$ oper act. = (O.P. prof - working cap)

5. Sales - Cost = EBIT

$$\text{Sales} = 2500$$

$$\text{Costs} = 1500$$

$$\text{Tax} = 40\%$$

$$\text{Disc. Rate} = 20\%$$

$$\text{i) EBIT} = 2500 - 1500 = 1000$$

$$\text{less Taxes} = 40\% \text{ of } 1000 = 400$$

$$\text{Net operating Profit After Tax (NOPAT)} = \text{EBIT} - \text{Tax}$$

$$= 1000 - 400$$

$$= \boxed{600}$$

$$\text{ii) NPV} = ?$$

$$\text{PV of inflow} = \frac{600}{1.2} = 500$$

Cashflow at time 1

$$\text{Inflow} = 2500$$

$$\text{Outflow} = 0$$

$$\text{Net cashflow} = 2500 - 0 = 2500$$

$$\begin{aligned} \text{Net cashflow after taxes} &= 2500(1-t) \\ &= 2500(1-40\%) \\ &= 1500 \end{aligned}$$

Cashflow at time 2

$$\text{Inflow} = 0$$

$$\text{Outflow} = 1500$$

$$\text{Net cashflow} = -1500$$

$$\text{NPV} = 1500 (1.2)^{-1} - 1500 (1.2)^{-2}$$

$$\text{NPV} = \underline{\underline{₹208.34}}$$

Q6. To measure the efficiency of any business, the ratios required are:

- Efficiency ratio - They determine how productively a company manages its assets and its liabilities to maximize profits.
- Shareholders look at efficiency ratios to assess how effectively their investments are being used in a company.
- Some of the very common efficiency ratios include accounts receivable turnover, inventory turnover, cash conversion cycle (CCC) and accounts payable turnover.
- Most common efficiency ratios are as follows:
 - Asset Turnover Ratio
 - Working Capital Ratio
 - Accounts Receivable Turnover Ratio
 - Days' Sales in Inventory
 - Inventory Turnover
 - Total Asset Turnover Ratio

Q7. The Limitations of Ratio Analysis:

→ Ratio analysis is a very powerful technique for interpreting the financial analysis of statements. It does, however, have limitations which are:

1) Creative Accounting:

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

2) Appropriate Comparison:

Comparisons can be affected by different accounting policies or by other external factors. If, for example, two huge companies use different methods for the calculation of depreciation then any ratios based on financial statements might not be comparable. Similarly, 2 similar businesses could be affected to different extents by currency movements.

3) 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 usually aren't reflected in ratios.

4) Different Industries:

There could be peculiarities of the trade which make it difficult to interpret certain ratios. A property company, ~~say~~ that 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 regularly.

Q8. i) Stocks trade at different betas in the stock market because of:

- Beta is a measurement of market risk or volatility.
- It indicates how much the price of a stock tends to fluctuate as compared to other stocks.
- A beta indicates how volatile a stock's price is in comparison to overall stock market.
- A beta greater than 1 indicates that a stock's price swings more wildly (i.e. more volatile) than the overall market.
- A beta of 1 indicates the stock moves identically to the overall market.
- Beta says nothing about the price paid for the stock in relation to fundamental factors like changes in company leadership, new product discoveries, or cash flows of future.
- A stock's beta will change over time because it compared the stock's return with the returns of overall market.

ii)

$$\beta_G = 1.1$$

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

$$\text{Debt : Equity (D:E)} = 1:2$$

$$\beta_G = \beta_{UG} (1 + D:E(1-t))$$

$$\therefore 1.1 = \beta_{UG} (1 + (0.5 \times 0.7))$$

$$1.1 = \beta_{UG} (1.35)$$

$$\boxed{\beta_{UG} = 0.8148}$$

New, Debt: Equity = 2:2 or 1:1

$$\beta_G = 0.81481 (1 + (1/1 \times 0.7))$$

$$\beta_G = 1.38519$$

Q9. A) D. In general the market value of investment trust is not correlated to the NPV (net present value).

Q10. i) The companies actually do operate in a way such that the shareholder's wealth could be maximized:

- The goal of shareholder wealth maximization specifies how financial decisions should be made.
- In practice, however, not all management decisions are consistent with this objective.
- There often may be a divergence between the shareholder wealth maximization goal and the actual goals pursued by management. The primary reason for this divergence has been attributed to the separation of ownership and control in corporations.
- Separations of ownership and control has permitted managers to pursue goals more consistent with their self-interests as long as they satisfy shareholders sufficiently to maintain control of the corporation.
- The concern for long-run survival may lead managers to limit the amount of risk incurred by the firm, since unfavourable outcomes can lead to their dismissal or possible bankruptcy for the firm.
- Maximization of their own personal welfare may lead managers to be concerned with long run survival / job security.
- Instead of seeking to maximize some objective (such as shareholder wealth), managers 'satisfice' or seek acceptable

levels of performance, while maximizing their own welfare.

ii)

$$\text{Dividend per share (DPS)} = ₹10$$

$$\text{Market Price per share (MPS)} = ₹70$$

$$\text{Company's growth rate (g)} = 8\%$$

$$\text{Risk free rate} = 6\%$$

$$\text{Equity risk premium} = 5\%$$

$$\text{Dividend yield (d)} = \left(\frac{\text{DPS}}{\text{MPS}} \right) \times 100$$

$$= 14.285\%$$

$$\begin{aligned} \text{Cost of equity} &= g + d \\ &= 8 + 14.285 \\ &= 22.285\% \end{aligned}$$

$$\begin{aligned} \text{Cost of equity} &= \text{risk free rate} + \beta (\text{equity risk prem.}) \\ 22.285\% &= 6\% + \beta (5\%) \end{aligned}$$

$$\therefore \underline{\beta = 3.25714}$$

$\therefore \beta$ is the measure of systematic risk of the company, if it increases by 80% then β also should increase proportionately (80%)

$$\begin{aligned} \text{New } \beta &= \beta (1.8) \\ &= 3.25714 (1.8) \end{aligned}$$

$$\text{New } \beta = 5.86286$$

$$\therefore \text{Cost of Eq.} = \text{Risk free rate} + \beta (\text{equity risk prem.})$$

$$\begin{aligned} \text{Cost of equity} &= 6\% + 5.86286 (5\%) \\ &= 35.31428\% \end{aligned}$$

$$\text{cost of eq.} = g + d$$

Let $MPS = x$

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

$$x = 36.61089$$

Therefore the new market price of the share falls down to 36.61089.

Q11.i) Beta is a measure of the volatility or systematic risk of a security or portfolio compared to the market as a whole. Beta is used in the capital asset pricing model (CAPM), which describes the relationship between systematic risk and expected return for assets mainly stocks.

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

(ii) Beta could be calculated by first dividing the security's standard deviation of returns by the benchmark's standard deviation of returns. This resulting value is multiplied by the correlation of the security's returns and benchmark's returns.

(iii) As an active stock investor I would invest my money in stock having a beta of positive 1 because in long run markets will only go up so the chances of my share priced stock going up are high but in a stock of negative beta it behaves completely opposite i.e. as the market goes up the stock price falls which is not desirable in the long term.

(iv) Gilt securities such as government bond have beta very close to 0 or 0.

Q12. Debt: Equity = 1:1

Risk-free rate = 7%

ERP = 5%

Gearing $\beta = 1.5$

Gross Cost of Debt = 9%

Tax rate = 25%

$$\begin{aligned} \text{(i) Net cost of Debt} &= \text{gross cost of debt } (1-t) \\ &= 9\% (1 - 25\%) \\ &= 6.75\% \end{aligned}$$

$$\begin{aligned} \text{Cost of Equity} &= \text{risk free rate} + \text{Gearing } \beta (\text{ERP}) \\ &= 7\% + 1.5(5\%) \\ &= 14.5\% \end{aligned}$$

$$\begin{aligned} \text{WACC} &= \left[\frac{(1 \times \text{cost of equity}) + (1 \times \text{cost of Debt})}{2} \right] \\ &= \frac{14.5\% + 6.75\%}{2} \end{aligned}$$

$$\boxed{\text{WACC} = 10.625\%}$$

$$\text{(ii) } \beta_G = \beta_{UG} (1 + [(D:E)(1-t)])$$

$$1.5 = \beta_{UG} (1.075)$$

$$\beta_{UG} = 0.85714 //$$

$$\begin{aligned} \text{Cost of equity} &= R_f + \beta_G (\text{ERP}) \\ &= 7\% + 0.85714 (5\%) \end{aligned}$$

$$\begin{aligned} \text{Reqd. return} &= \underline{\underline{11.2857\%}} \\ \text{to equity} & \end{aligned}$$

Q13.

At IRR $NPV = 0$

IRR = 15%

$$NPV \text{ at IRR} = \text{Initial Investment} + 40,000 \left(\frac{1}{(1.15)^1} + \frac{1}{(1.15)^2} + \frac{1}{(1.15)^3} + \frac{1}{(1.15)^4} \right)$$

$$\therefore \text{Initial Inv.} + 40000 (2.855) = 0$$

$$\therefore \text{Initial Inv.} = ₹ -1,14,200$$

Profitability Index = $\frac{\text{Present value of cash inflows}}{\text{Initial Inv.}}$

$$1.064 = \text{PV of cash inflows} / 1,14,200$$

$$\text{PV of cash flows} = ₹ 1,21,508.80$$

$$\text{i) } NPV = NPV \text{ of inflow} - NPV \text{ of outflow}$$

$$= 1,21,508.80 - 1,41,200$$

$$NPV = ₹ 7308.80$$

ii) Let the cost of capital be i .

$$NPV = \text{Initial Inv.} + 40000 \left(\frac{1}{(1+i)^1} + \frac{1}{(1+i)^2} + \frac{1}{(1+i)^3} + \frac{1}{(1+i)^4} \right)$$

$$7308.8 = -1,14,200 + 40,000 (\quad)$$

$$3.03772 = \left(\frac{1}{(1+i)^1} + \frac{1}{(1+i)^2} + \frac{1}{(1+i)^3} + \frac{1}{(1+i)^4} \right)$$

$$i = 12\% \rightarrow \text{reqd. cost of capital.}$$

iii) Cost of the project = ₹ 1,14,200

$$\text{iv) Payback period} = \frac{\text{Initial inv.}}{\text{amt. of annuity every yr.}}$$

$$= \frac{1,14,200}{40,000} = 2.855 \text{ yrs}$$

Q14. a) Current ratio $\rightarrow \frac{\text{Current assets}}{\text{Current liabilities}}$

- 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 energy and money due to it being received in the short term with an estimate of amount of money to be paid.
- It provides 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, mainly leading up to low liquidity.
- It is difficult to know exactly what a low or high figure is for any given company. In general, a ratio of 2:1 is considered to be optimal.

b) Debtors turnover period:

- $\text{Accounts Receivable Turnover} = \frac{\text{Avg. Accounts Receivable}}{\text{Net Credit Sales}}$
- The term receivables turnover ratios or debtors turnover period refers to an accounting measure that quantifies a company's effectiveness in collecting its accounts receivable.
- This ratio measures how well a company uses & manages the credit it extends to customers & how rapidly short term debt is paid or collected.
- High ratio may indicate that corporate collection practices are efficient with quality customers who pay their debts quickly.

- A low ratio could be the result of inefficient collection processes, inadequate credit policies, or customers who are not financially viable or creditworthy.
- For investors, it's important that the industry gets a sense of normal or average turnover ratio for that sector.

use

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

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

It aims at short-term liquidity.

Quick ratio considers what would happen if all creditors and debtors accounts were settled immediately.

It focuses on readily realisable cash.

It is much less than one might be a sign that the company may struggle to pay its creditors.

Q15. The investor might buy shares in this company as:

- i) An investor might do it because it provides a high dividend yield of 4%. It is true that shares are potentially risky in that the return from them may be very volatile. However, an investor would expect, on average, to gain a higher return from shares than from other investments, to compensate for the higher level of risk.

For calculating the suitable cost of capital for the investors, we can assume that there is no growth in the stock's market prices as of now and there are no taxes. This will help us in obtaining the minimum cost of capital for investors.

$$\text{Dividend yield} = d = 4\%$$

$$\text{Gross cost of debt} = 8\%$$

$$\begin{aligned}\text{Net cost of debt} &= \text{gross cost of debt} (1-t) \\ &= 8\%\end{aligned}$$

$$\begin{aligned}\text{Cost of equity} &= d + g \\ &= 4\%\end{aligned}$$

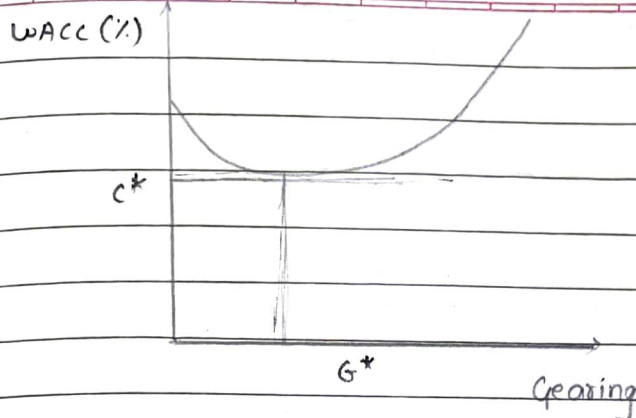
$$\begin{aligned}\text{WACC} &= (1 \times \text{net cost of debt} + 1 \times \text{cost of eq.}) / 2 \\ &= (4\% + 8\%) / 2 \\ &= 6\%\end{aligned}$$

Thus, the minimum cost of capital that should be invested is 6%.

ii) Traditional view

- In this, the emphasis was given to the determination of the amount of debt a company could safely carry without risking bankruptcy in severe recession.
- Debt is cheaper than equity finance, so with gearing increasing, WACC falls.
- But, increasing the proportion of debt finance increases the risk to shareholders so shareholders demand a greater return for this increased risk.
- ∴ Beyond a certain point of gearing, the downward effect on the WACC of increasing the debt finance in the business will be more than offset (balanced) by the increase in the return required by shareholders.

graph →

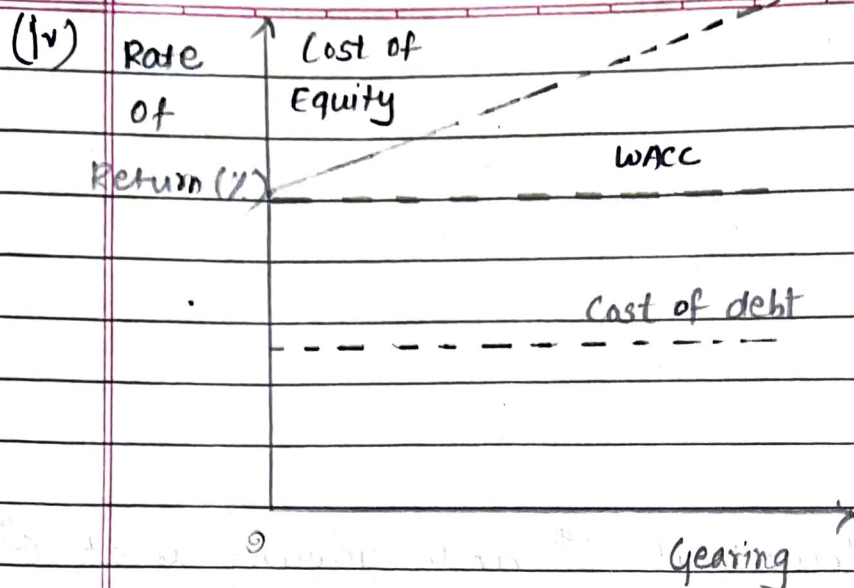


The WACC is lowest at C^* and gearing is at G^*

(iii) A key concept in corporate finance is expressed in Modigliani and Miller's (M+M) first irrelevance proposition:

- The market value of any firm is independent of its capital structure.
- This is the basis of M+M's second irrelevance proposition
- The expected rate of return on the common stock of a leveraged firm increases in proportion to the debt-equity ratio, expressed in market values.
- They began with a simple model with following assumptions that →
 - a) there are no taxes
 - b) unlimited personal and company borrowing is possible at the same ROI.
 - c) Debt is risk-free
 - d) No Agency costs
 - e) No information asymmetries.

→ M+M argued that, under certain assumptions, gearing has no effect on the value of the company. Their view was that the value of the company lies in its ability to produce profits, in the ways that it is financed.



v) a) $R_f = 6\%$

$ERP = 5\%$

$\beta_{UG} = 1.4$

$$\begin{aligned} \text{Cost of Equity} &= R_f + (\beta_{UG} \times ERP) \\ &= 6\% + (1.4 \times 5\%) \\ &= \underline{\underline{13\%}} \end{aligned}$$

b) Total market capitalism = 100 mil.

Market val. of debt = 50.

Ratio of debt to equity = $50/50 = 1:1$

Tax Rate = 30%.

$\beta_G = \beta_{UG}$

$$\beta_G = \beta_{UG} \times (1 + D:E(1-t))$$

$$= 1.4 \times (1 + 1:1(70\%))$$

$$\boxed{\beta_G = 2.38}$$

$$\begin{aligned} \text{C.) Cost of equity} &= R_F + (\beta \times ERP) \\ &= 6\% + (2.38 \times 5\%) \\ &= 17.9\% \end{aligned}$$