

B-F - Assignment - 1

- 1) d) IRR may give multiple solutions
- 2) Market price per share / earnings per share (a)
- 3) d) All of the above
- 4) d) 10,00,000
- 5) i) $EBIT = \text{Sales} - \text{Costs} = 2500 - 1500 = 1000$
Less Taxes (40% of 1000) = 400
NOPAT = 600
ii) PV of inflow $600/1.2 = 500$
 $NPV = \text{PV of inflow} - \text{PV of outflow}$
iii) NPV will go up.

Ans-6 To measure the efficiency of any business we calculate the profitability ratios. These include -

I
$$\text{Gross profit ratio} = \frac{\text{Gross Profit}}{\text{Net Sales}} \times 100$$

It tells us the gross profit that we earn on the sales of a single unit. It is always expressed as percentage.

When high $\rightarrow$ Net sales are high

When low $\rightarrow$ Net sales are low.

II
$$\text{Operating ratio} = \frac{\text{Operating cost}}{\text{Revenue from operations}} \times 100$$

The main objective of the operating ratio is to assess the operational efficiency of the business.

Lower the ratio, better it is.

III
$$\text{Operating profit ratio} = \frac{\text{Operating profit}}{\text{Revenue from operations}} \times 100$$

$$\text{Operating profit} = \text{Gross profit} + \text{Other operating income} - \text{Other operating expenses}$$

IV
$$\text{Net Profit ratio} = \frac{\text{Net Profit}}{\text{Net Sales}} \times 100$$

Net profit ratio indicates the overall efficiency of the business. Higher the net profit ratio, better the business.

Return on investment: $\frac{\text{Net profit before interest \& tax} \times 100}{\text{Dividend / Capital employed}}$

It tells us the overall return that we get on the investment that we have made in the business.

- 7) Historical Information - The number and the information that we use in the calculation of these ratios are based on the past results, which may not reflect the company's future performance.
- 2) Inflation - The results of the company are released quarterly or periodically and as a consequence there are time gaps b/w each release and as a result of that if inflation has occurred then real prices are not reflected in the financial statements.
- 3) Accounting Policies - Different companies may use different accounting principles. This means comparing different companies ratios will be like comparing apples with bananas.
- 4) Operating Charges - Business can go under drastic changes and thus taking the data from past will not be fruitful.
- 5) Ignorance of Qualitative Aspect - Ratio analyses only include the monetary aspect and exclude the qualitative aspect of the firm.

1) 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 wildly (more volatile) than the overall market. A beta of less than 1 indicates that a stock's price is less volatile than the overall market.

$$B_{\text{levered}} = B_{\text{unlevered}} \left[1 + \frac{D}{E} (1-t) \right]$$

$$1.1 = B_{UG} \left[1 + \frac{1}{2} (1-30\%) \right]$$

$$1.1 = B_{UG} [1 + 0.35]$$

$$B_{UG} = \frac{1.1}{1.35} = 0.8148$$

$$\begin{aligned} \text{Now, } B_G &= 0.8148 \left[1 + \frac{2}{2} (1-30\%) \right] \\ &= 0.8148 \times 1.7 \\ &= 1.3852 \end{aligned}$$

2) In general the market value of investment trust is not correlated to the NPV.

10) I) Conflict of Interests :

Management (Managers) have lot of information which they might use to benefit them but this might be against the interest of shareholders so it causes conflict of interest on the other hand, between lenders and shareholders, as they want more profit, hence more risk, whereas lenders want interest and payment on time that is they want security.

So, these problems can be resolved by agency theory, in which principal are known as shareholders and agent are managers and executives.

This result in, Agency cost - if conflict arises b/w principal and agent then it result in monitoring and putting pressure on the agents to work according to the principal.

II) D.P.S = 10
 C.M.P = 70
 Growth Rate = 8%.

$$\text{Div. Yield} = \frac{10}{70} \times 100 = 14.2857\%$$

$$\text{Cost of Equity} = \underset{(D)}{8\%} + \underset{(G)}{14.29\%} = 22.29\%$$

$$\begin{aligned} \text{Cost of Equity} &= R_F + \text{MRP} \times \text{Beta} \\ 22.29\% &= 6\% + 5\% \times B \end{aligned}$$

$$B = \frac{22.29 - 6}{5} = 3.258$$

Now,

$$B_{\text{New}} = 1.8 \times B = 5.8644$$

$$\text{Cost of Eq.} = 6\% + 5\% \times B_{\text{New}} = 35.32\%$$

$$\text{Cost of Eq} = D + G$$

$$35.32\% = \left(\frac{10}{x} \right) \times 100 + 8\%$$

$$\frac{1000}{x} = 27.32, \quad \boxed{x = 36.60}$$

Ans-11

I We can compare individual stock with the overall market by assessing the beta of the stock. Beta can be regarded as a measure of systematic risk associated with a particular stock.

II For company i : $B_i = \rho_{im} \frac{\sigma_i}{\sigma_m}$, where

ρ_{im} is the co-relation coefficient between the individual company stock return and that of the mkt.

σ_i and σ_m are the SD of the company stock return and the market index.

III If value of $B > 1$ indicates the stock that has given the return greater than the whole market, whereas

If value of $B < -1$ indicates the stock that has ~~given~~ shown inverse relation with that of the market.

So as a conclusion, I will invest in stock with $B = 1$.

IV Govt. bond is considered a financial instrument with $B = 0$

$$12) \frac{D}{E} = \frac{1}{1}$$

$$R_F = 7\% , MRP = 5\% , B_6 = 1.5$$

$$\text{Gross Cost of Debt} = 9\% , T_{ox} = 25\%$$

$$\begin{aligned} i) \text{ Net Cost of debt} &= \text{Gross Cost of debt} \times (1 - t) \\ &= 9\% (1 - 25\%) \\ &= 6.75\% \end{aligned}$$

$$\begin{aligned} \text{Cost of Eq.} &= R_F + B_6 \times MRP \\ &= 7\% + 1.5 \times 5\% \\ &= 14.5\% \end{aligned}$$

$$\begin{aligned} WACC &= \frac{1 \times \text{Cost of Eq.} + 1 \times \text{Cost of Debt}}{2} \\ &= \frac{14.5\% + 6.75\%}{2} \\ &= 10.625\% \end{aligned}$$

$$ii) B_0 = B_{00} \left(1 + \frac{D}{E} (1-t) \right)$$

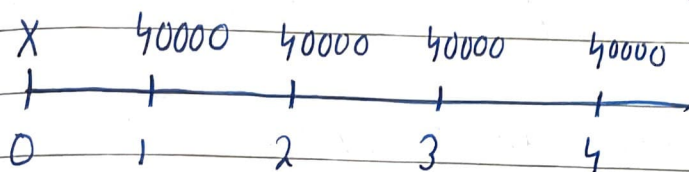
$$1.5 = B_{00} (1 + 0.75)$$

$$B_{00} = 0.85714$$

$$\begin{aligned} \text{Cost of Eq.} &= R_F + B \times MRP \\ &= 7\% + 0.85714 \times 5\% \\ &= 11.2857\% , \text{ i.e. req. return to equity} \end{aligned}$$



13) I) At IRR, PV of O/F = PV of I/F



$$X = 40000 \times 2.855 = 1,14,200$$

II) PI at C.o.c. = 1.064

$$1.064 = \frac{\text{P.V of Cash inflows}}{1,14,200}$$

$$\text{P.V of Cash Inflows} = 1,21,509$$

$$\text{N.P.V at C.o.c} = 1,21,509 - 1,14,200 = 7,309$$

$$\text{III) Payback Period} = \frac{1,14,200}{40000} = 2.855 \text{ yrs}$$

$$\text{IV) Cumulative P.V.A.F at C.o.c (1-4)} = \text{PV of Cash Inflows} \\ = \frac{1,21,509}{40000} = 3.038, \text{ Reference to Cumulative P.V.A.F} \\ \text{tables gives us C.o.c at 12\%}$$

Ans-14

Ia) Current ratio : It is a type of liquidity ratio which measures the company ability to pay short-term obligations

$$\text{Current ratio} = \frac{\text{Current Asset}}{\text{Current Liability}}$$

b) Debtor-turnover ratio - It tells us the time taken by company to collect its receivable from debtors.

$$\text{Debtor-receivable ratio} = \frac{\text{Net Credit Sales}}{\text{Average Accounts receivable}}$$

II To meet its short-term liabilities he should keep a regular track on the liquidity ratios which include -

a)
$$\text{Current ratio} = \frac{\text{Current asset}}{\text{Current liability}}$$

b)
$$\text{Quick ratio} = \frac{\text{Current asset} - \text{Inventories} - \text{Prepaid exp}}{\text{Current liabilities}}$$

Ans-15: An investor might buy shares in a company because it provides a high dividend yield of 4%.

Investment in equity provides an opportunity to the investor to earn high returns for high risks.

$$d = 4\%$$

$$\Rightarrow \text{Cost of equity} = d + g \\ = 4\%$$

This will be minimum cost of equity

$$\text{Net cost of debt} = \text{Gross COD} \times (1 - t) \\ = 8\%$$

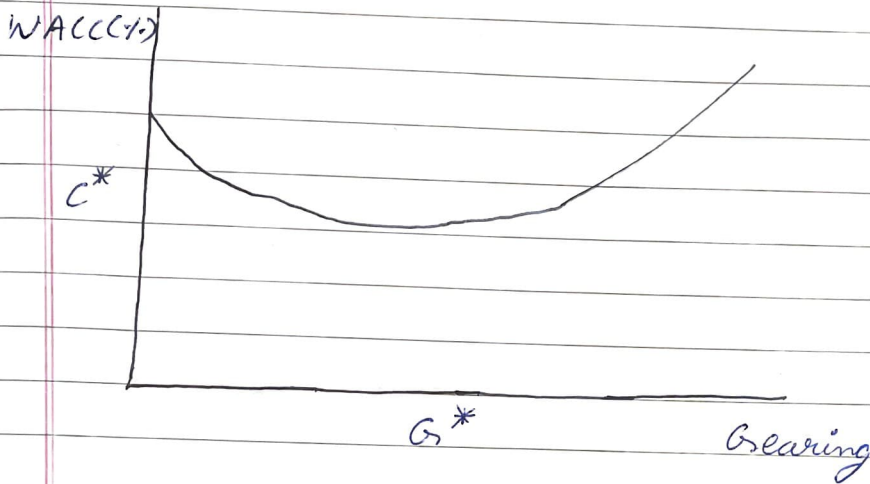
$$WACC = 6\%$$

This will be minimum COC investor can expect

ii) Traditional View.

- a) In traditional school emphasis was on determining the amount of debt a company could safely carry without risking bankruptcy in severe recession.
- b) Debt is cheaper than equity finance, so as gearing increases, the WACC should fall.
- c) However, increasing the proportion of debt finance increases the risk to shareholders, so shareholders demand a greater return.

d) 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 increase in the return required by shareholders.



The WACC is lowest at C^* when gearing is at G^* .

→ A key concept in corporate finance is expressed in MM's 1st irrelevance proposition:

The market value of any firm is independent of its capital structure.

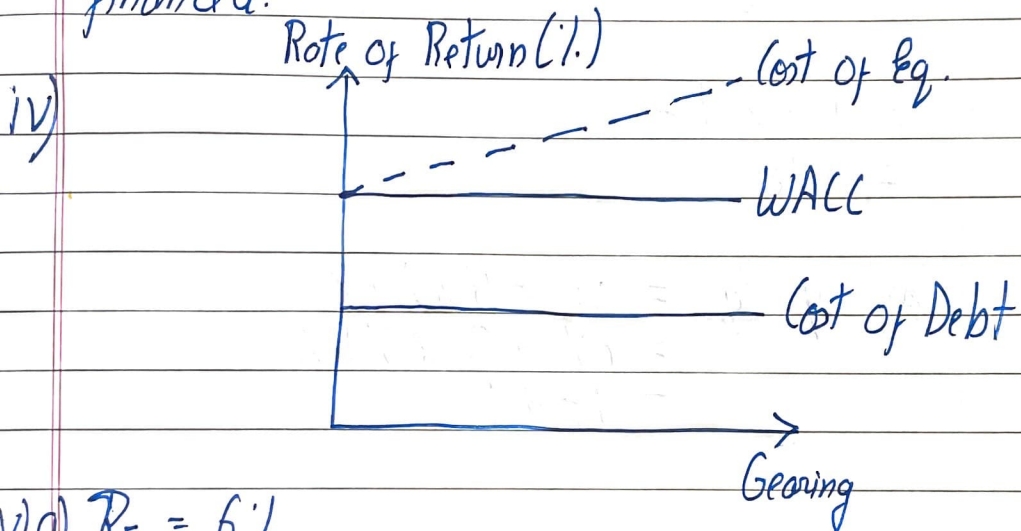
→ This is the basis of MM's 2nd irrelevance proposition:

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.

Assumptions:

- 1) There are no taxes
- 2) unlimited personal and company borrowing is possible at the same rate of interest.
- 3) Debt is risk free
- 4) There are no agency costs
- 5) There are no information ~~as~~ asymmetries.

MM argued that under certain conditions, gearing has no effect on the value of company. Their view was that value of company lies in its ability to produce profits, not in the way, that it is financed.



v) a) $R_F = 6\%$
 $E.R.P = 5\%$
 $Bug = 1.4$

$$\begin{aligned} \text{Cost of Eq.} &= R_F + MRP \times B \\ &= 6\% + 5\% \times 1.4 \\ &= 13\% \end{aligned}$$

b) Market Cap = 100M
 Market Value of Debt = 50% , $\tau_{ox} = 30\%$
 $D/E = 1:1$

$$B = B_{06} \left(1 + \frac{D}{E} (1 - t) \right)$$

$$= 1.4 \left(1 + \frac{1}{1} (1 - 30\%) \right)$$

$$= 1.4 \times 1.7$$

$$= 2.38$$

$$\begin{aligned} \text{c) Cost of Eq.} &= R_F + B \times MRP \\ &= 6\% + 2.38 \times 5\% \\ &= 17.9\% \end{aligned}$$