

# Assignment - 1

(Roll no. - 38)

1. D.

- IRR is the most reliable means of choosing between mutually exclusive projects.

2. A.

$$\frac{\text{Market price of share}}{\text{Earnings per share}}$$

3. D. - All of the above

4. D. 10,00,000

$$[8,00,000 + 1,00,000 + 1,00,000]$$



5. Sales = 2500  
cost = 1500  
tax rate = 40%

discount rate = 20%

i. Cash flow at date 1 =  
inflow - outflow  
= 2500 - 1500  
= 1000

Net cash flow after tax =  $1000(1 - t)$   
=  $1000(0.6)$   
= 600

ii.  $NPV = 600(1.20)^{-1}$   
 $NPV = 500$

iii. for date 1  
inflow = 2500 outflow = 0  
Net cashflow = 2500  
after tax :  $2500(1 - t)$   
=  $2500(0.6)$   
= 1500

for date 2  
inflow = 0 outflow = 1500  
net cashflow = -1500

so,  
 $NPV = 1500(1.2)^{-1} - 1500(1.2)^{-2}$   
 $NPV = 208.34$

6. To measure business efficiency, we look at the following ratios:-

① Inventory turnover period =  $\frac{\text{inventories}}{\text{cost of sales}} \times 365$   
(multiplied by 365 & so expressed as a period of time)

→ The ratio attempts to show how long inventory is held on for on average.

→ It varies enormously between businesses.

example - inventory turnover ratios of a fashion retail and a pharma company are likely to be very different.

→ An increasing ratio indicates, than other companies in the same industry indicates inefficiently large inventory holding & slow sales.

② Trade receivables turnover period =  $\frac{\text{trade receivables}}{\text{Credit sales}} \times 365$

→ Avg. time taken for Trade receivables to settle their balance

→ Desirable for this period to be as short as possible.

$$\textcircled{3} \text{ Trade payables turnover period} = \frac{\text{trade payables}}{\text{credit purchases}} \times 365$$

- Indicates avg. number of days credit that a company has from its suppliers.
- High ratio indicates that company is taking long time to pay its bills. So, from suppliers perspective, it should be of a short period of time.

## 7. Limitations of ratio analysis:

### ① Diverts attention

- It diverts attention from the figures & statements themselves.
- It is important to look at other aspects such as size of the company, information in notes, which is usually not reflected in the ratios & hence can be misinterpreted.

### ② Appropriate comparison

- comparison can be affected by different accounting policies or by other external factors.
- example - 2 similar businesses could be affected ~~due to~~ by different extents due to currency movements.



### ③ Different industries

→ There could be differences of the trade which make it difficult to interpret certain ratios.

→ Example: Difficult to compare results of a property business with a food ~~or~~ grocery business.

### ④ Creative accounting

→ Deliberately distorting ratios/statements by so called creative accounting. ~~because of biases. assumptions made~~

→ Businesses might select accounting policies which tend to bias the figures in direction chosen by the management.

8. (i) Beta can be regarded as a measure of systematic/market risk associated with a particular stock. It indicates how volatile a stock's price is in comparison to the overall stock market.

$$(ii) B_g = B_{ug} \times \left[ 1 + \frac{D}{E} (1 - t) \right]$$

$$B_g = 1.1$$

$$\frac{D}{E} = \frac{1}{2}$$

$$t = 30\%$$

$$1.1 = B_{ug} \times \left[ 1 + \frac{1}{2} (0.7) \right]$$

$$1.1 = B_{ug} (1.35)$$



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

$$B_g = \frac{1.1}{1.35} [1 + 1(0.7)]$$

$$B_g = \frac{1.1}{1.35} \times 1.7$$

$$\boxed{B_g = 1.385}$$

9. b) In general the market value of investment trust is higher than the net present value.

10. i. The disadvantage of shareholder value approach is that it involves rating the project on a number of different criteria, some of which may be perceived as more important & some less.

• When debating pros & cons of a number of projects there may be no clear winner or loser & so making it difficult to convince shareholders to be inclined towards 1 project.

ii. \*

$$DPS = ₹ 10$$

$$MPS = ₹ 70$$

company's growth rate ( $g$ ) = 8%.

$$k_f = 6\%$$

Eq. risk premium = 5%.

$$\text{Div. yield} = \frac{\text{DPS}}{\text{MPS}} \times 100$$

$$= \frac{10}{70} \times 100$$

$$= 14.23\%$$

$$\begin{aligned} \text{COE} &= \text{Div. yield} + g \\ &= 14.23 + 8\% \\ &= 22.23\% \end{aligned}$$

Also,

$$\text{COE} = r_f + (\beta [\text{eq. risk premium}])$$

$$22.23 = 6\% + \beta (5\%)$$

$$\beta = 3.5714\%$$

Beta is a measure of systemic risk of the company. If systematic risk increases by 80%, then beta also increases by 80%.

$$\beta_{\text{new}} = \beta (1.8)$$

$$\beta_{\text{new}} = 5.86286$$

$$\text{COE} = 6\% + (5.86286 (5\%))$$

$$\text{COE} = 35.31428\%$$

Also  $\text{COE} = \text{div yield} + g$

Let MPS be  $x$

$$35.31428 = \left( \frac{\text{DPS}}{x} \right) 100 + 8\%$$

$$x = 36.61069$$

Thus, market price of stock falls to £36.61



11. i. Beta can be regarded as a measure of the systematic risk associated with a particular stock.

$$\beta_i = \frac{\sigma_{im}}{\sigma_m^2} \quad \text{or} \quad \beta_i = \rho_{im} \frac{\sigma_i}{\sigma_m}$$

ii. It can be determined by comparing variance of market index with covariance b/w of individual stock's return & that of the market.

iii. I would invest in a stock with a beta of 1. As it will not add any risk & would move with market movements in accordance.

iv. Government bonds.

12.  $D/E = 1:1$        $r_f = 7\%$   
 $t = 25\%$       cost of debt =  $9\%$   
 equity risk premium =  $5\%$   
 $\beta = 1.5$

(i) cost of equity =  $r_f + \beta(\text{ERP})$   
 $= 7\% + (5\%)1.5$   
 $= 14.5\%$

~~net cost~~ net cost of debt = gross cost  $(1-t)$   
 $= 9\% (1 - 0.25)$   
 $= 6.75\%$

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

$$= 7.25\% + 3.375\%$$

$$WACC = 10.625\%$$

(ii) If ABC repays all debt, we need to find ungeared beta.

$$\beta_g = \beta_u \left( 1 + D/E (1-t) \right)$$

$$1.5 = \beta_u \left( 1 + 1(0.75) \right)$$

$$1.5 = \beta_u (1.75)$$

$$\beta_u = \frac{1.5}{1.75}$$

$$\beta_u = 0.85714$$

So new cost of equity =

$$r_f + (\beta_u \times \text{eq. risk premium})$$

$$= 7.1\% + (0.85714 \times 5\%)$$

$$COE = 11.285\%$$



13.\* Annual cost saving 1.21  
Useful life 4 yrs  
IRR 15.1%  
Project M  
£ 40,000  
1.064  
0  
~~Net present value assessment~~

i.  $NPV @ IRR = 0 + 40000 \left[ (1.15)^{-1} + (1.15)^{-2} + (1.15)^{-3} + (1.15)^{-4} \right]$   
 $0 = \text{initial investment} + 114200$   
 ~~$NPV = 0 + 114200$~~   
 $\text{initial} = -114200$

$PI = \frac{PV \text{ of cash inflows}}{PV \text{ of cash outflows}}$   
 $1.064 = \frac{PV \text{ of cash inflows}}{114200}$

$PV \text{ of cash inflows} = 1,21,508.8 \text{ £}$

$NPV = NPV \text{ of inflows} - \text{outflows}$   
 $= 121508.8 - 114200$

$NPV = 7308.8$

ii. let COC be  $i$ .

$NPV = \text{initial} + 40000 \left[ (1+i)^{-1} + (1+i)^{-2} + (1+i)^{-3} + (1+i)^{-4} \right]$

$7308.8 = -114200 + 40,000 \left[ (1+i)^{-1} + (1+i)^{-2} + (1+i)^{-3} + (1+i)^{-4} \right]$



$$\boxed{COC, i = 12\%}$$

(iii) Cost of project = £114,200

iv. Payback period = Initial investment  
amt. of annuity every year

$$= \frac{114,200}{40,000}$$

Payback period =  $\boxed{2.855 \text{ years}}$

14. (i) (a)  $\text{Current ratio} = \frac{\text{current assets}}{\text{current liabilities}}$

→ This ratio assesses whether the company will be able to pay its bills over the next few months.

→ Low ratio might indicate the company has issues paying its creditors. Conversely, high ratio might indicate that management has too much money tied up in unproductive short-term assets.

(b) Debtors Turnover period

→ Also known as trade receivables turnover period

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

→ Measure of avg. length of time taken for debtors to settle their balance.

→ Desirable for this period to be as short as possible.

(ii)  $\text{Trade payable turnover period} = \frac{\text{trade payables}}{\text{credit purchases}} \times 365$

The finance manager should use trade payable turnover period ratio since it indicates the avg. number of days credit that a company has.

company takes to repay its suppliers.

15. i. ~~COC~~

$$D/E = 1/1$$

$$GRY = 8\%$$

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

$$\text{COC} = \frac{8 \times 1}{1 + 1} + \frac{4 \times 1}{1 + 1}$$

$$= \frac{12}{2} = 6\%$$

COC must be greater than 6%.

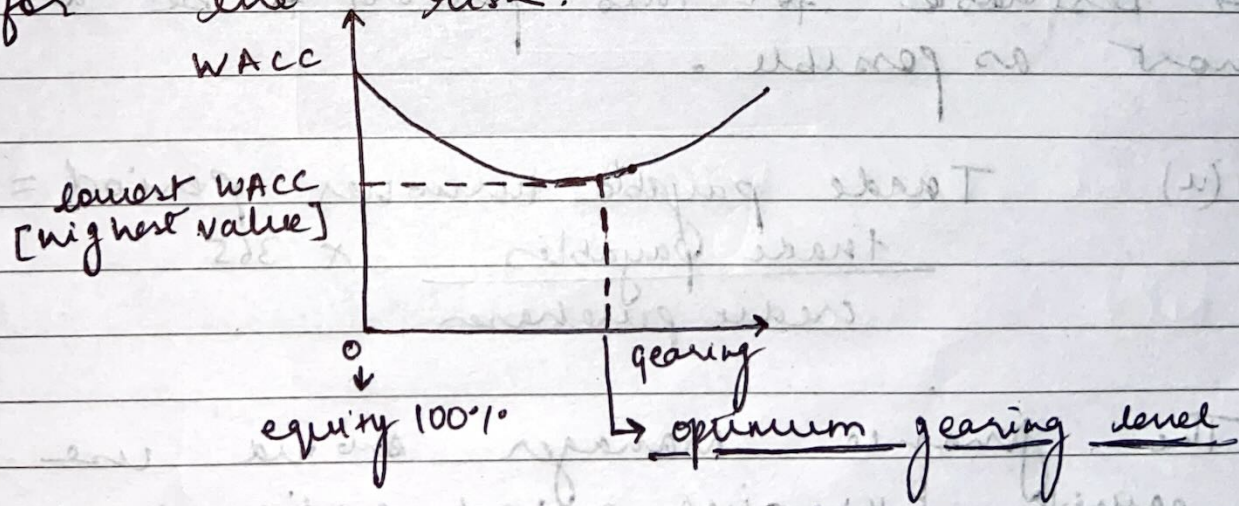
An investor would like to buy shares in this company because:

→ It provides high dividend yield.

→ ~~Rate~~ of equity & debt is equal.

→ Even though investment could be risky, but investor would expect higher returns to compensate for the risk.

ii.



- Normally, the ~~net~~ net cost of debt is cheaper than cost of equity,  $\therefore$  CFO would want to increase the weightage of debt in the capital structure to decrease WACC ( & hence increase in valuation).

- But, as & when gearing increases the risk to investors increases & so do their required returns. And so cost of equity increases.

- Hence, initially when company borrows, WACC will decrease (due to favourable leverage), but after beyond a point, WACC begins to increase.

MM:

iii. Assumptions -

- ① No taxes
- ② Unlimited borrowing allowed to corp<sup>n</sup> as well as ~~business~~ individual investor at the same rate of interest.
- ③ Debt is risk free.
- ④ Perfect market.

The basic premise of MM's argument is risk of return.

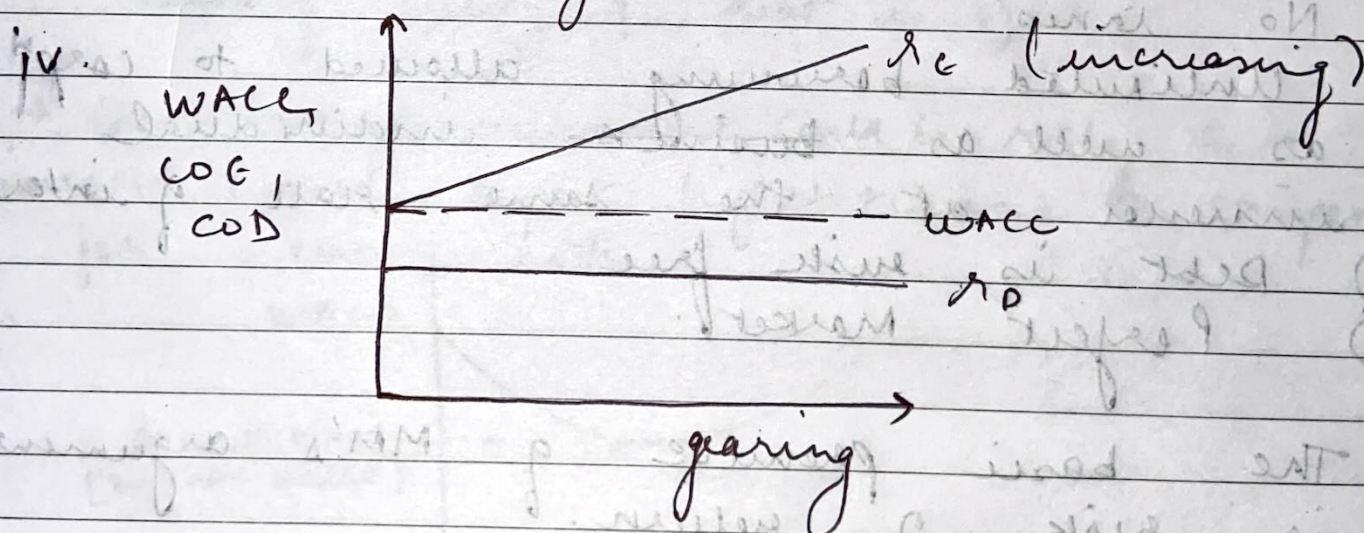
→ For 100% equity financed company, shareholders faces only Business risk.



→ For debt & equity company, shareholder faces both financial risk & business risk.

If 2 companies with same business risk, same operating profits but diff. capital structure have different market value, then according to MM, arbitrage opportunity exists. Arbitragers will exploit this opportunity & value will become equal.

A highly geared company offers higher ROE but also has higher COE. These 2 factors cancel out each other & hence value of firm shall remain same [WACC unchanged].





v. a.  $r_f = 6\%$

eg. risk premium =  $5\%$   
 $\beta_u = 1.4$

$$COE = r_f + (\beta_u \times \text{eq. risk premium})$$

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

$$\boxed{COE = 13\%}$$

b. Market capitalisation = 100m  
MV = 50%

BV = 40%

we consider the market value, so:

$$D/E = 50/50 = 1:1$$

$$t = 30\% = 0.3$$

$$\beta_u = 1.4$$

$$\beta_g = \text{~~1.4~~}$$

$$= \beta_u \left[ 1 + \frac{D/E}{1-t} \right]$$

$$= 1.4 \left[ 1 + 1(0.3) \right]$$

$$= 1.4(1.3)$$

$$\beta_g = \boxed{2.38}$$

c.  $COE = r_f + [\beta_g \times \text{eq. risk premium}]$

$$= 6\% + [(2.38)(5\%)]$$

$$\boxed{COE = 17.9\%}$$