

## Business Finance - 2

### Assignment 1 Unit 3 & 4

1. (D) IRR is the most reliable means of choosing between mutually exclusive projects

2. (A) Market price of shares / Earnings per share

3. (D) All of the above

4. (D) 10,00,000

5. Given:

Sales - 2500

Costs - 1500

Tax rate - 40%

Discount rate - 20%

$$\begin{aligned} \text{(i) Cash flow at date 1} &= (\text{Sales} - \text{costs}) - \text{taxes} \\ &= (2500 - 1500) - 40\% \\ &= 1000 - 40\% \\ &= 600 \end{aligned}$$

(ii) NPV

$$\begin{aligned} &= \cancel{(\text{Sales} - \text{costs}) (1 - \text{discount rate})} \\ &= \cancel{2500(1 - 20\%) - 1500(1 - 20\%)^2} \\ &= \end{aligned}$$

$$\begin{aligned} \text{(iii) NPV} &= 1500(1.2) - 1500(1.2)^2 \\ &= \text{Rs. 208.34} \end{aligned}$$



Ans 6. To measure a business efficiency following are the important ratios.

i) Inventory turnover period

→ This ratio is used to attempt to how much inventory the business holds in relation to company's operation

$$\rightarrow \frac{\text{Inventories}}{\text{cost of sales}} \times 365$$

ii) Trade Receivables Turnover Period

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

$$\rightarrow \frac{\text{Trade Receivables}}{\text{Credit Sales}} \times 365$$

iii) Trade Payables Receivables Turnover Period

→ It indicates the average number of days credit that a company has from its suppliers.

$$\rightarrow \frac{\text{Trade Payables}}{\text{Credit purchases}} \times 365$$



Ans 7. The limitations of ratio analysis are as follows

1. Diverts Attention

5 It diverts attention from the figures & statements themselves.

2. Appropriate Comparison

10 Comparisons can be affected by different accounting policies or by other external factors.

3. Different Industries

15 There could be ~~per~~ peculiarities of the trade which make it difficult to interpret certain ratios.

4. Creative Accounting

The statements could have been deliberately distorted by so called creative accounts.



Ans 8.1) Beta is used as a measure of systematic risk. All companies are exposed to systematic risks since they all are affected by the markets. However some companies are more exposed than others and therefore the betas of all companies differ on the basis of their exposure towards the market.

11) Given,  $\beta_{\text{gear}} = 1.1$  To find  $\beta'_{\text{gear}} =$   
 $\text{debt:Equity} = 1/2$  when  $\text{debt:Equity} = 2/1$   
 $\text{tax rates} = 30\%$

Since

$$\beta_{\text{gear}} = \beta_{\text{ungeared}} \left( 1 + \frac{D}{E} (1 - t) \right)$$

$$1.1 = \beta \left( 1 + \frac{1}{2} (1 - 30\%) \right)$$

$$\beta_{\text{ungeared}} = 0.81481$$

$$\beta'_{\text{gear}} = \beta_{\text{ungeared}} \left( 1 + \frac{D'}{E} (1 - \text{taxes}) \right)$$

$$= 0.814814 \left( 1 + \frac{2}{1} (1 - 30\%) \right)$$

$$= 1.385$$

Therefore  $\beta_{\text{gear}}$  when debt to Equity is 2:1 is 1.385



Ans 9.  $\Rightarrow$  In general the market value of investment trust is not correlated to the net present value.

Ans 10)

- $\Rightarrow$  A company's major goals would be long term while some traders or want to focus on short term goals.
- $\Rightarrow$  Problems between managers and board members.
- $\Rightarrow$  Communication can be a major problem.

$\Rightarrow$  Given

Present value of shares = 70

Dividend / share = 10

Risk free rate = 6%

Growth rate = 8%

Market Risk Premium = 5% ,  $\beta = 0.8$

$$\text{Share price} = \frac{\text{Dividend}}{\text{Cost of Requirs - growth rate}}$$

$$= \frac{10}{[6\% + 5\% (0.8)] - 8\%}$$

$$= \frac{10}{0.02} = 500$$



Ans 11.

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

ii) for a company  $i$ :

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

where  $\sigma_m^2 \rightarrow$  is variance of market index

$\sigma_{im} \rightarrow$  is the covariance b/w individual stock returns & that of the market

iii) As an active investor, I'll invest in a stock with beta 1 as it will provide returns in line with the market

iv) A government bond is expected to have a beta of 0 since it should not be affected by the systematic risks.



Ans 12: Given,

debt to Equity - 1:1  
risk free return - 7%  
Equity risk premium - 5%  
gross cost of debt - 9%  
beta - 1.5  
profit taxation - 25%

$$\begin{aligned}
 (i) \quad WACC &= R_e \left( \frac{M_e}{M_e + M_d} \right) + R_d \left( \frac{M_d}{M_e + M_d} \right) \\
 &= \frac{1}{2} \left( 7\% + 5\% (1.5) \right) + \frac{1}{2} \left( 9\% (1 - 25\%) \right) \\
 &= 0.145 \left( \frac{1}{2} \right) + \frac{1}{2} (0.6675) \\
 &= 0.0625
 \end{aligned}$$

(ii) To find,  $\beta_{unlevered}$  & then ROE

$$1.5 = \beta_{unlevered} (1 + (1 - 25\%))$$

$$\beta_{unlevered} = 0.857$$

$$ROE = 7\% + 5\% (0.857) =$$

$$= 0.1129$$

Therefore, the required return to equity is 11.29%



Ans 13. Given

Annual Cost Saving

Rs 40,000

Useful life

4 years

IRR

15%

Profitability Index

1.064

Salvage Value

0

$$1) \Rightarrow NPV \text{ when IRR is provided} = \text{Initial Investment} + 40000 + 40000[(1.15)^{-1} + (1.15)^{-2} + (1.15)^{-3} + (1.15)^{-4}]$$

0

$$= \text{Initial Investment} + 40000[2.855]$$

Therefore Initial Investment  $\Rightarrow$  Rs. 114200

$$\Rightarrow \text{Profitability Index} = \text{Present Value of cashflow} / \text{Initial Investment}$$

$$1.064 = \text{Present Value of cashflow} / 114200$$

$$\text{Therefore Present Value of Cashflow} = \text{Rs. } 121508.8$$

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

$$= 121508.8 - 114200$$

$$\text{Therefore NPV} = \text{Rs. } 7308.8$$



ii) Let the cost of capital be  $x$

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

$$7308.8 = -114200 + 40000 \left[ (1+x)^{-1} + (1+x)^{-2} + (1+x)^{-3} + (1+x)^{-4} \right]$$

$$3.03772 = \left[ (1+x)^{-1} + (1+x)^{-2} + (1+x)^{-3} + (1+x)^{-4} \right]$$

$$x = 12\%$$

Therefore cost of capital = 12%

iii) Cost of the project will be Rs 114200/-

iv) Payback Period = Initial Investment / amount of the annual annuity

$$= 114200 / 40000$$

$$= 2.855 \text{ years.}$$



Ans H.

Q) Current Ratio

- 1. This ratio is used to assess whether the company will be able to pay its bills over the next few months.
- 2. 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.
- 3. Normally, a low ratio might indicate that a company may have problems paying its creditors.
- 4. An excessive high ratio may indicate that the management has too much money tied up in unproductive short term assets.
- 5. In general, 2:1 is considered as an optimal ratio.

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



## 10) Debtors Turnover Period

→ Also known as Trade Receivables turnover period

→ This is a measure of the average time taken for the debtors to settle their payments.

→ A high ratio may indicate that corporate collection practices are efficient with quality customers who pay debts quickly.

→ A low ratio could be the result of inefficient collection process.

$$\text{Accounts Receivable Turnover} = \frac{\text{Average Accounts Receivables}}{\text{Net Credit Sales}}$$



ii) The company should look at their quick ratio to ascertain whether the company would be able to meet its short term liabilities.

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

- It aims at looking short term liabilities
- It focuses on readily realisable cash.
- A quick ratio of less than 1 indicates that a company will struggle to pay its short term liabilities.



Ans 5. i) An investor might buy shares in this company because it provides a high dividend yield of 4%. It is true that shares are potentially risky and the return from them may be very volatile. However, an investor can expect a higher level of return from shares to compensate for higher risks.

For calculation of cost of capital :-

Assumptions :

- i) No growth in the stock market price
- ii) No taxes.

Dividend yield (d) = 4%

Gross Cost of debt = 8%

Net cost of debt = gross cost  $(1 - t)$

= 8%

Cost of Equity =  $d + g$

= 4%

WACC = (net cost of debt + cost of equity) / 2

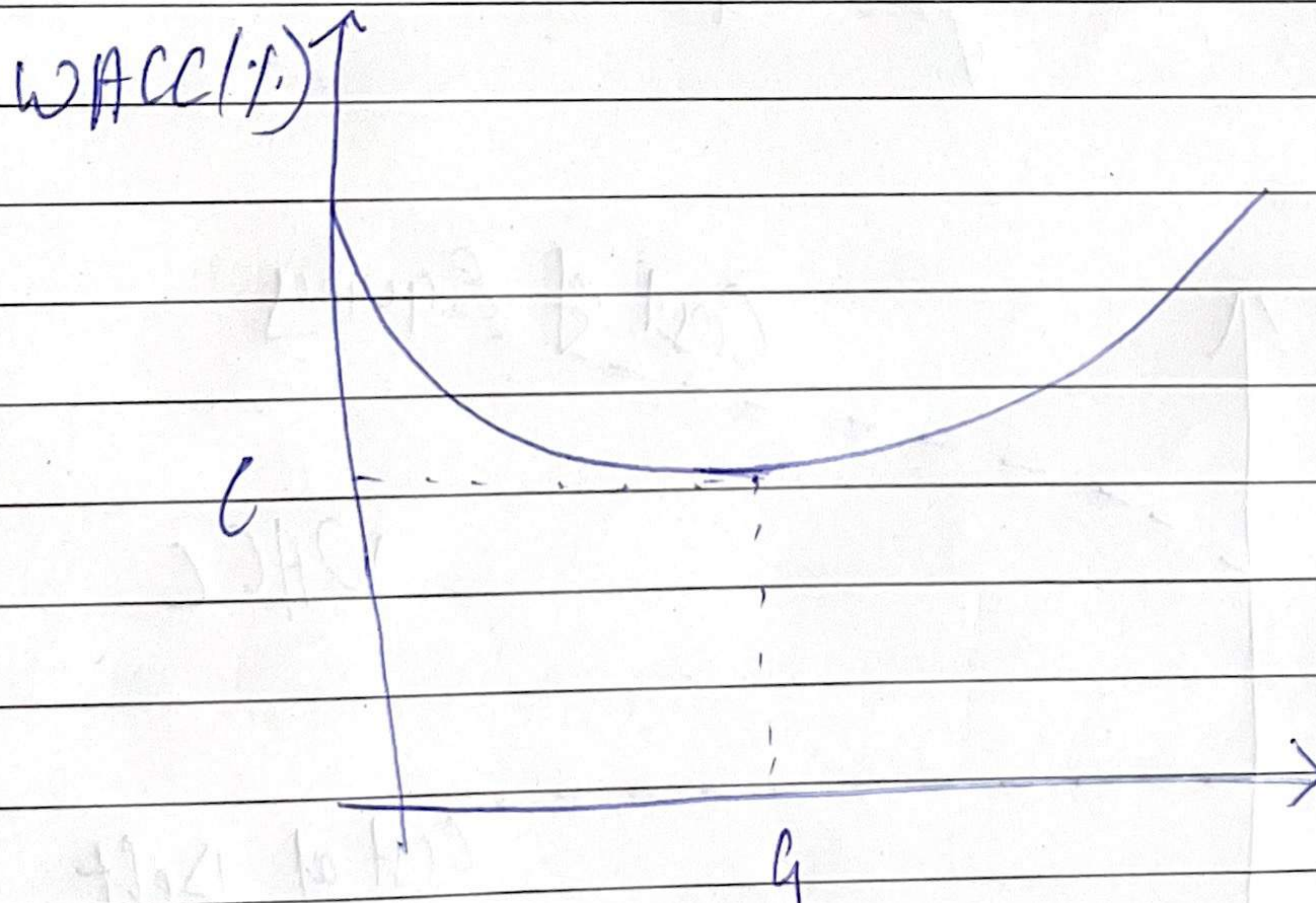
= 6%

Therefore, the minimum cost of capital that must be achieved is 6%.



## ii) Traditional View

- In the traditional school the emphasis was on determining the amount of debt a company could safely carry without risking bankruptcy.
- Debt is cheaper than equity finance, so as gearing increases, WACC will fall.
- However, increasing debt finance increases the risks for shareholders, so they demand a greater return for the higher risk.
- Therefore beyond a certain level of gearing, the downward effect on WACC will be balanced by the increased return to shareholders.



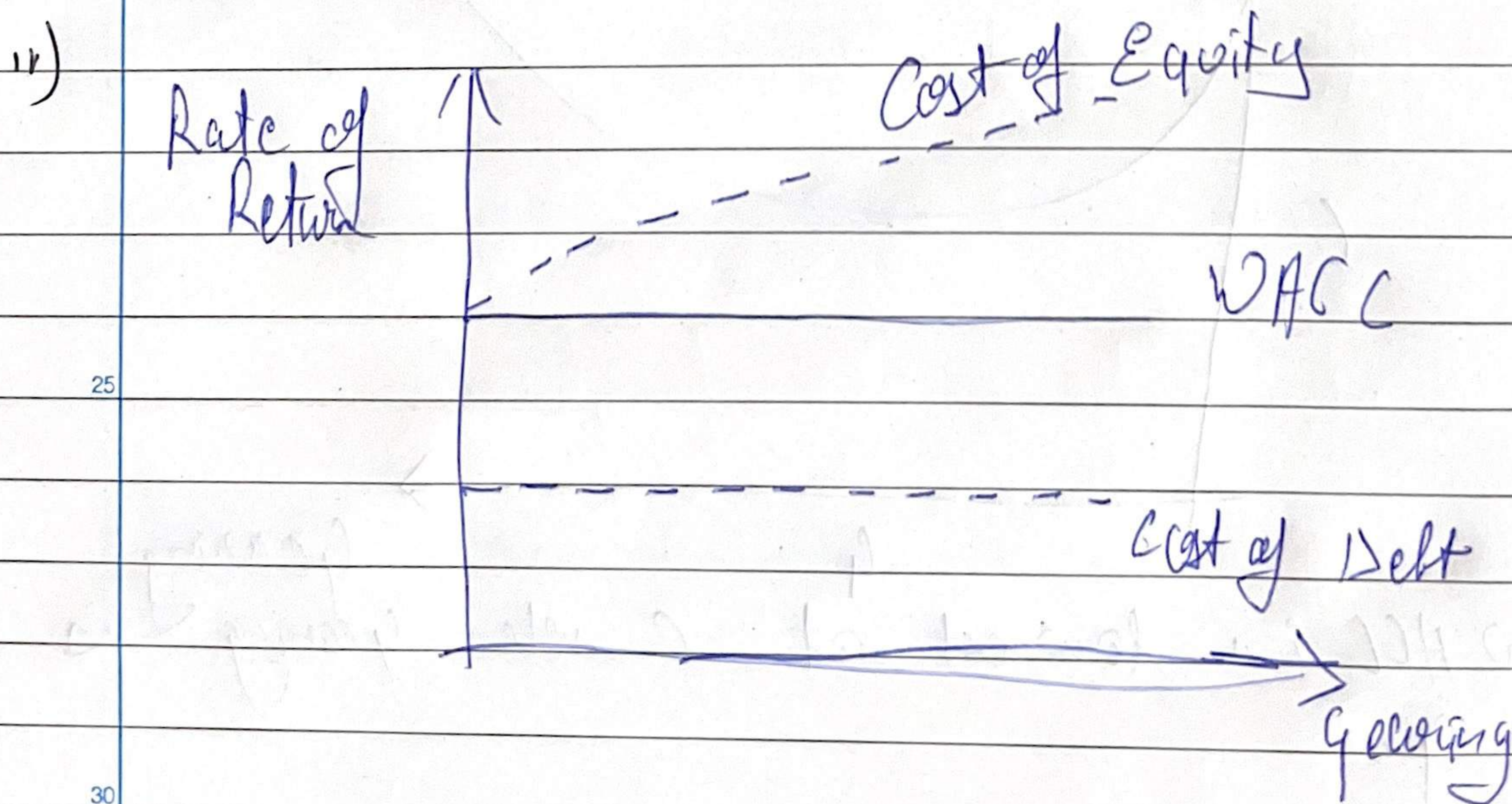
The WACC is lowest at C when gearing is at G.



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iii) Modigliani & Miller's first irrelevance proposition had the following assumptions

- There are no taxes
- Unlimited personal & company borrowing is possible at the same rate of interest
- Debt is risk free
- There are no agency costs
- There are no asymmetric information

MM's proposition argued that, under certain assumptions, gearing has no effect on the value of the company. They held their view was that the value of the company lies in its ability to produce profits, not in the way it is financed.





v/a) Risk free Rate = 6%  
Equity risk premium = 5%

5 Ungearred beta = 1.4

Cost of Equity = Risk free rate + (Ungearred beta  $\times$  Equity risk premium)  
 $= 6\% + (1.4 \times 5\%)$   
 $= 13\%$

b) Total Market Capitalisation = 100 m  
 Market value of debt = 50%  
 Ratio of debt to Equity = 50/50  
~~Turn ratio~~ = 1:1  
 Tax rate = 30%

20 Gearing beta = Ungearred beta  $\times (1 + (\text{debt:Equity}) \times (1 - \text{tax rate}))$   
 $= 1.4 \times (1 + (1/1) \times (1 - 30\%))$   
 $= 2.38$

c) 30 Cost of Equity = risk free rate + (Beta  $\times$  Equity risk premium)  
 $= 6\% + 2.38(5\%)$   
 $= 17.9\%$