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Subject: Business Finance – 2

Chapter: Unit 3 & Unit 4

ASSIGNMENT 2

1. Which of the following statements is NOT true about Internal Rate of Return (IRR) method of project appraisal

- A. IRR may give multiple solutions.
- B. IRR is less popular than Net Present Value as a measure of project worth.
- C. IRR has the benefit of highlighting the return achieved by the project.
- D. IRR is the most reliable means of choosing between mutually exclusive projects.

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

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

- A. Market price of share/ Earning per share
- B. Issue price of share/ Earning per share
- C. Market price of share* Earning per share
- D. Issue price of share* Earning per share

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

3. While calculating Inventory turnover period, Inventories include

- A. Finished goods
- B. Work-in-progress
- C. Raw material
- D. All of the above

Ans. D. All of the above

4. The following figures were taken from a company's accounts:

	2018	2019
Operating Profit	10,00,000	8,00,000
Depreciation	1,00,000	1,20,000
Working Capital	3,50,000	2,50,000

(inventory + trade receivables – trade payables)

What is the company's cash inflow from operating activities for the year ended 2019?

- A. 12,00,000
- B. 11,00,000
- C. 9,00,000
- D. 10,00,000

ANS. B. 11,00,000

5. The project generates 2500 in sales and 1500 in costs (excluding depreciation) at date 1. The tax rate is 40%.

The discount rate for the project is 20%.

i) What is the cash flow from the project at date 1?

ii) What is the NPV of the project?

iii) Now assume (for this question only) that your suppliers allow you to pay them with a one-year delay, that is, at date 2. How does the NPV of the project change compared to the previous question?

Ans. i) There is a positive cash flow of 2500, two negative cashflow of 1500 and $[(2500-1500) \times 0.4]$ 400 on date 1

ii) $NPV = 600 \times V^1 = 600 \times (1-0.2) = 480$

iii) If the supplier allows to pay them at date 2 then the new $NPV = 2500 \times V^1 - 1500 \times V^2 - 400 \times V$

$= 720$

The NPV will increase

6. If you want to measure any business efficiency, what ratios you will analysis and why?

Ans. There are four main groups of ratios:

1. Those which measure profitability.

2. Those which measure liquidity.

3. Those which measure business efficiency.

4. Those which relate to the business' financial structure

If we want to measure the efficiency of a business, we need the following ratio

Inventory turnover period

a) The inventory turnover period is defined as:

$$\text{stock turnover period} = \frac{\text{inventories}}{\text{cost of sales}} \times 365$$

It tells us how efficient a business is in terms of sales. The lower this ratio is the more efficient is the business

b) Trade receivables turnover period

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

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

Again, it is desirable for this period to be as short as possible. It will be better for the company's cash flow if those 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 relationship with its customers.

7. Briefly list down the limitation of ratio analysis.

Ans. The major limitations of ratio analysis are

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

8. i) State possible reasons why stocks trade at different betas in the stock market.

ii) A company has a geared beta of 1.1 on a debt equity ratio of 1:2 and corporate tax rate of 30%. Calculate the geared beta if the debt equity ratio is 2:2.

Ans. i) we know that **Beta** measures the responsiveness of a **stock's** price to changes in the overall **stock market**.

Some reasons why stocks may trade at different beta are:

- a) Every company has a different strategy and hence they may react differently from the market
- b) A Company may have earned high returns on its asset as compared to the other company operating in the same market or vice versa.

ii)

$$\text{Geared beta} = \text{ungeared beta} * (1 + \text{debt:equity ratio} * (1 - \text{tax rate}))$$

undgeared beta in the first case = geared beta / (1+debt:equity ratio*(1-tax rate))

$$\Rightarrow 1.1/1+0.5*(1-30\%)$$

$$\Rightarrow 0.8148$$

Now, geared beta when the debt: equity ratio is 2:2

$$\Rightarrow 0.8148*(1+1*(1-30\%))$$

$$\Rightarrow 1.385$$

9. A project having a life of one year is started with initial investment of 100 lakhs with 10% cost of capital. It's NPV and IRR is found to be 10 lakhs and 21%. If cost of capital is changed to 11% then calculate NPV and IRR?

Ans. Given

$$NPV = 10$$

$$IRR = 21\%$$

$$\text{Cost of cap (i)} = 10\%$$

$$\text{Initial investment} = 100$$

List of cash flows

$$-100$$

X positive cash flow

$$10 = -100 + x(1+10\%)^{-1}$$

$$110 = x(1.1)^{-1}$$

$$X = 121$$

The second cash flow is 121

If $i = 11\%$

$$\begin{aligned} \text{i) } NPV &= -100 + 121(1.11)^{-1} \\ &= 9.009 \end{aligned}$$

ii) IRR remains constant as the cashflows don't change

10. i) Define Systematic Risk and Specific Risk.

ii) Distinguish between systematic risk and specific risk and explain their relevance to capital project appraisal.

Ans. i) Systematic risk refers to the risk inherent to the entire market or market segment. Systematic risk, also known as "undiversifiable risk," "volatility" or "market risk," affects the overall market, not just a particular stock or industry.

To an investor, specific risk is a hazard that applies only to a particular company, industry, or sector. It is the opposite of overall market risk or systematic risk. Specific risk is also referred to as unsystematic risk or diversifiable risk

ii)

Systematic Risk	Specific Risk
A systematic risk is associated with the market as a whole	Where as a specific risk is company specific
Ex. Inflation risk Market risk Interest risk	Ex. Business risk Financial risk

11. i) Explain the beta of a stock along with formula.

ii) How can beta be determined?

iii) As an active stock market investor, would you invest in a stock with a beta of 1 or -1?

iv) Name a financial instrument that is likely to have a beta of 0.

Ans. i) Beta is a numeric value that measures the fluctuations of a stock to changes in the overall stock market.

Beta = Variance / Covariance

where: Covariance = Measure of a stock's return relative to that of the market

Variance = Measure of how the market moves relative to its mean

ii) A security's beta is calculated by dividing the product of the covariance of the security's returns and the market's returns by the variance of the market's returns over a specified period.

iii) It depends upon the market. If the market is bearish or going up (bullish) I would invest in the stock with beta 1 and if the market is going down (bearish), I would invest in stock with beta -1.

iv) fixed income security would have a beta of 0.

12. ABC Pvt. Ltd. has a debt: equity ratio of 1:1. The risk-free rate of return is 7%, the equity risk premium derived from the market is 5% and the gross cost of debt is 9%. Its beta is 1.5 and assume any profit is taxed at 25%.

i) Calculate its weighted average cost of capital.

ii) ABC is concerned about its high debt: equity ratio. If ABC were to repay all debt, what would be the required return to equity?

Ans. i) $wacc = \{(\text{cost of equity}) * (\% \text{ equity}) + (\text{cost of debt}) * (\% \text{ debt})\} / \text{equity} + \text{debt}$

⇒ Cost of equity = $r_f + \text{Beta} * (r_m - r_f) = 7\% + 1.5 * 5\% = 0.145$

⇒ Cost of debt = Cost of debt depending on rating of company $\times (1 - \text{tax rate})$

⇒ $WACC = 0.145 * 0.5 + 9\% * 0.5 * (1 - 25\%)$
 $= 10.625\%$

ii) ii) Ungear beta needs to be computed.

$$\beta_g = \beta_u \times \left(1 + \frac{D}{E}(1 - t)\right)$$

$1.5 = \text{Ungear beta} * (1 + 1/1 * (1 - 25\%))$

$= \text{Ungear beta} * 1.75$

$\text{Ungear beta} = 1.5 / 1.75 = 0.857143$

New cost of equity = Risk-free rate + Ungear beta * Equity risk premium

$= 7\% + 0.857143 * 5\%$

$= 11.29\%$

13. The following data relates to a capital project being evaluated by the Management of X LTD.

	Project M
Annual Cost saving	Rupees 40,000
Useful life	4 years
I.R.R.	15%
Profitability Index (PI)	1.064
Salvage Value	0

Calculate for Project M:

- NPV
- Cost of Capital
- Cost of Project
- Payback

Ans .i) At IRR, present value of cash outflow= present value of cash inflow, hence cost of Project = $40,000 \times 2.855$ (cumulative discounting factor for 4 years at IRR) = 1,14,200

ii) cost of capital => present value of the cash flows/annual cash inflows

$$\Rightarrow 121509/40000 = 3.038$$

=> Using the tables for pv of annuity factor we get cost of capital as => 12%

iii) profitability index at cost of capital= 1.064

$1.064 = \text{present value of cash inflow at cost of capital} / 114200$

Present value of cash inflow at cost of capital = 121509

Net present value at cost of project = $121509 - 114200 = 7309$

iv) cost of capital payback period= $114200/40000 = 2.855$

14. i) Define the following ratios and state its use:

a) Current ratio

b) Debtors turnover period

ii) Xylo Ltd deals in goods with a high inventory turnover period. Its finance manager wishes to ascertain whether the company would be able to meet its short term liabilities. Explain which ratio should he track on a regular basis and state the equation for the ratio suggested.

Ans.i) a) current ratio

$$\text{current ratio} = \frac{\text{current assets}}{\text{current liabilities}}$$

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 money due to be received in the short term with an estimate of the amount of money to be paid

b) Debtors turnover period

The accounts receivable turnover ratio is an efficiency ratio that measures the number of times over a year (or another time period) that a company collects its average accounts receivable.

ii) the company should keep track of its quick ratio. This is another ratio aimed at looking at short-term liquidity. It focuses on readily realizable cash. The quick ratio considers what would happen if all creditor and debtor accounts were settled immediately.

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

15. i) A company has debt to equity ratio of 1:1, the gross redemption yield on debt is 8% and the dividend yield is 4%. Explain why an investor might buy shares in this company, and suggest a suitable cost of capital for the investor, assuming the debt is held till maturity.

ii) Explain the traditional view of the effect of gearing on the cost of capital, including why the cost of equity increases with an increase in gearing. You should include an appropriate diagram to illustrate your answer.

iii) Identify Modigliani and Miller's first irrelevance proposition, and describe its underlying assumptions.

iv) Draw a diagram showing the effect of gearing on the cost of capital using Modigliani and Miller's first proposition.

v) Beta is a measure of the risk of investing in a security.

a) If the risk-free rate of return is 6% and the equity risk premium is 5%, what is the cost of equity for a company with Beta (ungeared) of 1.4?

b) The total market capitalization of a company is 100m, whose debt has a book value of 40% and a market value of 50%. The tax rate is 30%. Determine the geared beta of the company.

c) Determine the cost of equity of the company

Ans. i)

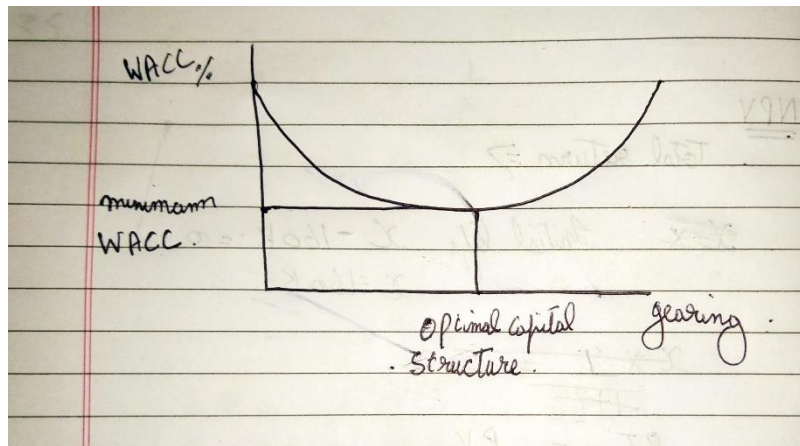
Investors will invest in the shares of this company:

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

The suitable cost of capital is anything slightly higher than 6% ($8\% \times 0.5 + 4\% \times 0.5$)

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 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.

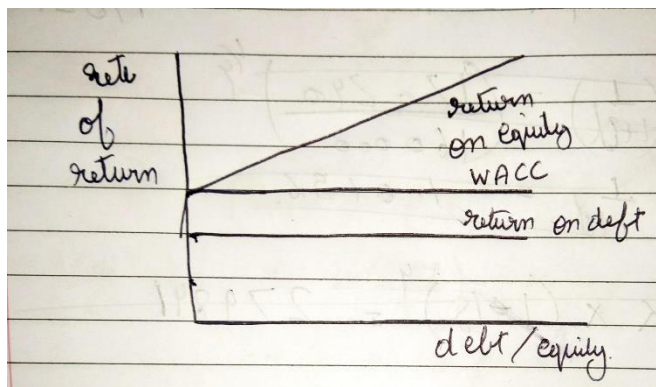


iii) First proposition of Modigliani and Miller: The market value of any firm is independent of its capital structure.

The following are the assumptions:

- There are no taxes in the economy
- 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.

iv)



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) cost of equity = risk-free return + β * (equity risk premium)

$$=6\% + 1.4 * 5\%$$

$$=6\% + 7\% = 13\%$$

$$\text{b) Geared equity beta} = \text{Ungeared Beta} * [1 + (\text{Debt: Equity ratio}) * (1 - t)]$$

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

$$\text{Geared equity beta} = 1.4 * [1 + (0.5/0.5) * (1 - 0.3)]$$

$$= 1.4 * (1 + 0.7)$$

$$= 1.4 * 1.7$$

$$= 2.38$$

$$\text{c) Cost of equity} = \text{risk-free return} + \text{beta} * (\text{equity risk premium})$$

$$=6\% + 2.38 * 5\%$$

$$=17.9\%$$