

Business Finance-2

Assignment-1

Q1. Which of the following statements is NOT true about Internal Rate of Return (IRR) method of project appraisal

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

Q2. Which one of the following is the correct formula for the price earnings ratio?

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

Q3. While calculating Inventory turnover period, Inventories include

A) D. All of the above

Q4. D. 10,00,000

Q5.

Tax = 40%

Discount Rate = 20%

Cashflows at time 1:

- Inflow = 2500 rupees
- Outflow = 1500 rupees

i.

Net cashflow at time 1 = Inflow – Outflow

Net cashflow at time 1 = 1000 rupees

Net cashflow after taxes = $1000 \times (1-t)$

Net cashflow after taxes = 600 rupees

ii.

$NPV = 600 \times (1+20\%)^{-1}$

NPV = 500 rupees

iii.

Cashflow at time 1

Inflow = 2500

Outflow = 0

Net cashflow = 2500

Net cashflow after taxes = $2500 \times (1-t)$

Net cashflow after taxes = 1500 rupees

Cashflow at time 2

Inflow = 0

Outflow = 1500

Net cashflow = -1500

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

NPV = 208.34 rupees

Q6.

- Efficiency ratios determine how productively a company manages its assets and liabilities to maximize profits.
- Shareholders look at efficiency ratios to assess how effectively their investments in the company are being used.
- Some of the most commonly considered efficiency ratios include inventory turnover, accounts receivable turnover, accounts payable turnover and the cash conversion cycle (CCC).

The most common efficiency ratios include:

- Accounts Receivable Turnover
- Working Capital Ratio
- Asset Turnover Ratio
- Total Asset Turnover Ratio
- Inventory Turnover
- Days' sales in Inventory

Q7.

Ratio analysis is a very useful technique for the interpretation of financial statements. It does, however, have its limitations. Some of these are outlined below:

1. 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 is not usually reflected in the ratios.

2. Appropriate comparison

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

3. Different industries

There could be peculiarities of the trade which make it difficult to interpret certain ratios. A property company, say, 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 on a regular basis, thus increasing capital employed. This will make it difficult to compare results with a business whose assets have not been revalued.

4. Creative Accounting

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

Q8.

(i)

➤ Beta is a measurement of market risk or volatility.

- It indicates how much the price of a stock tends to fluctuate up and down compared to other stocks.
- A 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 (i.e., 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.
- 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 future cash flows.
- A stock's beta will change over time because it compares the stock's return with the returns of the overall market.

ii.

Gear beta = 1.1

Tax = 30 %

Debt : Equity = 1:2

Gear beta = ungeared beta * (1 + (debt:equity)*(1-t))

1.1= ungeared beta*(1+(1/2)*0.7)

Ungeared beta = 0.81481

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

Gear beta = 0.81481 * (1+(1/1)*(0.7))

Gear beta = 1.38519

Q9. Which of the following statements is true?

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

Q10.

- 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 *separation of ownership and control* (management) in corporations.
- Separation of ownership and control has permitted managers to pursue goals more consistent with their own self-interests as long as they satisfy shareholders sufficiently to maintain control of the corporation.
- Instead of seeking to maximize some objective (such as shareholder wealth), managers “satisfice,” or seek acceptable levels of performance, while maximizing their own welfare.
- Maximization of their own personal welfare (or utility) may lead managers to be concerned with long-run survival (job security).
- The concern for long-run survival may lead managers to minimize (or limit) the amount of risk incurred by the firm, since unfavourable outcomes can lead to their dismissal or possible bankruptcy for the firm.

ii.

Dividend per share (DPS) = 10 rupees

Market price of the share (MPS) = 70 rupees

Company's growth rate (g) = 8%

Risk free rate = 6%

Equity risk premium = 5%

Dividend yield (d) = $(DPS/MPS) \times 100$
 $= 14.28571\%$

Cost of equity = $d + g$
 $= 22.28571\%$

Also, cost of equity = risk free rate + Beta*(equity risk premium)

$22.28571\% = 6\% + \text{Beta} \times 5\%$

$$\text{Beta} = 3.25714$$

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

$$\text{New Beta} = \text{Beta} * (1.8)$$

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

Now, cost of equity = Risk free rate + New Beta * equity risk premium

$$\text{Cost of equity} = 6\% + 5.86286 * 5\%$$

$$\text{Cost of equity} = 35.31428\%$$

$$\text{Also, cost of equity} = d + g$$

Let MPS be x.

$$35.31428 = (\text{DPS}/x)*100 + 8\%$$

$$X = 36.61089$$

Thus, the market price of the stock falls to 36.61089 rupees.

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 (usually stocks).

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

- ii. Beta could be calculated by first dividing the security's standard deviation of returns by the benchmark's standard deviation of returns. The resulting value is multiplied by the correlation of the security's returns and the 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 my stock will also go up along with market 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 run.

iv. Gilt securities such as government bonds have beta very close to 0 or 0.

Q12.

$$\text{Debt : Equity} = 1:1$$

$$\text{Risk-free rate} = 7\%$$

$$\text{Equity Risk Premium} = 5\%$$

$$\text{Geared Beta} = 1.5$$

$$\text{Gross Cost of debt} = 9\%$$

$$\text{Tax rate} = 25\%$$

i. $\text{Net cost of debt} = \text{gross cost of debt} * (1-t)$

$$= 9\% * (1-25\%)$$

$$= 6.75\%$$

$\text{Cost of equity} = \text{risk-free rate} + \text{Geared beta (Equity risk premium)}$

$$= 7\% + 1.5 (5\%)$$

$$= 14.5 \%$$

$$\text{WACC} = [(1 * \text{Cost of equity}) + (1 * \text{Cost of Debt})] / 2$$

$$= (14.5\% + 6.75\%) / 2$$

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

ii. $\text{Geared beta} = \text{Ungeared beta} * (1 + (\text{debt:equity}) * (1-\text{tax rate}))$

$$1.5 = \text{Ungeared beta} * (1 + 0.75)$$

$$\text{Ungeared beta} = 0.85714$$

$$\text{Cost of equity} = \text{Risk free rate} + \text{Beta (equity risk premium)}$$

$$= 7\% + 0.85714 (5\%)$$

$$\text{Cost of equity} = 11.2857 \%$$

Thus, the required return to equity is 11.2857 %.

Q13.

i. At IRR NPV is 0.

$$\text{IRR} = 15\%$$

$$\text{NPV @IRR} = \text{Initial investment} + 40000 ((1.15)^{-1} + (1.15)^{-2} + (1.15)^{-3} + (1.15)^{-4})$$

$$0 = \text{Initial investment} + 40000 * 2.855$$

$$\text{Initial investment} = -1,14,200 \text{ rupees}$$

$$\text{Profitability index} = \text{Present value of cash inflows} / \text{Initial Investment}$$

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

$$\text{Present value of cash inflows} = 1,21,508.8 \text{ Rupees}$$

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

$$\text{NPV} = 1,21,508.8 - 1,14,200$$

$$\text{NPV} = 7308.8 \text{ Rupees}$$

ii. Let the cost of capital be i

$$\text{NPV} = \text{Initial investment} + 40000((1+i)^{-1} + (1+i)^{-2} + (1+i)^{-3} + (1+i)^{-4})$$

$$7308.8 = -1,14,200 + 40000 ((1+i)^{-1} + (1+i)^{-2} + (1+i)^{-3} + (1+i)^{-4})$$

$$3.03772 = ((1+i)^{-1} + (1+i)^{-2} + (1+i)^{-3} + (1+i)^{-4})$$

$I = 12\%$ (From actuarial table book for discount factor of an annuity for 4 years)

Hence, the required cost of capital = 12%

iii. Cost of the project = 1,14,200 rupees

iv. Payback period = Initial investment / amount of the annuity every year

$$= 1,14,200 / 40,000$$

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

Q14. i.

a. Current Ratio

➤ Current Ratio = Current assets / 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.
- 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.
- 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

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

The term receivables turnover ratio 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 and manages the credit it extends to customers and how quickly that short-term debt is collected or is paid.
- A 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 to compare the accounts receivable turnover of multiple companies within the same industry to get a sense of the normal or average turnover ratio for that sector.

ii .

- Xylo Ltd. Should use the quick ratio to ascertain whether the company would be able to meet its short term liabilities.
- $\text{Quick ratio} = \frac{\text{current assets} - \text{inventories}}{\text{current liabilities}}$
- This ratio is aimed at looking at short-term liquidity.

- The quick ratio considers what would happen if all creditor and debtor accounts were settled immediately.
- It focuses on readily realisable cash.
- A quick ratio of much less than one might be a sign that the company may struggle to pay its creditors.
- The idea is that only cash and trade receivables (debtors) can be quickly turned into cash, but any of the current liabilities could become payable within a few months.

Q15.

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 in that the return from them may be very volatile (and uncertain). 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 price as of now and there are no taxes. This will help us in obtaining the minimum cost of capital for the investors

Dividend yield = $d = 4\%$

Gross cost of debt = 8%

Net cost of debt = gross cost of debt * $(1-t)$
 $= 8\%$

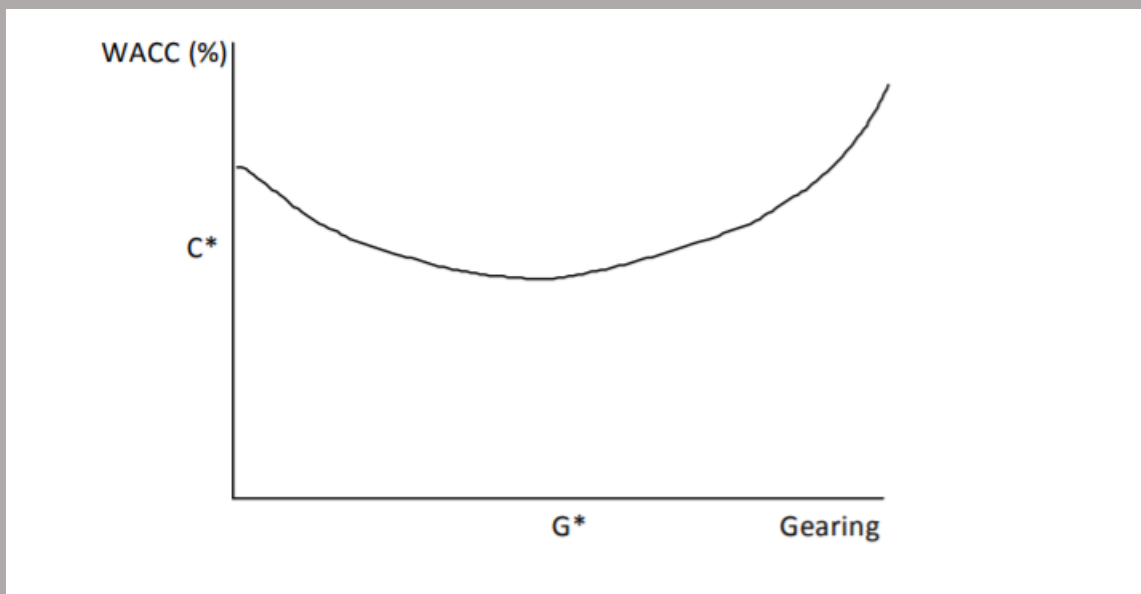
Cost of equity = $d + g$
 $= 4\%$

WACC = $(1 * \text{net cost of debt} + 1 * \text{cost of equity}) / 2$
 $= (4\% + 8\%) / 2$
 $= 6\%$

Thus, the minimum cost of capital that the investor should use 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 in a severe recession.
- 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 (balanced) by the increase in the return required by shareholders.



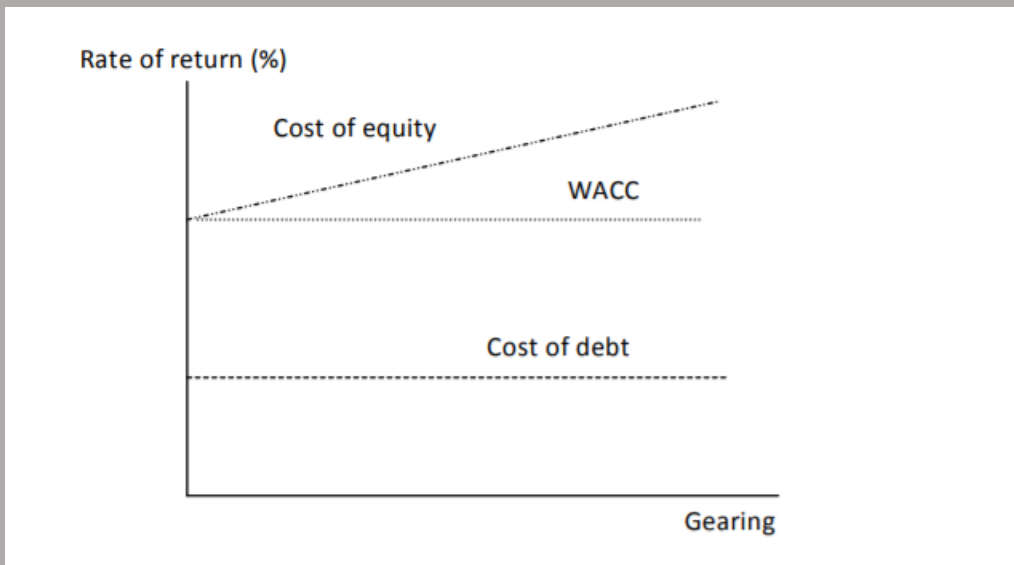
The WACC is lowest at C^* when gearing is at G^* .

iii.

- A key concept in corporate finance is expressed in Modigliani and Miller's first irrelevance proposition:
The market value of any firm is independent of its capital structure.
- This is the basis of Modigliani and Miller'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 the following assumptions:
 - there are no taxes

- 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.
- Modigliani and Miller 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, not in the way that it is financed.

iv.



v.

a) Risk free rate = 6%

Equity risk premium = 5%

Ungeared beta = 1.4

Cost of equity = Risk free rate + (ungeared beta * Equity risk premium)

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

$$= 13\%$$

b)

Total market capitalisation = 100 m

Market value of debt = 50%

Ratio of debt to equity = 50/50

$$= 1:1$$

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

$$\begin{aligned}\text{Geared beta} &= \text{Ungeared beta} * (1 + (\text{debt:equity}) * (1 - \text{tax rate})) \\ &= 1.4 * (1 + (1/1) * (1 - 30\%)) \\ &= 2.38\end{aligned}$$

c.

$$\begin{aligned}\text{Cost of equity} &= \text{risk free rate} + (\text{Beta} * \text{equity risk premium}) \\ &= 6\% + 2.38 * 5\% \\ &= 17.9 \%\end{aligned}$$