

Business Finance

Assignment 1

A1 D - IRR is the most reliable means of choosing between mutually exclusive projects

A2 A - $\frac{\text{Market Price of share}}{\text{Earning per share}}$

A3 D - All of the above

A4 D - 10,00,000

A5 To measure the business efficiency we will measure activity ratios which are also known as efficiency ratios. Activity ratios are ratios that show the revenue generated from particular asset types by comparing the cost and sales data. They help determine the efficiency of utilization of assets and thus the efficiency of the business. The types of activity ratios are:

- Inventory / Stock Turnover Ratio : $\frac{\text{COGS}}{\text{Average Stock}}$

This ratio helps a business know its stock conversion rate and the relationship between COGS and inventory. It shows how fast or slow a business replaces its inventory.

- Debtors turnover ratio : $\frac{\text{Net Credit Sales}}{\text{Bills Receivable}}$

A company having a higher debtor turnover ratio is said to have a more efficient credit strategy. It shows that the debts are being paid on time instead of being written off and indicate a good business model.

• Creditors Turnover Ratio : $\frac{\text{Net Credit Purchase}}{\text{Bills Payable}}$

A higher creditors turnover ratio indicates more efficient use of assets and management by the business.

• Working Capital Turnover Ratio : $\frac{\text{COGS}}{\text{Working Capital}}$

If this ratio is high it indicates efficient utilization of working capital.

• Asset Turnover Ratio : $\frac{\text{Sales}}{\text{Average Total Assets}}$

It depicts a business' ability to generate revenue. It helps investors understand the efficiency of the company to generate revenue using their assets.

Question 5

5) $Tax = 40\%$ $Disc Rate = 20\%$

$T_1 \text{ Inflow} = 2500$ $T_1 \text{ Outflow} = 1500$

$\text{Net Cash flow } (T_1) = 2500 - 1500$
 $= 1000$

$\text{Net Cash flow after taxes} = 1000(1 - 40\%)$
 $= 600$

$NPV = 600(1 + 20\%)^{-1}$
 $= 500$

Cash flow at time 1

$\text{Inflow} = 2500$

$\text{Outflow} = 0$

$\text{Net Cash flow after taxes} = 2500(1 - t)$
 $= 1625$

Cashflow at time 2.

Inflow = 0 and Outflow = ₹ 1500

Net cashflow = -1500

$$\begin{aligned} NPV &= 1500(1.2)^{-1} - 1500(1.2)^{-2} \\ &= 208.34 \end{aligned}$$

A7) Ratio analysis is a technique of financial analysis which is used to visualize and extract information from financial statements. Some limitations of ratio analysis are:

- Inflationary effects: Since financial statements are released from time to time, if there is inflation between the two periods, it is not reflected in the ratio analysis.
- Operational changes: If a big operational change occurs in the company, the ratios before and after the change might give misleading results.
- Historical information: They represent only past performance & not the future.
- Changes in accounting policies: If the policies used by the companies are changed, ratios are not comparable to the past.
- Seasonal effects: Ratio analysis must be adjusted to seasonal effects.
- Manipulation of financial statements: Since ratio analysis is based on past performance and information derived from financial statements, if there is manipulation of financial statements, ratio analysis can give misleading results.

Beta can be regarded as the measure of systematic risk associated with stock. Despite diversification, there is a significant level of systematic risk as companies all over the world are highly interdependent. Interest rates and inflation rates are factors which affect the level of systematic risk significantly. However, these rates affect different sectors and different companies differently and at different times. Changes in tax and currency will affect all companies to different degrees. Even natural or man-made calamities impact different industries at various times or to various extents. Thus the systematic risk associated with the stocks of different companies is different.

Beta is derived by regressing the company's stock price by that of the market and will vary over the period estimated and it may also span across a set of values due to the high risk of errors associated with regressions. Due to all these reasons, stocks trade at different betas.

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

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

$$1.1 = B_{\text{un}} [1 + 0.35]$$

$$\frac{1.1}{1.35} = B_{\text{un}}$$

$$0.8148 = B_{\text{un}}$$

$$\therefore B_{\text{A}} = 0.8148 \left[1 + \frac{2}{2} (1 - 30\%) \right]$$

$$B_{\text{A}} = 0.8148 [1.7]$$

$$B_{\text{A}} = 1.385 \quad (\text{ans})$$

A7) D - In general the market value of investment trust is not correlated to the net present value.

110) Shareholder value is the value to the equity shareholders of the corporation due to the management's ability to generate sales, earnings and free cash flow. Creation of wealth for shareholders does not always translate to value for employees or customers of the corporation. In order to maximise shareholder value companies have made short term profits their goal. This combined with growing inequality and periodic financial crashes has led to a distrust in the business and a bad financial and corporate business model. Thus companies have found that maximising shareholder wealth is not the sustainable way to support and grow the business.

ii) Dividend per share = 10
 Market price of the share (MPS) = 20.
 Growth rate (g) = 8%.
 Risk free rate = 6%.
 Equity risk premium = 5%.

$$\text{Dividend yield (d)} = \frac{\text{DPS}}{\text{MPS}} \times 100\%$$

$$= 10 \div 20 \times 100\% = 50\%$$

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

$$\begin{aligned} \text{Cost of equity} &= d + g \\ &= 50\% + 8\% = 58\% \end{aligned}$$

$$58\% = 6\% + \text{Beta (5\%)}$$

$$\text{Beta} = \frac{58\% - 6\%}{5\%} = 10$$

If systematic risk increases by 80%, then Beta also increases by 80%.

$$\text{New Beta} = \text{Beta} (1.8) \\ = 5.863$$

$$\text{Cost of equity} = 6\% + 5.863 (5\%) \\ = 35.314\%$$

$$\text{P/E ratio of equity} = d + g$$

$$35.314 = \left(\frac{\text{EPS}}{\text{MPS}} \right) 100\% + 8\%$$

$$\therefore \text{MPS} = 36.611$$

Thus Market price falls to 36.611 rupees.

- ii) Beta is a measure of the stock's volatility or systematic risk. It measures the degree to which its price fluctuates in comparison to the market.

$$\text{Beta coefficient} = \frac{\text{Covariance } (R_E, R_M)}{\text{Variance } (R_M)}$$

- ii) Beta is calculated by first calculating 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. It can also be determined by regressing the stock price.

- iii) As an active stock investor I would rather invest in a stock with a beta of 1 instead of a stock with a beta of -1. A stock with a beta of 1 indicates that the stock mirrors the volatility of the index and in the long run the index will go up so my stock will become more valuable. However since a stock with a beta of -1 means

that the stock behaves opposite to the index, in the long run this can be determined.

(iv) Several gilt securities like government bonds have betas very close to 0 or 0.

A12i) Debt : Equity = 1:1

Risk free rate of return (R_f) = 7%.

Equity risk premium from market [$E(R_M)$] = 5%.

Gross cost of debt = 9%.

Beta = 1.5.

Tax rate = 25%.

$$\begin{aligned}\text{Net cost of Debt} &= \text{Gross cost of Debt} (1 - t) \\ &= 9\% (1 - 25\%) \\ &= 9\% (0.75) \\ &= 6.75\%\end{aligned}$$

$$\text{Cost of Debt } (r_D) = 6.75\%.$$

$$\begin{aligned}\text{Return on Equity} &= R_f + E(R_M) \times \beta \\ &= 7\% + 5\% (1.5) \\ &= 14.5\%\end{aligned}$$

$$\text{Cost of Equity } (r_E) = 14.5\%.$$

$$\begin{aligned}\text{Weighted Average Cost of Capital (WACC)} &= \\ &= r_E \times w_E + r_D \times w_D\end{aligned}$$

where w_E is weightage of Equity.

w_D is weightage of Debt.

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

$$ii) B_0 = B_{0g} \left[1 + \frac{D}{E} (1-t) \right]$$

$$1.5 = B_{0g} \left[1 + \frac{1}{1} (1-25\%) \right]$$

$$1.5 = B_{0g} [1.75]$$

$$0.85714 = B_{0g}$$

$$\begin{aligned} \text{Required Return on Equity} &= R_f + E(R_M) B_{0g} \\ &= 7\% + 5\% (0.85714) \\ &= 11.2857\% \end{aligned}$$

Since there is no debt, $WACC = RE$

$$iii) \text{ At IRR, } NPV = 0$$

$$IRR = 15\%$$

$$NPV \text{ at IRR} = \text{Initial investment} + 40000 \left[(1.15)^{-1} + (1.15)^{-2} + (1.15)^{-3} + (1.15)^{-4} \right]$$

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

$$\therefore \text{Initial investment} = -114200$$

$$\text{Profitability index} = \frac{\text{Present value of cash inflows}}{\text{Initial investment}}$$

$$1.064 = \frac{\text{Present value of cash inflows}}{114200}$$

$$\begin{aligned} \text{Present value of cash inflows} &= 1.064 (114200) \\ &= 121508.8 \end{aligned}$$

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

$$NPV = 121508.8 - 114200$$

$$= 7308.8$$

ii) Let cost of capital = i

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

~~NPV = 0~~

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

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

$$I = 12.1 \quad [\text{From tables}]$$

$\therefore$ Required cost of capital = 12%

iii) Cost of project = 114200

iv) Payback period = Initial investment / Amount of annuity every year.

$$= 114200 / 40000$$

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

A141)

a) Current Ratio: Current ratio is a liquidity ratio that measures a company's ability to pay short term obligations. It tells investors and analysts how a company can minimize the current assets on its balance sheet to satisfy its current debt and other payables.

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

b) Debtors Turnover Ratio: Debtors Turnover ratio or trade receivables turnover ratio show how quickly credit sales are converted to cash. This ratio measures the efficiency of a firm in managing and collecting the credit owed to the customers.

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

- ii) Xylo Limited should use the Quick ratio to ascertain if the company would be able to meet its short term liabilities. Quick ratio is a indicator of a company's short term liquidity position and measures a company's ability to meet its short term obligation with its most liquid assets.

$$\text{Quick ratio} = \frac{\text{Liquid Assets}}{\text{Current Liabilities}}$$

- Ans: The dividend yield on the shares is 4% which is high. The shares however are potentially risky in that the return from them may be very volatile. But the investor would expect to gain a higher return on his investment as to compensate for the high level of risk.

For calculating the suitable cost of capital for the investors, we assume that there is no growth in the stock price as of now and there are no taxes. This will help us in obtaining the minimum cost of capital for the investor.

$$\text{Dividend yield (d)} = 4\%$$

$$\text{Gross cost of debt} = 8\%$$

$$\text{Net cost of debt} = 8\% \quad (\text{since there are no taxes})$$

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

$$= 4\% \quad (\text{since there is no growth})$$

$$WACC = \gamma_D \times W_D + \gamma_E \times W_E$$

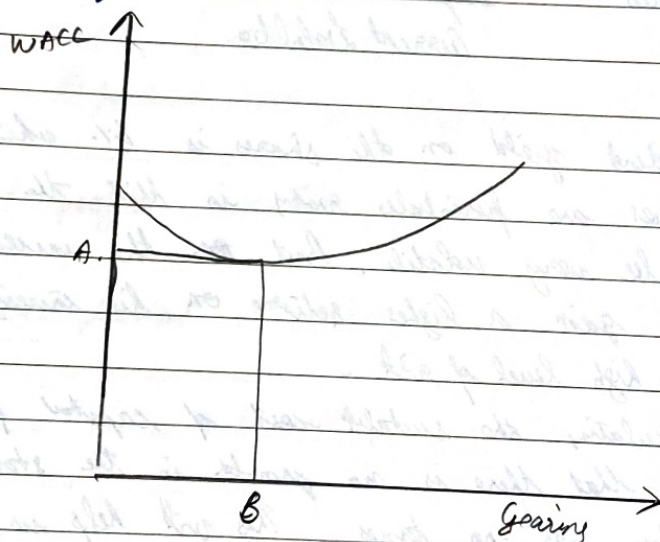
$$= 8\% \times \frac{1}{2} + 4\% \times \frac{1}{2}$$

$$= 6\%$$

Thus the minimum cost of capital that the investor should use = 6%.

ii)

By the traditional school of thought, the emphasis was on determining the amount of debt a company could safely carry without risking bankruptcy in a recession. Debt is cheaper than equity finance, so as gearing increases, WACC should fall. However as debt finance increases, the risk to equity shareholders also increases, so shareholders demand a greater return for their increased risk. Thus, 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.



When gearing is at B, WACC is lowest at A.

iii)

Modigliani and Miller's first irrelevance proposition:

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

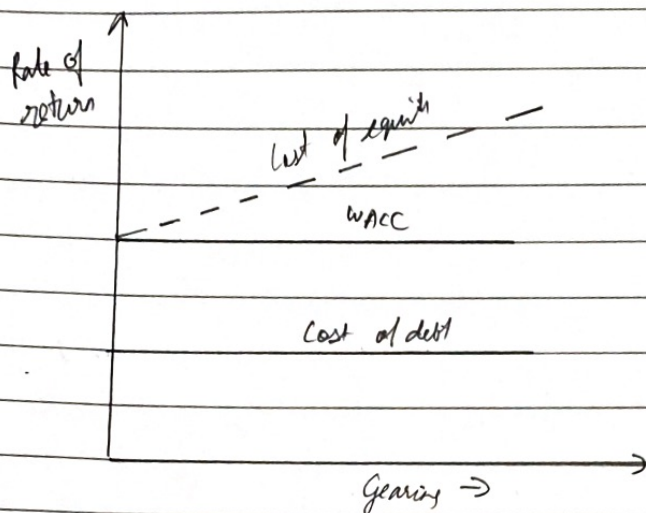
The assumptions underlying this are:

→ there are no taxes

→ unlimited personal and company borrowing is possible at the same interest rate.

- debt is risk free
- there are no agency costs
- there are no information asymmetries.

iv)



ia) Risk free rate = 6%.

Equity risk premium = 5%.

Ungeared beta = 1.4

Cost of equity = Risk free rate + (Ungeared beta × equity risk premium)

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

$$= 13\%$$

b) Total market capitalization = 100 m

Market value of debt = 50%

Ratio of debt to equity = 1:1

Tax rate = 30%

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

$$\begin{aligned} \text{Cost of equity} &= \text{risk free rate} + (\text{beta} \times \text{equity risk prem.}) \\ &= 6\% + 2.38(5\%) \\ &= 17.9\% \end{aligned}$$