

Capital Structure Theory Problems

Q.1 Laxmi Ltd. is expecting an annual earnings before the payment of interest and tax of ₹ 2 lacs. The company in its capital structure has ₹ 8 lacs in 10% Debentures. The cost of equity or capitalization rate is 12.5%. You are required to calculate the value of firm according to NI Approach. Also compute the overall cost of capital.

Q.2 Assume in the illustration given above that firm decides to raise further ₹ 2 lakhs by the issue of Debentures and to use proceeds thereof to redeem the Equity Shares. You are required to calculate the value of firm according to NI approach. Also compute the overall cost of capital.

Q.3 Modern Ltd. is expecting an earning before interest and tax of ₹ 4,00,000 and belongs to risk class of 10%. You are required to find out the value of firm and cost of equity capital if it employs 8% debt to the extent of 20%, 35% or 50% of the total financial requirement of ₹ 20,00,000.

Q.4 Ganesh Ltd. is expecting an EBIT of ₹ 3,00,000. The company presently raised its entire fund requirement of ₹ 20 lakhs by issue of equity at a capitalization rate of 16%. The firm is now contemplating to redeem a part of capital by introducing debt financing. The firm has two options – to raise debt to the extent of 30% or 50% of total funds. It is expected that for debt financing upto 30% the rate of interest will be 10% and equity capitalization rate is expected to increase to 17%. However, if firm opts for 50% debt, then interest rate will be 12% and equity capitalization rate will be 20%.

You are required to compute value of firm and its overall cost of capital under different options.

Q.5 Zenith Ltd. is presently financed entirely by Equity Shares. The current market value is ₹ 6,00,000. A dividend of ₹ 1,20,000 has just been paid. This level of dividend is expected to be paid indefinitely. The company is thinking of investing in a new project involving an outlay of ₹ 5,00,000 now and is expected to generate net cash receipts of ₹ 1,05,000 per annum indefinitely. The project would be financed by issuing ₹ 5,00,000 Debentures at the market interest rate of 18%.

Ignoring tax consideration :

- (1) Calculate the value of Equity Shares and the gain made by the shareholders if the cost of equity rises to 21.6%.
- (2) Prove that the weighted average cost of capital has not been affected by gearing.

Q.6 Companies U and L are identical in every respect, except that U is unlevered while L is levered. Company L has ₹ 20 lakh of 8 per cent Debentures outstanding.

Assume :

- (1) That all the MM assumptions are met.
 - (2) That the tax rate is 35 per cent
 - (3) That EBIT is ₹ 6 lakh and that equity-capitalisation rate for company U is 10 per cent.
- (a) What would be the value for each firm according to the MM's approach?
- (b) Suppose $V_U = ₹ 25,00,000$ and $V_L = ₹ 35,00,000$. According to MM, do they represent equilibrium values? If not, explain the process by which equilibrium will be restored.

Q.6 RES Ltd. is an all equity financed company with a market value of ₹ 25,00,000 and cost of equity $K_e = 21\%$. The company wants to buyback Equity Shares worth ₹ 5,00,000 by issuing and raising 15% perpetual debt of the same amount. Rate of tax may be taken as 30%. After the capital restructuring and applying MM Model (with taxes), you are required to calculate :

- (i) Market value of RES Ltd.
- (ii) Cost of Equity K_e .
- (iii) Weighted average cost of capital and comment on it.

Q.8 Stopgo Ltd., an all equity financed company, is considering the repurchase of ₹ 200 lakhs equity and to replace it with 15% debentures of the same amount. Current market value of the company is ₹ 1140 lakhs and its cost of capital is 20%. Its earnings before Interest and Taxes (EBIT) are expected to remain constant in future. Its entire earnings are distributed as dividend. Applicable tax rate is 30 per cent. You are required to calculate the impact on the following on account of the change in the capital structure as per **Modigliani and Miller (MM) Hypothesis** :

- (i) The market value of the company
- (ii) Its cost of capital, and
- (iii) Its cost of equity.

Q.9 Alpha Ltd. and Beta Ltd. are identical except for capital structures. Alpha Ltd. has 50 per cent debt and 50 per cent equity, whereas Beta Ltd. has 20 per cent debt and 80 per cent equity. (All percentages are in market-value terms). The borrowing rate for both companies is 8 per cent in a no- tax world, and capital markets are assumed to be perfect.

- (a) (i) If you own 2 per cent of the shares of Alpha Ltd., what is your return if the company has net operating income of ₹ 3,60,000 and the overall capitalization rate of the company, K_0 is 18 per cent?
- (ii) What is the implied required rate of return on equity?
- (b) Beta Ltd. has the same net operating income as Alpha Ltd.
 - (i) What is the implied required equity return of Beta Ltd.?
 - (ii) Why does it differ from that of Alpha Ltd.?

Q.10 There are two companies N Ltd. and M Ltd., having same earnings before interest and taxes i.e. EBIT of ₹ 20,000. M Ltd. is a levered company having a debt of ₹ 1,00,000 @ 7% rate of interest. The cost of equity of N Ltd. is 10% and of M Ltd. is 11.50%.

Find out how arbitrage process will be carried on?

Q.11 One-third of the total market value of Sanghmani Ltd. consists of loan stock, which has a cost of 10 per cent. Another company, Samsui Ltd. is identical in every respect to Sanghmani Ltd., except that its capital structure is all-equity, and its cost of equity is 16 per cent. According to Modigliani and Miller, if we ignored taxation and tax relief on debt capital, what would be the cost of equity of Sanghmani Ltd.?

Q.12 The following data relate to two companies belonging to the same risk class :

Particulars	A Ltd.	B Ltd.
Expected net operating income	₹ 18,00,000	₹ 18,00,000
12% Debt	₹ 54,00,000	--
Equity Capitalization Rate	--	18%

Required :

- Determine the total market value, Equity capitalization rate and weighted average cost of capital for each company assuming no taxes as per MM. Approach.
- Determine the total market value, Equity capitalization rate and weighted average cost of capital for each company assuming 40% taxes as per M.M. Approach.