
5. COST OF CAPITAL

❖ **MEANING:** Cost of capital refers to the opportunity cost of making a specific investment. It is the rate of return that could have been earned by putting the same money into a different investment with equal risk. Thus, the cost of capital is the rate of return required to persuade the investor to make a given investment.

❖ **DEFINITION:** According to Ezra Solomon, “It is the minimum required rate of return or the cut off rate for capital expenditure”.

❖ IMPORTANCE OF COST OF CAPITAL:

The progressive management always likes to consider the **importance cost of capital** while taking financial decisions as it's very relevant in the following spheres:

1. **Designing the capital structure:** The cost of capital is the significant factor in designing a balanced and optimal capital structure of a firm. While designing it, the management has to consider the objective of maximizing the value of the firm and minimizing cost of capital. Comparing the various specific costs of different sources of capital, the financial manager can select the best and the most economical source of finance and can design a sound and balanced capital structure.
2. **Capital budgeting decisions:** The cost of capital serves as a very useful tool in the process of making capital budgeting decisions. Acceptance or rejection of any investment proposal depends upon the cost of capital. A proposal shall not be accepted till its rate of return is greater than the cost of capital. In various methods of discounted cash flows of capital budgeting, cost of capital measures the financial performance and determines acceptability of all investment proposals by discounting the cash flows.
3. **Comparative study of sources of financing:** There are various sources of financing a project. Out of these, which source should be used at a particular point of time is to be decided by comparing costs of different sources of financing. The source which bears the minimum cost of capital would be selected. Although cost of capital is an important factor in such decisions, but equally important are the considerations of retaining control and of avoiding risks.
4. **Evaluations of financial performance:** Cost of capital can be used to evaluate the financial performance of the capital projects. Such as evaluations can be done by comparing actual profitability of the project undertaken with the actual cost of capital of funds raised to finance the project. If the actual profitability of the project is more than the actual cost of capital, the performance can be evaluated as satisfactory.
5. **Knowledge of firms expected income and inherent risks:** Investors can know the firms expected income and risks inherent there in by cost of capital. If a firm's cost of capital is high, it means the firm's present rate of earnings is less, risk is more and capital structure is imbalanced, in such situations, investors expect higher rate of return.
6. **Financing and Dividend Decisions:** The concept of capital can be conveniently employed as a tool in making other important financial decisions. On the basis, decisions can be taken regarding dividend policy, capitalization of profits and selections of sources of working capital.

Q.1) Zoo Zoo Ltd. issues 50,000, 8% debentures of Rs.1 each at a premium of 10%. The cost of flotation is 2%. The rate of tax is 60%. Calculate the cost of debentures.

Q.2) Rahul Ltd. issues 10,000, 10% preference shares of Rs. 100 each. Cost of issue is Rs. 2 per share. Calculate cost of preference capital if the shares are issued (a) at par (b) at a premium of 10% and (c) at a discount of 5%.

Q.3) Yunus Ltd. issues 1000; 10% preference shares of Rs. 100 each at a discount of 5%. Cost of raising capital is Rs. 2,000. Calculate cost of preference share capital.

Q.4) Javed Ltd. is considering an expenditure of Rs. 60 Lakhs for expanding its operations. The relevant information is as follows:

No. of existing equity shares	10 Lakhs
M.P. of existing shares	Rs. 60
Net earning	Rs. 90 Lakhs

Calculate the cost of existing equity share capital and of new equity capital assuming the new shares will be issued at a price of Rs.52 per share and the cost of new issue will be Rs.2 per share.

Q.5) Shashi Ltd. plans to issue 2,000 new equity shares of Rs. 100 each at par. The flotation cost is expected to be 5% of the share price. The company pays a dividend of Rs. 10 per share initially and the growth in dividend is expected to be 5%. Compute the cost of new equity shares.

If the current market price of an equity share is Rs. 160 calculate the cost of existing equity share capital.

Q.6) Amit Ltd's share is quoted in the market at Rs. 20. The company pays a dividend of Re. 1 per share. The investors expected a growth rate of 5% per year. Compute the cost of equity capital.

Q.7) Meenakshi Ltd. issues 50,000 equity shares of Rs. 100 each at a premium of 10%. The company has been paying 20% dividend to equity shareholders for the past five years and expected to maintain the same in future also.

Calculate the cost of equity capital.

Q.8) $MPS = Rs.28$; $K_e = ?$

No. of Equity shares	20,000
Face Value	Rs. 10
Growth rate in Dividend	@8%
Dividend amount	Rs. 4 Lakhs

Q.9) Assume a company in which the cost of debt capital is 4% and the cost of equity capital is 15% in which 40% of total capital is debt and 60% is equity. Calculate the cost of capital.

Q.10) Following is the cost structure of a firm:-

	Rs.	Cost
Equity Capital	4,50,000	14%
Retained Earnings	1,50,000	13%
Preference Share Capital	1,00,000	10%
Debts	3,00,000	4.5%
Total	10,00,000	

Calculate weighted Average cost of capital of the firm.

Q.11) ZNMD Ltd. has the following capital structure:

	Rs.
Equity Shares (2,00,000 shares)	40,00,000
8% Preference shares	10,00,000
8% debentures	30,00,000
	80,00,000

The shares of the company sell for Rs.20. It is expected that the company will pay next year a dividend of Rs. 2 per share; which will grow to 7% forever. Assume tax rate of 50%. Calculate the weighted average cost of capital based on the existing capital structure.

Q.12) Kavita & Saurabh Ltd. has the following capital structure:

	Rs. in Lakhs
Equity shares	85
8% preference shares	50
10% debentures	75
Total	210

The market price of the company's equity share is Rs. 84. It is expected that the company would next year pay a dividend of rs. 8.40 per share on the face value of Rs. 10. The company's growth prospects are 6% per annum. Assuming corporate taxation @35% you are required to:

- a. Compute weighted average cost of capital based on the existing capital structure.

- b. Compute the new composite weighted average cost of capital if the company raises additional capital of Rs. 90 Lakhs as under:

	Rs. in Lakhs
Equity shares	40
10% preference shares	20
9% debentures	30

This would result in increasing the expected dividend to Rs. 9.20 per equity share & leave the growth rate unchanged at 6% and the anticipated market price of the equity share would fall to Rs. 80.

Q.13) Arkam Ltd. has the following capital structure:

	Rs. in Lakhs
Equity shares	25
6% preference shares	35
7% debentures	30
Total	90

The market price of the company's equity share is Rs. 30. It is expected that the company would next year pay a dividend of Rs. 3 per share on the face value of Rs.10. The company's growth prospects are 4% per annum. Assuming corporate taxation @35%. You are required to:

- Compute weighted average cost of capital based on the existing capital structure.
- Compute the new weighted average cost of capital if the company raises additional capital of Rs. 40 Lakhs as under:

	Rs. in Lakhs
Equity shares	10
7% preference shares	15
9% debentures	15
Total	40

This would result in increasing the expected dividend to Rs. 4.50 per equity share & leave the growth rate unchanged at 4% but the anticipated market price of the equity share would fall to Rs.25.

Q.14) Eram Ltd. wishes to raise additional finance to Rs.10 Lakhs for meeting its investment plans. It has Rs. 2,10,000 in the form of retained earnings available for investment purposes. The following are the further details:

a. Debt equity mix	30%/70%
b. Cost of Debt	
up to Rs. 1,80,000	10% (before tax)
Beyond Rs. 1,80,000	16% (before tax)
c. Earnings per share	Rs. 4
d. Dividend payout	50% of earning
e. Expected growth rate in dividend	10%
f. Current market price per share	Rs. 44
g. Tax rate	40%

You are required:

- To determine the pattern for raising the additional finance.
- To determine the cost of retained earnings and cost of equity.
- Compute the overall weighted average after tax cost of additional finance.

Q.15)

Debt as percentage of Total Capital Employed	Cost of Debt %	Cost of Equity (After Tax)%
0	5.0	12.0
10	5.0	12.0
20	5.0	12.5
30	5.5	13.0
40	6.0	14.0
50	6.5	16.0
60	7.0	20.0

You are required to determine the optimal debt-equity mix for the company by calculating composite cost of capital.

Q.16) M/s. Doremon Ltd. believes in Net Operating Income Approach. Its capital structure has the following parameters:

Overall cost of capital	16%
Cost of Debt	14%
Market Value of debts	300 Lakhs
Value of equity	260 Lakhs

Calculate:

- a. Cost of equity at current level.
- b. If cost of debt is reduced by 2% what will be the cost of equity if the overall cost remains unchanged.
- c. If bonus shares are issued in the ratio 1:1 and overall cost gets reduced to 15%.
- d. If debt-equity ratio is adjusted to 1.8 in current situation, then what will be cost of equity?

Q.17) A company has the following capital structure:

Equity Share capital	Rs. 10 Lakhs
9% preference share capital	Rs. 15 Lakhs
12% Debentures	Rs. 15 Lakhs

Tax rate is 40%. What rate of dividend the company should pay so that after tax composite cost of capital does not increase more than 15%.

Q.18) Find out the weighted average cost of capital from the following information given by a company.

Equity Share Capital	Rs. 5 Lakhs
10% Preference share Capital	Rs.3 Lakhs
9% Debentures	Rs. 2 Lakhs

The price earnings ratio for a company in the same industry is 6. The company's share are traded in the stock exchange at face value. Assume a tax rate of 30%.

Q.19) Noddy Ltd. has total capital employed of Rs. 75,00,000. The break-up is as under:

15% Debt – 30%

12% Preference capital – 10%

Equity Capital & Retained earnings are in proportion of 3:1.

All shares and debt are in units of Rs. 100 each. The tax rate applicable is 40%.

Equity shareholders expects dividend @14%. Cost of retained earnings is to be considered @ 10%. **You are required to ascertain:**

- a. Composite cost of capital.
- b. If EBIT is Rs. 15,00,000. Calculate: (i) EPS (ii) Market price of equity shares.

Q.20) Hero Moto Corp., a dynamic firm which pays no dividends, anticipates a long run level of future earning of Rs. 7 per shares. The current price of Hero's shares is Rs. 55.45, flotation cost for the sale of equity shares would be average about 10% of the price of the shares. What is the cost of new equity capital of Hero moto corp.?

Q.21) A company is considering raising of funds of about Rs. 400 Lakhs by one of two alternative methods, viz., 16% institutional term loan and 13% non-convertible debentures, the

term loan option would attract no major incidental cost. The debentures would have to be issued at a discount of 2.5% and would involve cost of issue of Rs.2 Lakhs. Advise the company as to the better option based on the effective cost of capital in each case. Assume a tax rate of 50%.

Q.22) You are given the following incomplete particulars.

	A Ltd.	B Ltd.	C Ltd.
Debt/equity proportion	40/60	60/40	60/40
Total Funds raised	Rs. 10 Lakhs	Rs. 10 Lakhs	Rs. 10 Lakhs
Cost of Equity	11%	11%	?
Rate of Interest on Debt	12%	?	12%
Rate of Income Tax	40%	40%	40%
Weighted Average cost of capital (based on book value proportion)	?	8%	8.32%

You are required to calculate the missing details for each of the above mentioned companies.

Q.23) Three companies A, B and C are in the same type of business and hence have similar operating risks. However, the capital structure of each of them is different and the following details are available:

	A Ltd.	B Ltd.	C Ltd.
Equity Share Capital Rs. (face value of Rs. 10 per share)	4,00,000	2,50,000	5,00,000
Market Value per share Rs.	15	20	12
Dividend per share Rs.	2.70	4	2.88
Debentures Rs. (Face Value per debenture Rs. 100)	Nil	1,00,000	2,50,000
Market Value per debenture Rs.	-	125	80
Interest rate	-	10%	8%

Assume that the current level of dividends are generally expected to continue indefinitely and the Income tax rate at 50%. You are required to compute the weighted average cost of capital of each company.

Q.24) From the following Capital Structure of Ruby Ltd. Calculate overall cost of capital, using:

- a. Book weights and b. Market value weights.

Source	Book value	Market value
Equity share of Rs. 10 each	4,50,000	9,00,000
Retained earnings	1,50,000	
Preference share capital	1,00,000	1,00,000
Debentures	3,00,000	3,00,000

After tax cost of different source of finance are equity share capital 14%, retained earnings 13%, Preference shares 10% and debentures 5%.

Q.25) Income tax @ 40%; face value per debenture Rs. 50; Interest rate @ 10%; Flotation cost @ 5%; Premium @ 2 ½% and Redeemable after 4 years.

Kd(after tax) = ?

26) A company issues Rs. 10,00,000 @ 12% debentures of Rs. 100 each. The debentures are redeemable after the expiry of fixed period of 7 years. The company is in 35% tax bracket.

Calculate:

(i) the cost of capital of debentures after tax, if debentures are issued at

(a) Par (b) 10% premium (c) 10% Discount.

(ii) If brokerage is paid @ 2%, what will be the cost of debentures, if issued at par?

27) A Company issues, debentures of Rs. 100 each, Rs. 1,00,000 and realizes Rs. 98,000 after allowing 2% commission to brokers. The debentures carry an interest rate of 10. The debentures are due for maturity at the end of the 10th Year. Calculate the effective cost of debt before tax.

28) Shakti Ltd. issued 5,000, 12% redeemable debentures of Rs. 100 each at a discount of 5%. The floatation cost are 2% of face value and debentures are redeemable after 5 years. Compute before tax and after tax cost of debt assuming a tax rate of 50%.

29) Hasan Ltd. issued 8,800, 10% Preference shares of Rs. 100 each at a premium of 5%. The shares are redeemable at par after 8 years. The issue expenses are 4% of the net proceeds. Calculate the cost of redeemable preference capital.

30) Rushali Ltd. issued 40,000, 12% Preference shares of Rs. 100 each at a premium of Rs. 5 each, redeemable after 10 years at a premium of Rs. 10 each. The flotation cost of each share

is Rs. 2. You are required to calculate the cost of preference share capital ignoring dividend – tax.