

Cost of Capital

It is a minimum rate of return on investment expected by the investors. It is a weighted average rate of various resources of finance used by the firm. These sources include equity, debt, preference share and retained earnings.

It can be defined as the rate that must be earned on the net proceeds to provide the cost of elements as the burden at that time ~~the~~ are due.

The cost of capital is the minimum rate of return expected by the investors as there is a direct relation with risk involved in it.

Methods / types of Cost of Capital

1. Marginal and average cost
2. Explicit and implicit cost
3. Future and historical cost
4. Specific and combine cost
5. Spot and Normal cost

1. Marginal cost - It refers to the additional cost of manufacturing an additional unit.

Average cost - It is the combined cost of various sources of capital such as debentures, preference share and equity shares. It is weighted average cost of various sources of finance.

2. Explicit cost - It involves payment of fixed charges in the form of interest and dividend. Implicit cost - It is the cost of investment opportunity which is sacrificed for getting another investment opportunity.

Difference between Explicit and implicit cost

Explicit cost	Implicit cost
1. It arises when purchase is made	1. It arises when it is used
2. It is based on NPV	2. It is based on opportunity.
3. It will affect cash outflows as payment of fixed charges such as interest and dividend	3. It has no effect on cash inflows and cash outflows

3. Future Cost - It refers to the cost of funds intended to finance the expected profit. This cost is widely used in capital budgeting and capital structure decision.

Historical Cost - It is the cost which has already been incurred for financing a particular project. This cost is useful in analyzing the existing capital structure in projecting the future cost and providing and appraisal for past performance.

4. Specific Cost - It is a component of Capital structure eg: debentures, preference shares, equity shares. It implies the specific cost of sources of funds.

Combined Cost - It is the aggregate of cost of capital from all sources of funds that is debt, equity and preference share capital.

5. Spot Cost - These costs prevail in a market at certain time only.

Normal Cost - These are long term costs. It is an estimate of cost by averaging prices from which capital elements are removed. These are normally used for taking overall investment decision.

Cost of Debt (Before tax)

$$K_d = \frac{I}{P}$$

K_d - Cost of debt
 I - interest
 P - principle

Cost of Debt (After tax)

$$K_d = [1 - T] R$$

K_d - Cost of debt
 R - interest
 T - tax

a. Debenture "ISSUED AT PAR"

$$K_d = (1 - T)R$$

b. Debentures "ISSUED AT PREMIUM"

$$K_d = \frac{I}{P} [1 - T]$$

P - total proceeds i.e principle + premium

c. Debentures "ISSUED AT DISCOUNT"

$$K_d = \frac{I}{P} [1 - T]$$

P - principle - discount or premium

1. A company issues Rs 50000, 8% debentures at par. What is cost of debt.

$$K_d = \frac{i}{P} \quad (\text{Ignore tax})$$

$$= \frac{50000 \times 8\%}{50000}$$

$$= \frac{4000}{50000}$$

$$K_d = 0.08$$

2. A company issued 50000 8% debentures at par tax rate is 50%. What is cost of debt.

$$K_d = (1-T)R$$

$$= (1-0.50) \times 0.08$$

$$= 0.04 \text{ or } 4\%$$

3. A company issues 80000, 9% debentures at par, the tax rate applicable to the company is 50%. Compute the cost of debt capital.

$$K_d = (1-T)R$$

$$= (1-0.50) \times 0.09$$

$$= 0.045 \text{ or } 4.5\%$$

$$0.045 \times 100 = 4.5\%$$

4. Why company issues 80000 9% debt at a premium of 10%. Compute the cost of debt capital. The tax rate applicable to the company is 60%.

$$K_d = \frac{i}{P} (1-T)$$

$$= \frac{80000 \times 9\%}{80000 \times 1.10} (1-0.60)$$

$$= \frac{7200}{88000} \times (0.4)$$

$$= 0.081 \times 0.4$$

$$= 0.032$$

$$0.032 \times 100 = 3.2$$

5. Kruah Company issues 100000 9% debenture at a premium of 10%. The cost of flotation is 2%. The tax rate applicable is 60%. Compute the cost of debt capital.

$$K_d = \frac{i}{P} (1-T)$$

$$= \frac{100000 \times 9\%}{100000 \times 1.10} (1-0.60)$$

$$= \frac{9000}{110000} \times 0.4 \rightarrow \frac{100000 \times 10\%}{100000} = 10\%$$

$$= \frac{3600}{107800} \times 100 = 3.3\%$$

$$= 0.033 \text{ or } 3.3\%$$

8. Arshay company issued 80000 9% debentures at a discount of 5%, The tax rate is 50%. Compute Cost of debt Capital.

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$$K_d = \frac{i^d}{P} (1 - T)$$

$$= \frac{80000 \times 9\%}{80000 \times 5\%} (1 - 0.50)$$

$$= \frac{7200}{76000} \times 0.5$$

$$= 0.094 \times 0.50$$

$$= 0.0473 \text{ or } 4.73$$