

## COST OF CAPITAL

Businesses acquire funds from market in various forms. These generally include Equity shares, preference share, debentures and long-term loans. The company after acquiring funds from investors, invests those funds in various projects. The investor who contributes funds in any form expects some returns on their contribution. The company must earn a certain rate of return that satisfies their investors expectation. Thus, in simple terms, cost of capital is the value which has to be paid to investors for availing and using capital from them. In this sense, the company must earn a rate of return at least equal to that an investor expects.

### **Definition**

**According to Milton H. Spencer:** “Cost of Capital is the minimum rate of return which a firm requires as a condition for taking investment”.

**According to Solomon Ezra:** “Cost of capital is the minimum required rate of earning or the cut-off rate for capital expenditure”.

### **Measurement of cost of capital involves**

- a. Measurement of specific cost
- b. Computation of combined cost/composite cost/weighted average cost.

Measurement of specific cost includes costs from major sources such as:

- a. Cost of Debt ( $K_d$ )
- b. Cost of Equity ( $K_e$ )
- c. Cost of Preference ( $K_p$ )
- d. Cost of Retained Earnings ( $K_r$ )

### **Cost of Debt**

Cost of debt refers to the cost which a company has to bear for using fixed interest bearing securities such as debentures, long-term loans and bonds etc. it is mainly associated with debenture.

It has two types

1. **Cost of irredeemable debt or perpetual debt:** perpetual debt refers to issue of debentures which will not be redeemed during the lifetime of the company. We use the following formula to calculate the cost of redeemable debt or perpetual debt

$$K_d = \frac{I}{SV} \times 100$$

Where,  $K_d$  = Cost of debt  
I = Interest payable  
SV = Net proceeds from issue

### Calculation of SV (to be used for calculation of both redeemable and irredeemable debt)

- a. When debentures are issued at par  
$$SV = \text{Par Value} - \text{Floatation Charges}$$
- b. When debentures are issued at discount  
$$SV = \text{Par Value} - \text{Discount} - \text{Floatation Charges}$$
- c. When debentures are issued at Premium  
$$SV = \text{Par Value} + \text{Premium} - \text{Floatation Charges}$$

Note:

1. Floatation Charges include Underwriting commission, brokerage, printing expenses etc.
2. Suppose par value of one debenture is Rs.100, it means that the company would receive Rs. 100 by selling 1 debenture. While issuing debenture, the company may incur floatation charges or company may give discount. Because, floatation charges and discount are our expenses, it should be deducted from par value.
3. In the same way, premium is added to our proceeds because it's a gain for the company.

### Cost of Redeemable Debenture

Redeemable debentures are payable after a specified duration. These debentures could also be issued at par, discount or premium.

- a. When debentures are issued at par and redeemable at par with floatation cost

$$K_d = \frac{I + \frac{f}{n}}{\frac{SV + RV}{2}} \times 100$$

- b. When debentures are issued at premium or discount but redeemable at par with floatation cost

$$K_d = \frac{I + \frac{f + d - pi}{n}}{\frac{SV + RV}{2}} \times 100$$

- c. When debentures are issued at par premium or discount but redeemable at premium with floatation cost

$$K_d = \frac{I + \frac{f + d - pi + Pr}{n}}{\frac{SV + RV}{2}} \times 100$$

Where,  $K_d$  =Cost of debt

- I =Interest payable
- SV =Net proceeds from issue
- RV =Redemption Value
- f =Floatation cost
- d =Discount
- pi =Premium on issue
- pr =Premium on redemption
- n =Number of years

## **Tax Implication**

Since debentures is an allowed expenditure for the purpose of income tax. It provides tax saving on the amount of interest payable in the ratio of tax-rate. The cost calculated by above way is cost before tax and it must be adjusted for such tax savings. The adjusted cost of debt capital is known as cost of debt capital after tax.

$$\mathbf{K_d (after tax) = K_d(1 - t)}$$

### **Points to remember while solving Numerical**

1. If face value is not given in the question, it should be taken as 100.
2. In case of redeemable debenture, discount, premium or floatation charges must be divided with number of years.
3. In the formula, we have taken all expenses Interest, floatation charges, discount, premium on redemption in the numerator.
4. Premium on issue( $p_i$ ) is a gain for company, so we have deducted that amount from numerator, where all item is related with expenses.
5. If there is any premium on redemption, Redemption value must also be adjusted for such premium.

## **Cost of Preference Share**

1. Cost of preference share is same as cost of debt.
2. We would use same formula of  $K_d$  but in place of I (Interest), we would use  $P_d$  (Preference Dividend) in the formula.
3. Other difference is regarding tax implication.  
Since the cost of preference share calculated with the formula is cost after tax. So, if we need to arrive at cost before tax we would use following formula

$$\mathbf{K_p (before tax) = \frac{K_p}{(1-t)}}$$

## **Cost of Equity**

There is no legal obligation to pay dividend on equity shares and rate of dividend to be paid to equity shareholders is also not determined. But the company has to pay dividend to its shareholders because it affects market value of shares. Normally, equity shareholders have following expectations from the company

- a. A certain amount of Earning per Year
- b. A certain amount of Dividend per year
- c. Increase in shareholding value

So, Cost of Equity is the minimum rate of return a company must earn on its equity-financed portion of the investment project in order to leave unchanged the market price of such shares. The following approaches could be used to calculate the cost of equity.

1. **Earning Yield Method:** Also known as Earning Price ratio. This approach states that cost of equity determines the market price of shares.

$$K_e = \frac{EPS}{MPS} \times 100$$

2. **Dividend Yield Method:** Also called as Dividend Price Ratio. It is based on expected dividend by equity shareholders.

$$K_e = \frac{DPS}{MPS} \times 100$$

3. **Dividend Yield plus growing dividend Method:** Shareholders not only expect dividend but also expect increase in dividend every year.

$$K_e = \frac{DPS}{MPS} \times 100 + G$$

Where, EPS = Earnings Per Share  
DPS = Dividend Per Share  
MPS = Market Price Per Share

### **Points to remember while solving Numerical:**

1. Earnings Per share could be obtained by dividing the amount of profit available to equity shareholder from total number of shares  
$$= \frac{\text{Earning Available for equity Shareholder}}{\text{Total number of equity shares}}$$
2. Floatation cost, discount, premium etc. must be adjusted to obtain the Net proceeds. This net proceed would be taken as market price per share. Such information is provided generally in case of new issue.
3. Market Price per share could be calculated in three ways:
  - a. Market Value
  - b. Net Proceeds (could be obtained in the same way as done in  $K_d$ )
  - c. In the absence of above information, Face Value would be taken as MPS.

### **Cost of Retained Earnings**

Part of profit which is not distributed as dividend is retained earnings. Unlike debt and equity, there is no obligation to pay any return on retained earnings. So, we can say that there is no cost of retained earnings.

But it is not so. From shareholder's point of view, the retained earnings do have some cost. If that amount was not retained, the shareholder would have received that as dividend. He would have invested such amount in some other investment and would have earned some profit from them. Thus, we could say that cost of retained earnings is an opportunity cost. The company should earn a minimum return which the shareholder would have earned, if he had invested such amount elsewhere.

### **Formula to calculate cost of Retained earnings:**

$$K_r = \frac{\text{Alternative Dividend}}{\text{Retained Earning}} \times 100$$

### **When brokerage cost and taxes are taken into consideration**

$$K_r = \frac{\text{Alternative Dividend} (1-T_d) (1-B)}{\text{Retained Earning} (1-T_c)} \times 100$$

**Where,**       $T_d$  = Tax on dividend on individual shareholder  
                  $B$  = Brokerage cost  
                  $T_c$  = Capital gains tax rate

If we look in a different perspective, retained earnings is a part of profit and belongs solely to equity shareholders. Thus, it is assumed that cost of retained earnings is same as cost of equity.

In this way,

$$K_r = K_e$$

**When brokerage cost and taxes are taken into consideration**

$$K_r = K_e (1-T_d) (1-B)$$

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