Cost of Capital

"Cost of Capital is the minimum required rate of earnings or the cut-off rate of capital"

"A firm's cost of capital may be defined as "the rate of return the firm requires from investment in order to increase the value of the firm in the market place"

Concept of Cost of Capital

- A firm's cost of capital represents the minimum rate of return
- The rate must be paid to obtain funds for the operations of the firm
- The minimum rate of return that a firm must earn on its investment for the market value of the firm to remain changed.
- The minimum required rate of return or earnings from any given project needed to justify the use of capital
- An investment that earns a return above the cost of capital will increase the value of the business..
- Cost of capital is a useful guideline in determining the borrowing rate and the lending rate.

Importance of cost of capital

- Capital budgeting decision
- Capital structure decision

Components of cost of capital

1. Return at Zero risk level:

Return expected when business in no risk.

2. Premium for business risk:

The term business risk refers to the variability in operating profit (EBIT) due to change in sales.

3. Premium for financial risk:

The term financial risk refers to the risk on account of pattern of capital structure (or debt-equity mix)

$$K = r_o + b + f$$

Where K = Cost of capital

r_o = Return at Zero risk level

b = premium for business risk

f = premium for financial risk

Computation of cost of capital

- Cost of specific sources
- Cost of weighted average cost capital(or) overall cost of capital

Cost of specific sources

A) Cost of debt financing(Debentures , Bond, etc.)

1. Debt or Debentures issued at par
2. Debt or Debentures issued at premium or discount
3. Cost of redeemable Debenture or debts.

B) Cost of Preference share capital

1. Preference capital issued at par
2. Preference capital issued at premium or discount
3. Cost of redeemable preference share capital

C) Cost of Equity Capital

1. Dividend price approach
2. Dividend price plus growth approach
3. Earnings per share approach
4. Realized Yield Approach

D) Cost of retained earnings

A. Cost of Debt Financing

Cost of debt financing is referred to involve cost of debentures.

1. Debt issued at Par (Perpetual debt)

The cost of debt or debentures issued at part is expressed in the following equation

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

(Or)

$$K_d = \frac{C}{N_p}(1-T)$$

Where,

K_d= Cost of debt

T = Tax Rate

R = Debenture Interest Rate

C = Annual Interest payments

N_p = Net proceeds of loans or debentures

2. Debt issued at a premium or discount(Perpetual debt)

Public deposits and debentures are sometimes issued on the basis of premium or discount. Thus, there is a difference between the face value and book value.

$$K_d = \frac{C}{N_p}(1-T)$$

Where,

K_d= Cost of debt

T = Tax Rate

C = Annual Interest payments

N_p = Net proceeds of loans or debentures

3. Cost of Redeemable debt

When is possible for the borrower to issue debenture on redeemable basis of a fixed period, the effective cost of debt before tax can be calculated with the following formula:

$$K_d \text{ (before tax)} = \frac{C + \frac{D-N_p}{n}}{}$$

$$\frac{(D+N_p)}{2}$$

Where C= Annual Interest payments

D = Par Value of Debentures

N_p = Net proceeds of debts

n = Number of years to maturity

K_d (After tax) = K_d (before tax) x (1-T)

B) Cost of Preference Share capital(Perpetual)

Preference shares carries a fixed rate of dividend for the calculation of the cost of preference share capital, the dividend rate can be taken as the cost.

$$K_p = \frac{D_p}{N_p}$$

Where, K_p= Cost of Preference Capital

D_p = Dividend payments

N_p = Net Proceeds of preference shares

Thus,

1. When preference shares are issued at par

N_p = Face value – Floating Expenses

2. When Preference shares are issued at discount:

N_p = Face Value – Discount – Floating Expenses

3. When Preference shares are issued at Premium:

N_p = Face Value + Premium – Floating Expenses

Cost of Redeemable Preference Share capital

Like bonds and debentures, preference share can also be issued with maturity date. In that case these are called as redeemable preference shares.

It may be noted that the cost of preference share capital is not adjusted for taxes because dividends on these shares are paid after taxes. The following formula is employed to compute the cost.

$$Kp = \frac{Dp + \frac{P - Np}{n}}{\frac{(P + Np)}{2}}$$

Where, Kp = Cost of preference capital

Dp = Dividend payments

Np = Net proceeds of preference shares

P = Par Value of preference capital

n = Number of years to maturity

Cost of Equity Capital or Ordinary shares

The cost of equity capital will be assessed for following four approaches

1. Dividend Price Approach:

The value of an equity share is equivalent to the present value of future dividends plus the present value of the price expected to be realized on it sale.

a) Calculation of cost of New Equity

$$K_e = \frac{D_p}{N_p}$$

Where, K_e = Cost of Equity Capital

D_p = Dividend per Equity Shares

N_p = Net proceeds of an Equity Share

b) Calculation of cost of existing Equity Shares:

According to this approach, the determination of cost of existing equity shares is based n the market price of the company's share.

The cost of existing equity shares is calculated with the help of the following formula:

$$K_e = \frac{D_p}{M_p}$$

Where,

K_p = Cost of Equity Capital

D_p = Dividend Per Equity Share

M_p = Market Price of an Equity Share

2. Dividend price plus growth approach:

Under this approach, the expected dividend rate and the expected rate of growth of dividend per share are the two important factors in calculating the cost of equity capital

$$K_e = \frac{D_p}{M_p} + g$$

Where, K_e = Cost of equity Capital

D_p = Expected Dividend per share

M_p = Market price per share

g = Expected growth rate

3. Earnings per share approach

It is also know as earning price ratio approach. This approach emphasis on establishing a relationship between earning (dividend) per share and market price of the share.

$$K_e = \frac{E_p}{N_p}$$

Where, K_e = Cost of Equity Capital

E_p = Earning per share

N_p = Net proceeds of an Equity share

4. Realized Yield Approach:

Under this approach, cost of capital is determined on the basis of rate of return realized by equity shareholders on their investment for a particular period of time.

For calculating cost of equity capital, it is essential to satisfy the following conditions

a) The company should remain fundamentally the same irregardless risk.

b) The shareholders required to bear the risk for expecting the same rate of return

c) The shareholders reinvestment opportunity rate must be equal to the realized yield