



RAMA UNIVERSITY

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FACULTY OF COMMERCE AND MANAGEMENT

COURSE: B.COM V SEM.

SUBJECT: INTRODUCTION TO FINANCIAL MANAGEMENT

SUBJECT CODE: BCH 505

LECTURE: 20

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LECTURE-20



2.3.2 Computation of Cost of Capital

Computation of overall cost of capital of a firm involves:

Computation of cost of Specific source of finance

- Cost of Debt
- Cost of Preference Capital
- Cost of Equity Capital
- Cost of Retained earnings
- Weighted average cost of capital

Computation of cost of Specific source of finance

Cost of Debt: The cost of debt is the rate of interest payable on debt.

Cost of perpetual / Irredeemable Debt

Before tax cost of debt

$$K_{db} = \frac{I}{P}$$

Where, K_{db} = before tax cost of debt

= Interest

P = Principal

In case if debt is raised at premium or discount, P would be considered as the amount of net proceeds received from the issue and not the face value of the securities. The formula may be changed to

$$K_{db} = \frac{I}{NP}$$

Where NP = Net proceeds

After Tax Cost of Debt

$$K_{da} = K_{db} (1-t)$$

Where, K_{da} = after tax cost of debt

t = Rate of tax

Cost of Redeemable Debt: Usually the debt is issued to be redeemed after a certain period during the lifetime of the firm. Such a debt issue is known as Redeemable Debt. The cost of Redeemable debt may be computed as:

Before Tax Cost of Debt

$$K_{db} = \frac{I + \frac{1}{N} (RV - NP)}{\frac{(RVP + NP)}{2}}$$

Where, I = Interest
 N = Number of years in which debt is to be redeemed
 RV = Redeemable value of debt
 NP = Net Proceeds

After Tax cost of debt, $K_{da} = K_{db} (1 - t)$

$$K_{da} = \frac{I + \frac{1}{N} (RV - NP)}{(RV + NP)} (1 - t)$$

Where T = Tax rate

Illustration 10: X Ltd. issues Rs. 50,000 8% debenture. The tax rate applicable is 50%. Compute the cost of debt capital, if debentures are issued (i) at par (ii) at Premium of 10% (iii) at discount of 10%

Solution:

$$K_{da} = \frac{\frac{I}{NP} (1 - t)}{\frac{RV + NP}{2}}$$

$$= \frac{\frac{4,000}{50,000} (1 - .50)}{\frac{55,000}{2}} = 4.4\%$$

51

Illustration 11: A company issues Rs. 10, 00,000; 10% debentures at a discount of 5%. The cost of floatation amounts to Rs. 30,000. The debentures are redeemable after 5 years. Calculate before tax and after tax cost of debt assuming a tax rate of 50%.

Solution:

Before tax Cost of Redeemable debt

$$\begin{aligned} K_{db} &= \frac{I + \frac{1}{N} \frac{(RV-NP)}{2}}{(RVP + NP)} \\ &= \frac{1,00,000 + \frac{1}{5} \frac{(10,00,000 - 9,20,000)}{2}}{(10,00,000 + 9,20,000)} \\ &= 12.08\% \end{aligned}$$

[NP = Rs. 10,00,000 – 50,000(discount) – 30,000(cost of floatation) = 9,20,000]

After tax Cost of Redeemable debt

$$\begin{aligned} K_{da} &= K_{db} (1-t) \\ &= 12.08\% (1-.50) \\ &= 6.875\% \end{aligned}$$

Illustration 12: A 5-year Rs.100 debenture of a firm can be sold for a net price of Rs. 96.50. The coupon rate of interest is 14% per annum, and the debenture will be redeemed at 5% premium on maturity. The firm's tax rate is 40%. Compute the after tax cost of debenture.

Solution:

$$\begin{aligned} K_{da} &= \frac{I + \frac{1}{N} \frac{(RV-NP)}{2}}{(RVP + NP)} (1-t) \\ &= \frac{14 + \frac{1}{5} \frac{(105-96.50)}{2}}{(105 + 96.50)} (1-.40) \\ &= 10.025\% \end{aligned}$$