

Cost of Capital

Problem

- A company issues Rs. 1,00,000, 15% Debentures of Rs. 100 each. The company is in 40% tax bracket. You are required to compute the cost of debt after tax, if debentures are issued at (i) Par, (ii) 10% discount, and (iii) 10% premium.

(a) We know, Cost of Debenture $K_d = \frac{i}{NP}(1 - t)$

(i) Issued at par : $K_d = \frac{\text{Rs. } 15,000}{\text{Rs. } 1,00,000}(1 - 0.4) = 0.09$ or 9%.

(ii) Issued at discount of 10%

$$K_d = \frac{\text{Rs. } 15,000}{\text{Rs. } 90,000}(1 - 0.4) = 0.10$$
 or 10%

(iii) Issued at 10% premium

$$K_d = \frac{\text{Rs. } 15,000}{\text{Rs. } 1,10,000}(1 - 0.4) = 0.0818$$
 or 8.18%.

(b) If brokerage is paid @ 5% and debentures are issued at par

$$K_d = \frac{\text{Rs. } 15,000}{\text{Rs. } 95,000 \text{ (i.e., Rs. } 1,00,000 - \text{Rs. } 5,000)}(1 - 0.4) = 0.0947$$
 or 9.47%.

Solution

- ZED Ltd. has issued 12% Debentures of face value of Rs. 100 for Rs. 60 lakh. The floating charge of the issue is 5% on face value. The interest is payable annually and the debentures are redeemable at a premium of 10% after 10 years.

n :

know, Cost of Debenture $K_d = \frac{I(1-t) + \frac{1}{n}(R-P)}{\frac{1}{2}(R+P)}$

re, $I = \text{Rs. } 12$, $t = 50\%$ or 0.50 , $P = \text{Rs. } 100 - 5 = \text{Rs. } 95$, $n = 10$ ye
 $= \text{Rs. } 100 + 10\%$ of $\text{Rs. } 100 = \text{Rs. } 110$.

$$K_d = \frac{12(1-0.5) + \frac{1}{10}(110-95)}{\frac{1}{2}(110+95)} = \frac{6+1.5}{102.5} = 0.073 = 7.3\%$$

Problem

- A company issues 12% redeemable preference shares of Rs. 100 each at 5% premium redeemable after 15 years at 10% premium. If the floatation cost of each share is Rs. 2, what is the value of K_p (Cost of preference share) to the company?

ion :

$$k_p = \frac{D_p + \frac{1}{n}(R_v - NP)}{\frac{1}{2}(R_v + NP)}$$

Here, $D_p = 12\%$ of Rs. 100 = Rs. 12, $R_v = Rs. 110$ (at a 10% pre

$N_p = Rs. 100 + 5\%$ of Rs. 100 - Rs. 2 = Rs. 103, $n = 15$ years

$$k_p = \frac{Rs. 12 + \frac{1}{15}(110 - 103)}{\frac{1}{2}(110 + 103)} = \frac{Rs. (12 + 0.467)}{Rs. 106.50} = 11.706\%$$

Problem

XY Company's share is currently quoted in market at Rs. 60. It pays a dividend of Rs. 3 per share and investors expect a growth rate of 10% per year.

Solution :

We know, cost of Equity Capital (K_e) = $\frac{D}{P} + g$.

$$(i) \quad K_e = \frac{\text{Rs. } 3}{\text{Rs. } 60} + 0.10 = 0.05 + 0.10 = 0.15 \text{ or } 15\%$$

$$(ii) \quad \text{Market Price (P)} = \frac{\text{Dividend (D)}}{\text{Cost of equity capital (} K_e \text{) - Growth}}$$

$$= \frac{\text{Rs. } 3}{15\% - 12\%} = \frac{\text{Rs. } 3}{3\%} = \text{Rs. } 100.$$

$$(iii) \quad \text{Market Price (P)} = \frac{\text{Rs. } 3}{12\% - 10\%} = \frac{\text{Rs. } 3}{2\%} = \text{Rs. } 150.$$

Source	Amount (Rs.)	After-tax Cost
Equity share capital	6,00,000	13%
Preference share capital	3,00,000	8%
Debentures	2,40,000	5%
Retained earnings	60,000	9%

You are required to calculate the Weighted Average Cost of Capital.

Solution :

Computation of Weighted Average Cost of Capital

Source (1)	Amount Rs. (2)	Proportion (3)	After-tax Cost (4)	Weighted Cost (5) = (3) × (4)
Equity share capital	6,00,000	0.50	0.13	0.065
Preference share capital	3,00,000	0.25	0.08	0.02
Debentures	2,40,000	0.20	0.05	0.01
Retained earnings	60,000	0.05	0.09	0.0045
	12,00,000	1.00		<u>0.0995</u>

\therefore Weighted Average Cost of Capital (K_o) = $0.0995 \times 100 = 9.95\%$.