Weighted Average cost of Capital

Sum 1

S Ltd has assets of Rs. 320000, which have been financed with Rs. 104000 of debt Rs. 180000 of equity a general reserve of Rs 36000. The company's total profit after interest and taxes for the year ended 31.3.18 was Rs 27000. It pays 8% interest on borrowed funds and is in the 30% tax bracket. It has 1800 equity shares of Rs 100 per share, presently selling at a market price of Rs 120 per share. What is the weighted average cost is capital of S Ltd.

Solution:

Statement showing computation of Weighted average cost of capital

Items	Market Value (Rs)	Weight (Value/Total Value) (W)	After tax cost % (K)	Total cost % (W*K)
Equity share capital	180000	0.5625 (180000/320000)	12.5	7.03125
General reserve	36000	0.1125	12.5	1.40625
Debt	104000	0.325	5.6	1.82
Weighted average cost of capital				10.2575

Therefore, required weighted average cost of capital is **10.26%**

Working Notes:

1. Market Value of equity = 1800 * 120 =Rs 216000
   Ratio of equity share capital and general reserve = 180000:36000
   Market Value of equity share capital = Rs 216000*5/6 =Rs 180000
   Market Value of general reserve = Rs 216000*1/6 = Rs 36000
2. Earning per share (E) =Rs 27000/1800 = Rs 15
   Cost of Equity share capital (K_e) =E/P= Rs 15/Rs 120=0.125 or 12.5%
   Cost of general reserve is 12.5% also.
3. Cost of debt (K_d) = I/P (1-t)=8/100 (1-0.30)= 0.056 or 5.6%

Sum 2

The company has the following amount of capital with corresponding specific cost of each type:

Type of capital	Book value (Rs)	Market Value (Rs)
Equity capital (25000 shares of Rs 10 each)	250000	450000
13% preference shares capital (500 shares of Rs 100 each)	50000	45000
Reserve and surplus	150000	-
14% Debentures (1500 Debentures of Rs 100 each)	150000	145000

The expected dividend per share is Rs 1.40 and the dividend per share is expected to grow at a rate of 8% forever. Preference shares are redeemable after 5 years at par, whereas debentures are redeemable after 6 years at par. The tax rate for the company is 50%.

You are required to compute weighted average cost of capital using market Value as weight.

Solutions:

Computation of Weighted average cost of capital using market Value as weight

Items	Market Value (Rs)	Weight (W)	After tax cost (%) (K)	Total cost (%) (W*K)
Equity Capital	281250	0.439	15.8	6.94
13% preference shares capital	45000	0.070	15.8	1.11
Reserve and surplus	168750	0.264	15.8	4.17
14% Debentures	145000	0.227	7.4	1.68
Weighted average cost of capital				13.9

Working notes:

1. Total Market Value of equity =Rs 450000
   Ratio of equity share capital and reserve and surplus = 250000:150000 or 5:3
   Market Value of equity share capital = Rs 450000*5/8 =Rs 281250
   Market Value of Reserve and Surplus = Rs 450000*3/8 = Rs 168750

2. Cost of Equity capital = D/P +G;
   Where-
   Expected dividend per share (D) = Rs. 1.40
   Market price of each share (P) = Rs 450000/25000 = Rs 18
   Growth rate of dividend (G) 8% or 0.08
   So, By putting the values in the formula, cost of Equity capital is 15.8%
3. Cost of Reserve and Surplus = 15.8% (As cost of Equity capital is 15.8%)
4. Cost of Preference shares capital = 15.8%

$$K_P = \frac{D + \frac{(R-P)}{n}}{\frac{(R+P)}{2}}$$

K_P= Cost of Preference Share Capital

D= Dividend Per share = Rs. 13

P= Market Price = Rs. 90

R = Redeemable price = Rs. 100

n = Redeemable period in terms of year = 5 years

So, By putting the values in the formula, cost of Preference shares capital = 15.8%

5. Cost of Debenture = 7.4%

$$K_d = \left[\frac{I + \frac{(R-P)}{n}}{\frac{(R+P)}{2}} \right] (1-t)$$

Where,

I = Amount of Annual Interest =Rs. 14

P= Market Price = Rs. 96.67

R = Redeemable price= Rs 100

n = Time period of redemption of debt = 6 years

t = Rate of Tax = 50%

So, By putting the values in the formula, cost of Debenture = **7.4%**