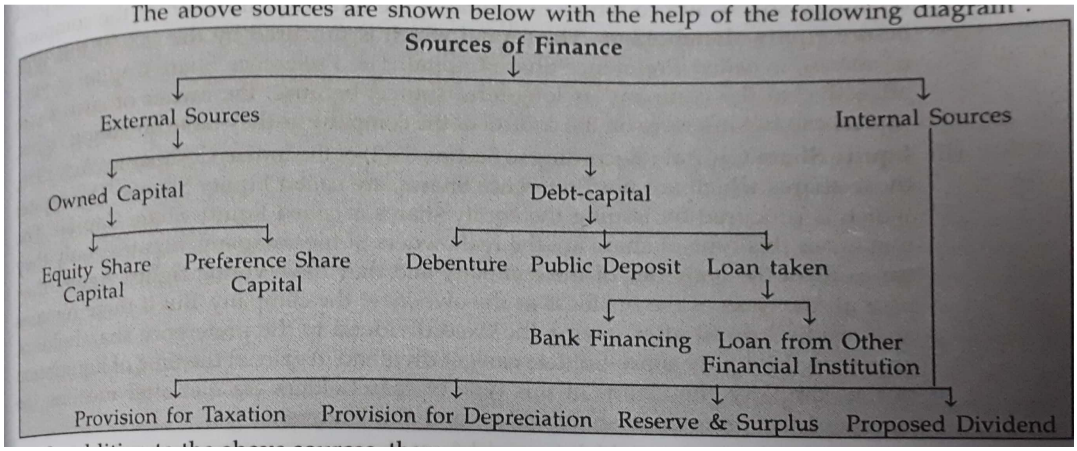
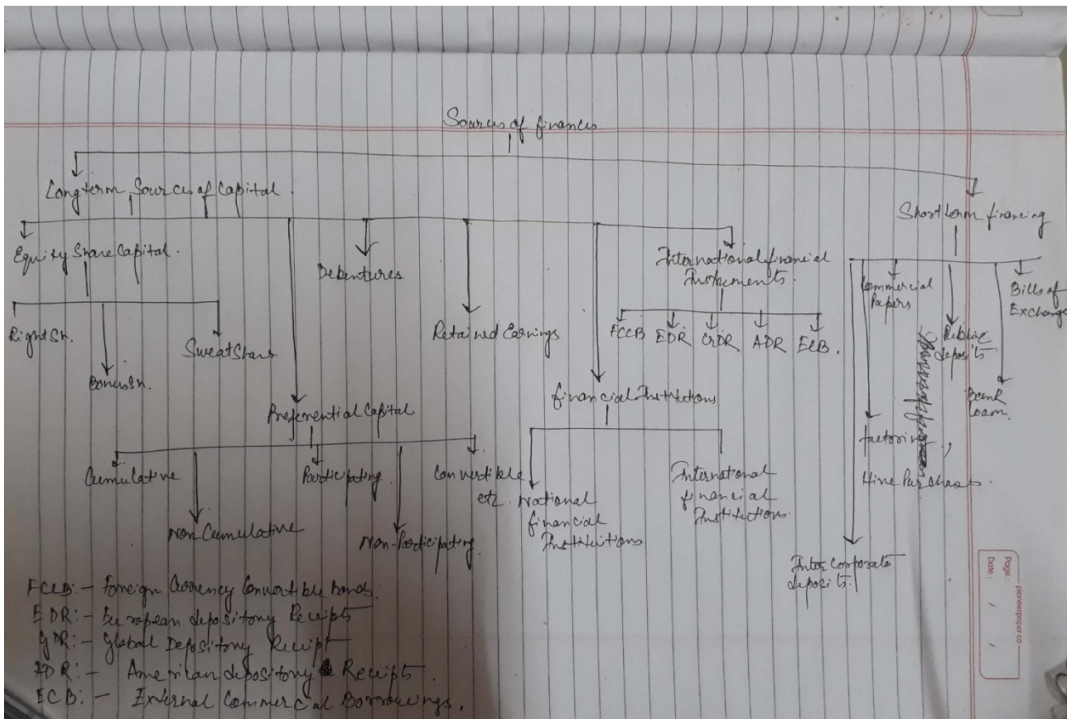
Financial Management; Semester VI; SECTION 6 B; B.COM HONOURS
TOPIC: Sources of capital and cost of capital
Teacher: Prof. Sunita Saha (SS)

Sources of capital and cost of capital

Read in detail the various classifications of types of finances as presented below





I. Cost of debt Capital

The capital which is procured by issuing debentures, taking loans from financial institutions or taking public deposits in terms of paying interest at a fixed rate, is called debt capital.

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a. **Cost of irredeemable debt**: when the value of a debt capital is not redeemed in any time other than the time of liquidation of the firm, the debt capital is called irredeemable debt capital. It is also called perpetual debt capital.
Formula: Ki= I/P and Kd = I/P(1-t)
Where Ki: Before tax cost of debt;
Kd= After tax cost of debt
I= Amount of annual interest
P= Net amount of realized from debt; and
t=Rate of tax

Example: X CoLtd issued 10,000 12% irredeemable debentures. The face value of each debentures is Rs 100. The company is in 45% tax bracket. Determine the before and after tax cost of debt if the debentures are issued at par, at a premium@10%

Solutions:

When the debentures are issued at par;

KI= I/P; 1,20,000/10,00,000= 12%

Kd= I/P(1-t)= 0.12*0.55=6.6%

When the debentures are issued at a premium @10%

P=10,000* 100*110/100= Rs11,00,000

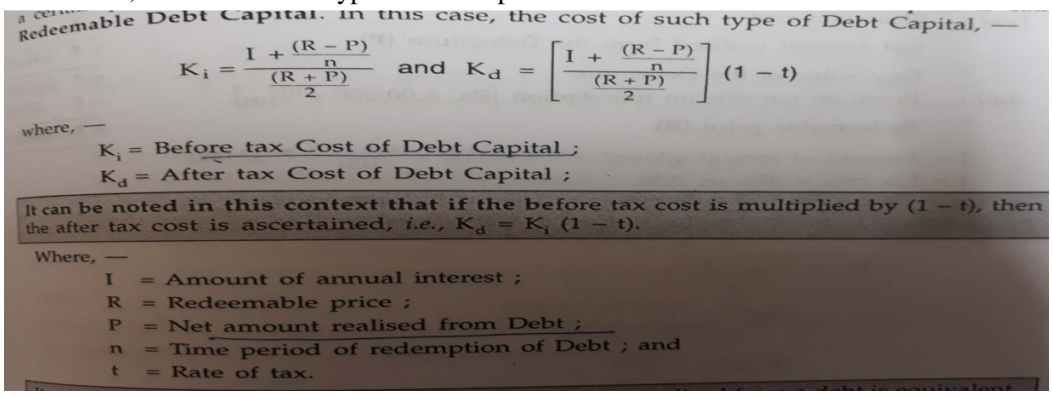
By putting P=Rs11,00,000 and I=Rs1,20,000

Ki=1,20,000/11,00,00=0.1090=10.90%

Kd= 1,20,000/11,00,000*(1-0.45)= 6%

Hence before tax cost of debt is 10.90% and after tax cost of debt is 6%

b. **Cost of redeemable debt capital**: When the value of a debt capital is redeemed after a certain period of time according to the terms of issue, the debt capital is called redeemable debt capital. In this case, the cost of such type of debt capital:-


Redeemable Debt Capital. In this case, the cost of such type of Debt Capital, —

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

where, —
K_i = Before tax Cost of Debt Capital ;
K_d = After tax Cost of Debt Capital ;

It can be noted in this context that if the before tax cost is multiplied by $(1 - t)$, then the after tax cost is ascertained, *i.e.*, $K_d = K_i (1 - t)$.

Where, —
I = Amount of annual interest ;
R = Redeemable price ;
P = Net amount realised from Debt ;
n = Time period of redemption of Debt ; and
t = Rate of tax.

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Example:- A company issues Rs 4,00,000 8% redeemable debentures at a discount of 10% The cost of flotation amounts to Rs 20,000. The debentures are redeemable at a premium @10 % after 5 years if the tax rate is 40% calculate the cost of debt

Solution

Face value of the debentures	4,00,000
Less: discount on issue [4,00,000*10/100]	40,000
	3,60,000
Less: Flotation costs	20,000
Net amount released from the debentures (P)	3,40,000
Face value of the debentures	4,00,000
Add: Premium payable on redemption [4,00,000*10/100]	40,000
Redeemable price ®	**4,40,000**

I = Amount of annual interest= Rs 4,00,000* 8/100=Rs 32,000

t=Tax rate=40% or 0.40

n=time period of redemption of debt =5 years

Ki=putting the values in the formula you will be getting 13.33%

Again if Kd be the after tax cost of debt then-

Kd= Ki(1-t) = 13.33%(1-0.40)= 8%

c. Cost of preference share capital

Preference share are those shares which carry two preferential right such as right to receive dividend at a fixed rate before any dividend is paid on equity shares and right to return of capital at the time of liquidation of the company. The capital which is procured by issue of this type of share is called preference share capital.

1. **Costs of redeemable preference share capital:** Irredeemable preference shares are those preference shares which are not redeemed before the winding up of the company. This type of preference shares is also known as perpetual preference share. If Kp be the costs of such type of share capital then,
   Kp =D/P [When the dividend tax is not considered]
   Kp= D/P(1+Dt) [when dividend tax is considered]
   Where;
   Kp = Cost of preference share capital
   D= Annual Dividend
   P= Net sales proceeds of the shares
   Dt= Dividend tax

The dividend tax is determined in the following way:

Tax on dividend	*
Add: Surcharge	*
Add: Education Cess	*
Add: Secondary and higher education cess	*
Dividend Tax Dt	*

Example:

a) *A ltd issues 12% irredamble pref shares of 4,00,000 at a discount @ 10%. The company pays underwriting commission @5%. Calculate cost of preference shares capital. Ignore dividend tax.*
b) *Bltd. Issues 10% perpetual share of Rs 100 each at a premium @20%. The company issues brokerage cost @4%. If tax on dividend is 15%, Surcharge is 10%, education cess is 2% and secondary and higher education cess is 1%. Calculate the cost of the preference share capital.*

Solutions

a) Computation of Net proceeds of the shares

Face value of the shares	4,00,000
Less: Discount	40,000
Issue Price	3,60,000
Less: Underwriting commissions on 3,60,000	18,000
Net Proceeds (P)	342,000

Annual dividend @12%= 48,000

Kp=D/P 48,000/342,000= 14.03%

b) Computation of net sale proceeds of each share

Face value of each share	Rs 100
Add: premium @20%	20
Issue Price	120
Less: Brokarage 120* 4%	4.80
Net sales proceeds of each share (P)	115.20

Computation of effective rate of dividend tax

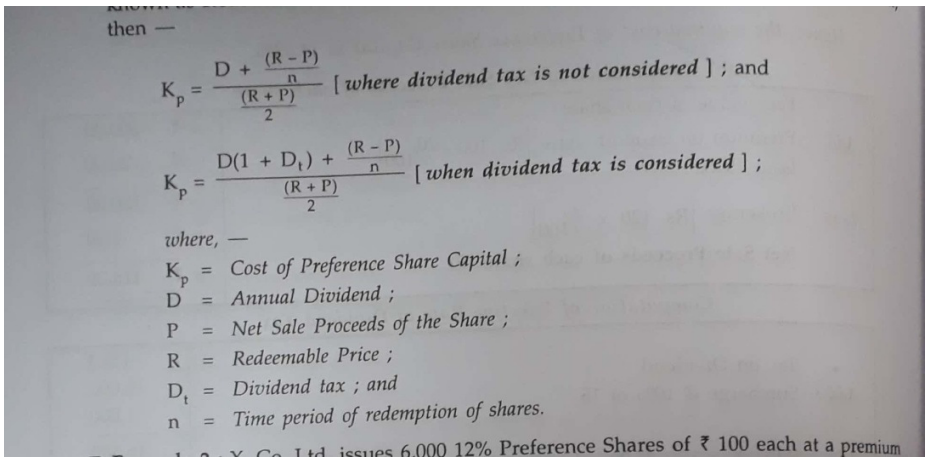
	%
Tax on dividend	15.00
Add: surcharge @ 10% of 15	1.5
	16.50
Add: Education Cess@ 2% of 16.5	0.330
Add:Secondary and higher education cess @1% of 16.5	0.165
Effective rate of dividend tax (Dt)	16.995

Kp= D/P(1+Dt)

=10/115.20 *(1+16.995/100)

=10.16%

2. **Costs of Redeemable preference share capital : The preference shares which are redeemed after the expiry of a certain date in accordance with the terms of issue are known as redeemable preference shares**



then —

$$K_p = \frac{D + \frac{(R - P)}{n}}{\frac{(R + P)}{2}}$$ [*where dividend tax is not considered*] ; and

$$K_p = \frac{D(1 + D_t) + \frac{(R - P)}{n}}{\frac{(R + P)}{2}}$$ [*when dividend tax is considered*] ;

where, —

K_p = *Cost of Preference Share Capital ;*
D = *Annual Dividend ;*
P = *Net Sale Proceeds of the Share ;*
R = *Redeemable Price ;*
D_t = *Dividend tax ; and*
n = *Time period of redemption of shares.*

X Co. Ltd. issues 6,000 12% Preference Shares of ₹ 100 each at a premium

Sums are given in the second part

<u>Weighted Average cost of capital</u>

The weighted average cost of all the components of the capital structure is called overall cost of capital

K0= (Ke* We)+(Kp*Wp)+(Kr*Wr)+(Kd*Wd)

Q K Ltd. Has the following capital structure:

Equity share capital (Expected dividend 15%) 8,00,000

12% Preference share capital 5,00,000

10% Debentures 4,00,000

8% long term loan 3,00,000

You are required to calculate the WACC assuming 40% as the rate of income tax before and after tax

Solutions:

Statement showing for computation of before tax WACC

Items	Book value	Weight	Before tax cost%	Total cost

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Equity share capital	**8,00,000**	**0.40**	**15**	**6**
Preference share capital	**5,00,000**	**0.25**	**12**	**3**
Debentures	**4,00,000**	**0.20**	**10**	**2**
Long term loan	**3,00,000**	**0.15**	**8**	**1.2**
Before tax WACC				**12.2**

Items	**Book value**	**Weight**	**Before tax cost%**	**Total cost**
Equity share capital	**8,00,000**	**0.40**	**15**	**6**
Preference share capital	**5,00,000**	**0.25**	**12**	**3**
Debentures	**4,00,000**	**0.20**	**6**	**1.2**
Long term loan	**3,00,000**	**0.15**	**4.8**	**0.72**
After tax WACC				**10.92**

After tax cost of debentures = 10%(1-0.40)= 6%

After tax cost of long term loan= 8%(1-0.4)=4.8%

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