

# Cost of capital

CLASSMATE

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⇒ Model - 01 :- Cost of Long term Debt.

1) Cost of Irredeemable debt :-

$$\text{Cost of Irredeemable debt} = (k_d) = \frac{I(1-t)}{NP \text{ (or) } MP_0}$$

$NP$  = Net proceeds of newly issuing debentures  $(IP - FE)$ .

2) Cost of Redeemable debt :-

i) If Redeemable at the time of Maturity.

Method (1) :- PVM / IRR / YTM.

First NPVs calculate karna, uske baad interpolate karna.

$$k_d = LR + \frac{NPV_{LR}}{NPV_{LR} - NPV_{HR}} \times (HR - LR)$$

Method (2) :- Short cut Method / Approximation Method:

→ principal amount maturity ke time pech repay karna.

→ Interest rate kabhi change hona nahi.

$$k_d = \frac{I(1-t) + \left(\frac{RV - NP}{n}\right)}{\left(\frac{RV + NP}{2}\right)}$$

ii) If debentures are Redeemable in Installments :-

0 - Net proceeds in case of new issue / MP

1 to n - Redemption installment + Interest for that year net of tax benefit.

NPV karna.

Phir interpolation karna.

iii) Fair value of Bond or debenture:-

$$EV = PV \text{ of coupon rate} + PV \text{ of } \text{RV.} \rightarrow \text{For better, refer MM.}$$

iv) cost of deep discount Bond.

Refer MM for better clarity.

v) cost of convertible debentures.

Same as redeemable debentures.

Shortcut method & IRR Method.

⇒ Model-02 :- cost of preference share capital.

1) cost of IRRedeemable preference shares.

Same as redeemable debentures.

$$K_p = \frac{PD}{NP \text{ (or) } MP_0}$$

2) cost of Redeemable preference shares.

1) If Redeemable at time of maturity.

Method (1) :- PVM/IRR/YMM.

$$K_p = LR + \frac{NPVLR}{NPVLR - NPV_{\#R}} (HR - LR)$$

ii) Method (2) :- Shortcut Method / Approximation Method:-

$$K_p = \frac{PD + \frac{RV - NP}{n}}{RV + NP/2}$$

(i) Redeemable Pn Installments:

$$k_p = LR + \frac{\text{NPV at LR}}{\text{NPV at LR} - \text{NPV at HR}} \times (HR - LR)$$

⇒ Model 3 :- cost of Equity

1) Dividend price Approach.

Assumption, dividend on share is constant forever.

$$k_e = \frac{\text{DPS}_1}{\text{NP (or) MP}_0}$$

2) Earning/price Approach.

- Earning per share constant forever.

- Investor expect → Earning → whether distributed or not.

$$k_e = \frac{\text{EPS}_1}{\text{NP (or) MP}_0}$$

3) Growth Approach (or) Gordon Approach.

Dividend may assumed to grow at a constant rate.

$$k_e = \frac{\text{DPS}_1}{\text{NP (or) MP}_0} + g \quad \text{DPS}_1 = \text{DPS}_0(1+g)$$

$$g = RR \times RRT \quad ; \quad \text{EPS} = \frac{\text{Dividend}}{\text{DPR}}$$

4) Realised yield Approach:

Refer - CRD.17.

- 5) Capital Asset Pricing Model (CAPM) Approach. Risk return trade off for securities. It describes the linear relationship between risk & return of securities.

$$k_e = R_f + \beta(R_m - R_f) \quad R_m = \text{Dividend} + \text{Capital Gain} \\ \text{MPO}$$

⇒ Model - 4: Cost of Retained Earnings:

Method - 1: If there is no information about personal tax of investor & Brokerage charge

$$k_e = k_{re}$$

Method - 2: If there is info. about PTI & BC

$$k_{re} = k_e (1 - b)(1 - t_p)$$

⇒ Model - 5: Weight Average cost of capital [WACC].

1) Book value weights [BV]

Step - 1 = Calculate specific cost i.e.  $k_e, k_p, k_d$ ...

Step - 2 = Calculate WACC =  $\frac{\text{Sum of products}}{\text{Sum of capital}} \times 100$ .

2) Market value weights [MV]

Refer CRD - 21