COST OF CAPITAL [8 Marks] — CA NAVNEET MUNDHRA

NAVIN CLASSES

COST OF DEBT (Kd)

Redeemable (%) :-

$$\left[\frac{\text{Int. Amt.}\,(1-t)+\frac{RP-IP}{n}}{\frac{RP+IP}{2}}\times 100\right]$$

Irredeemable (%) :-

$$\left[\frac{\text{Int.} \cdot \text{Amt}\,(1-t)}{IP}\times 100\right]$$

COST OF PREFERENCE SHARE

Redeemable (%) :-

$$\left[\frac{\text{Pref. dividend Amt.}+\frac{RP-IP}{n}}{\frac{RP+IP}{2}}\times 100\right]$$

Irredeemable (%) :-

$$\left[\frac{\text{Pref. dividend Amt.}}{IP}\times 100\right]$$

- × Int. Amt / Pref. Dividend = F.V. × Rate.
- × RP / IP = at par / at discount / at premium.
- × RP is generally F.V.
- × IP is generally F.V. [If RP = net IP then assume IP = MP]
- × IP is always net of floatation cost (F.C.)
  i.e. net IP = IP − F.C.

EQUITY SHARES (Ke) & RETAINED EARNINGS (Kr) : Always irredeemable

DIVIDEND APPROACH	EARNINGS APPROACH	DIVIDEND GROWTH APPROACH / DIVIDEND DISCOUNT APPROACH / GORDEN MODEL	EARNINGS GROWTH APPROACH	CAPM
$\left[\frac{DPS}{P_0}\times 100\right]\times\%$	$\left[\frac{EPS}{P_0}\times 100\right]\%$	$\left[\frac{D_1}{P_0}+g\right]\times 100\%$ PREFERRED	$\left[\frac{EPS_1}{P_0}+g\right]\times 100\%$	$[R_f+(R_m-R_f)\beta]$

- × P_0 = MPS (IP net of FC)
- × $D_1 = D_0(1+g)$ (D_0 pays / expected / to be paid → [paid / past years])
- × $EPS_1 = EPS_0(1+g)$
- × $g = b \times r$ [Retention ratio × ROE]
- × R_f = Risk free return
- × $R_m - R_f$ = Risk premium
- × R_m = Market Rate / Return
- × $\beta = \frac{\sigma_s}{\sigma_m} \times r = \left\{\left[\frac{\text{SD of stock}}{\text{SD of market}}\right] \times \text{correlation coefficient}\right\}$
- × $K_e > K_r$ ⇒ If there is F.C. [as for F.C. is considered & shareholder's personal tax] = $[K_r = K_e(1 - \text{shareholder personal tax rate})]$
- × $K_e = K_r$ ⇒ If there is no F.C.

WACC (K_o / K_c) & Marginal WACC (for additional capital)

$$\frac{K_o}{K_c} = \frac{(W_d \times K_d)+(W_p \times K_p)+(W_e \times K_e)+(W_r \times K_r)}{(W_d + W_p + W_e + W_r)}$$

Now, weights can be — (If nothing mentioned take MV)

For —	B.V.	M.V.
Debentures	From B/s (given)	Market price × No. of debentures
PSC	From B/s (given)	Market price × No. of preference shares
ESC	From B/s (given)	Market price × No. of shares (in ratio of BV)
Retained Earnings	From B/s (given)	(TMP × B.V. of R.E. / Total B.V.)

(Total Market price × B.V. of ESC / Total B.V.)

LEVERAGES [5 Marks]

CA NAVNEET MUNDHRA

NAVIN CLASSES

Income Statement

Sales	×××
(–) V.C.	(××)
contribution	×××
(–) F.C.	(×××)
operating profit/ EBIT	×××
(–) Interest	(×××)
EBT/PBT	×××
(–) Tax	(×××)
EAT/PAT	×××
(–) Preference dividend (PD) (if any)	(×××)
EAFESH/PAFESH	×××

EPS (₹/share) = EAFESH / No. of eq. shares

Operating Risk AND Financial Risk → Measured by → **Operating Leverage (OL) or Degree of Operating Leverage (DOL) × Financial Leverage (FL) or Degree of Financial Leverage (DFL)**

Combined Risk or Total Risk → Measured by → **Combined Leverage (CL) or Degree of Combined Leverage (DCL)**

Operating Leverage (OL) or Degree of Operating Leverage (DOL)

$$\frac{\text{contribution}}{\text{EBIT}} \Big/ \frac{\%\,\Delta \text{ in EBIT}}{\%\,\Delta \text{ in sales/contribution}}$$

ANALYSIS:
- NO F.C. ⇒ OL = 1
- F.C. = contribution ⇒ OL = undefined (operating BEP)
- F.C. < contribution ⇒ OL > 1
- F.C. > contribution ⇒ OL will be negative.

Financial Leverage (FL) or Degree of Financial Leverage (DFL)

$$\frac{\text{EBIT}}{\text{EBT}} \Big/ \frac{\%\,\Delta \text{ in EPS/EAFESH/PAT/PBT}}{\%\,\Delta \text{ in EBIT}}$$

(if no PD is given)

$$\frac{\text{EBIT}}{\text{EBT} - \frac{\text{PD}}{(1-t)}} \Big/ \frac{\%\,\Delta \text{ in EPS/EAFESH}}{\%\,\Delta \text{ in EBIT}}$$

(if PD is given)

ANALYSIS:
- NO Int. & PD ⇒ FL = 1
- Int. & pre tax PD = EBIT ⇒ FL = undefined (Financial BEP)
- Int. & pre tax PD < EBIT ⇒ FL > 1
- Int & pre tax PD > EBIT ⇒ FL will be negative.

Combined Leverage (CL) or Degree of Combined Leverage (DCL)

if no PD is given	if PD is given
$\frac{\text{contribution}}{\text{EBT}}$	$\frac{\text{contribution}}{\text{EBT} - \frac{\text{PD}}{(1-t)}}$
OR	OR
$\frac{\%\,\Delta \text{ in EPS/EAFESH/PAT/PBT}}{\%\,\Delta \text{ in sales/contribution}}$	$\frac{\%\,\Delta \text{ in EPS/EAFESH}}{\%\,\Delta \text{ in sales/contribution}}$

ANALYSIS:
- NO F.C., Int., PD ⇓ CL = 1
- (F.C., Int., pre tax PD) = contribution ⇓ (BEP) CL = undefined.
- F.C, Int., pre tax PD < contribution ⇓ CL > 1
- F.C., Int., pre tax PD > contribution ⇓ CL will be negative

FL as Trading on Equity & Double Edged sword

$$\text{ROE (if no PD given)} = \left[\text{ROI}_{\text{after tax}} + (\text{ROI}_{\text{after tax}} - K_d) \times \frac{D}{E}\right]$$

- × Fav. FL ⇒ ROI > K_d
- × unfav. FL ⇒ ROI < K_d
- × Indifferent ⇒ ROI = K_d

MANAGEMENT OF RECEIVABLES [5 Marks]

CA NAVNEET MUNDHRA

Expenses / cost associated with Debtors [credit sale]

- **Opportunity cost of interest** calculated on –
  - i) Total cost (Preferred)
  - ii) Variable cost (if no fixed cost is given).
  - iii) Sales.
- **Bad-debts** calculated on Sales
- **Discount on Debtors** calculated on Sales.
  - **Interest cost (% p.a.)** — Always given
  - V/S
  - **Implicit cost of Discount (% p.a.)**
    - Eg: 3/10, net 30 means 3% discount if paid within 10 days, otherwise collected within 30 days.
    - $= \left[\frac{3}{97} \times \frac{360}{(30-10)} \times 100\right] \%$

LOWER THE BETTER

DECISION ON MANAGEMENT OF DEBTORS....

If sales are different (Total App.)

Income statement

Sales	xxx
(–) V.C	(xxx)
Contribution	xxx
(–) F.C.	(xxx)
EBIT	xxx
(–) Interest (Opp. cost)	(xxx)
(–) Bad-debts	(xxx)
(–) collection expenses	(xxx)
(–) Discount allowed	(xxx)
Surplus before tax	xxx
(–) Tax	(xxx)
Surplus after tax	xxx

HIGHER THE BETTER.

If sales are same or not given (Cost App.)

Cost Statement

Interest (Opp. cost)	xxx
Bad-debts	xxx
collection expenses	xxx
Discount Allowed	xxx
Cost related to Debtor	xxx

LOWER THE BETTER.

RISK ANALYSIS IN CAPITAL BUDGETING [6 Marks] CA NAVNEET MUNDHRA

NAVIN CLASSES

CASH FLOWS

- Certain cashflows decision through capital Budgeting Techniques [Refer cap. Budgeting chapter]
- Risk involving cash flows [probability is known]
- uncertain cashflows [probability is unknown]

1. Statistical Techniques

1. Calculating Expected NPV (Higher the better)
2. Calculating variance & standard deviance. (Lower the better)
3. Calculating coefficient of variation.

Table for the above

Each year (t)

Exp. cashflow (Exp. CF)	Probability (P)	Exp. CF × P	$(Exp\,CF - ENCF_t)^2$	$P\{(ECF - ENCF_t)^2\}$
.	.	.	.	.
.	.	.	.	.
Expected Net cash flow ($ENCF_t$) =		.	$Variance_t$ =	

$SD_t = \sqrt{Variance_t}$; $CV_t = \left[\frac{S.D.t}{ENCF_t} \times 100\right]\%$

- Expected NPV = $\Sigma ENCF_t \times DF_t$ − Initial cost.
- S.D. of total project as per Hiller $= \sqrt{\frac{Var_1}{(1+i)^2} + \frac{Var_2}{(1+i)^4} + \cdots + \frac{Var_n}{(1+i)^{2n}}}$
- C.V. of project $= \left[\frac{S.D.\ of\ project}{PV\ of\ all\ ENCF} \times 100\right]\%$

2. Conventional Techniques

1. **Risk Adjusted Discount Rate (RADR)**
   i) RADR = R_f + Risk premium (given)
   ii) Calculate P.V. of all uncertain cash flow @ RADR.
   iii) Expected NPV = P.V. of all uncertain cash flow @ RADR − Initial cost.

2. **Certainty Equivalent coefficient (α)**
   i) Convert uncertain cashflow into certain: certain cashflows = uncertain cashflows × α (given)
   ii) Exp. NPV = PV. of all certain cashflow @ R_f − Initial cost.

3. Other Techniques

1. **Sensitivity Analysis –**
   Step 1: Frame NPV equation using all variables and calculate NPV e.g. NPV = [(SP/U − VC/U) × No. of units − FC] × AF (i%, n yrs) − Initial cost
   Step 2: Give each variable shock on the adverse side one by one to get lower NPV. (given) OR ← → (10%)
   Step 3: Calculate differential NPV and the max. differentiated NPV variable is the most sensitive one.

2. **Scenario Analysis :–**
   i) We are given different scenario in which all variables are affected together.
   ii) Calculate NPV under each scenario.

3. **Simulation Technique :–**
   i) Calculate cumulative probability of each variable and find the range.
   ii) Refer the Random Probability Table (Monte carlo table).
   iii) Calculate NPV under each sum of the table.

4. **Decision Tree Technique :–**
   i) Draw the probability decision tree from left to right.
   - D_1 Decision Node — decision taken on the basis of Highest NPV of chance Node
   - C_1, C_2 chance Node — here we calculate Exp NPV as per the probability distribution.
   - Probability given

   ii) Evaluate the decision tree from right to left and come to D_1