FINANCIAL MANAGEMENT

Module - 1

TIME VALUE OF MONEY

Simple Interest rate = $P \times i \times n$

P → Principal i → Interest n = time

Compounding

$$FV = PV(1+r)^n$$

r → rate of Interest

$$FV = PV\left(1+\frac{r}{m}\right)^{mn}$$

m → no. of Compounding

ANNUITY

It has a series of cashflows

Any cashflow that satisfies 3 conditions it becomes annuity

i) The amount of Cashflow must be same everytime

ii) Time Interval between cashflows is the same

iii) Total Period of Annuity is definite

Types of Annuity

i) Annuity Regular / ordinary annuity
   - Cashflows at the end of the year

ii) Annuity Immediate
   - Cashflows at the begining of the year

FVAR (Regular) = Periodic amount $\left(\frac{(1+r)^n - 1}{r}\right)$

FVAI = Periodic amount $\left[\frac{(1+r)^n - 1}{r}\right](1+r)$

Present value

$$PV = FV \left[\frac{1}{(1+r)^n}\right] \text{ or } (1+r)^{-n}$$

Present value of Annuity

$$PVA = \text{Periodic amount} \left[\frac{(1-(1+r)^{-n})}{r}\right]$$

Present value of Growing Annuity

$$PVGA = \frac{P}{r-g}\left[1 - \left[\frac{1+g}{1+r}\right]^n\right]$$

P → Periodic Amount g → growth rate

Perpetuity

Ex: Rental Income

$$\text{Pv of Perpetuity} = \frac{\text{Periodic amount}}{r}$$

Present value of Growing Perpetuity

$$PVGP = \text{Periodic amount}\left(\frac{1}{r-g}\right)$$

$$\text{Pv of Perpetuity} = \frac{P}{r}\left[\frac{1}{(1+r)^n}\right]$$

Effective Interest rate

$$EIR = \left(1+\frac{r}{m}\right)^{m} - 1$$

Doubling Period

Rule 69 → $0.35+\frac{69}{r}$

Rule 72 → $\frac{72}{r}$

Module - 2

COST OF CAPITAL

1] Cost of Debt

a) Irredeemable debt:-

$$K_d = \frac{I(1-t)}{NP}$$

Before Cost of debt

$$K_d = \frac{I}{NP}$$

I → Interest per annum
t → tax rate
NP → Net proceeds

$$NP = [FV + Premium - Discount] - Floatation\ costs$$

b) Redeemable debt

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

RV → Redemption value
N → Tenure of debt

Cost of Preference Shares

(i) Redeemable

$$K_p = \frac{D_p + \frac{RV - NP}{N}}{\frac{RV + NP}{2}}$$

$D_p \rightarrow$ Dividend per Share

ii) Irredeemable

$$K_p = \frac{D_p}{NP}$$

Cost of Equity — Dividend Discount Model (DDM)

$$K_e = \frac{D}{NP}$$

$D \rightarrow$ Dividend

$$K_e = \frac{D}{MP}$$

$MP \rightarrow$ Market Price

↳ When market price is considered

$$K_e = \frac{D_1}{P_0} + g$$

$P_0 \rightarrow$ current mkt price

↳ when growth rate is given

$$K_e = \frac{EPS}{NP}$$

$EPS \rightarrow$ Earnings per share

$D_1 \rightarrow$ Dividend expected

$$K_e = \frac{EPS}{\text{Mkt price}}$$

$$K_r = K_e$$

$K_r \rightarrow$ Cost of retained earnings.

Using CAPM

$$K_e = R_f + \beta(R_M - R_f)$$

Module - 3

CAPITAL BUDGETING

Techniques

Note*: CIF = EBITDA - Depr - Int - tax + Depre

EAT = EBITDA - Depr - Int - tax

Only ARR Considers EAT.

(1) Payback Period

a) Annual returns (Cash Inflows) are Constant

$$= \frac{\text{Initial Investment}}{\text{Annual Cash Inflows}}$$

b) Cashinflows is not Constant

$$= \text{Initial year of Payback} + \frac{\text{Amount left to be recovered}}{\text{Cash Inflow during the year of final recovery}}$$

(2) Discounted Payback Period

- Need to consider Discounted Cash Inflow
- Formula is same as above.

(3) Net Present Value (NPV)

NPV = PV of CIF − PV of COF

When NPV is −ve ⟶ Project is rejected.

When NPV is +ve ⟶ Project is accepted.

Project with highest NPV is ranked first and Project with lowest NPV is ranked last.

(4) Internal rate of return.

It is the rate of which NPV = 0, i.e we Prove that Present value of Cash inflows is equal to present value of Cash outflows. It is influenced by how much we invest hence it is named as Internal rate of return.

$$IRR = r_a + \left[\frac{NPV_a}{NPV_a - NPV_b}\right](r_b - r_a)$$

$r_a \rightarrow$ lowest rate $r_b \rightarrow$ highest rate

$NPV_a \rightarrow$ highest value = +ve ↑DF ↓NPV

$NPV_b \rightarrow$ lowest value = −ve ↓DF ↑NPV

(5) Profitability Index.

It is also called as Profit Investment ratio or Value Invest ratio

Also known as NPV Index or Benefit Cost ratio.

if PI = 1 then it is Break even point

Outflows = Inflows. (No Profit, No loss)

If PI < 1, then it is not favourable.

If PI > 1, then it is favourable.

$$PI = \frac{PV \text{ of } CIF}{PV \text{ of } COF}$$

(6) Accounting rate of return or Average rate of return (ARR)

$$ARR = \frac{\text{Avg. Annual Income after tax}}{\text{Avg Investment}}$$

$$\text{Avg. Annual Income} = \frac{EAT}{\text{Useful life}}$$

EAT → Earnings after tax

$$\text{Avg. Investment} = \frac{\text{Initial Investment}}{2}.$$

* When Working capital & Salvage value is given

$$\text{Avg. Investment} = \left\{\frac{\text{Initial Investment} - SV}{2}\right\} + WC + SV$$

(7) (MIRR) Modified Internal Rate of Return.

$$MIRR = \left(\frac{FVCIF}{PVCOF}\right)^{1/n} - 1$$

When reinvestment rate is given, need to consider it for future value.

Note:-

Depreciation using Straight line method.

$$Depreciation = \frac{Original\ Cost - SV}{life\ of\ asset}$$

Depreciation Using WDV

Apply fixed percentage to the asset's book value each year. This method results in a decreasing depreciation charge over the asset's useful life.

Ex:

Year	opening balance	Depreciation	closing balance