* Capital Structure Theories.

→ Capital Structure Includes a proportion of Debt and Equity.

→ Whether the capital Structure is optimum or Not?

→ Optimum Capital structure maximizes the Value of the firm

→ Can a change in proportion of debt and equity maximizes the value of firm or not?

→ Should a firm borrow in the terms of debt. Yes or No.

If Yes, how much?

Capital Structure Theories

- Capital Structure Relevance Theory.
  - → Net Income Approach (NI)
  - → Net Operating Income Approach (NOI)
- Capital Structure Irrelevance Theory.
  - → Modigliani & Miller Approach (M-M)

* Net Income Approach.

→ NI approach, shows the relationship b/w leverage, cost of capital and value of firm.

→ NI approach states that there is a relationship b/w capital structure & Value of the firm.

→ According NI approach, the change in proportion of debt can result in change in value of the firm.

Assumptions.

K_d → cost of debt &
K_e → cost of Equity remains Constant.

→ $K_d < K_e$

→ No Taxes.

As per NI approach,
With increase in proportion of debt,
→ Value of Firm Increases
→ WAcc decreases

Practically Not Possible,

Calculation as Per NI Approach.

Market Value of Equity (E) = $\frac{\text{Profit After Taxes (EAT/PAT)}}{\text{Equity capitalization Rate (Ke)}}$

Market Value of Debt (D) = $\frac{\text{Interest Amount}}{K_d}$

market Value of Firm = Debt + Equity.

* Net Operating Approach (NOI)

→ This theory is exactly opposite of NI approach.

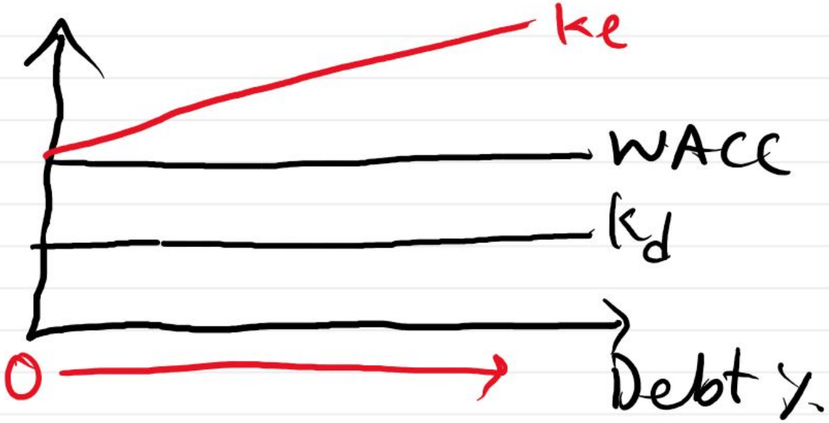
→ According to NOI, an increase in proportion of debt will increase the risk of shareholders

→ In order to bear this risk, shareholders will ask more return

→ So, if proportion debt increases, ke also increases

Calculations as per NOI.

Value of Unlevered Firm (Only Equity) $= \frac{EBIT(1-t)}{ke}$



Value of Levered Firm (Equity + Debt) = Value of Unlevered Firm + Debt (1−t)

1. * Net Income Approach

Particulars	Firm P (Levered)	Firm Q (Unlevered)
EBIT	2,00,000	2,00,000
- Interest @ 10%	(50,000)	
EBT	1,50,000	2,00,000
- Taxes @ 50%	(75,000)	(1,00,000)
PAT/EAT	75,000	1,00,000

Mkt. Val. of Equity = $\frac{PAT}{ke}$ ke = 15%

$\frac{75,000}{0.15}$ | $\frac{1,00,000}{0.15}$

= 5,00,000 | = 6,66,666.67

Market Value of Debt = $\frac{Interest}{kd}$ kd = 10%

$\frac{50,000}{0.10}$

= 5,00,000

Value of Firm (E + D)	10,00,000	6,66,666.67

1. * Net operating Approach (NOI)

Value of Unlevered Firm (Q) = $\frac{EBIT\ (1-t)}{Ke}$

$= \frac{2,00,000\ (1-0.5)}{0.15}$

$= 6,66,666.67$

Value of Levered Firm (P) = Value of Unlevered Firm + Debt (1-t)

$= 6,66,666.67 + 5,00,000\ (1-0.5)$

$= 6,66,666.67 + 2,50,000$

$= 9,16,666.67$

Que. 2 **Net Income Approach**

Particulars	Alpha (Levered)	Beta (Unlevered)
EBIT (16% × 12,00,000)	1,92,000	1,92,000
− Interest (12% × 5,00,000)	60,000	—
EBT	1,32,000	1,92,000
− Taxes @ 50%	(66,000)	(96,000)
EAT	66,000	96,000

Value of Mkt of Equity = $\frac{PAT}{Ke}$ = $\frac{66,000}{0.15}$ = 4,40,000 | $\frac{96,000}{0.15}$ = 6,40,000

Mkt. Val. of Debentures = $\frac{Int.}{Kd}$ = $\frac{60,000}{0.12}$ = 5,00,000 | —

Value of Firm (Debt + Equity) = 9,40,000 | 6,40,000

* Net Operating Income Approach.

* Value of the UnLevered Firm (Beta) = $\frac{EBIT\ (1-t)}{ke}$

$$= \frac{1,92,000\ (1-0.5)}{0.15}$$

$$= 6,40,000$$

* Value of Levered Firm (Alpha) = Value of Unlevered Firm + Debt. (1-t)

$$= 6,40,000 + (5,00,000)(1-05$$

$$= 6,40,000 + 2,50,000$$

$$= 8,90,000$$

* Using NOI Approach Calculate **WACC**

Value of Equity = 6,40,000 (Unlevered Firm) → k_e = 15%

Value of Debt = 5,00,000 k_d = 12% ∴ $k_d(1-t)$

= 12 (1 − 0.5)

= 6%

$W_e = \frac{6,40,000}{11,40,000} = 0.56$ $W_d = \frac{5,00,000}{11,40,000} = 0.44$

∴ WACC = $W_d k_d + W_e k_e$

= (0.44 × 6) + (0.56 × 15)

= 2.64 + 8.4 = **11.04%** → WACC as per NOI Approach.

Cancel Qne. No. 3, 4, 5, 9 & 10