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Financial Management

Chapter : Capital Structure

★ "Capital Structure" means the structure or breakup of the capital employed by a firm and it includes all long term capital resources.

★ In this chapter, we only consider equity & Debt.
↓
(Debenture & term loan)

★ The main objective of this chapter is to find best Debt to equity ratio which maximizes the value of the firm.

Debt	Equity
↓	↓
★ Risk is less than equity.	★ More Risk.
★ cheaper source of fund.	★ Expensive source of fund

Unlevered Firm
↓
Zero debt firm (~~Kd~~)
↓
only equity Finance (Ke)
↓
$K_c = K_e$

Value of business / firm = Value of Equity + Value of Debt
↓ ↓ ↓

$$\frac{EBIT}{K_c} = \frac{PAT}{K_e} + \frac{Interest}{K_d}$$

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KC ↑ Profit ↓ ⟶ share Price ↓ share Demand ↓ VF ↓
KC ↓ Profit ↑ ⟶ share Price ↑ share Demand ↑ VF ↑
∴ There is an inverse relationship b/w KC & value of firm.
i.e ; KC ↑ Value of firm ↓
KC ↓ Value of firm ↑

Significance of capital structure –

★ It reflects the firm's strategy.
★ It is an indicator of the risk profile of the firm.
★ It helps to brighten the image of the firm.

Example :- Ke = 16% Kd = 10%

	(1)	(2)	(3)	(4)	(5)
Equity	100%	80%	50%	25%	10%
Debt	0%	20%	50%	75%	90%
(WACC) KC	16%	14.80%	13%	11.50%	10.60%

KC maximum
Value of the firm minimum

KC minimum
value of firm maximum.

Capital Structure Theories

Relevance Theories
→ Net Income Approach
→ Traditional Approach
→ MM Approach (with tax)

↓

change in capital structure leads to change in KC and value of the firm (VF).

Irrelevance Theories
→ Net operating Income Approach
→ MM Approach (without tax)

↓

change in capital structure doesnot leads to change in KC & value of the firm (VF).

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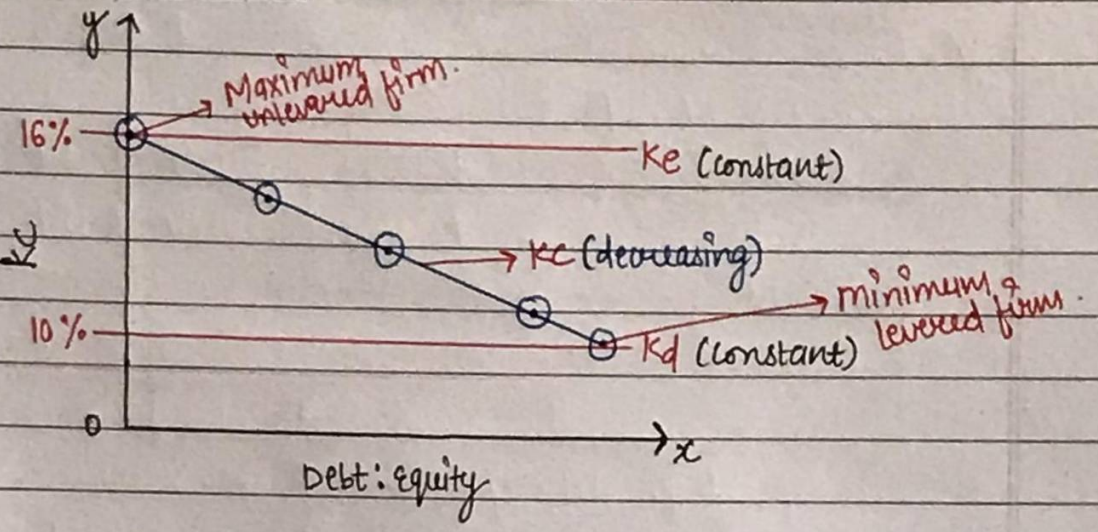
1. NET INCOME APPROACH :- (Fatta Approach)



* V_F (levered Firm) $K_c \downarrow$ > V_F (Unlevered Firm) $K_c \uparrow$

* IRR	Kc	Profit	
20%	16%	4%	Profit → value of firm (VF)
20%	14.80%	5.20%	(Direct Relationship)
20%	13%	7%	Kc → value of firm (VF)
20%	11.50%	8.50%	(Inverse Relationship)
20%	10.60%	9.40%	

Assumptions of Net Income Approach :-

* Cost of Debt (Kd) is less than cost of Equity (Ke).
* At any given capital structure, Ke and Kd shall remain constant.
* There are no taxes.
* With Increase of debt (cheaper source of finance) in capital structure Kc will fall and eventially lead to increase in the value of the firm.

because

Kc ↓ VF ↑

Inverse Relationship.

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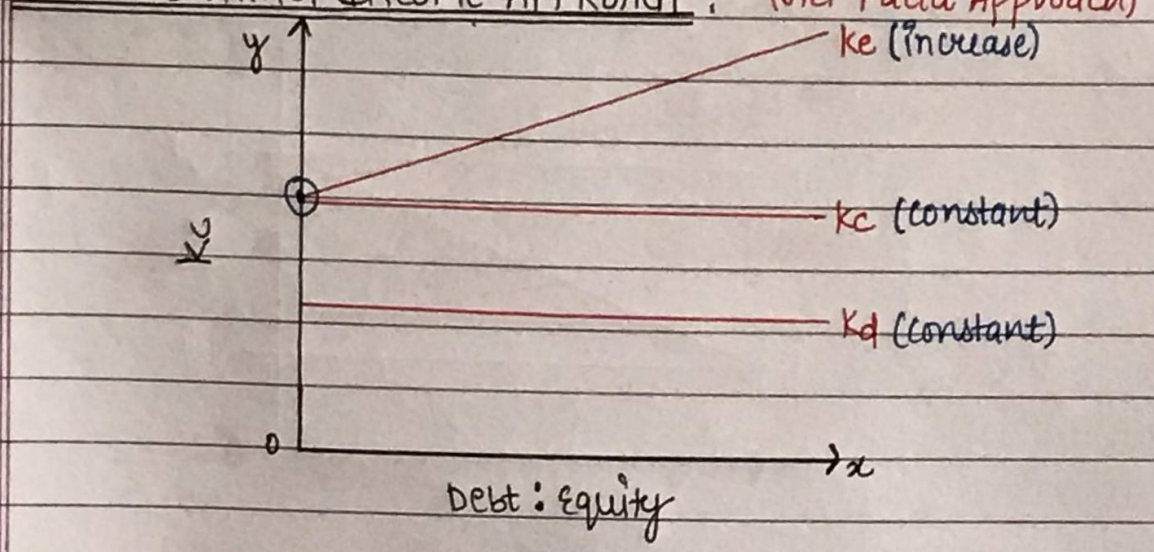
2. NET OPERATING INCOME APPROACH :- (NET Faltu Approach)



Assumptions of Net operating Income Approach :-

- ★ No taxes.
- ★ Kd will remain constant in any debt equity mix.
- ★ With increasing debt in capital structure, Ke will increase and so will risk in exact proportion such that Kc remains same/ constant.

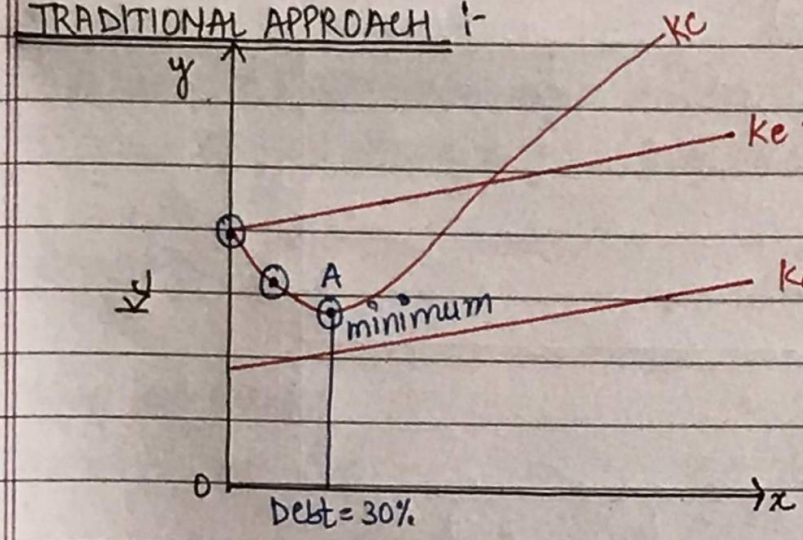
⇒ Profit = Return − cost Demand Price
(C) (C) (C) (C) (C)

- ★ Value of firm is not affected by change in capital structure because Kc remains constant.

- * NO Debt Firm = Unlevered Firm
  Firm Having Debt = levered Firm

- * VF (levered Firm) = VF (Unlevered Firm)
  Hence,
  Kc (levered Firm) = Kc (Unlevered Firm)

3. TRADITIONAL APPROACH :-



* Some level of debt is good, but excess of debt is bad.

Assumptions of Traditional Approach :-

* When initially firm increases debt in capital structure, Kc falls. But later, above a certain level (Point A), both Kd & Ke increases, such that Kc increases.
* The lowest point of the Kc curve (Point A) is the point at which
  > Kc is minimum.
  > It is the optimum debt : equity Ratio.
  > Value of the firm is maximum.

4. MODIGLIANI - MILLER APPROACH :- (MM Approach)

Without Tax (Irrelevance theory) ↓

Same as Net operating Income Approach but with one Addition -

6% 10%

A - E = 100% 50cr

B → D = 50% 25cr
  → E = 50% 25cr

C → D = 70% 70cr
  → E = 30% 30cr

D - E = 100% 50cr

⇒

> EBIT is same.
> Kc (L) = Kc (UL)
> VF (L) = VF (UL)
> Kd is constant.
> Ke (L) > Ke (UL)

With Tax (Relevance theory) ◆

→ Value of A = Value of B
→ Value of A & B ≠ Value of C (Different Capital Employed)
→ Value of A & B ≠ Value of D (Different Risk Class)

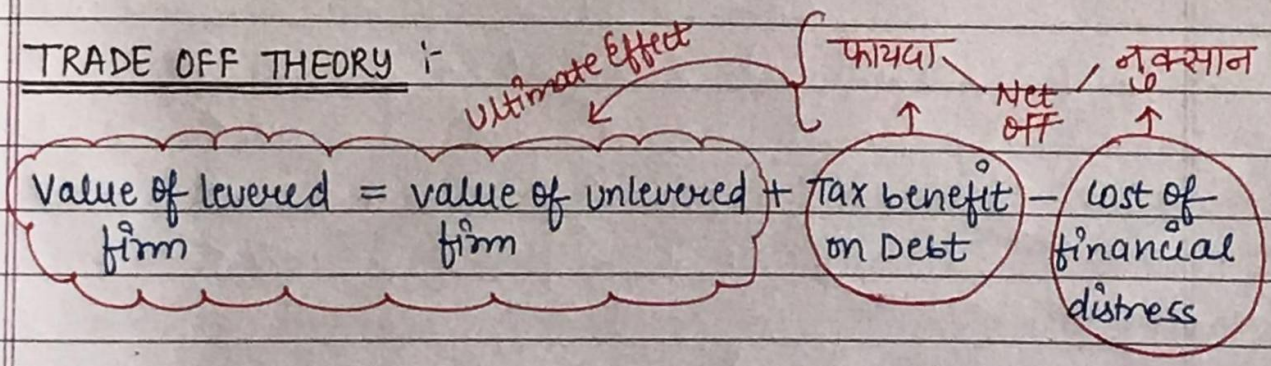
With Tax :-
↓

★ There are taxes.
★ Value of levered firm > Value of unlevered firm to the extent of tax benefit on debt.

Value of levered firm = Value of unlevered firm + Tax benefit on debt (Tax Rate X Debt Amt)

$$V_L = \frac{PAT}{K_e} + (\text{debt} \times \text{tax Rate})$$

5. TRADE OFF THEORY :-



6. PECKING ORDER THEORY :-

★ Debt – When the firm is bullish about the future earnings, Debt can be a great source of finance.

★ Equity – When the firm / company is doubtful about future earnings and the retained earnings is unsufficient, then Equity can be a great source of finance.

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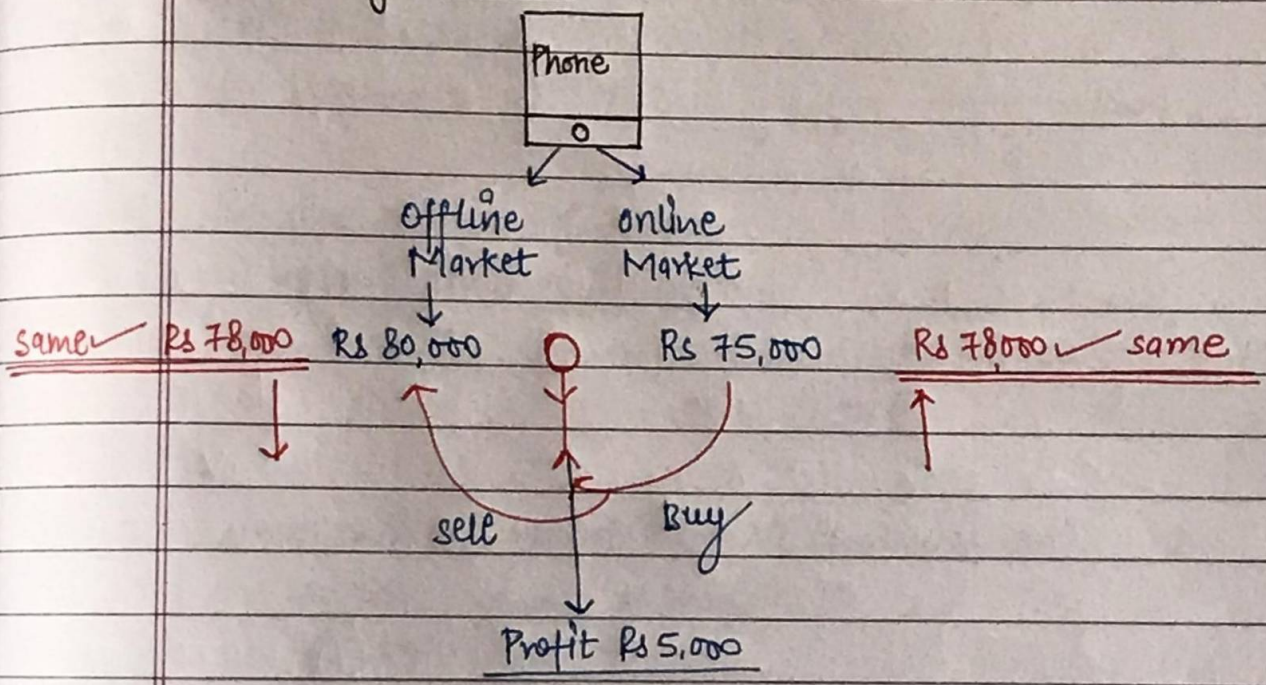
★ **Order of Arrangement of funds :-**

a) Retained Earnings – Internal source of finance.
b) Debt.
c) Equity – (last option)

Arbitrage Process :-



Eg 1 :- There are two companies M Ltd and N Ltd having same earnings before interest and taxes (EBIT) of Rs 20,000. M Ltd is a levered company having a debt of Rs 1,00,000 @ 7% rate of interest. The cost of equity of M Ltd is 10% and of N Ltd is 11.50%. Compute how arbitrage process will be carried on ?

Particulars	M	N
EBIT	20,000	20,000
⊖ Interest (1,00,000 x 7%)	(7,000)	—
EBT / PAT	13,000	20,000
Ke	11.50%	10%
Ve	1,13,043	2,00,000
Vd	1,00,000	—

VF	2,13,043	2,00,000
	↓	↓
	overvalued	undervalued

Arbitrage process exists

* Arbitrage Process (SBI) :-

Step-1 Sell 10 shares of 10% of M Ltd.

= 1,13,043 × 10% = Rs 11,304 ——— 1,300

Step-2 Borrow 10% debt of M Ltd. 2000.

= 1,00,000 × 10% = Rs 10,000

Total Investable funds ⇒ Rs 11,304 + Rs 10,000 ——— 700

⇒ Rs 21,304

Step-3 Invest entire amount in N Ltd (undervalued)

$= \frac{21,304}{2,00,000} \times 100 = 10.652\%$

= 20,000 × 10.652% = Rs 2,130.4

→ Arbitrage Profit = 2,130.4 − 2,000 = Rs 130.40