

CAPITAL STRUCTURE DECISIONS

Combination which capitalize on the wealth.



FINANCIAL MANAGEMENT – MAKE IT EASY TO LEARN
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**CAPITAL
STRUCTURE
DECISION**

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graph TD; A["CAPITAL STRUCTURE DECISION"] --> B["COMPOSITION OF CAPITAL STRUCTURE"]; A --> C["INDEFFERENCE POINT"]; A --> D["CAPITAL STRUCTURE THEORIES"]; D --> E["NET INCOME APPROACH"]; D --> F["NET OPERATING INCOME APPROACH"]; D --> G["MODIGILANI-MILLAR"];
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**COMPOSITION OF
CAPITAL
STRUCTURE**

**INDEFFERENCE
POINT**

**CAPITAL
STRUCTURE
THEORIES**

**NET INCOME
APPROACH**

**NET OPERATING
INCOME
APPROACH**

**MODIGILANI-
MILLAR**



COMPOSITION OF CAPITAL STRUCTURE



MEANING OF CAPITAL STRUCTURE

- Capital structure refers to a mix of sources from where long term borrowings, preference shares, equity shares (including retained earning) required for the capitalization of a company.
- The significance of this topic is to determine the relative proportion of equity and debt. This decision is very important because of it's affect on shareholder's return and risk and, consequently, on the market value of the shares.
- Owner's fund means equity share capital, preference share capital and Internal sources, i.e., reserve and surplus. Borrowed fund may also be classified into various categories like debentures, bank borrowings, unsecured deposits etc. Also funds may be raised indigenously as well as abroad.
- There is no one ideal model, which can be used in all business undertakings and in all the circumstances. The capital structure depends primarily on a number of factors like, nature of industry, government policies, availability of funds etc.

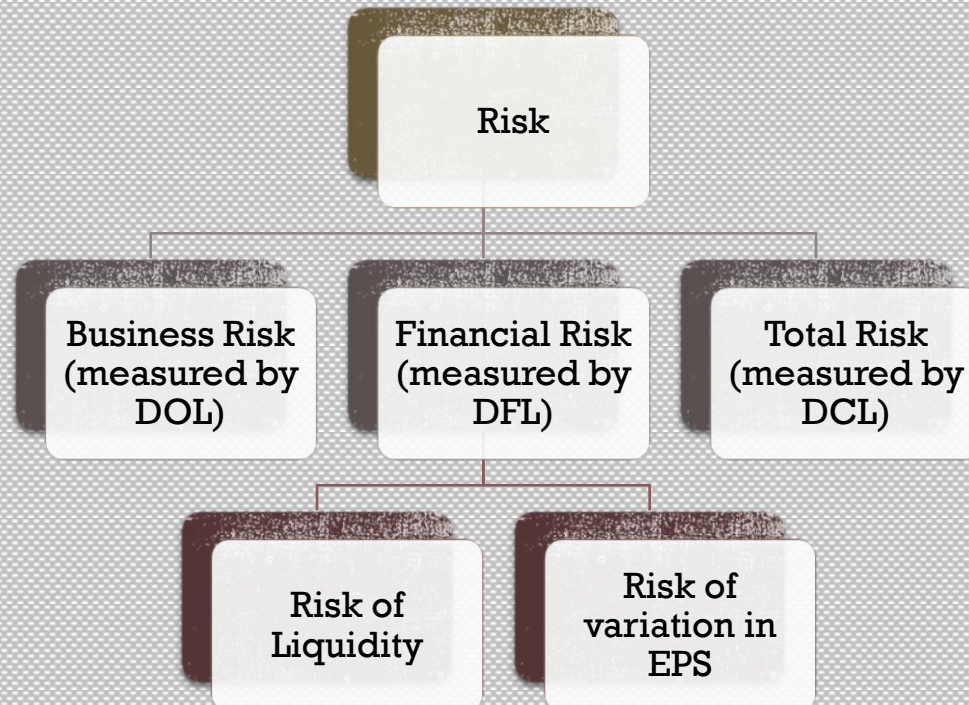


MAJOR CONSIDERATION IN CAPITAL STRUCTURE PLANNING

- Selection of an appropriate capital structure is dependent on number of factors, which in turn depends on the circumstances. But there are three major considerations, which everyone should keep in mind in every situation. These are:

1. Risk.
2. Cost .
3. Control.

- **RISK:-**



Risk of Liquidity of Cash Insolvency

Basis	Periodical payment of returns	Repayments
Borrowed fund	Firm has to pay periodically interest whether it has sufficient cash profits or not.	Lenders may withdraw their funds or firm has to pay it within stipulated time whether it has sufficient cash or not at the time of repayment
- Owner's fund i. Preference capital ii. Equity Capital	It has low risk then debt because in case of cumulative preference shares co. can defer it's dividend payment & in case of non-cumulative preference share co. need not to pay them at all. Least risky source of funds. There is no obligation to pay dividend on equity shares.	Duration of preference shares is greater than debt. It can be issues maximum for up to 20 years. (Issue of irredeemable preference shares is not permissible now). Least risky source of finance. Repayable only at the time of winding up of the company.



Risk of Variation in EPS (Earning Per Share)

- If a firm has higher debt in its capital structure then it will have higher risk of variation in EPS. We know that higher debt means higher financial leverage. Now higher financial leverage works in both the directions positive as well as negative. If ROI is higher than cost of debt it will increase EPS.

$$ROI > K_d = EPS \uparrow$$

(Because, on debt portion of capital employed company will earn more and pay less.)

- But if due to any reasons ROI declines, the company is still required to pay fixed finance charges, i.e., interest on debt. This will result in a sharp decline in EPS. Therefore from this point of view borrowed fund is more risky than owner's fund.

$$ROI < K_d = EPS \downarrow$$

(Because, it will increase the cost over the return)

■ **CONTROL:-**

While determining the capital structure, a company should also consider the control factor. Before the funds from any source the company should answer the following question “**After raising of new funds whether the control of present owner will dilute due?**” and if yes, to what extent?

A comparison of control factor for various sources of finances is as follows:

1. **Equity Share:** When a company issues further equity shares, it automatically dilutes the controlling interest of the present owners. Therefore issue of equity shares are not preferable from the point of view of control.
2. **Preference Shares:** Normally preference shareholders do not have voting right, hence it doesn't dilute the controlling interest of present owners. But in the following circumstances preference shareholders have voting rights:
 - When the resolution placed before the company directly affects their rights.
 - In case of cumulative shares, dividend for last two years has not been paid.
 - In case of non-cumulative shares, dividend for last two years has not been paid or dividend for any 3 years out of last 6 years has not been paid.



3. **Debentures and loan from Bank & Financial Institution**: When a company issues debentures or borrow money from bank/financial institution then firstly, as per terms of debentures trust deed or loan agreement may have to give power to them to appoint one or more directors on board. Secondly, it is clear that in case of debts control factor depends upon terms and conditions.

Many Financial Plans may be devised as follows:

- ✓ Financing through Equity only,
- ✓ Financing through debt only,
- ✓ Financing through debt and equity both, or
- ✓ Combining preference shares under any of the above options and so on.

For choosing among the various alternatives of financial plans, a decision may be taken by calculating EPS and/or considering other relevant factors such as factors of risk and control.

DO YOU HEAR ABOUT “TRADING ON EQUITY”?

When firm is able to earn return on funds employed at a rate higher than the cost of debt financing, the firm in this case may employ debt financing. As more and more borrowed fund are employed by the firm, the benefits accruing to the shareholders will also increase.

This situation is known as “Trading on Equity” or “Favorable Financial Leverage”.

Let's take an example to explain it much better...



Example 1: EBIT = Rs 2,000; Capital Employed = Rs 25,000; Debt = Rs 10,000 with 10% or 8% or 6%; Equity = Rs 15000; No. of Shares = 1500; Tax Rate = 50%. Calculate EPS?

Solution:

	10%	8%	6%
EBIT	2000	2000	2000
Less: Interest	1000	800	600
EBT	1000	1200	1400
Less: Tax @ 50%	500	600	700
PAT	500	600	700
EPS (PAT/No. of Shares)	.33	.4	.46

$$\begin{aligned}
 \text{R.O.I} &= \text{EBIT/Capital Emp.} \\
 &= (2000/25000) \times 100 \\
 &= 8\%.
 \end{aligned}$$

Analysis: As per our given equation $ROI > K_d = EPS \uparrow$, in the above example, ROI of 8% is greater than K_d of 6% that's why EPS in the third situation is greater than remaining two. But, as per $ROI < K_d = EPS \downarrow$, ROI of 8% is less than K_d of 10% and equals to 8% that's why in the I and II situation EPS is less than the III one. This will clearly shows the concept of 'Trading on Equity'.

FINANCIAL BREAK EVEN POINT (FBEP)

It is that level of EBIT at which EPS of capital structure is NIL.

It denotes the level at which EBIT is just sufficient to cover the Interest and Preference Dividend.

Note:

IF FIRM HAS ONLY DEBT AND EQUITY

$$\text{FBEP EBIT} = \text{Interest Charge}$$



Note:

IF FIRM HAS DEBT, EQUITY AND PREFERENCE SHARES

$$\text{FBEP EBIT} = \text{Interest charge} + \frac{\text{Preference Dividend}}{(1 - \text{taxrate})}$$

Example 2: Interest Charge is Rs 100, Preference Divid. is Rs 510, Tax Rate is 40%.
Calculate FBEP.

Solution: $\text{FBEP EBIT} = \text{Interest charge} + \frac{\text{Preference Dividend}}{(1 - \text{taxrate})}$

$$= 100 + 510 / (1 - .40)$$
$$= 100 + 850$$
$$= 950$$

Check:

EBIT	950
- Interest	100
EBT	850
- Tax @ 40%	340
PAT	510
- P.D	510
	0



INDEFERENCE POINT



It enables management to know a point :

- Before which Equity alternative is more favorable to raise necessary finance.
- Beyond which Debt alternative is more favorable to raise necessary finance.
- At which, either of the alternatives is equally favorable.

Indifference Point Formula's

1. IF THERE IS ONLY EQUITY

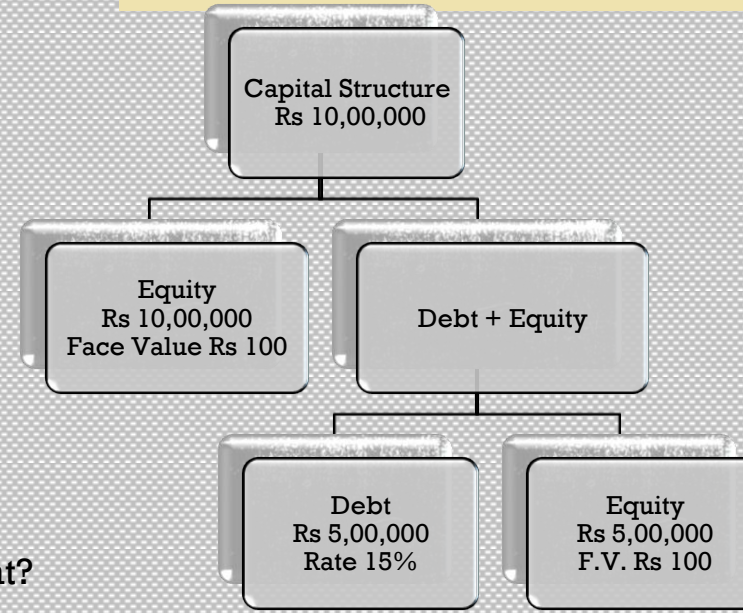
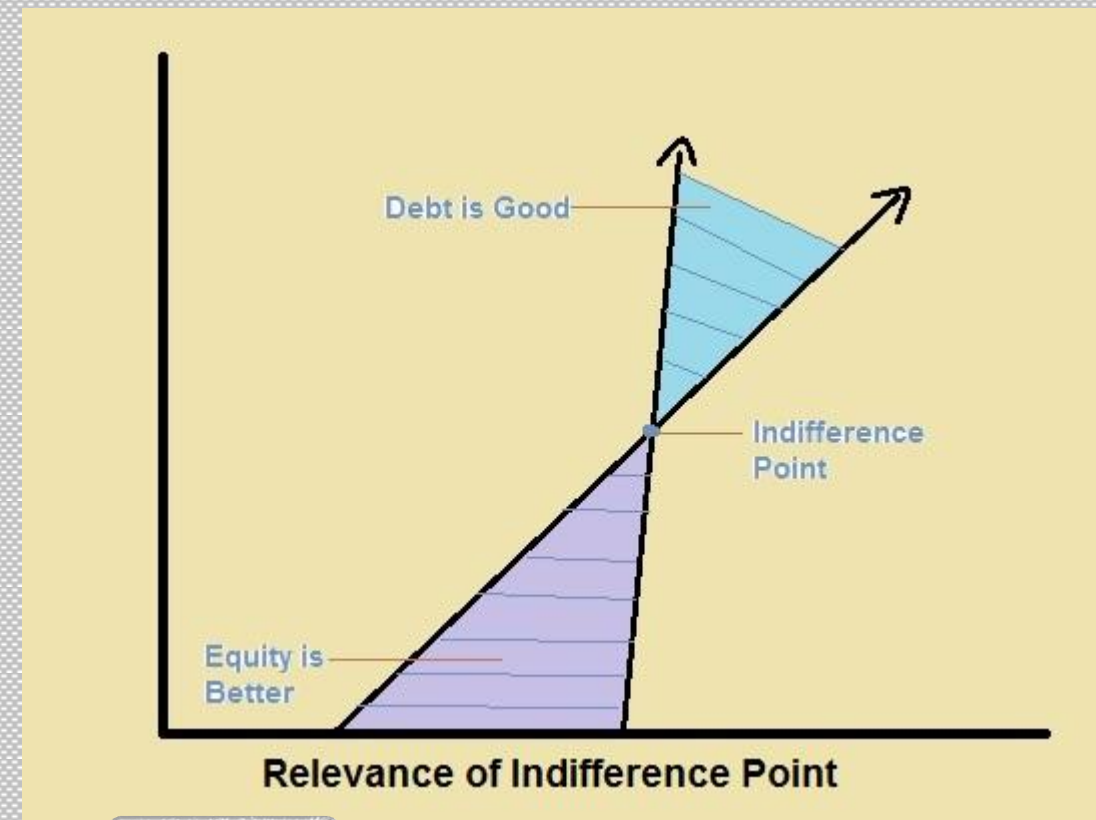
$$= \frac{EBIT \times (1 - \text{TAXRATE})}{\text{NO. OF EQUITY SHARES}}$$

2. IF THERE IS DEBT AND EQUITY

$$= \frac{(EBIT - \text{INTEREST}) \times (1 - \text{TAXRATE})}{\text{NO. OF EQUITY SHARES}}$$

Example 3:

Find out Indifference Point?



Solution: $\frac{EBIT \cdot (1 - \text{TAXRATE})}{\text{NO. OF EQUITY SHARES}} = \frac{(EBIT - \text{INTEREST}) \cdot (1 - \text{TAXRATE})}{\text{NO. OF EQUITY SHARES}}$

$$\frac{EBIT \cdot 5}{10,000} = \frac{(EBIT - 75,000) \cdot 5}{5,000}$$

$$EBIT = 2EBIT - 150,000$$

$$EBIT = 150,000$$

Analysis: If EBIT is Rs 100,000

	Equity	Debt & Equity
EBIT	100000	100000
- Interest	0	75000
EBT	100000	25000
- Tax	50000	12500
PAT	50000	12500
No. of Equity Shares	10000	5000
EPS	5 (50000/10000)	2.5 (12500/5000)



If EBIT is Rs 200,000

	Equity	Debt & Equity
EBIT	200000	200000
- Interest	0	75000
EBT	200000	125000
- Tax	100000	62500
PAT	100000	62500
No. of Equity Shares	10000	5000
EPS	10 (100000/10000)	12.5 (62500/5000)

If EBIT is Rs 150,000

	Equity	Debt & Equity
EBIT	150000	150000
- Interest	0	75000
EBT	150000	75000
- Tax	75000	37500
PAT	75000	37500
No. of Equity Shares	10000	5000
EPS	7.5 (75000/10000)	7.5 (37500/5000)

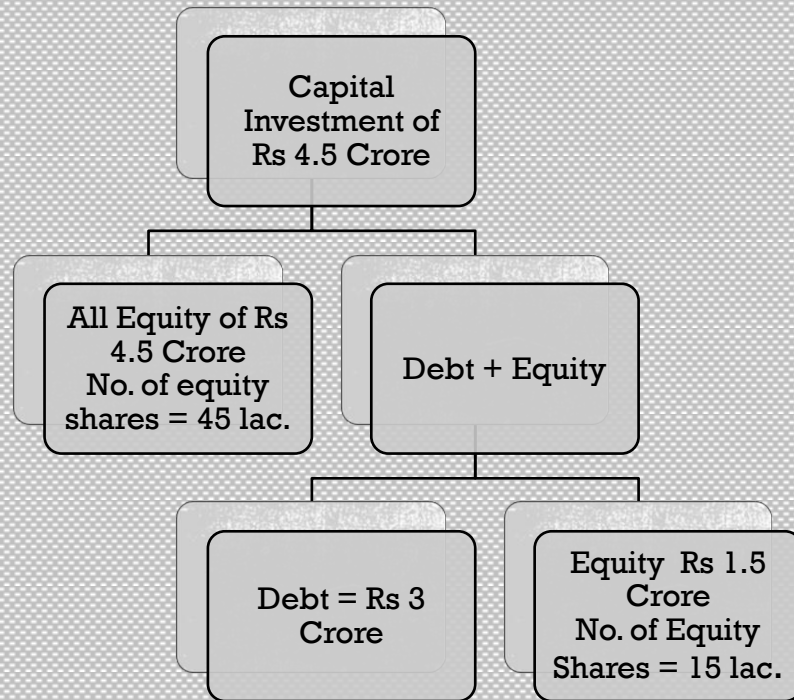


EBIT and Effect in different situations:

EBIT	EQUITY	DEBT & EQUITY
100000 (Less than Indifference Point)	5	2.5
150000 (At Indifference Point)	7.5	7.5
200000 (More than Indifference Point)	10	12.5

Example 4: A new project is under consideration in Zip Ltd., which requires a capital investment of Rs 4.5 crore. Interest on term loan is 12% and Corporate Tax rate is 50%. If the Debt Equity ratio insisted by the financing agencies is 2:1, calculate the point of difference for the project.

Solution:



At Indifference Point –

$$\frac{EBIT * (1 - TAXRATE)}{NO. OF EQUITY SHARES} = \frac{(EBIT - INTEREST) * (1 - TAXRATE)}{NO. OF EQUITY SHARES}$$

$$\frac{EBIT * .5}{45 lac} = \frac{(EBIT - 36 lac) * .5}{15 lac}$$

$$EBIT = 3EBIT - 108 lac$$

$$\begin{aligned} 2EBIT &= 108 lac \\ EBIT &= 108/2 lac \\ &= 54 lac \end{aligned}$$



CAPITAL STRUCTURE THEORIES

NET INCOME APPROACH



Net Income Approach :

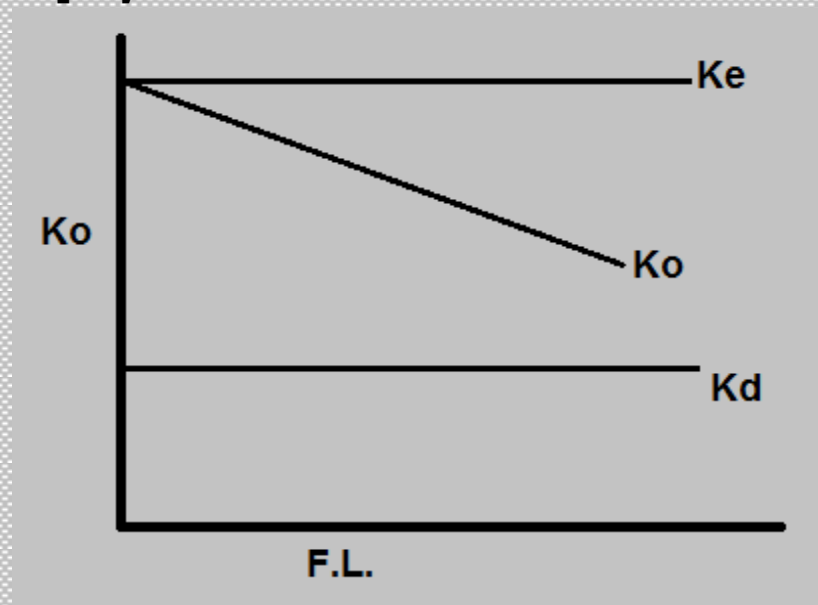
The theory states that there is a relationship between capital structure and the value of the firm and therefore the firm can affect its value by increasing and decreasing the debt proportion in the overall financing.

Assumptions:

- There are only two sources of funds i.e. Debt and Equity.
- Tax Rate cannot be assumed. [No Taxation]
- No floatation cost.
- Both K_d and K_e remain constant.
 - K_d = Cost of Debt.
 - K_e = Cost of Equity.

And increase in F.L. that is use of more and more Debt financing in the capital structure doesn't affect the risk perception of the Equity Investors. (means K_d does not increase.)

- Cost of Debt is less than cost of equity.



Argument:

Increase in cheaper Debt will decrease overall cost (K_o). As K_o decrease the value of the firm increases.

Value of firm = Market Value of Equity + Value of Debt.

M.V. of Equity = Net Income/ K_e (Equity Capitalization Rate)

Example 5: EBIT = Rs 200,000

K_e = 10%

Debt = Rs 500,000

K_d = 6%

Find the value of firm and overall cost of capital.

Solution: Value of Firm = Market Value of equity + Value of Debt.

EBIT	200,000
- Interest	<u>30,000</u>
Net Income	170,000

M.V. of Equity = $170,000/10\%$
= 17,00,000.

Value of firm = $17,00,000 + 500,000$
= 2200,000.

$K_o = (EBIT/Value\ of\ firm)*100$
= $(200,000/2200,000)*100$
= 9.09



Net Operating Income Approach:

This approach is opposite to Net Income Approach. The M.V. of the firm depends upon the Net Operating Profit (EBIT) and overall cost of capital (WACC).

The Financing Mix or the Capital Structure Mix is irrelevant and doesn't affect the value of the firm.

Assumptions:

- There are only two sources of finance i.e. Debt and Equity.
- No floatation cost.
- No tax rate.
- K_o of the firm is constant.
- K_d of the firm is constant.
- If more and more cheaper debt is used then K_e will increase proportionately such that K_o will remain same.\

Thus financing mix is irrelevant and doesn't affect the value of the firm. The value remain same for all types of Debt/Equity mix.

Example 6: EBIT = Rs 200,000

$K_o = 10\%$

Find value of equity and cost of equity, if it's employees 6% debt of (I) Rs 300,000 (ii) Rs 400,000 (iii) Rs 500,000.

Solution:

	A	B	C
EBIT	200000	200000	200000
- Interest	<u>18000</u>	<u>24000</u>	<u>30000</u>
	182000	176000	170000

$$\begin{aligned}K_o &= \text{EBIT/Value of firm ; VOF} = \text{EBIT}/K_o \\&= 200000/10\% \\&= 20,00,000\end{aligned}$$

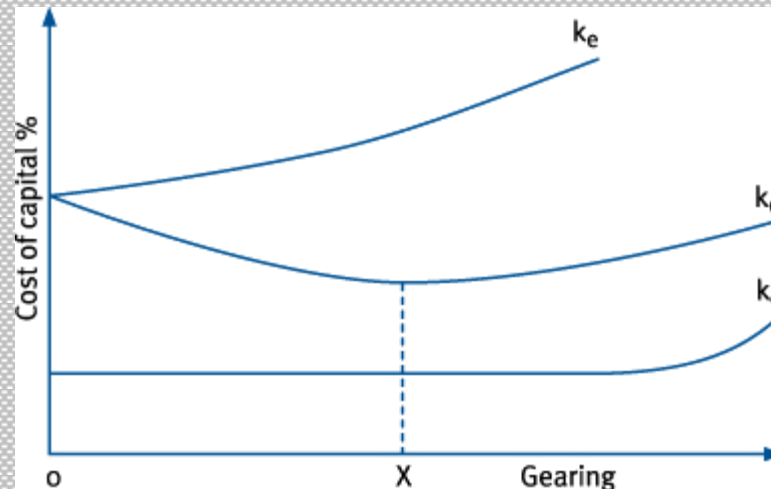
VOF	2000000	2000000	2000000
VOD	<u>300000</u>	<u>400000</u>	<u>500000</u>
VOE	1700000	1600000	1500000



	A	B	C
$K_e =$	10.70%	11%	11.33%
(Net Income/VOE)			

Traditional Approach (Intermediate Approach) :

NIA and NOI has extreme relationship between cost of capital, leverage and value of firm. In practical situation both are unrealistic.



According to this approach, cost of capital comes down upto certain extent due to financial leverage (F.L.) and the value of the firm increases, beyond that point the trend reverses.

At optimal (best) capital structure WACC would be minimum and value would be highest.



MODIGILANI-MILLER (MM HYPOTHESIS)



Assumptions:

- Perfect capital Markets:-
 - Investors are free to buy and sell securities.
 - They can borrow without restriction on the same terms as firm can do.
 - The investors behave rationally.
 - There are no transaction cost.
- No Taxes. (later on this assumption was relaxed).

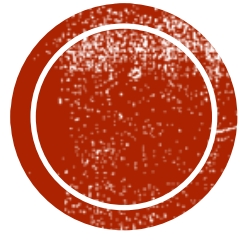
Formulas:

Particulars	No Taxes	Tax Exists
Value of unlevered firm	NOI/K_e $*K_e = K_o...$ No debt exist	$NOI*(1-t.r)/K_e$
Value of levered firm	$V_L = V_U$ If $V_L \neq V_u$ then arbitrage process will be applied.	$V_L = V_U + \frac{Debt * T.R.}{Tax\ saving / Tax\ shield.}$
* T.R. stands for Tax Rate.		

ARBITRAGE PROCESS

- The Process involves selling of securities in overvalued firms and purchase securities in undervalued firms.
- If levered firm is overvalued
 - Investor sell his holdings in levered firm
 - Investor borrows proportionate to his share of debt of his levered firm.
 - Investor purchase securities in unlevered firm equal to his holding in levered firm.
- If unlevered firm is overvalued
 - Investor sell his holdings in unlevered firm.
 - Invest in levered firm securities, equal to his proportionate holding in unlevered firm.





THANK YOU!!

With Best Regards,

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