

Module-5

Capital Structure

Capital Structure refers to the combination or mix of debt and equity which a company uses to finance its long term operations. Raising of capital from different sources and their use in different assets by a company is made on the basis of certain principles that provide a system of capital so that the maximum rate of return can be earned at a minimum cost. This sort of system of capital is known as capital structure.

Total Required Capital

- From Shares
 - Equity Share capital
 - Preference Share Capital
- From Debentures

Factors Influencing Capital Structure

Internal Factors

- Size of Business
- Nature of Business
- Regularity and Certainty of Income
- Assets Structure
- Age of the Firm
- Desire to Retain Control
- Future Plans
- Operating Ratio
- Trading on Equity
- Period and Purpose of Financing

External Factors

- Capital Market Conditions
- Nature of Investors
- Statutory Requirements
- Taxation Policy
- Policies of Financial Institutions
- Cost of Financing
- Seasonal Variations
- Economic Fluctuations
- Nature of Competition

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The optimal or the best capital structure implies the most economical and safe ratio between various types of securities. It is that mix of debt and equity which maximizes the value of the company and minimizes the cost of capital.

Essentials of a Sound or Optimal Capital Structure

- Minimum Cost of Capital
- Minimum Risk
- Maximum Return
- Maximum Control
- Safety
- Simplicity
- Flexibility
- Attractive Rules
- Commensurate to Legal Requirements

Basic Ratio

Sound or Optimal Capital Structure requires (An Approximation):

- Debt Equity Ratio: 1:1
- Earning Interest Ratio: 2:1
- During Depression: one and a half time of interest.
- Total Debt Capital should not exceed 50 % of the depreciated value of assets.
- Total Long Term Loans should not be more than net working capital during normal conditions.
- Current Ratio 2:1 and Liquid Ratio 1:1 be maintained.

Point of Indifference

(EBIT-EPS Analysis)

- It refers to that EBIT level at which EPS remains the same irrespective of different alternatives of debt equity mix.
- At this level of EBIT, the rate of return on capital employed is equal to the cost of debt and this is also known as break-even level of EBIT for alternative financial plans.

Conclusion

- If the Expected EBIT is much more than the Point of Indifference Level - ?
- If the Expected EBIT is lower than the Point of Indifference Level - ?
- If the Expected EBIT is even less than the Fixed Cost - ?

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- Point of Indifference of EBIT - Ascertainment
- Point of Indifference :

$$\frac{(X-R1)(1-T)-PD}{N1} = \frac{(X-R2)(1-T)-PD}{N2}$$

Here,

X = EBIT at Indifference Point

R1 = Interest in Alternative 1

R2 = Interest in Alternative 2

T = Tax Rate

PD = Preference Dividend

N1 = No. of Equity Shares in Alternative 1

N2 = No. of Equity Shares in Alternative 2

Theories of Capital Structure

- Net Income (NI) Theory
- Net Operating Income (NOI) Theory
- Traditional Theory
- Modigliani-Miller (M-M) Theory

Net Income (NI) Theory

- This theory was propounded by “*David Durand*” and is also known as “Fixed ‘Ke’ Theory”.
- According to this theory a firm can increase the value of the firm and reduce the overall cost of capital by increasing the proportion of debt in its capital structure to the maximum possible extent.
- It is due to the fact that debt is, generally a cheaper source of funds because:
 - (i) Interest rates are lower than dividend rates due to element of risk,
 - (ii) The benefit of tax as the interest is deductible expense for income tax purpose.

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Assumptions of NI Theory

- The 'Kd' is cheaper than the 'Ke'.
- Income tax has been ignored.
- The 'Kd' and 'Ke' remain constant.
- Computation of the Total Value of the Firm

Total Value of the Firm (V) = S + D

Where,

$$S = \text{Market value of Shares} = \frac{\text{EBIT} - I}{K_e} = \frac{E}{K_e}$$

D = Market value of Debt = Face Value

E = Earnings available for equity shareholders

K_e = Cost of Equity capital or Equity capitalization rate.

- Computation of the Overall Cost of Capital or Capitalization Rate
- $K_o = \frac{\text{EBIT}}{V}$

Where,

K_o = Overall Cost of Capital or Capitalization Rate

V = Value of the firm

Net Operating Income Theory

- This theory was propounded by "David Durand" and is also known as "Irrelevant Theory".
- According to this theory, the total market value of the firm (V) is not affected by the change in the capital structure and the overall cost of capital (K_o) remains fixed irrespective of the debt-equity mix.
- Assumptions of NOI Theory
- The split of total capitalization between debt and equity is not essential or relevant.
- The equity shareholders and other investors i.e. the market capitalizes the value of the firm as a whole.

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- The business risk at each level of debt-equity mix remains constant. Therefore, overall cost of capital also remains constant.
- The corporate income tax does not exist.
- Computation of the Total Value of the Firm

$$V = \frac{\text{EBIT}}{K_o}$$

K_o

Where,

K_o = Overall cost of capital

- Market Value of Equity Capital

$$S = V - D$$

Where,

S = Market Value of Equity Capital

V = Value of the Firm

D = Market value of the Debt

- Cost of Equity Capital
- $K_e = \frac{\text{EBIT} - I}{S} \times 100$

S

Where,

K_e = Equity capitalization Rate or Cost of Equity

I = Interest on Debt

S = Market Value of Equity Capital

Traditional Theory

This theory was propounded by Ezra Solomon.

According to this theory, a firm can reduce the overall cost of capital or increase the total value of the firm by increasing the debt proportion in its capital structure to a certain limit. Because debt is a cheap source of raising funds as compared to equity capital.

Effects of Changes in Capital Structure on ' K_o ' and ' V '

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As per Ezra Solomon:

- First Stage: The use of debt in capital structure increases the ' V ' and decreases the ' K_o '. Because ' K_e ' remains constant or rises slightly with debt, but it does not rise fast enough to offset the advantages of low cost debt. ' K_d ' remains constant or rises very negligibly.
- Effects of Changes in Capital Structure on ' K_o ' and ' V '
- Second Stage: During this Stage, there is a range in which the ' V ' will be maximum and the ' K_o ' will be minimum. Because the increase in the ' K_e ', due to increase in financial risk, offset the advantage of using low cost of debt.
- Effects of Changes in Capital Structure on ' K_o ' and ' V '
- Third Stage: The ' V ' will decrease and the ' K_o ' will increase. Because further increase of debt in the capital structure, beyond the acceptable limit increases the financial risk.

Computation of Market Value of Shares & Value of the Firm

$$S = \frac{EBIT - I}{K_e}$$

K_e

$$V = S + D$$

$$K_o = \frac{EBIT}{V}$$

V

Modigliani-Miller Theory

- This theory was propounded by Franco Modigliani and Merton Miller.
- They have given two approaches
 - In the Absence of Corporate Taxes
 - When Corporate Taxes Exist
- In the Absence of Corporate Taxes
- According to this approach the ' V ' and its ' K_o ' are independent of its capital structure.
- The debt-equity mix of the firm is irrelevant in determining the total value of the firm.
- Because with increased use of debt as a source of finance, ' K_e ' increases and the advantage of low cost debt is offset equally by the increased ' K_e '.
- In the opinion of them, two identical firms in all respect, except their capital structure, cannot have different market value or cost of capital due to Arbitrage Process.

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Assumptions of M-M Approach

- Perfect Capital Market
- No Transaction Cost
- Homogeneous Risk Class: Expected EBIT of all the firms have identical risk characteristics.
- Risk in terms of expected EBIT should also be identical for determination of market value of the shares
- Cent-Percent Distribution of earnings to the shareholders
- No Corporate Taxes: But later on in 1969 they removed this assumption.
- When Corporate Taxes Exist

M-M's original argument that the 'V' and 'Ko' remain constant with the increase of debt in capital structure, does not hold good when corporate taxes are assumed to exist.

They recognised that the 'V' will increase and 'Ko' will decrease with the increase of debt in capital structure.

They accepted that the value of levered (VL) firm will be greater than the value of unlevered firm (Vu).

Computation

Value of Unlevered Firm

$$Vu = \frac{EBIT(1 - T)}{Ke}$$

Ke

Value of Levered Firm

$$VL = Vu + Dt$$

Where,

Vu : Value of Unlevered Firm

VL : Value of Levered Firm

D : Amount of Debt

t : tax rate