CHAPTER-3

CAPITAL STRUCTURE DECISIONS:
A THEORETICAL FRAMEWORK

Capital is the most important factor of production. The funds generated internally by the company may not be sufficient to run the company. Therefore, it would go public for raising the funds. The two principle sources of finance for a firm are ownership securities i.e., equity and preference shares, and creditorship securities i.e., debentures and/or bonds. A firm has to maintain a proper mix of these two securities in a manner that an ideal trade off is maintained between shareholders risk and return in maximizing their wealth. Thus the mix of sources of funds from which the long –term funds required by a business are procured is referred to as capital structure.

The company has to plan for a proper capital structure. In case of unplanned capital structure, the firms fail in economizing the use of their funds. The firm should aim at an optimum capital structure. An optimum capital structure is obtained when the market value of the share is maximum or the average cost of capital is minimum or the marginal real cost of each source of funds is the same.

"It is a view echoed in different ways in a series of wide-ranging interviews with chief financial officers, corporate treasurers, financiers, consultants and experts asked to discuss the role of capital structure in a company's operations and whether it is possible to construct an ideal configuration. No one doubts that capital structure is central to the fiscal health of a commercial enterprise. It's very difficult to have an ideal structure in today's world; there's so much volatility," says Dave Chavenson, treasurer at Flowserve Corp.

A fundamental question in financial economics is: How do firms choose their capital structures? Extant empirical research on this question has focused primarily on the presence of taxes and bankruptcy costs (e.g., Scott (1976)), information asymmetry (e.g., Myers and Majluf (1984)), and, more recently, market timing behavior (e.g., Baker and Wurgler (2002)).

Importance and Essential Features of a Sound Capital Structure Decision:
The important reason for the firm to use debt in addition to share capital in its capital structure is to increase its earnings. The use of debt has the effect of increasing the returns on equity capital. But, the financial risk of the company increases. This has the
effect of bringing the company into insolvency and also creating variations in the return to equity shareholders. Even though the management of every business realizes that there is certain amount of risk, yet, it is prepared to employ certain level of debt in the capital structure. if this level is exceeded, the tendency on the part of the investors to reduce the price they would pay both for the debt and equity capital would also increase. This intern will have an unfavorable effect on the cost of capital. Therefore, an optimum capital structure is one that maximizes the market value of the securities in order to reduce or minimizes the cost of capital. The return to the suppliers of funds in a competitive market depends upon the degree of risk he is taking. Since the creditor has a prior claim to the equity shareholder in the matter of repayment of debt amount and interest, the latter gets a return only after satisfying the claims of the creditors. Therefore, the risk of the creditors is less than the owner and cost of the business should be greater for equity funds than for debt. The cost here is the amount foregone. As a result, debt is cheaper source of funds than equity.

A point will be reached at which the firm will find the use of additional debt is being more expensive than the addition of equity shares. When the investors find that the risk is increased, they will demand higher rate of interest. High leverage will make the position of equity shares more firms and thereby the shareholder return will vary.

Financing with debt will generally result in higher earnings per share than financing by the additional shares upto a certain point; the increased earnings will result in an increase in the value per share.

The financial manager of a company is expected to develop an appropriate capital structure, which is most advantageous to the company. A suitable capital mix can be developed only when all the relevant factors are properly analyzed and balanced. The capital should be planned keeping in view the interests of the equity shareholders and the financial requirements of a company. The equity shareholders being the owners of the company and the providers of risk capital would be concerned about the ways of financing a company’s operations. However, the interests of other groups, such as employees, customers, creditors, society and government should also be given reasonable consideration. When the company lays down its objective in terms of the shareholders’ wealth maximization, it is generally compatible with the interests of other groups.
The following are the essential features of a sound capital structure decision.

**Return:** The capital mix of a company should be most advantageous. It is expected that it should generate maximum returns to the shareholders without additional cost.

**Risk:** The solvency of the company is threatened by excessive use of debt. A firm should avoid undue financial/business risk with the increase of debt. Thus, debt should be employed judiciously so that the firm is not exposed to significant risk.

**Flexibility:** Capital Structure of a firm should be flexible. A company should be able to adapt its capital structure with a minimum cost and delay according to circumstances.

**Capacity:** The use of debt should be within the capacity of a firm. The firm should be in a position to meet its obligations in paying the loan and interest charges.

**Control:** Capital structure should involve minimum possible risk of loss of control of the company.

**Agreement:** A sound capital structure must avoid undue restrictions in agreement of debt.

CFOs and Other finance officers say that one size doesn't fit all, but that capital structure sends key signals to the capital markets, lenders and other important financing sources. Estimation of capital requirements for current and future needs is important for a firm. Equally important is the determining of capital mix. Equity and debt are the two principle sources of finance of a business. But what should be the proportion between debt and equity in the capital structure of a firm? How much financial leverage should a firm employ? These questions are to be answered.

**THEORIES OF CAPITAL STRUCTURE**

Different authors have propounded different kinds of theories. The main contributors to the theories are Durand, Ezra Solomon, Modigliani and Miller. The important theories are discussed below:

1. Net Income Approach
2. Net Operating Income Approach
3. Traditional Approach
4. Modigliani and Miller Approach
**Net Income Approach**

According to this approach, a firm can minimize the weighted average cost of capital and increase the value of the firm as well as market price of equity shares by using debt financing to the maximum possible extent. The theory propounds that a company can increase its value and reduces the overall cost of capital by increasing the proportion of debt in its capital structure. This approach is based upon the following assumptions.

(i) The cost of debt is less than the cost of equity.
(ii) There are no taxes
(iii) The risk perception of investors is not changed by the use of debt.

The line of argument in favour of net income approach is that as the proportion of debt financing in capital structure increase, the proportion of a less expensive source of funds increases. This results in the decrease in overall (weighted average) cost of capital leading to an increase in the value of the firm. The reasons for assuming cost of debt to be less than cost of equity are that interest rates are usually lower than dividend rates due to element of risk and the benefit of tax as the interest is a deductible expense.

The total market value of a firm on the basis of Net Income Approach can be ascertained as below:

\[ V = S + D \]

Where, 
\[ V = \text{Total Market value of a firm} \]
\[ S = \text{Market value of equity shares} \]

\[ \frac{\text{Earnings Available to Equity Shareholders (NI)}}{\text{Equity Capitalization Rate}} \]

\[ D = \text{Market value of debt. And.} \]

Overall Cost of Capital or weighted average Cost of Capital can be calculated as :

\[ \frac{\text{EBIT}}{\text{V}} \]

The optimum capital structure would occur at the point where the value of the firm is maximum and the overall cost of capital is minimum. Under the Net Income approach the firm will have the maximum value and the lowest cost of capital when it is almost debt-financed.
Net Operating Income Approach

This theory as suggested by Durand is another extreme of the effect of leverage on the value of the firm. It is quite opposite to the net income approach. According to this approach, change in the capital structure of a company does not affect the market value of the firm and the overall cost of capital remains constant irrespective of the method of financing. It implies that the overall cost of capital remains the same even when there is a change in the proportion of debt in the capital structure. Thus there is nothing as an optimal capital structure and every capital structure is the optimum capital structure. This theory presumes that:

(i) the market capitalizes the value of the firm as a whole;
(ii) the business risk remains constant at every level of debt equity mix;
(iii) there are no corporate taxes.

The reasons propounded for such assumptions are that the increased use of debt increases the financial risk of the equity shareholders and hence the cost of equity increases. On the other hand, the cost of debt remains constant with the increasing proportion of debt, as the financial risk of the lenders is not affected. Thus, the advantage of using the cheaper source of funds, i.e., debt is exactly offset by the increased cost of equity.

The value of a firm on the basis of Net Operating Income Approach can be determined as below:

\[ V = \frac{EBIT}{Ko} \]

Where,

\[ V = \text{Value of a firm} \]
\[ EBIT = \text{Net operating income or Earnings before interest and tax} \]
\[ Ko = \text{Overall cost of capital} \]

The market value of equity, according to this approach is the residual value, which is determined by deducting the market value of debentures from the total market value of the firm.

\[ S = V - D \]

Where,

\[ S = \text{Market value of equity shares} \]
\[ V = \text{Total market value of a firm} \]
\[ D = \text{Market value of debt} \]
The Traditional Approach

The traditional approach also known as intermediate approach is a compromise between the two extremes of net income approach and net operating income approach. According to this theory, the value of the firm can be increased initially or the cost of capital can be decreased by using more debt, as the debt is a cheaper source of funds than equity. Thus, optimum capital structure can be reached by a proper debt–equity mix. Beyond a particular point, the cost of equity increases because increased debt increases the financial risk of the equity shareholders. The advantage of cheaper debt at this point of capital structure is offset by increased cost of equity after this there comes a stage, when the increased cost of equity cannot be offset by the advantage of low cost debt. Thus, overall cost of capital, according to this theory, decreases up to a point, remains more or less unchanged for moderate increase in debt thereafter; and increases or rises beyond a certain point. Even the cost of debt may increase at this stage due to increased financial risk.

The validity of the traditional position has been questioned on the ground that the market value of the firm depends upon its net operating income and risk attached to it. The form of financing can neither change the net operating income nor the risk attached to it. It simply changes the way in which the income is distributed between equity-holders and debt-holders. Therefore, firms with identical net operating income and risk, but differing in their modes of financing, should have same total value. The traditional view is criticized because it implies that totality of risk incurred by all security holders of a firm can be altered by changing the way in which this totality of risk is distributed among the various classes of securities.

Modigliani and Miller also do not agree with the traditional view. They criticize the assumption that the cost of equity remains unaffected by leverage up to some reasonable limit. They assert that sufficient justification does not exist for such an assumption. They do not accept the contentions that moderate amounts of debt in sound firms do not really add very much to the riskiness of the shares. However, the argument of the traditional theorists that an optimum capital structure exists can be supported on two counts: the tax deductibility of interest charges and market imperfections.
Modigliani and Miller Approach (M&M hypothesis)

Modigliani and Miller hypothesis is identical with the Net Operating Income approach if taxes are ignored. However, when corporate taxes are assumed to exist, their hypothesis is similar to the Net Income Approach.

(a) In the absence of taxes The theory proves that the costs of capital is not affected by changes in the capital structure or say that the debt–equity mix is irrelevant in the determination of the total value of a firm. The reason argued is that though debt is cheaper to equity, with increased use of debt as a source of finance, the cost of equity increases. This increase in cost of equity offsets the advantage of the low cost of debt. Thus, although the financial leverage affects the cost of equity, the overall cost of capital remains constant. The theory emphasises the fact that a firm’s operating income is a determinant of its total value. The theory further propounds that beyond a certain limit of debt, the cost of debt increases (due to increased financial risk) but the cost of equity falls there by again balancing the two costs. In the opinion of Modigliani & Miller, two identical firms in all respects except their capital structure cannot have different market values or cost of capital because of arbitrage process. In case two identical firms except for their capital structure have different market values or cost of capital, arbitrage will take place and the investors will engage in ‘personal leverage’ (i.e. they will buy equity of the other company in preference to the company having lesser value) as against the corporate leverage”; and this will again render the two firms to have the same total value.

The Modigliani and Miller approach is based on the following assumptions:

(i) No taxes: there are any corporate taxes.

(ii) Perfect capital markets: Securities (shares and debt instruments) are traded in the perfect capital market situation. This specifically means that (a) investors are free to buy or sell securities; (b) they can borrow without restrictions at the same terms as the firms do; and (c) they behave rationally. It is also implied that the transaction costs, i.e., the cost of buying and selling securities, do not exist.

(iii) Homogenous risk classes: The expected earnings of all the firms have identical risk characteristics.
(iv) Risk: Risk to investors depends upon the random fluctuations of expected earnings and the possibility that the actual value of the variables may turn out to be different from their best estimates.

(v) Full payout: All earnings are distributed to the shareholder, which means 100 percent payout.

Criticism of the M-M Hypothesis
The arbitrage process is the behavioral foundation of the M-M hypothesis. The shortcomings of this hypothesis lie in the assumption of perfect capital market in which arbitrage is expected to work. Due to the existence of imperfections in the capital market, arbitrage may fail to work and may give rise to discrepancy between the market values of levered and unlevered firms. The arbitrage process may fail to bring equilibrium in the capital market for the following reasons:

Discrepancy in lending and borrowing rates: The assumption that the firms and individuals can borrow and lend at the same rate of interest does not hold good in practice. Because of the substantial holding of fixed assets, firms have a higher credit standing. As a result, they are able to borrow at lower rates of interest than individuals. If the cost of borrowings to an investor is more than the firm’s borrowing rate, then the equalization process will fall short of completion.

Non-substitutability of personal and corporate leverages: It is incorrect to assume that “personal (home made) leverage” is a perfect substitute for “corporate leverage”. The existence of limited liability of firms in contrast with unlimited liability of individuals clearly places individuals and firms on a different footing in the capital markets. If a levered firm goes bankrupt, all investors stand to lose to the extent of the amount of the purchase price of their shares. But if an investor creates personal leverage, then in the event of the firm’s insolvency, he would lose not only his principal in the shares of the unlevered company, but also be liable to return the amount of his personal loan.

Transaction costs: The existence of transaction costs also interferes with the working of arbitrage. Because of the costs involved in the buying and selling securities, it would become necessary to invest a greater amount in order to earn the same return. As a result, the levered firm will have a higher market value.

Institutional restrictions: Institutional restrictions also impede the working of arbitrage. Durand points out that “home –made” leverage is not practically feasible as a number of institutional investors would not be able to substitute personal leverage
for corporate leverage, simply because they are not allowed to engage in the “home-made” leverage.

Existence of Corporate tax: The existence of interest charges gives the firm a tax advantage, which allows it to return to its equity and debt holders a larger stream of income than it otherwise could have. Hence, the total returns to debt and equity holders from the unlevered firm are less than that of levered firm. Hence, the total market value of a levered firm should tend to exceed that of the unlevered firm for this reason.

(b) When the corporate taxes are assumed to exist Modigliani and Miller, in their article of 1963 have recognized that the value of the firm will increase or the cost of capital will decrease with the use of debt on account of deductibility of interest charges for tax purpose. Thus, the optimum capital structure can be achieved by maximizing the debt mix in the equity of a firm.

According to the M&M approach, the value of a firm unlevered can be calculated as:

\[
\text{Value of unlevered firm (Vu)} = \frac{\text{Earnings before Interest & Tax (EBIT)}}{\text{Overall Cost of capital } (1-t)}
\]

\[
\text{VL} = \text{VU} + tD
\]

Where, \( VU \) is value of unlevered firm and, \( tD \) is the discounted presented value of the tax savings resulting from the tax deductibility of the interest charges, \( t \) is the rate of tax and \( D \) the quantum of debt used in the mix.

We can write equation (1) in its expanded form as follows:

\[
\text{VL} = \frac{\bar{X} (1-T)}{\text{KU}} + \frac{Tkd}{\text{Kd}} \frac{D}{Kd}
\]

Where \( \text{VL} \) is the value of the firm with \( \bar{X} (1-T) \) is perpetual operating income stream of the pure equity firm, \( \text{KU} \) is the pure equity capitalization rate, \( \text{Kd} \) is the expected rate of return on debt, \( D \) is debt and \( T \) is the corporate tax rate.

Equation (1) implies that when corporate tax rate, \( T \), is positive \( (T >0) \), the value of the levered firm will increase continuously with debt. Thus theoretically the value of the firm will be maximum when it employs 100 percent debt.
Modigliani and Miller’s ‘tax corrected’ view suggests that because of the tax deductibility of interest charges a firm can increase its value or lower its cost of capital continuously with leverage. Thus optimum capital structure is reached when the firm employs 100 percent debt. But the observed experience does not exactly support this view. In practice firms do not employ large amounts of debt, nor are lenders ready to tend beyond certain limits. Modigliani and Miller suggest that firms would adopt a target debt-ratio so as to violate the limits of the debt level imposed by lenders. They state existence of a tax advantage for debt financing does not necessarily mean that corporations should at all times seek to use the maximum possible amount of debt in their capital structure. There are limitations imposed by lenders as well as many other dimensions in the real world problems of financial strategy which are not fully comprehended within the framework of static equilibrium models. These additional considerations which are typically grouped under the need for preserving flexibility will normally imply the maintenance by the corporations of substantial reserve of untapped borrowing powers.

Some Factors determining the capital structure

The capital structure of a concern depends upon a large number of factors and every factor has its own importance and their influence changes over a period of time. The financial manager has to study the pros and cons of the various sources of finance so as to select the most advantageous capital structure. The factors influencing capital structure are as follows.

1. Financial leverage or trading on equity
   The use of long-term fixed interest bearing debt and preference share capital along with equity share capital is called financial leverage or trading on equity. Debt is employed by a firm to earn more from the use of these resources than their cost so as to increase the return on owner’s equity. But leverage can operate adversely if the rate of interest on debt is more than the expected rate of earnings of the firm. Hence capital structure has to be carefully planned.

2. Stability of sales and Growth
   The capital structure of a firm is highly influenced by the growth and stability of its sales. Stability of sales indicates that the firm will be able to meet its fixed
commitments of interest payments and repayment of debt without any difficulty. The firm can use a higher level of debt if the sales remain fairly stable. Similarly rate of growth of sales indicate that the firm can use greater level of debt for financing the firm. On the other hand a fluctuating sale is not desirable for financing the firm through debt.

3. Cost of capital
   There is a cost for every rupee invested in a firm. Cost of capital refers to the minimum return expected by its suppliers. The return expected by the suppliers of capital depends upon the risk they have to undertake. Thus, while designing capital structure a finance manager must make an effort to minimize the overall cost of capital.

4. Cash flow ability to service debt
   Debt servicing capacity is another important factor influencing capital structure. A firm, which generates larger and stable cash inflows, can employ more debt in its capital structure compared to the one, which has unstable and lesser ability to generate cash inflows.

5. Nature and size of business
   Capital structure can differ according to nature and size of business. Public utility concerns have a different capital structure as compared to other manufacturing concerns. Public utility concerns may employ more of debt because of stability and regularity of their earnings. On the other hand, a concern, which cannot provide stable earnings due to nature of its business, will rely mainly on equity capital. Similarly small companies mainly depend upon owned capital as it is difficult for them to raise long term loans on reasonable terms and also issue equity and preference shares.

6. Control
   When a company raises funds through equity shares the control of existing shareholders is diluted. Hence they prefer debt financing. However large amount of debt will result in ultimate bankruptcy of the firm due to heavy burden of interest and fixed charges.

7. Flexibility
   Flexibility is one of the most serious considerations in setting up the capital structure. Flexibility means the firm’s ability to adapt its capital structure to the needs of the
changing conditions. The company should be able to raise funds, without undue delay and cost, whenever needed to finance the profitable investments.

8. Requirements of investors

The requirement of investors is another significant factor influencing the capital structure decision. Bold investors are willing to take risk, prefer capital gains and control and hence equity capital is best suited to them. Over-cautious and conservative investors prefer safety of investments and stability in returns and hence debentures suit them. Investors who are less cautious in approach prefer preference share capital, which provides stability in returns. Thus when debt financing is used it is necessary that it meet both the institutional as well as private investors’ requirements.

9. Capital market conditions

The choice of the securities is also influenced by the market conditions. If the share market is depressed and there are pessimistic business conditions, the company should not issue equity shares, as investors would prefer safety. But in case there is boom period, it is favorable for issue of equity shares.

10. Assets Structure

Liquidity and composition of assets also influence the capital structure. If the fixed assets constitute a major portion of the total assets of the company, it may be possible for the company to raise more of long term debts.

11. Purpose of financing

If funds are required for a productive purpose, debt could be used as a source of financing as interest could be paid out of profits generated from the investments. On the other hand, if the funds are required for unproductive purpose or general development on permanent basis equity capital should be preferred.

12. Period of finance

The period for which finance is required also plays an important role in determining appropriate capital mix. If funds are required for a limited period of time, debentures or redeemable preference shares are to be preferred. On the other hand equity share capital is more appropriate in case funds are needed on permanent basis.

13. Floatation Costs
Flotation costs are incurred only when the funds are externally raised. Generally, the cost of floating a debt is generally less than the cost of floating equity and hence it forces managers to raise debt.

14. Managerial attitude or Personal considerations
Managerial attitude (conservatism or aggressiveness) with regard to borrowing, some managers are more aggressive than others and Personal considerations and abilities of the management play an important role in determining the capital structure of a firm. Management, which are experienced and are enterprising, may use more debt compared to the less experienced and conservative management.

15. Corporate tax rate
Companies prefer debt as a source of financing since interest on debt is tax deductible, whereas dividend on share is not an allowable expense for that purpose.

16. Legal requirements
The government has issued guidelines for the issue of shares and debentures. These guidelines are significant as they lay down a framework within which capital structure decision has to be taken.

17. Agency Costs
There may exist a conflict of interest among shareholders, debt holders and management. These conflicts may give rise to agency problems, which involve agency costs. Agency costs have their influence on a firm’s capital structure. The conflict between shareholders and debt holders arise because of the possibility of shareholders transferring the wealth of debt holders in their favour. The agency problems arising from the conflicts between shareholders, debt holders and managers are handled through monitoring and restrictive covenants, which involve costs. The implications of agency costs for capital structure are that management should use debt to the extent that it maximizes the shareholders’ wealth.

18. Growing Opportunities
A company with a large range of growing opportunities needs a more flexible capital structure; because of the higher probability that new projects that demand capital arises.
An optimum capital structure should satisfy the conditions of profitability, solvency, control, flexibility and conservatism. But, these factors are contradictory to each other. Therefore, the above considerations cannot be simultaneously taken care of, to the fullest possible extent. More the profitability less would be the solvency position. From the control point of view, debt is preferred, whereas, from conservatism point of
view, it is rejected and on the other hand equity is preferred. A proper balancing has to be done and a decision that is in the best interest of the business is to be made.

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REFERENCES

12. The MM hypothesis have been widely debated and criticized. The basic criticism of the MM hypothesis are contained in Durand, op.cit. and Ezra Soloman, Leverage and the cost of capital,Journal of Finance,XVIII (may 1963). Also see Pandey, I.M., Capital Structure and Cost of Capital, Vikas reprint 1996.