

Efficient Capital Structure Mix during Uncertain Economic Environment



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Uncertainty is the law of nature since every activity in the world is related to each other and the effect of one have an effect on the other. In this paper we have tried to find out what are the environmental factors that are available in uncertain environment. Since the main aim of business is to effectively utilise its resources the finance manager should always follow the principle to maximise the use of available resources through efficient capital structure mix. Here we tried to find the capital structure policy during uncertain environment and management's challenges to meet it.

1. Introduction and Literature Review

In finance it is evidently observed that the financial leverage has a stranger and varied effect on earnings per share, such that for a given level of change in EBIT, there is more than a proportionate change in the same direction in EPS. We here can not undermine the fact that the financial leverage also increases the financial risk, since the risk of possible insolvency arises out of inadequacy of unavailable cash as well as the variability in the earnings available to the ordinary shareholders. Here the main objective of any firm is to maximise the equity shareholder's value, hence it is important for any firm to select a financing mix or an efficient capital structure or optimum capital structure that will help it in achieving the objective of the financial management. Capital structure is the proportion of debt and preference and equity shares on a firm's balance sheet and it is the most debatable topic and continues to keep researchers thinking. Capital structure states the mix of debt and equity used by a firm in financing its assets. The capital structure decision is one of the most important decisions made by financial management. The capital structure decision is at the center of many other decisions in the area of corporate finance which includes dividend policy, project financing, issue of long term securities, financing of mergers, buyouts and so on. One of the many objectives of a financial manager in any corporate is to maximize the wealth of shareholders by ensuring the lower cost of capital. Capital structure is one of the active financial measures of management to manage the cost of capital. An optimal capital structure is reached at a point where the cost of the capital is minimum and that is the efficient point of mix of capital. Hence it is called efficient capital structure mix.

The modern theory of capital structure began with the notable paper of Modigliani and Miller published in 1958 (Harris and Raviv 1991). In this paper, they supported the net operating income approach and rejected the traditional theory of capital structure. They contend in their first proposition that the market value of any firm is independent to its capital structure and is given by capitalizing its expected return at the rate appropriate to the risk class (Modigliani and Miller 1958). This was theoretically very sound but was based on the assumptions of perfect capital market and no tax world, which were not valid in reality. So, this was corrected in 1963. In correction, they incorporated the effect of tax on value and cost of the capital of the firm (Modigliani and Miller 1963); and contend that, in the presence of corporate tax, the value of the firm varies with the variation of the use of the debt due to tax benefit on interest bill (Baral 1996).

In 1976, Miller propounded the next version of irrelevancy theory of capital structure and he said that capital structure decisions of firms with both corporate and personal taxes are irrelevant (Miller 1977). In 1974, Myers and Pogue developed three theories-the lenders chickens out first, the managers chickens out first, and the shareholders chickens out first-of debt capacity (Myers and Pogue 1974). The third theory-the shareholders chickens out first-pleads the optimal capital structure. In the 1970s, a number of scholars developed debt capacity theory. Among them, Scott's multi-period model of debt is considerable debt capacity theory.

This theory pleads that the value of non-bankrupt firm is a function of expected earnings and the liquidating value of its assets and the optimal level of debt is an increasing function of liquidating value of the firm's assets, the corporate tax rate, and the size of the firm (Scott 1976). Martin and others summarized the debt capacity theories developed by different scholars during 1970s and concluded that the value of the firm is maximized when marginal benefit of debt is equal to the marginal cost of debt (1988, 356).

In 1976 Jensen and Meckling developed the capital structure theory based on the agency costs. Firm incurs two types of agency costs-cost associated with the outside equity holders and cost associated with the presence of debt in capital structure (Jensen and Meckling 1976). Total agency cost first decreases and after certain level of outside equity capital in capital structure, it increases. The total agency cost becomes minimal at certain level of outside equity capital. Thus, this theory pleads the concept of optimal capital structure.

2. Objectives of the study

The objective of this study is to find out the following point:

1. To find out what are the external environmental factors that has an effect on the capital structure decision.
2. To find out the capital structure theories those are insufficient to find out the efficient capital structure mix.
3. To validate the capital structure mix from the point of view of pecking order theory and to find how it is better than that of the trade-off theory.

3. Efficient Capital Structure Mix and its Determinants

The capital structure has always had an impact on the value of the firm. Since the capital structure has an impact on the value of the firm the firm should select such a financing mix that will maximise the share holders' wealth or value. Thus we can say that the financing mix that maximises the value of a firm is called the optimum capital structure mix or efficient capital structure mix. Thus the optimum capital structure mix is defined as the capital structure or the combination of debt and equity that leads to the maximum value of the firm. The capital structure can affect the value of a firm either by affecting its expected earnings or the cost of capital or both. The efficient financing mix of a firm is determined by the firm's investment decisions and it has an effect on the share of the earnings belonging to the ordinary shareholders. The capital structure decision can influence the value of the firm through the earnings available to the shareholders. The basic aim of optimizing capital structure or building an efficient capital structure mix, is to select that proportion of various forms of debts and equities that maximizes the firm's value while minimizes the average cost of capital. Optimum or efficient capital structure is the capital structure at which the WACC is minimum and thereby it maximises the value of the firm. The capital structure theories are based on the assumptions which say **1.** There are only two sources of funds available that the firms in general use are perpetual riskless debt and ordinary equity shares. **2.** The dividend pay-out ratio need to be 100%. **3.** The investment decisions are assumed to be constant. **4.** Total financing remain constant. **5.** EBIT or Operating profits are not expected to grow. **6.** All the investors are assumed to have the same subjective probability distribution of the future expected EBIT for a given firm. **7.** Business risk is constant over time. **8.** A firm will live a continuous life.

$$\text{Cost of Debt } (K_i) = \frac{I}{B} \text{-----Eq.1}$$

Where B is value of debt = I / K_i-----Eq.2

and Cost of Equity Capital (K_e) = D₁ / P₀ + g-----Eq.3

Here, D₁ = Net Dividend

P₀ = Current market price of shares

g = Expected growth rate

S = Total market value of the equity

B = Total market value of debt

I = Total interest payments

V = Total value of the firm (V=S+B) and

NI = Net income available to equity holders

When the dividend pay-out ratio is 100% the percentage of retained earnings is zero.

Since, $g = br$, where r = the rate of return on equity shares and b = retention rate, when $g = 0$ i.e the growth rate is ZERO and this is consistent when EBIT is not expected to grow.

When $D_1 = E_1$ and $g = 0$, cost of Equity capital (K_e) = (E₁ / P₀) + g = > (E₁ / P₀) + 0 = E₁ / P₀-----Eq.4

Here E₁ = Earnings per share and in Eq.4 it is on a earning per share basis. Now ef we will multiply both the numerator and denominator by the number of shares outstanding (N) with the assumption that there are no income taxes, the equation will be:

$$K_e = E_1 X N / P_0 X N = EBIT - I / S \text{ or } NI / S \text{ or } \left(\frac{\text{Net income available to the equity holders}}{\text{Total market value of equity shares}} \right) \text{-----Eq.5}$$

Thus, K_e may be defined on either per share or total basis Now the value of equity shares on per share basis and on total basis are,

I. When per share basis, $P_0 = \frac{E_1}{K_e}$ -----Eq.5

II. When Total Basis, $S = P_0 N = \frac{EBIT - I}{K_e}$ -----Eq.5

III. Overall cost of capital or weighted Average Cost of Capital (WACC) :

IV. $K_0 = W_1 K_1 + W_2 K_e$ (Where W₁ and W₂ are relative weights) -----Eq.6

V. $= (B / V) K_1 + (S / V) K_e = \left[\frac{B}{B+S} \right] K_1 + \left[\frac{S}{B+S} \right] K_e$ -----Eq.7

Or $K_0 = I + NI / V = EBIT / V$ -----Eq.8

From the above equation we can find out the total value of the firm. Hence

$$V = EBIT / K_0 \text{ or } V = I / K_i + EBIT - I / K_e \text{ -----Eq.9}$$

There are three prominently known determinants of efficient capital structure mix. They are The Net Income (NI) approach, The Net Operating Income (NOI) approach and The Modigliani and Merton Miller theorem.

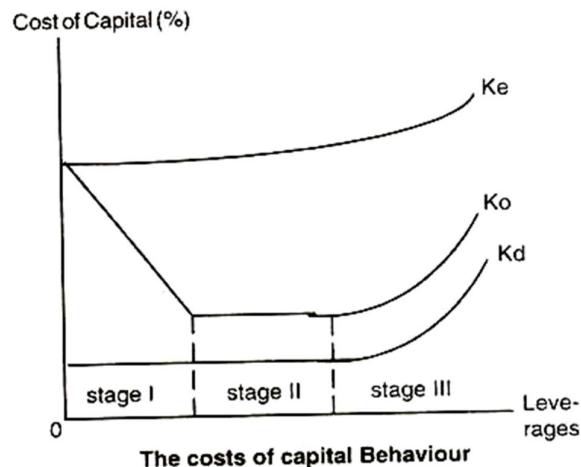
The Net Income (NI) approach to an optimal capital structure reveals that the total value of the firm changes with a change in the financial leverage. The NI approach clutches correct under certain assumptions. For example, the NI approach assumes that the cost of debt is lower than the cost of equity. Thus, a surge in the proportion of debt in the capital structure would result in a reduction in the firm's average cost of capital. A lower cost of capital would result in an increase in the value of the firm. The NI approach is used to determine a firm's optimum capital structure where the value of the firm is higher and the cost of the capital is lower.

The Net Operating Income (NOI) approach reveals that the proportion of debt and equity in the firm's structure does not have any impact on the firm's value or its cost of capital. The NOI approach assumes that while the cost of debt is constant for all levels of leverage, there is direct or linear increase in the cost of equity with financial leverage. This increase is explained by the increase in the financial risk of the firm as it increases the amount of debt in its capital structure. Cost of equity increases because the shareholders expect a higher rate of return to cover the risk of increase in leverage. Hence, conferring to the NOI approach, optimum capital structure for a firm cannot be maintained.

The traditional view is a compromise between the net income approach and the net operating approach. According to this view, the value of the firm can be increased or the cost, of capital can be reduced by the judicious mix of debt and equity capital. This approach very clearly implies that the cost of capital decreases within the reasonable limit of debt and then increases with average. Thus an optimum capital structure exists and occurs when the cost of capital is minimum or the value of the firm is maximum. The cost of capital declines with leverage because debt capital is cheaper than equity capital within reasonable, or acceptable, limit of debt. The weighted average cost of capital will decrease with the use of debt. According to the traditional position, the manner in which the overall cost of capital reacts to changes in capital structure can be divided into three stages and this can be seen in the following figure.

4. Criticism

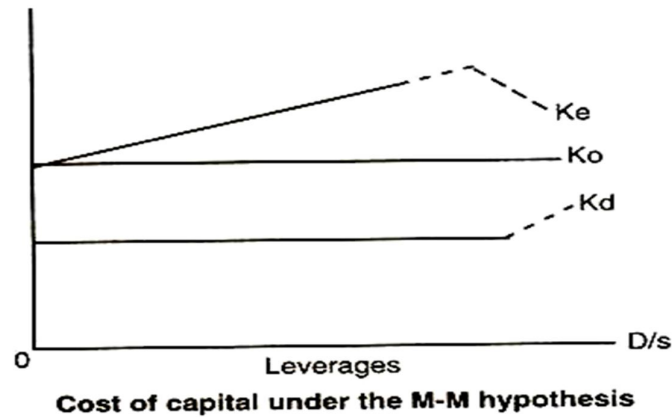
1. The traditional view is criticised because it implies that totality of risk incurred by all security-holders of a firm can be altered by changing the way in which this totality of risk is distributed among the various classes of securities.
2. Modigliani and Miller also do not agree with the traditional view. They criticise the assumption that the cost of equity remains unaffected by leverage up to some reasonable limit.



The Modigliani and Merton Miller theorem, these days considered as the most widely accepted capital structure theory. This theory has five assumptions like 1. The securities are traded in the perfect market situation, 2. Firms can be grouped into homogeneous risk classes, 3. The expected NOI is a random variable, 4. Firm distribute all net earnings to the shareholders, 5. No corporate income taxes exist. Based on these five assumptions In 1958, Franco Modigliani and Merton Miller established two propositions for the relation between a firm's capital structure, its market value and cost of capital. The first proposition, also referred to as the debt irrelevance theorem, and it states that capital structure does not affect the value of a firm. The equation in this proposition is, $V = (S+D) = X / K_0 \times NOI / K_0$. Here the average cost of capital is a constant and it is not affected by leverage.

The second proposition states that the required rate of return on equity increases as the firm's debt equity ratio increases. This accurately offsets the less expensive funds represented by debt. The equation in this proposition is, $K_e = K_0 + (K_0 + K_d)D/S$. This equation states that, for any firm in a given risk class, the cost of equity (Ke) is equal to the constant average

cost of capital (K_0) plus a premium for the financial, risk, which, is equal to debt-equity ratio times the spread between the constant average of 'capita' and the cost of debt, $(K_0 - K_d) D/S$. The critical part of the M-M hypothesis is that K_e will not rise even if very excessive raise of leverage is made. This conclusion could be valid if the cost of borrowings, K_d remains constant for any degree of leverage. But in practice K_d increases with leverage beyond a certain acceptable, or reasonable, level of debt. However, M-M maintain that even if the cost of debt, K_d , is increasing, the Weighted Average Cost Of Capital (WACC), K_0 , will remain constant. Hence when K_d increases, K_e will increase at a decreasing rate and may even turn down eventually. This is showed in the following figure.



It is important to note that the capital structuring theories operate under various assumptions, such as no taxes, rational investors, perfect competition etc. However, the actual marketplace is quite different. Besides impacting the financials of the firm, capital structure of a firm also has intangible effects, particularly regarding investors' perceptions of the firm. Still, the knowledge of these basic capital structuring concepts will help a manager utilize the market conditions to the firm's advantage.

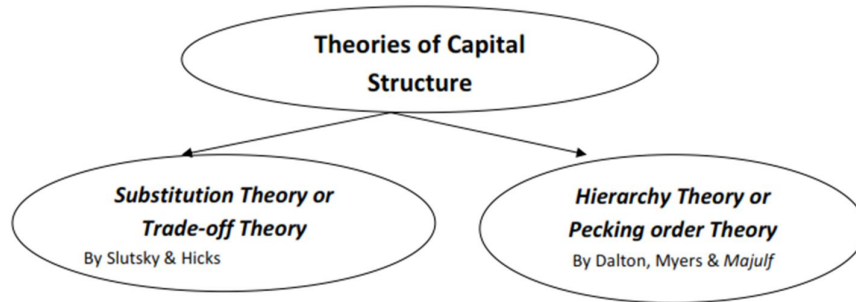
5. Uncertain Economic Environment and its Constituents

J.M Keynes and his followers validated that, managers prefer to hold money rather than make investment decisions in an uncertain and unknown world. Inadequacy of effective demand is the result of inadequate demand and this has its significance in deciding the capital structure. Organisations believe that the "economic environment" has nothing to do with the idea of "equilibrium," as well as that money is a fundamental institution of the capitalist system because it affects the preferences and actions of economic agents. These are, first, that the economy is a historical process (which means that uncertainty matters) and, second, those institutions, both political and economic, are indispensable to the task of "modelling" economic events. When both these are contradictory to each other the organisations go along with the view of conservatism. In the process to settle with the optimum capital structure where it is a function of the nature of its business and how risky the particular business is leading to the matter of business judgement, fulfilling the goal of the firm by maximising firm value, maximising profits, minimising WACC, maximising ROIC and maximising the shareholder wealth. To investigate how the uncertain economic environment work following are the questions the organisations need to ask, they are as, How do economic agents make rational decisions? How do they form expectations? Why do they retain (or decide not to retain) money? Can the institutional environment influence economic decisions? If so, in what way? The answers to these questions available in the concept of uncertainty and the study of uncertainty on which the firm has less or no control provides it an ample opportunity to prepare an efficient capital structure mix. In this research paper the uncertain economic environment primarily related to the external environmental factors like **1. Internal political environment, 2. Internal economic environment, 3. Global environment, 4. Market driven environment, 5. Internal socio-cultural environment, 6. Regulatory environment and 7. Technological environment.** Hyman Minsky wrote, to comprehend Keynes "it is necessary to understand his sophisticated view about uncertainty, and the importance of uncertainty in his vision of the economic process. Keynes without uncertainty is something like Hamlet without the Prince" (1975, 57). The concept of uncertainty is very important because it permits us to understand not only the instability of contemporary economies but, above all, the relevance of institutions in coordinating them. The idea is to show that individual expectations, so vital to decision making, are directly related to a favourable institutional environment. It also shows that, money is an essential element in every economic system. And the firms have to take utmost care to prepare an optimum capital structure that will increase the firm's shareholder value.

6. Pecking Order Theory for Efficient Capital Structure Mix and Uncertain Economic Environment

For about more than five decades the search for the optimal sources of activity financing and their share in the capital structure occupied the discussions of the greatest minds in finances and economics. The dividend policy most prominent issue that is firmly associated with the choice of financing sources, constituting a broad research area. Till date the issue of the

optimal capital structure, as well as the choice of dividend policy, remains unsolved. Both those areas of research are interrelated and dependent on each other. In addition, the choice of capital structure and dividend policy is read aloud by different factors that are difficult to identify and not easy to consider in research. The importance of the issue is highlighted by the recognition granted to Modigliani and Miller with Nobel Prize for their contribution to the development of the science of economics, specifically as regards the issues of forming capital structure and, indirectly, dividend policies. In the theory of economics, and specifically finances, we can observe different attitudes to the issue of shaping the most favourable sources of activity financing, described in the theory of substitution and in the theory of hierarchy (Van Auken 2005). Figure 1 below present two divisions of the Theory of capital structure, in whose scope the analysis of dividend policy is conducted.



Capital structure is a subset of financial strategy and Financial strategy should support the execution of competitive strategy but this is all about: the maximisation of firm value Situation where the management of a firm has little information about its external environment that is in a state of flux and, hence, largely unpredictably.

The substitution (trade-off) theory assumes that entrepreneurs look for such a debt capital to equity capital ratio that will allow them to achieve maximum enterprise value. The risk connected with financing enterprise activities with debt capital is compensated by tax advantages (Theobald 1979; Duliniec 1998) resulting from the decrease of the tax base by interest forming a cost element (this theory assumes the existence of benefits as a result of the tax shield mechanism). Erasmus and Scheepers (2008) examined the value creation concept not from the capital structure and dividend point of view but highlighting the importance of innovation and entrepreneurship. The substitution theory pays special attention to the occurrence of costs of financial difficulties and the fact that an increase of the debt capital share in the financial structure increases the risk of losing financial liquidity and may leading to bankruptcy.

An essential aspect that cannot be omitted in any deliberations concerning the financial situation of enterprises is the necessity of maintaining financial liquidity, the loss of which creates a danger of imminent bankruptcy. From the point of view of choosing the most constructive dividend policy, a critical point is giving stress to the necessity of maintaining financial liquidity, essential for the substitution theory to justify. It cannot be forgotten that any resolution to pay dividends adopted by the management board becomes a binding liability of the company and has to be settled.

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Another issue essential from the point of view of dividend policy and considered in the aspect of the substitution theory is the problem of separating the ownership and management functions. This applies to enterprises organized as joint-stock companies and some other entities with a different organizational and legal form. The theory of economics was dominated by the belief that the basic objective of an enterprise is the maximization of profit rejected by the managerial and behavioural theories. From various studies it is found out that managers should achieve profits on a level that gives the shareholders peace of mind. The substitution theory therefore consists in replacing equity with debt until a capital structure is obtained that allows achieving maximum enterprise value with the minimum level of the Weighted Average Capital Cost (WACC).

Ultimately, the substitution theory indicates several factors that exert impudence on the decisions concerning the shaping of the optimal capital structure, including:

- The amount of taxable income and income tax rates.
 - The level of operational risk
 - The structure of enterprise assets, taking into account their classification as tangible
- The hierarchy theory or the pecking order theory believes that entrepreneurs define priority sources of capital and not the optimal relationship between liabilities and equity capital. In this theory, the following assumptions are taken:
- Entrepreneurs prefer to finance their activities with internal sources, such as: Net Profit less Dividends, Depreciation Allowances and Revenue from sale of short-term securities and others redundant assets.
 - In cases when it is necessary to finance activities with debt capital, debt securities are issued first, followed by new shares (Duliniec 1998; Quan 2002; Mazur 2007).

In the hierarchy theory, entrepreneurs look for the cheapest sources of activity financing in order to minimize risk and limit the costs of equity issue or payment of interest on credits and loans. If it is necessary to use the debt capital, debt securities are issued first. This is why there is a competition between decisions on reinvestment of achieved profit and payment of dividends. Even though business practice seems to indicate an advantage of the hierarchy theory, it has not been explicitly declared as a leading theory. There is no doubt that the substitution theory is in contradiction with the hierarchy theory.

The hierarchy theory assumes that companies which achieve high profits reinvest them and are not disposed to pay dividends and incur debts, while the substitution theory assumes the opposite: that it is the companies in a good financial condition and achieving high profits which are disposed to increase their level of debt (Duliniec, 1998). While the substitution theory emphasized costs of bankruptcy and financial difficulties, the hierarchy theory focused on the problem of asymmetry of information between managers and the external investors, because the enterprise management does in fact have more information about its financial situation than do shareholders and creditors. This asymmetry of information is essential in the theory of hierarchy, causes managers to make decisions about issuing shares only when the traded stock is overvalued (its high value is not justified by the situation of the enterprise and its investment needs). A drop in stock prices is also caused by an unexpected, sudden reduction of dividend payments, which is interpreted by investors (who do not know the reasons for such a decision) as a worsening of the financial situation of the enterprise and a decrease of their profit. Conversely, when dividend payments are increased, the price of stock goes up even when this is not justified by the enterprise's current situation and growth potential. Consequently, according to the hierarchy theory the managers:

- Prefer internal sources of capital injection by leaving achieved profits within the enterprise,
- Try to limit the changes of an established dividend policy,
- When achieved profits are greater than investment needs,
- Liabilities are paid of first, and the remaining surpluses invested in liquid, short-term securities,
- When achieved profits are not sufficient for investment needs, entrepreneurs get rid of accumulated short-term securities,
- And if the capital is still not sufficient, they issue debt securities, and finally new shares (Duliniec 1998; Pike and Neale 2006).

Dividend policy is directly connected with the theories of capital structure. If an enterprise pays dividends, it decreases the degree of financing of equity capital from internal sources, and as a consequence may require external financing sources. According to the pro-dividend school, investors prefer to receive income from capital invested in shares in the form of a dividend. In their opinion, dividends are a more certain source of income than capital profits from the sale of securities (Sier-Pinska 1999). The anti-dividend school on the other hand assumes that paying dividends causes a drop in the price of stock. In the opinion of Litzenberger and Ramaswamy, paying dividends is connected with the necessity of spending cash, which periodically leads to its shortage in companies following a dividend payments policy (Litzenberger and Ramaswamy 1979). Moreover it has been found that increasing the share of dividends in the net profit exerts a negative influence on the price of stock (Poterba and Summers 1984). In this situation, companies should limit dividend payments and allocate achieved profit to equity capital, i. e. act in accordance with the assumptions of the hierarchy theory.

7. Superiority of Pecking Order Theory to Trade-off Theory in Preparing Efficient Capital Structure Mix

Following are the points that highlights the pecking order theory is better than the tradeoff theory in preparing optimum capital structure.

- While the Trade-off model implies a static approach to financing decisions based upon a target capital structure, the pecking order theory allows for the dynamics of the firm to dictate an optimal capital structure for a given firm any particular point in time.
- The pecking order theory focused on the problem of asymmetry of information between managers and the creditors and shareholders, the trade-off theory emphasizes on the cost of bankruptcy and financial difficulties.
- The pecking order theory explains the observed and reported managerial actions, while the trade-off model cannot. It also explains stock market reactions to leverage –increasing and leverage-decreasing events, which the trade-off model cannot.
- A firm's capital structure is a function of its internal cash flows and the amount of positive-NPV investment opportunities available. A firm that has been very profitable in an industry with relatively slow growth will have no incentive to issue debt and will likely have a low debt-to-equity ratio.
- Prudent financial managers will attempt to maintain financial flexibility while ensuring the long-term survivability of their firms. When profitable firms retain their earnings as equity and buildup cash reserves, they create the financial slack that allows financial flexibility and ultimately long term survival

8. Conclusion

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