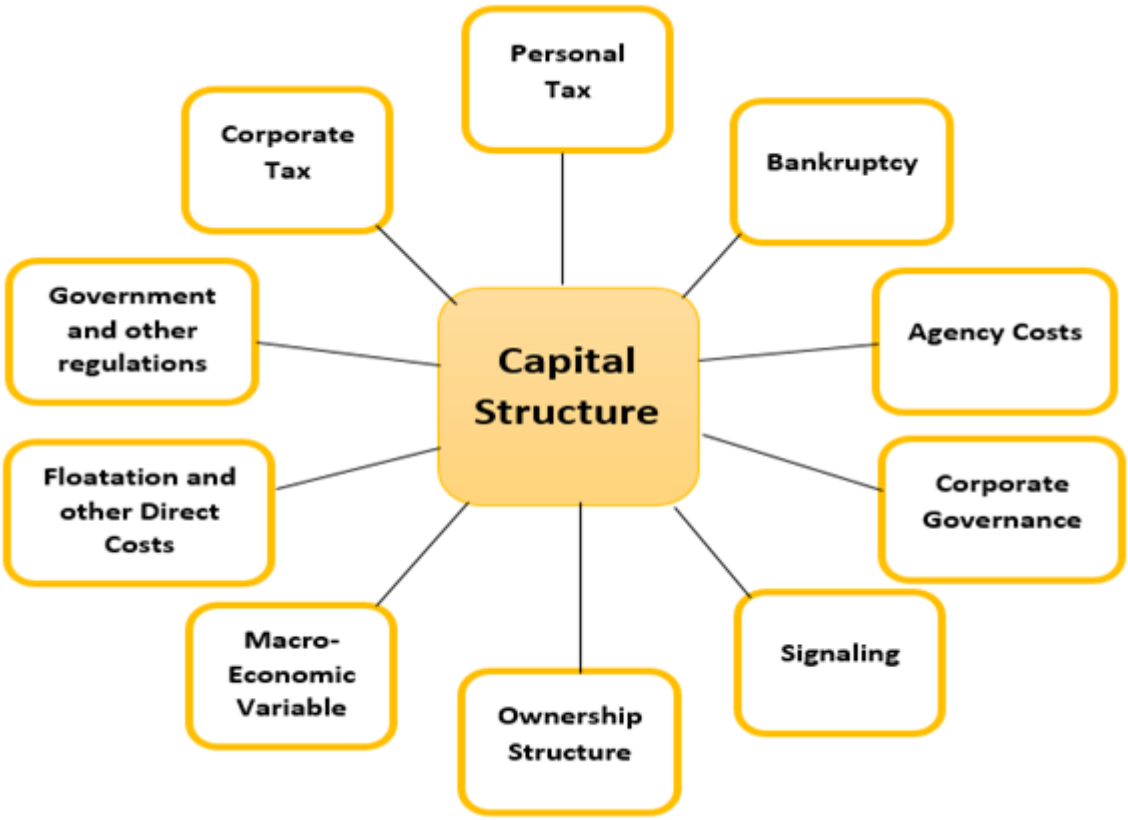
UNIT 80- UPSC - Design of Capital Structure, Theories and Practices

The notion of capital structure is used to signify the proportionate relationship between debt and equity. In finance area, capital structure denotes to the way a corporation finances its assets through some combination of equity, debt, or hybrid securities. In financial studies capital structure is elaborated as that combination of debt and equity that attains the stated managerial goals i.e. the maximization of the firm's market value. The optimal CS is also defined as that "combination of debt and equity that minimizes the firm's overall cost of capital"

In academic literature, theorists have contrasting views on how capital structure influences value of the firm. There are varied factors that influence the debt level in a firm. Among the major factors the first is the benefits and cost related with various financing choices. The trade-off between the benefits and cost leads to well-defined target debt ratio. The second is the existence of shocks that cause firms to deviate, at least temporarily, from their targets. The third is the presence of factors that prevent firms from immediately making capital structure changes that offset the effect of the shocks or financial distress that move them away from their targets. Profit, cash flow, the rate of growth and the level of earning's risk are significant additional internal factors which influence on capital structure.

The various factors that influence the capital structure of a firm



Designing Capital Structure

Most of the successful organizations manage capital structure efficiently to exploit opportunities, manage risk and fulfil the varying needs of the business. There are some of the best practices used by companies in designing capital structure.

1. Select the instruments that successfully meet Company's funding requirements. There is no one single source or a combination of sources of capital is appropriate for a company. Top companies assess available funding options, merits and demerits of debt and equity and cost of capital in order to comprehend the financial, regulatory and operational risks they are likely to face. Each company will select best alternative with the confidence that it has flexibility to handle a radical change in the business.
2. Align capital structure with company strategy. In designing capital structure, it is necessary for companies to develop a capital mix that supports the company strategy leaving room for flexibility to be able to respond to varying business environment. By determining an appropriate credit risk threshold and putting in place a disciplined private equity management tactics, top level companies create a capital structure that supports organizational objectives and operational superiority.
3. To design capital structure, effective procedure is to establish the company's cost of capital. Prominent companies must be aware of their cost of capital to precisely determine threshold of capital investment. The common method to compute cost of capital is getting a company's weighted average cost of capital (WACC). WACC formula is straight forward but can be complicated by fluctuating input that determines its outcome. Successful

companies regularly keep measuring its cost of capital to keep a close tab in which it gains or lose. The companies that use various different methods of computing WACC get widespread understanding of their position and assist them to make better strategic decisions to deal with the industry and its rivals.

4. Another best practice to design capital structure is to make effort to decrease cost of capital on an ongoing basis. Top level organizations struggle to make efforts to decrease cost of capital. Best practice that companies exercise is financial transparency to attract investors who offer their capital at lower cost than competitors. They maintain good relationship with banks to get favourable lending rates which in turn has a positive impact on the lucrativeness.
5. Effectively manage flexible capital actively is also good practice of design capital structure. Best practice companies are proactive in balancing debt to equity ratio to be able to respond to internal and external factors that affect cost of capital. Flexible financial policies that affect dividends where lower amounts can be paid as dividend and the rest retained to grow the business are useful to many companies.
6. For designing capital structure, it is imperative to keep exploring new finance sources constantly. Best practice companies move from reliance on traditional sources of capital like commercial banks, public debt, equity markets or institutional investors to avoid being victims of the changes in the market by continuously searching for alternative non-traditional sources of capital on a continuous basis. They make partnership with other business, use assets as collateral and creating corporate structures to protect the parent company from unnecessary risks.

Theories of capital structures: There are number of theories that elucidate the relationship between cost of capital, capital structure and value of the firm. They are:

1. Net income approach (NIA)
2. Net operating income approach (NOIA)
3. Traditional approach (TA)
4. Modigliani-Miller approach

1. Net income approach (NIA)

Net Income Approach was offered by Durand. The theory proposes increasing value of the firm by decreasing overall cost of capital which is measured in terms of Weighted Average Cost of Capital. This can be done by having higher proportion of debt, which is a cheaper source of finance compared to equity finance. Weighted Average Cost of Capital (WACC) is the weighted average costs of equity and debts where the weights are the amount of capital raised from each source.

$$WACC = \frac{\text{Required rate of Return} \times \text{Amount of equity} + \text{Rate of interest} \times \text{Amount of debt}}{\text{Total amount of capital (Debt + Equity)}}$$

Net Income Approach explains that change in the financial leverage of a firm will lead to equivalent change in the Weighted Average Cost of Capital (WACC) and also the value of the company. The

Net Income Approach advocates that with the increase in leverage (proportion of debt), the WACC decreases and the value of a firm increases. On the other hand, if there is a reduction in the leverage, the WACC increases and thereby the value of the firm decreases.

Assumptions of Net Income Approach:
Net Income Approach makes certain assumptions which are as follows.

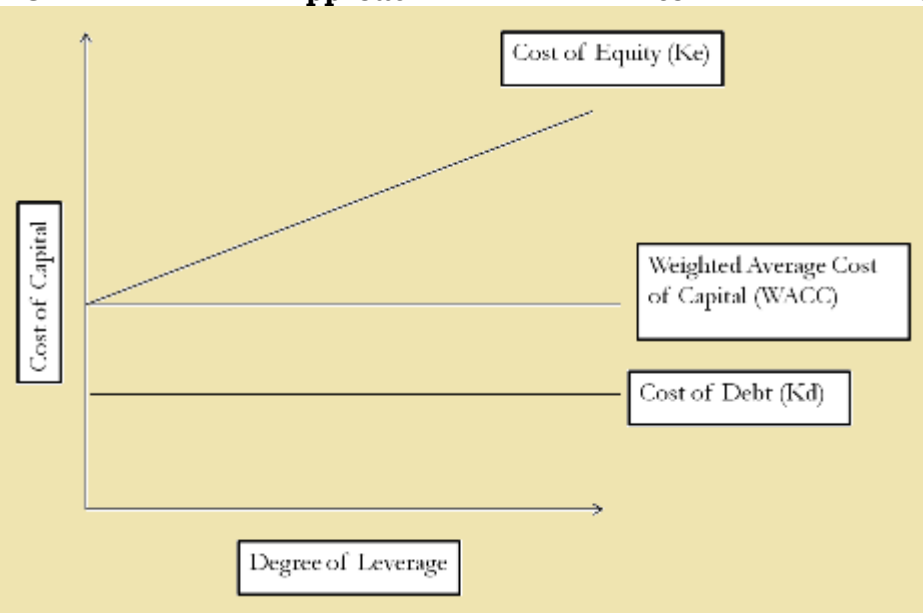
i. Increase in debt will not affect the confidence levels of the investors.
ii. The cost of debt is less than cost of equity.
iii. There are no taxes levied.

2. Net Operating Income Approach (NOIA)

Net Operating Income Approach to capital structure considers that the value of a firm is not impacted by the variation of debt component in the capital structure. It undertakes that the benefit that a firm derives by infusion of debt is annulled by the simultaneous increase in the required rate of return by the equity shareholders. With increase in debt, the risk related with the firm, mainly bankruptcy risk, also increases and such a risk perception increases the expectations of the equity shareholders.

Assumptions of Net Operating Income Approach:
The general capitalization rate remains persistent regardless of the degree of leverage. At a given level of EBIT, value of the firm would be "EBIT/Overall capitalization rate" Value of equity is the difference between total firm value less value of debt i.e. Value of Equity = Total Value of the Firm – Value of Debt.
WACC (Weightage Average Cost of Capital) remains constant and with the increase in debt, the cost of equity increases. Increase in debt in the capital structure results in increased risk for shareholders. As a compensation of investing in highly leveraged company, the shareholders expect higher return resulting in higher cost of equity capital.

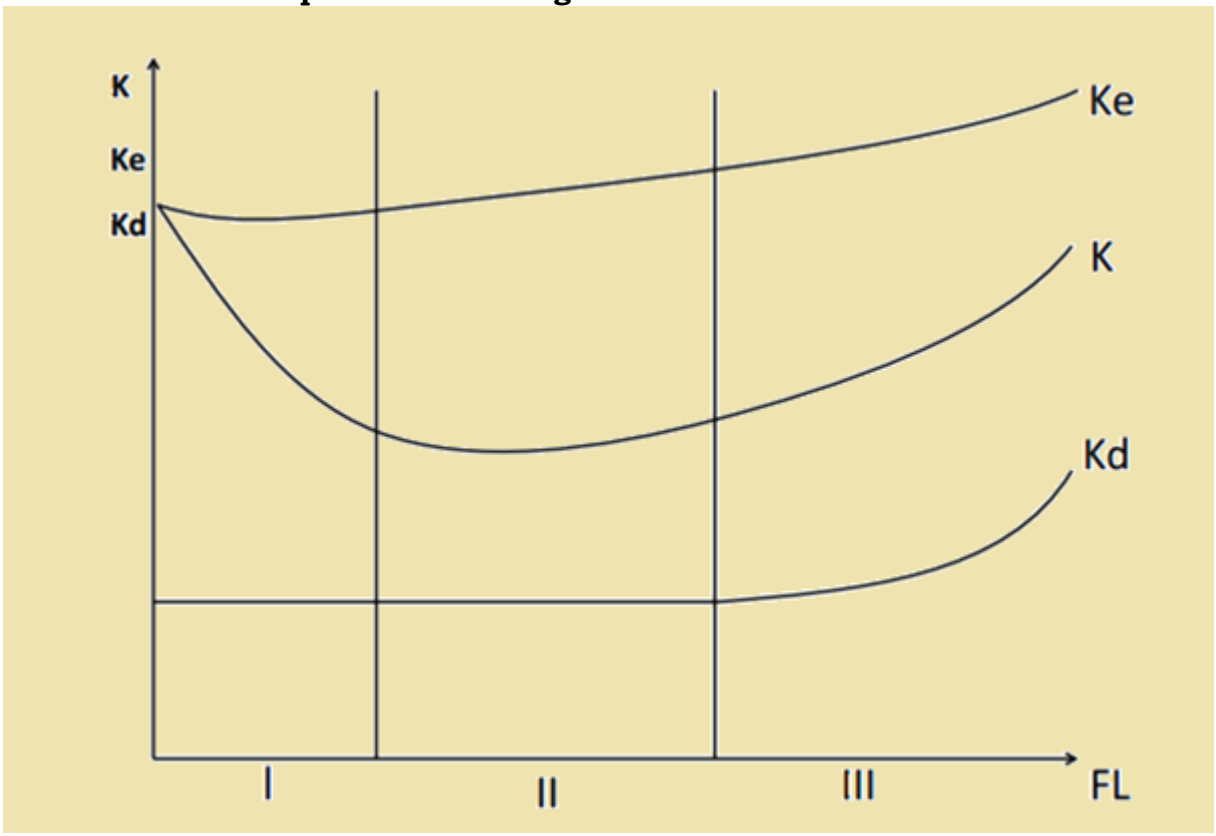
NOI Approach to Capital Structure



3. Traditional Approach

This approach of capital structure is based on the conviction that optimal capital structure always exists, and financer can increase the value of firms by making use of leverage. It is a combination of two previous approaches (NI and NOI). It has three stages. The supporter of Traditional theory were financial experts Ezta Solomon and Fred Weston. According to this theory, good combination of debt and equity will always lead to market value improvement of the firm. This approach admits that the equity shareholders perceive financial risk and expect premiums for the risks undertaken. This theory also affirms that after a level of debt in the capital structure, the cost of equity capital upsurges.

The Conceptual Figure of Traditional Approach



4. Modigliani Miller Approach

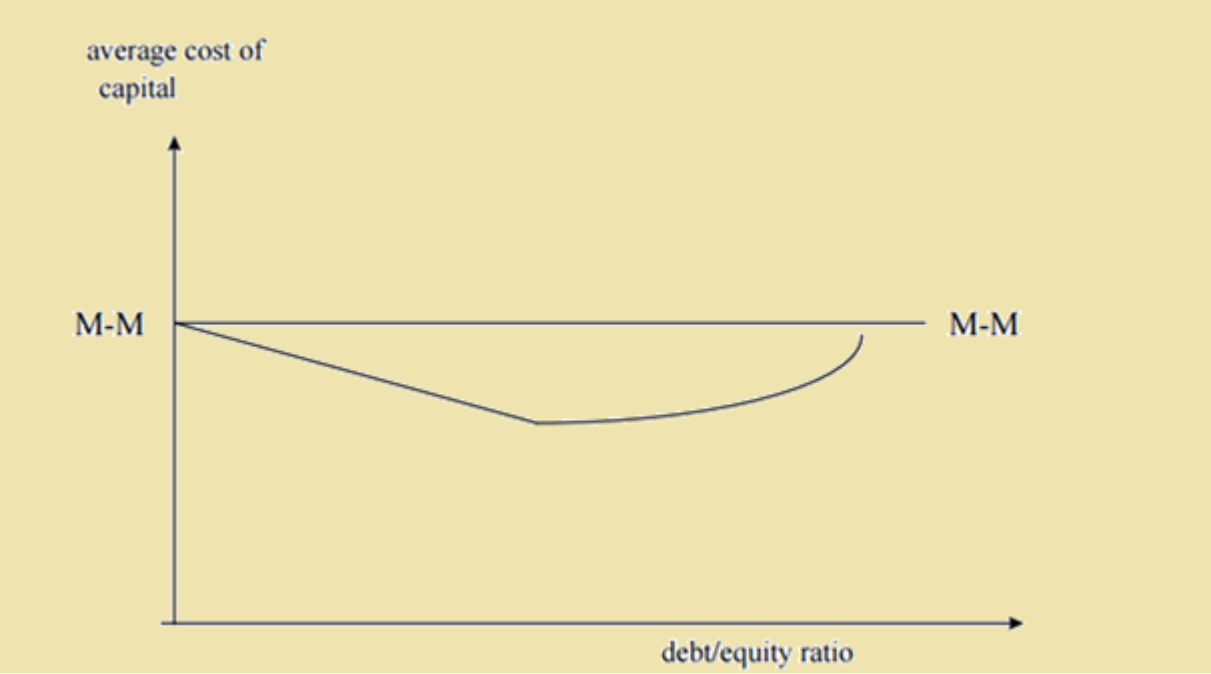
Finance economists were more inclined to study the capital structure when Modigliani and Miller's (1958) "irrelevance theory of capital structure" was published. Since then, three major theories of capital structure developed which diverge from the assumption of perfect capital markets under which the "irrelevance model" is working. The first is the trade-off theory which undertakes that firms trade off the benefits and costs of debt and equity financing and find an "optimal" capital structure after accounting for market imperfections such as taxes, bankruptcy costs and agency costs. The second is the pecking order theory (Myers and Majluf, 1984) that contends that firms follow a financing hierarchy to lessen the problem of information asymmetry between the firm's managers-insiders and the outsider's shareholders. Recently, Baker and Wurgler (2002) have suggested a new theory of capital structure; the "market timing theory of capital structure". This theory explains that the current capital structure is the cumulative outcome of past attempts to

time the equity market. Market timing infers that firms issue new shares when they perceive they are overvalued and that firms repurchase own shares when they consider these to be undervalued. Market timing issuing behaviour has been well established empirically by others already, but Baker and Wurgler show that the influence of market timing on capital structure is highly determined.

The Modigliani-Miller Theorem:

Theoretical principles of business finance in contemporary way begins with the Modigliani and Miller (1958) capital structure irrelevance scheme. Earlier, theorists have not devised any generally accepted theory of capital structure. Modigliani and Miller presumed that the firm has a particular set of expected cash flows. When the firm selects a certain proportion of debt and equity to finance its assets, it divides the cash flows among investors. Investors and firms are expected to have equal access to financial markets, which permits for home-based leverage. The investor can create any leverage that was wanted but not offered, or the investor can get rid of any leverage that the firm took on but was not wanted. Consequently, the leverage of the firm has no effect on the market value of the firm.

The Conceptual Figure of Miller and Modigliani Theory



Capital structure irrelevance can be demonstrated in numerous circumstances. There are two basically different types of capital structure irrelevance propositions. The classic arbitrage based irrelevance propositions provide settings in which arbitrage by investors keeps the value of the firm independent of its leverage. In addition to the original Modigliani and Miller paper, other theorists that contributed in this arena are Hirshleifer (1966) and Stiglitz (1969). The second irrelevance proposition determines that "given a firm's investment policy, the dividend pay-out it chooses to follow will affect neither the current price of its shares nor the total return to its shareholders" (Miller and Modigliani, 1961). It can be said that in perfect markets, neither capital structure choices nor dividend policy decisions matter.

Paper published in 1958 disproved irrelevance as a matter of theory or as an empirical matter. This research has revealed that the Modigliani-Miller theorem failed to explain theoretical

principles of capital structure under a variety of circumstances. The most commonly used features include consideration of taxes, transaction costs, bankruptcy costs, agency conflicts, adverse selection, lack of separability between financing and operations, time-varying financial market opportunities, and investor clientele effects. Alternative models use differing elements from this list. Harris and Raviv (1991) provided a survey of the development of this theory as of 1991.

Basic Propositions of Modigliani-Miller approach:

1. At any degree of leverage, the company's overall cost of capital and the value of the firm remains constant. This signifies that it is independent of the capital structure. The total value can be obtained by capitalizing the operating earnings stream that is expected in future, discounted at an appropriate discount rate suitable for the risk undertaken.
2. The cost of capital (Ki) equals the capitalization rate of a pure equity stream and a premium for financial risk. This is equal to the difference between the pure equity capitalization rate and ki times the debt-equity ratio.
3. The minimum cut-off rate for the purpose of capital investments is fully independent of the way in which a project is financed.

Assumptions of Modigliani-Miller approach:

1. Capital markets are flawless.
2. All investors have the same expectancy of the company's net operating income for the purpose of evaluating the value of the firm.
3. Within similar operating environments, the business risk is equal among all firms.
4. 100% dividend pay-out ratio.
5. An assumption of "no taxes" was there earlier, which has been removed.

As an experiential proposal, the Modigliani-Miller irrelevance proposition is not easy to test. With debt and firm value both reasonably endogenous and determined by other factors such as profits, collateral, and growth opportunities. Researchers cannot establish a structural test of the theory by regressing value on debt. Advocates of this theory justified that "While the Modigliani-Miller theorem does not provide a realistic description of how firms finance their operations, it provides a means of finding reasons why financing may matter." This explanation provides a sensible interpretation of much of the theory of corporate finance. Therefore, it influenced the early development of both the trade-off theory and the pecking order theory.

Restrictions of Modigliani-Miller hypothesis:

1. Investors would find the personal leverage troublesome.
2. The risk perception of corporate and personal leverage may be different.
3. Arbitrage process cannot be smooth due the institutional limitations.
4. Arbitrage process would also be impacted by the transaction costs.
5. The corporate leverage and personal leverage are not perfect alternates.
6. Corporate taxes do exist.

The Trade Off Theory

The phrase trade-off theory is explained by many theorists to define related theories. In these theories, a decision maker running a firm assesses the various costs and benefits of alternative leverage plans. Often it is presumed that an interior solution is obtained so that marginal costs and marginal benefits are balanced. The original form of the trade-off theory evolved from the discussion over the Modigliani-Miller theorem. When corporate income tax was added to the original irrelevance, this created a benefit for debt in that it served to shield earnings from taxes. Since the firm's objective function is linear, and there is no offsetting cost of debt, this implied 100% debt financing. The Trade-off theory of capital structure converses the various corporate finance choices that a corporation experiences. The theory is an important one while reviewing the Financial Economics concepts. The theory basically designates that the companies or firms are generally financed by both equities and debts.

Static Trade Off Theory

The static trade-off theory avows that firms have best capital structures, which they decide by trading off the costs against the benefits of the use of debt and equity. One of the benefits of the use of debt is the advantage of a debt tax defend. One of the disadvantages of debt is the cost of potential financial distress, especially when the firm relies on too much debt. Already, this leads to a trade-off between the tax benefit and the disadvantage of higher risk of financial suffering. But there are more cost and benefits involved with the use of debt and equity. One other major cost factor consists of agency costs. Agency costs originates from conflicts of interest between the different stakeholders of the firm and because of ex post asymmetric information (Jensen (1986). Therefore, integrating agency costs into the static trade-off theory means that a firm determines its capital structure by trading off the tax advantage of debt against the costs of financial distress of too much debt and the agency costs of debt against the agency cost of equity.

The Dynamic Trade-off Theory: According to dynamic model, the precise financing decision typically depends on the financing margin that the firm forestalls in the next period. Some firms expect to pay out funds in the next period, while others expect to raise funds. If funds are to be raised, they may take the form of debt or equity. Generally, a firm undertakes a combination of these actions. An important antecedent to modern dynamic trade-off theories was Stiglitz (1973), who scrutinises the effects of taxation from a public finance perspective. Stiglitz's model is not a trade-off theory since he took the strong step of assuming away uncertainty. Kane et al. (1984) and Brennan and Schwartz (1984) proposes the first dynamic models to contemplate the tax savings versus bankruptcy cost trade-off. Both analysed continuous time models with uncertainty, taxes, and bankruptcy costs, but no transaction costs. Since firms react to adverse shocks immediately by rebalancing costlessly, firms maintain high levels of debt to take advantage of the tax savings. Dynamic trade-off models can also be used to consider the option values rooted in deferring leverage decisions to the next period.

The Pecking Order Theory

The pecking order theory does not accept an optimal capital structure as a starting point, but it emphasises the observed fact that firms show a distinct preference for using internal finance (as retained earnings or excess liquid assets) over external finance. If internal funds are not enough to finance investment opportunities, firms may or may not acquire external financing, and if they do, they will select among the different external finance sources in such a way as to minimise additional costs of asymmetric information. The latter costs basically reproduce the "lemon premium"(Akerlof, 1970) that outside investors ask for the risk of failure for the average firm in

the market. The resulting pecking order of financing is internally generated funds first, followed by respectively low-risk debt financing and share financing. In Myers and Majluf model (1984), outside investors reasonably discount the firm's stock price when managers issue equity instead of riskless debt. To avoid this reduction, managers avoid equity whenever possible. The Myers and Majluf model envisages that managers will follow a pecking order, using up internal funds first, then using up risky debt, and lastly resorting to equity. In the absence of investment opportunities, firms maintain profits and build up financial sagging to avoid having to raise external finance in the future. Many theorists such as Vidal and UGED (2005) raised concerned for Myers and Majluf (1984) model of pecking order theory. Firstly, they asserted that Myers and Majluf model refers to American market which firms offered their share mostly through firm commitment underwriting and not right issue. Hence, when the share price is underrated, the wealth shift form current share holder to new shareholders, while in right offering current share holder can benefit from priority of buying share which reduce probability of wealth transfer. Secondly, they debated that this theory mainly defines listed companies and relinquishes non listed companies.

Empirical data supports both the pecking order and the trade-off theory (Espen Eckbo, 2011).

The Market Timing Theory

The market timing theory of capital structure debates that firms time their equity issues in the sense that they issue new stock when the stock price is perceived to be overrated, and buy back own shares when there is undervaluation. Subsequently, variations in stock prices affect firms' capital structures. There are two versions of equity market timing that lead to similar capital structure dynamics.

The first undertakes economic agents to be balanced. Companies are expected to issue equity directly after a positive information release which reduces the asymmetry problem between the firm's management and stockholders. The decrease in information asymmetry overlaps with an increase in the stock price. In response, firms create their own timing opportunities.

The second theory undertakes the economic agents to be unreasonable (Baker and Wurgler, 2002). Due to irrational behaviour, there is a time-varying mispricing of the stock of the company. Managers issue equity when they believe its cost is irrationally low and repurchase equity when they believe its cost is irrationally high. It is vital to understand that the second version of market timing does not necessitate that the market actually be incompetent. It does not ask managers to successfully forecast stock returns. It is assumed that managers believe that they can time the market. According to the study of Graham and Harvey (2001), managers admitted trying to time the equity market, and most of those that have considered issuing common stock report that "the amount by which our stock is undervalued or over- valued" was an important concern. Other group of theorists, Baker and Wurgler (2002) confirmed that equity market timing has a determined effect on the capital structure of the firm. They describe a market timing measure, which is a weighted average of external capital needs over the past few years, where the weights used are market to book values of the firm. They find that leverage changes are intensely and positively related to their market timing measure, so they conclude that the capital structure of a firm is the aggregate outcome of past attempts to time the equity market.

To summarize, Capital structure is the proportion of debt and equity in which a corporate finances its business. The capital structure of a company/firm has significant role in determining the value of a firm. There are many theories developed which proliferate the 'ideal' capital mix / capital

structure for a firm such as Net Income Approach, Net operating income approach, Traditional approach, and Modigliani-Miller approach. The consensus is that these theories differ considerably on their extrapolations.