

# Trade-Off Theory, Pecking Order Theory and Market Timing Theory: A Comprehensive Review of Capital Structure Theories

Agha Jahanzeb<sup>1</sup>, Saif-Ur-Rehman<sup>2</sup>, Norkhairul Hafiz Bajuri<sup>3</sup>, Meisam Karami<sup>4</sup>,  
Aiyoub Ahmadimousaab<sup>5</sup>

Faculty of Management (FM)<sup>1,2,3,4,5</sup>  
Universiti Teknologi Malaysia<sup>1,2,3,4,5</sup>

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**Abstract:** This review examines the role of different capital structure theories in decision making regarding the debt preferences. The review includes the seminal work of Modigliani and Miller (1958) which was a novel study of its kind in the field of capital structure. Purpose of this study is to look into the three theories; Trade-Off Theory, Pecking Order Theory and Market Timing Theory. Literature shows that the two theories i-e; Trade-Off and Pecking Order have always dominated the capital structure decisions but recent theoretical and empirical work shows that Market Timing Theory has also challenged the basic theories as managers are always keen to take advantage of “market timing”.

**Keywords:** Capital structure, trade-off theory, pecking order theory, market timing theory, leverage, corporate finance.

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## I. INTRODUCTION

Today's competitive environment has made the managers cautious and more aware about how to finance their business activities and manage capital structure. Capital structure requires decision-making tactic that is an art to tackle complex situations. Decision making is a cognitive process to select an alternate among many possible alternates (Jahanzeb *et al.*, 2012; Muneer & Rehman, 2012). This development encourages managers to focus on how to maximize the firm's overall value. Capital structure is usually being managed with the help of two major theories; i-e Trade-off theory and pecking order theory. Trade-off theory actually supports the leverage to construct capital structure by assuming leverage-benefits. Optimal level of leverage is achieved by balancing the benefits from interest payments and costs of issuing debt. Financially, debt is considered beneficial because of the debt-tax-shields that help to minimize expected tax bills and maximize the after-tax cash flows (Modigliani & Miller, 1958). Trade-off theory hence predicts the cost and benefit analysis of debt financing to achieve optimal capital structure. On the contrary, the other prominent theory related to capital structure is pecking order theory that focuses to finance firm operations with its internally generated sources first i-e; retained earnings rather than issuing debt and equity (external financing). Pecking order theory argues to minimize the firm's insiders-outsiders issues related to information asymmetry by following a particular financing hierarchy (Myers, 1984; Myers & Majluf, 1984). The theory gives a clear idea that the managers first prioritize the retained earnings to finance their activities and if they need more funds, they choose to issue debt, lastly when issuing more debt makes no sense, equity is issued. Pecking order theory, on one side, supports the assumption that high profitable firms would most likely finance their activities with internal funds and would tend to lower the level of debt ratio. Whereas trade-off theory also depicts the positive relation between leverage and profitability by showing that the high profitable firms prioritize their investments with external finance to shield the income from taxes with the help of leverage. Recently, a new theory has been developed called market timing theory (Baker and Wurgler, 2002). This theory suggests when the cost of equity is low, firms prefer external equity, and prefer debt otherwise. Corporate executives perceive that their risky securities are mispriced by market.

MM irrelevance theorem says that cost of capital and firm's value should not be affected by firm's financing policy. Investment decisions do impact the value of a firm. This implies lack of interaction between investment decisions and

corporate finance. Hence by concluding logically, firm's investment and financing decisions can be examined individually. MM theorem which is based on unrealistic assumptions, explicates that market imperfections are important for capital structure to matter. Therefore firms move towards certain debt-equity ratio by trading-off advantages of debt with disadvantages. Pecking order theory controverts this idea of existence of financial targets and stick to the idea that firms follow certain financial hierarchy (Myers, 1984; Myers & Majluf, 1984). Despite this never-ending debate, researchers have still be unable to find answers that how financial decisions are being made of firms.

## **II. BACKGROUND REVIEW**

Modigliani and Miller (1958) first began this groundbreaking work on capital structure in the field of Corporate Finance. According to MM Theorem, in perfect capital markets no impact of leverage can be seen on firm value. This theorem documented that firm's value is not affected by debt-equity ratio.

Static trade-off theory by focusing on cost and benefit analysis of debt predicts that there is optimal debt ratio which helps to maximize the value of a firm. Optimal point can be hit when the benefits of debt issuance countervails the increasing present value of costs related to more debt issuance (Myers, 2001). Major benefit of debt is to minimize the interest payments. Such benefits stimulate firms to use debt. Miller (1977) explains this simple effect gets complicated with the existence of personal taxes and sometimes with non-debt tax shields (DeAngelo & Masulis, 1980). Moreover, equity issuance means to move away from optimum therefore this can be considered as a bad news. Myers (1984) further documented that would opt to issue equity if they feel it is mispriced in market. On the contrary, investors become conscious that the equity issuance results either it is fairly prices or mispriced. Consequently, equity issuance leads investors to react negatively and management is not eager to issue equity.

Pecking order theory proposed by Myers (1984) explains that firms most likely prefer to finance new investments, first with internally raised funds i-e; retained earnings, then with debt, and issue equity as a final resort. Optimal capital structure is hard to define as equity comes along at the top and bottom of the 'pecking order', as argued by Myers. He further argues that issuance of debt secured by collateral assists to minimize asymmetric information related costs in financing. A positive relationship may be expected between financial leverage and tangibility. Studies by Titman and Wessels (1988) and Rajan and Zingales (1995) report positive relationship between tangibility and financial leverage.

Recent empirical work done by Baker and Wurgler (2002) on market timing theory states that there is a negative relationship between external finance-weighted average of historical market-to-book ratios with the current market leverage, and this evidence by them is interpreted as market timing. A number of studies confirm MTT that the issuance of securities depends upon the history of firm's market value (See e.g. Hovakimian, Olper & Titman, 2001; Baker & Wurgler 2002; Welch, 2004; Alti, 2006; Flannery & Rangan, 2006; Kayhan & Titman, 2007).

## **III. LITERATURE REVIEW**

During the last five decades after the work of Modigliani and Miller (1958) several theories have been proposed to better understand and analyze the scope of market imperfections. Most of the outstanding empirical work in the field of capital structure has been done with the data from developed countries (Al-Najjar, 2011; Ahmadimousaabad *et al.*, 2013). Rajan and Zingales (1995), for instance, use the data of G-7 countries. Data of Antoniou *et al.* (2002) belongs to UK, France and Germany. Data of Bevan and Danbolt (2000 and 2002) belongs to UK. Hall *et al.* (2004) conduct their empirical study on the data of European SMEs. Few studies provide evidence from developing countries. Booth *et al.* (2001) use the data of ten developing countries (Pakistan, Malaysia, India, Thailand, Brazil, Mexico, South Korea, Turkey, Jordan and Zimbabwe). Pandey (2001) takes data from Malaysia. Omet and Nobanee (2001) utilize data from Jordan and Al-Sakran (2001) and Chen (2004) from Saudi Arabia and China respectively.

### **A. Trade-Off Theory**

The trade-off theory was seriously taken under consideration after the debate on the theorem of Modigliani-Miller (Iqbal *et al.*, 2012). Trade-off theory's original version came into being after the debate of Modigliani-Miller theorem. When the irrelevance theorem was added with the corporate income tax, this favored benefit for debt, i-e; it shields the earnings from taxes. Firm manager evaluates and analyzes the various costs and benefits of several alternatives of leverage plans.

Most of the time it is presumed that interior solution should be obtained so that balance can be acquired between marginal costs and benefits.

### **Static Trade-Off Theory**

Optimal capital structure is acquired by firms by trading off the costs of debt and equity against their benefits. Major benefit to use debt is the advantage of debt tax shield. On the other side cost of potential financial distress may be the disadvantages of debt, particularly when a firm acquires too much debt. Tax deductibility of interest payments is the main benefit of debt; this promotes the application of debt. It increases with the existence of non-debt tax protection (DeAngelo & Masulis, 1980) and personal taxes (Miller, 1977). Several authors like Titman and Wessel (1988), Opler & Titman (1996), Adedeji (2002), Fama & French (2002) and Chen (2004) tested a theoretical model which is being presented below:

$$Dit = \beta k + Wit + eit$$

Here dependent variable is denoted by *Dit* that shows the debt ratio in the year t for the firm i, *W* shows the explanatory variable's vector, whereas residual error term is being denoted by *eit*. Making market imperfections analysis as a base such as by analyzing asymmetric information, taxation and conflicts of interest explanatory variables are used.

Previous research on static trade-off theory concludes mixed results. On one side, study shows that target leverage is not important. Many studies for instance, Titman and Wessels (1988), Rajan & Zingales (1995) and Fama & French (2002) affirm that higher profitability firms tend to borrow less, that is inconsistent with the actual trade-off prediction that higher profitability firms should borrow more to reduce tax liabilities. Graham (2000) estimating the cost and benefit of debt, finds that the large and more profitable firms with low financial distress expectation use the debt conservatively. Microsoft is the classic example of those studies that it being a very profitable organization has maintained a zero-debt policy. Further survey of corporate executives shows the softness of target leverage (Graham & Harvey, 2001). Speed of adjustment towards target leverage is slow (Jalilvand and Harris (1984); Fama & French (2002). Firms on their capital structures do not compensate the impacts of stock returns actively and prior stock returns are the main determinant of market leverage (Welch, 2004). On the other side, many studies support trade-off theory and confirm the role of target leverage (See e.g. Marsh, 1982; Hovakimian, Opler & Titman, 2001; Korajczyk & Levy, 2003; Hovakimian, 2004; Hovakimian & Tehranian, 2004). Frank & Goyal (2004) favor the trade-off theory in leverage decisions by examining relative importance of 39 factors. Flannery & Rangan (2006) contradict Welch (2004) by finding the effects of firms' prior stock price movements. Most of the time firms are not so active with respect to their financial policy but to move towards target leverage firms do buy back their securities (Leary and Roberts, 2005; Hovakimian, 2006). Strebulaev (2004) and Hennessy & Whited (2004) have tried to conciliate inconsistent empirical findings with respect to trade-off theory in a dynamic framework.

### **B. Pecking Order Theory**

Pecking Order Theory has achieved a noticeable significance in descriptive literature. Myers (1984) developed this major theory in the field of corporate finance related to capital structure. It is believed to be an alternate theory to trade-off theory where the firm has perfect hierarchy of financing decisions. POT explains that the firm tries to utilize its internal financing sources first i-e; retained earnings then issues debt and then would issue equity as a last resort. This theory explains the financial decision making of the firms. According to Shyam-Sunder and Myers (1999) pecking order theory anticipates the impacts of profits correctly. Whereas, Fama and French (2002) and Frank and Goyal (2003), the theory has few other complications as well. As currently it is not that much helpful in managing firms financial resources.

Shyam-Sunder and Myers (1999) tested the change in debt by the model given below that is explained by a single variable. The model in this case is written as follows:

$$\Delta Dit = a + bpo DEFit + eit$$

Where  $\Delta Dit$  is the debt issued in time/period t, DEF (deficit to total assets) is the financing gap.

POT model predicts that the optimal capital structure will not be achieved by firms but firms would follow a certain principle and choose external financing when 'debt capacity' is achieved. Pecking Order Theory further explains that the asymmetric information between firm insiders and outsiders and the supposition that costs and benefits of outside financing in terms of trade-off theory are less important when compared to the costs related to the (inside financing) issuance of new securities. Transaction costs related to external source of financing also play a vital role in choosing financing sources. Debt's transaction costs are not more than for equity issues (Baskin, 1989). He also found that in US markets cost for raising debt is lower than that of the cost for raising equity. Holmes and Kent (1991) and Hamilton and Fox (1998) found that managers don't like to lose their control over firms. That's the reason managers usually don't accept new shareholders and try to finance their projects with internal funds available. Management will finance the activities of firm without control restrictions if the firm doesn't possess adequate internal funds. Hence, short-term financing is acquired first because that does not require collateral, followed by long-term debt and then equity issuance. External equity as predicted by pecking order theory is chosen as a last option (Huang and Ritter, 2009; Bistrova, 2011).

Retained earnings help avert the problems, minor adverse selection has been seen with debt and adverse selection has been noticed with equity. Outside investor is always conscious about the debt and equity financing of the firm. A rational investor takes the equity riskier than debt and thus revalues the firm if it decides to issue equity. Therefore, firms consider retained earnings the better source of finance than outside financing. Thus retained earnings are utilized first when possible. If a firm does not possess adequate amount of retained earnings then it will choose debt financing. Market can misprice the equity if firm insiders are well informed about the firm-value than those of outside investors. To avoid mispricing certain preference is established by firms throughout the financial pecking order. When market condition is normal, internal source of financing is preferred than external financing, safe debt, and then common stocks (Donaldson, 1961; Myers and Majluf, 1984; Myers, 1984). Although no certain financing choice is well-defined or authentic that could rank the internally generated funds on top.

Myers and Majluf (1984) explain when the equity is issued by the managers instead of riskless debt then rationally outside investors discount the stock price of a firm. To avert this kind of approach of investors, managers avoid issuing equity whenever possible. Their model again predicts the same results as explained earlier that pecking order is followed in such a manner that managers first choose internal funds, then risky debts, and finally equity. When there are no investment opportunities, profits are retained by firms to avoid raising external financing in future. Frank and Goyal (2007) show that pecking order can also be caused by agency costs because of the agency problems between the firm owners/managers and the outside investors. When outside investors believe that they might get fair return, they will hesitate to provide equity funds.

Once the data capacity is made the part of the model, the hypothesis of pecking order theory shows a pretty good fit to the data (Lemmon and Zender, 2008). While Fama and French (2005) explain that the firm's financial decisions usually contradict with the pecking order hypothesis. On the other hand, Leary and Roberts (2005) and Bharath et al. (2009) have noticed empirical validity with pecking order hypothesis. Studies have also been conducted in developed countries as well to review pecking order theory. According to Gaud et al. (2007) study which was conducted in European countries to investigate capital structure decisions shows that both the hypotheses of pecking order and static trade-off theories have still been unable to explain the results fully. Research has also been conducted by Drobetz and Gruninger (2007) which examines the hypothesis of pecking order in 42 countries and shows that the financing deficit can be tracked better than that of net debt issuance. Research conducted for European countries by Brounen et al. (2006) and Beattie et al. (2006) discover the support for pecking order hypothesis. However, Brounen et al. (2006) do not support asymmetric information.

### ***C. Market Timing Theory***

Market timing has great importance in identifying firm's performance during organizing the proper financial structure Baker and Wurgler (2002). By putting it in a different way, the financial preferences of the firms indicate the results of precedent modifications of their stock prices plus the aspiration to time the market. Certainly, managers seize the benefit of the circumstances to issue shares to alleviate the pressure of debt constrictions and in that way amplify the opportunity of its entrenchment; throughout the phase of market expansion and affluence. When the environment is an unpromising financial market that matches a stringent control implemented by the mass of shareholders, officers are limited towards requirements as well as restrictions forced by means of the market; in search of issuing less risky debt. In the company of

the publication of Baker and Wurgler (2002) critique relating past market-to-book ratios to capital structure, the pecking order and static trade-off theories have ever more challenged by the market timing theory. Wurgler and Baker's substantiation that securities issued over a year have prolonged effects on capital structure has challenged by a range of most recent papers.

Business executives seem to vigorously employ their financing decisions with market timing. Two-third of business executives have the same opinion that "the quantity through which our stock is overvalued or undervalued was an essential or very essential concern" in the decisions of equity issue; in a survey by Graham and Harvey (2001). The market timing theory and the pecking order theory has the key distinction whether the supposition of semi-strong form marketplace effectiveness is maintained.

The assumption of pecking order theory that markets are semi-strong proficient, therefore the declaration outcome of security issues is the prime proxy for the extent of information irregularity. The market timing theory does not depend on the postulation of semi-strong form marketplace effectiveness. Only if the relative cost of equity shows a discrepancy over time for either illogical or logical grounds, so the window of opportunity exists. Alti and Sulaeman (2012) document in their study that such timing behaviour is exhibited by firms in response to higher returns that happens with strong investment demand by institutions. They further explain that if institutional purchases don't accompany such returns, equity issuance will show a little impact by stock price increases.

On the other hand outcomes by Chen *et al.* (2012) show no support in favour of pecking order conduct (persistent with Frank & Goyal, 2003), the same as net equity issues track the financing arrears much more intently than net debt issues execute. Results of Chen *et al.*, (2012) have not received any support by empirical results of adverse selection and the market timing theory's authentication is complimentary for the Taiwan Stock Market (TSM) mainly for the phase from 1990 to 2001, proposing that the outcomes of the market timing theory giving a vindication whilst our results do not provide support to the pecking order theory. Though, during the phase of 2002-2005, the use of market timing theory was not appropriate. In other prose, according to Chen *et al.* (2012) corporations in Taiwan favour supplying extra debt rather than equity underneath low down market performance.

Rajan & Zingales (1995) and Baker & Wurgler (2002) have used the following hypothesis related to market timing in their studies where market-to-book (MB) ratio has been considered to measure growth opportunity:

$$D_{it} = a + b_1 MB_{tim,it-1} + b_2 MB_{it-1} + b_3 SIZE_{it} + b_4 PROF_{it-1} + b_5 TANG_{it} + U_{it}$$

Past market-to-book ratios' weighted average has been denoted by  $MB_{tim}$  where t-1 denotes the first observation available.  $SIZE$ ,  $PROF$  and  $TANG$  denote the explanatory variables that are size of the firm, profitability of the firm and tangibility of the assets respectively. 'Weighting' is financial slack for each year. Baker & Wurgler (2002) write this as follows:

$$MB_{time,t-1} = \frac{\sum_{n=1}^{t-1} (e_s - d_s) MB_s}{\sum_{r=0}^{t-1} (e_s - d_s)}$$

Where 'net equity issue' and 'net debt issue' have been denoted by 'e' and 'd' respectively. Hovakimian (2004) presents  $MB_{time}$  to compute past MTB ratios' weighted average of time series.

In the circumstances of issuance of securities, Hovakimian (2004), Kayhan & Titman (2004) and Aydogan (2004) hold up the fact of existence of market timing, however, all of them have disagreed with the Wurgler and Baker on the unremitting force going on capital formation via market timing. By finishing their studies; Alti (2006) and Roberts & Leary (2005) portrayed that US corporations have dynamically rebalanced the leverage to be located in the most advantageous assortment, therefore, the impacts of market timing are transitory.

Market timing elucidation of data has been questioned by many other studies. For instance, Hovakimian (2006), Alti (2006), Leary & Roberts (2005), Flannery & Rangan (2006) and Kayhan & Titman (2007) provide confirmation that even if market timing exists, it doesn't encompass long-run impact on corporation's power and that businesses do keenly

rebalance their leverage fractions toward several target point. In addition to the discussion, studies by Chen & Zhao (2006), Elliott et al. (2008), Huang & Ritter (2009) and Chang & Dasgupta (2009) either discover opinionated proof for market timing or elevate issues about the interpretation of target amendments.

Most of the evidences support market timing theory in a sense that managers wait for the market conditions to get better, that stocks' position in the market gets better before the new issuance and before issuing new stocks firms try to make their performance better. The evidence regarding the. We can also consider market timing theory to determine the various phenomena about whatever we have discussed regarding capital structure. The reality is, the studies in this area still lack theoretical models. Consequently, different opinions have been explained by different authors while interpreting market timing.

#### **IV. CONCLUSION**

From the literature above we can conclude that both the pioneering theories (trade-off and pecking order) are not mutually exclusive and optimal leverage ratio can be obtained by few explanatory variables. According to trade-off theory, to reduce taxable income profitable firms tend to issue more debt. On the other hand, argument of pecking order model is different in a sense that profitable firms would try to reduce their debt level in accordance with the rule that internal funds must be chosen first, and when retained earnings are not adequate, policies must be switched to external financing. Evidence also supports the market timing theory that is; managers wait for the stocks' position to get better before new issuance.

Situation becomes interesting as the capital structure has been extensively explained by trade-off theory and the theory doesn't possess much of the weaknesses except one important fact that the profitability is negatively correlated to debt. Regarding this phenomena pecking order theory provides straight explanations which on the other hand possess a weakness that there is a mixed proof considering the POT itself. Hence, it can be extracted that more development is required to incorporate trade-off ideas and asymmetric information in future dynamic models which will furnish assumed results and theoretical results in order to understand the complexity of these theories in a better way. Market timing theory also requires new theoretical models.

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