

# CAPITAL STRUCTURE DECISION THEORIES: PROSPECTS AND CHALLENGES



**Usunobun Henry Ogiugo, Ph.D**  
*Department of Accounting and Finance,  
Western Delta University, Otefe-Oghara,  
Delta State.*

*And*

**Helen Ogheneovo Ovedje**  
*Department of Accounting,  
Delta State Polytechnic, Otefe-Oghara,  
Delta State.*

## **Abstract**

*This study examined the capital structure decision theories: prospects and challenges. There is no doubt the fact that when we mentioned or discussed a firm's capital structure either in a common place or in academic parlance, the Modigliani and Miller theorem opened a literature on the fundamental nature of debt and equity. The capital structure of a firm therefore is the result of the transaction with various suppliers of finance. In the perfect capital markets world of Modigliani and Miller, the cost of different forms of financing do not vary independently and therefore, there is no extra gain from opportunistically choosing among them. Financing is nevertheless clearly matters as a result of taxes, difference in information and agency costs. It has been revealed in this study that various theories of capital structure differ in their interpretation of these factors, as each emphasizes some cost and benefits of alternative financing strategies.*

**Keywords:** Capital structure and decision

One of the major components of a firm's financial structure is the capital structure. It is a combination of the ratio of debt and equity for firms to finance their assets. The capital structure of a firm is also the mix of its long- term financing instruments such as long-term debt, equity and preferred stock. These, in actual fact constitute its permanent capital and they must be carefully determined at any given time

in order to reduce the cost of capital to a minimum level so as to keep the price of the firm's stocks rising and thus increase the value of the firm.

Franco Modigliani and Merton Miller known as (M&M) in 1958, forms the basis for modern thinking on capital structure. The basic theorem states that, under a certain market price process (the classical random walk), in the absence of taxes, bankruptcy costs, agency costs, and asymmetric information of a firm is unaffected by how that firm is financed. It does not matter if the firm's capital is raised by issuing stock or selling debt. It does not matter what the firm's dividend policy is. Therefore, the Modigliani — Miller theorem is called the Capital Structure Irrelevance Principle.

It is imperative to note here, that Modigliani was awarded the 1985 Nobel Prize in Economics for this and other contributions. In addition, Miller who was a Professor at the University of Chicago was awarded in 1990 Nobel Prize in Economics along with Harry Markowitz and William Sharpe, for their “work in the theory of financial economics” with Miller specifically cited for “fundamental contributions to the theory of corporate finance.

Worthy of note here too, is that Miller and Modigliani derived the theorem and wrote their ground breaking article when they were both Professors at the Graduate School of Industrial Administration (GSIA) of Carnegie Mellon University. The story goes that Miller and Modigliani were set to teach corporate finance for business students despite the fact that they had no prior experience in corporate finance. When they read the material that existed they found it inconsistent and so they sat down together to try and figure it out. The result of this was the article in the American Economic Review and what has later known as the M & M Theorem.

Modigliani and Miller (1963) took taxation under consideration and proposed that the firms should employ as much debt as possible. Chen and Chen (2011) argued that tangible assets have a positive relationship with debt while intangibles show a negative relationship. It went further that companies have an advantage in using debt rather than using internal capital, as they can benefit from debt tax shields. This tax shield allows firms to pay lower tax than they should, when using debt capital instead of using only their own capital. The theory argued, that the more debt is, the more a firm's value is created. It is imperative to know how an organization is being financed by both the managers of firms and providers of funds. This is because if a wrong mix of finance is employed, the performance and survival of the business firm may be seriously jeopardized.

An effective and efficient financial management and what characters affect their capital structure are important for a firm to obtain better operational performance. Since the publication of the Modigliani and Miller's (1958), “irrelevance theory of capital structure” the theory of corporate capital structure has been a study of interest to finance economists. Over the years, three major theories of capital structure emerged which diverge from the assumption of perfect capital market under which the “irrelevance model” is working. The first is the trade-off theory which assumes that

firm 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. Lemmon and Zender (2009) find evidence in favour of the pecking order theory when they control for firm's debt capacities. Leary and Roberts (2009) investigate the empirical relevance of the pecking order theory in cases where a firm is financing investment expenditures, facing asymmetric information and is not constrained by debt capacity or financial distress concerns, and find evidence that even when controlling for the debt capacity the pecking order theory is never able to accurately characterize even half of firms' financing decision.

Recently, the market timing theory has challenged both static trade-off and pecking order theories by assuming that observed capital structure is the outcome of past abilities to time equity issues (Khemaies and Jameleddine, 2010). A new theory of capital structure was suggested which is the "market timing theory of capital structure." This theory states that the current capital structure is the cumulative outcome of past attempts to time the equity market. Market timing implies that firms issue new shares when they perceived they are overvalued and that firms repurchase own shares when they consider them to be undervalued. Ahmed and Hisham (2009) stated that the issue of capital structure has gained considerable attention from academics, practitioners and policy makers alike due to its strategic impact on financing policy in particular and firm's value in general. According to Modigliani and Miller (1958), capital structure emphasized that the value of a firm depends on real variables rather than slicing the pie of financing. Corporate debt funding provides a corporate tax shield and this tax shield may be more than to compensate for any extra personal tax that the investor has to pay on debt interest. However, the benefit of tax shield can be offset by the prospect of potential bankruptcy costs, and perhaps differences in capital structure reflect differences in the relative importance of growth opportunities.

The objective of this study therefore, is to determine whether or not internal fund deficient is to be funded by debt issue or others factors and impact of capital structure on firm's financial performance.

### **Capital Structure in the Real World**

If capital structure is irrelevant in a perfect market, then the imperfections which exist in the real world is most likely be the cause of its irrelevance. The theories below try to address some of these imperfections by relaxing assumptions made in the M & M model.

### **Trade-Off Theory**

Trade-off theory allows the bankruptcy cost to exist. It states that there is an advantage to financing with debt (namely, the tax benefits of debt) and that there is a cost of financing with debt (the bankruptcy costs and financial distress costs of debt). The marginal benefit of further increases in debt declines as debt increases, while the

marginal cost increases, so that a firm that is optimizing its overall value will focus on this trade-off when choosing how much debt and equity to use for financing. Empirically, this theory may explain difference in Debt/Equity Ratios between industries, but it does not explain the difference within the same industry.

### **Pecking Order Theory**

This theory tries to capture the costs of asymmetric information. It states that companies, prioritize their sources of financing (from internal financing to equity) according to the law of least effort, or of least resistance, preferring to raise equity as a financing means “of last resort”. Hence, internal financing is used first, when that is depleted, then debt is issued and when it is no longer sensible to issue any more debt, equity is issued. This theory maintains that business adhere to a hierarchy of financing sources and prefer internal financing when available, and debt is preferred over equity if external financing is required (equity would mean issuing shares which meant “bringing external ownership into the company). Thus, the form of debt a firm chooses can act as a signal of its need for external finance. The Pecking Order Theory is popularized by Myers (1984), when he argued that equity is a less preferred means to raise capital because, when managers (who are assumed to know better about true condition of the firm than investors), issue new equity; investors believe that managers think that the firm is overvalued and managers are taking advantage of this overvaluation. As a result, investors will place a lower value to the new equity issuance.

### **Agency Costs**

There are three types of Agency Costs which can help explain the relevance of capital structure as follows:

- (i) **Asset Substitution Effect:** As the Debt/Equity increases, management has an increased incentive to undertake risky (even negative NPV) projects. This is because, if the project is successful, shareholders get all the upside, whereas if it is unsuccessful, debt holders get all the downside. If the projects are undertaken, there is a chance of firm value decreasing and a wealth transfer from debt holders to shareholders.
- (ii) **Under-Investment Problem (or Debt Overhang Problem):** If a debt is risky (e.g. in a growth company), the gain from the project will accrue to debt holders rather than shareholders. Management thus, has an incentive to reject positive NPV projects, even though they have the potential to increase firm’s value.
- (iii) **Free Cash Flow:** Unless free-cash flow is given back to investors, management has an incentive to destroy firm’s value through empire building and perks, etc. Increasing leverage imposes financial discipline on management.

### **The Market Timing Theory**

The market timing theory of capital structure argues that firms time their equity issues in the sense that they issue stock when the stock price is perceived to be

overvalued and buy own share when there is undervalued. As a result fluctuation in stock price, firm's capital structure is affected. There are two versions of equity market timing that lead to similar capital structure's dynamics. The first assumes economic agents to be rational. Companies are assumed 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 coincides with an increase in the stock price. In response, firms create their own timing opportunities.

According to Lu, Xi and Lu (2010), the reaction behaviour of ordinary investors for different dividend policy inherent fundamental market price fluctuate with a certain range in a period of time, but under the negative feedback mechanism, the market price eventually return to its fundamental value. Due to irrational people and the market's incomplete arbitrage, the market price of the stocks and its portfolio will deviate from its inherent fundamental value. 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 imperative to know that the second version of market timing does not require that the market actually be inefficient. It does not ask managers to successfully predict stock returns. The assumption is simply that, managers believe that they can time the market. Barberis and Thaler (2005) agreed with Graham and Harvey view that managers admitted trying to time the equity market and most of those that have considered issuing common stock reported that "the amount by which our stock is undervalued or overvalued" was an important consideration. This study suggested the assumption in the market timing theory mentioned above which is that managers believe they can time the market, but does not immediately distinguish between the mispricing and the dynamic asymmetric information version of the market timing.

### **Existing Literature Review**

Modigliani and Miller (1958 and 1963) demonstrate that, in a frictionless world, financial leverage is unrelated to firm's value, but in a world of tax deductible interest payments, firm value and capital structure are positively related. The theory suggested that the tax as a key indicator with other firm specific factors significantly affect the capital structure. Capital structure and firm's value has been the subject of considerable debate, both theoretically and in empirical research. This debate centered on whether there is an optimal capital structure for an individual (firm) or whether the proportion of debt usage is irrelevant to the individual firm's value. According to Antwi, Mills and Zhao (2012), it was observed that in an emerging economy like Ghana, equity capital as a component of capital structure is relevant to the value of a firm, and long-term-debt was also found to be the major determinant of a firm's value.

Antwi, Mills and Zhao (2012) agreed with the views of Miller that in a frictionless world, financial leverage is unrelated to firm's value, but in a world with tax-deductible interest payments, firm value and capital structure are positively related.

Bankruptcy costs or agency costs are partial determinants of leverage and of optimal capital structure (Arun and Michael, 2007). In the presence of friction, firms, adjust their capital structure infrequently. As a consequence, in a dynamic economy the leverage of most firms is likely to differ from the “optimum” leverage at the time of readjustment (Ilya, 2007). According to Sofiane and Emmanuel (2017), a recent controversial debate around the relevancy of the Modigliani-Miller theorem regarding the banking sector which was raised in 2008 financial crisis showed that a bank does not satisfy the Modigliani-Miller theorem; precisely, as banks will favour leverage instead of equity. In addition to the tax shield hypothesis that explains the large body of empirical evidence relating industry membership and leverage, other arguments may relate industry members to capital structure decisions.

### **Criticism**

The criticism of M&M hypothesis lies 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 will fail to work and will give rise to discrepancy between the market values of levered and unlevered.

The traditional view is criticized because it implies that the 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 security. Modigliani and Miller also do not agree with the traditional view. They criticized the assumption that the cost of equity remains unaffected by leverage up to some reasonable limit.

Modigliani-Miller hypothesis is identical with the net operating income approach, Modigliani and Miller (M.M) argued that, in the absence of taxes, a firm’s market value and the cost of capital remain invariant to the capital structure changes. (Smriti, 2018). Second, it argued that if this theory were the key force, then the tax variables should show up powerfully in empirical work. Since the tax effects seem to be fairly minor empirically, he suggests that this theory is not satisfactory. Third, the theory predicts that more profitable firm should carry more debt since they have more profits that need to be protected from taxation.

Tax/bankruptcy costs trade-off theory remains the dominant model which the ability to predict actual outcomes is widely questioned. Parrino, Poteshman and Weisbach (2005) in the other hand, have simulated a tax bankruptcy trade-off model in an attempt to quantify the claim that bankruptcy costs are too small. In their analysis, the trade-off model performs better than is commonly recognized.

Modigliani and Miller also described two firms that are identical except for their financial structure in which one is unlevered, that is, it is financed by equity and partly by debt to be the same. The weakness of this theory is that it argues that all capital structures are the same. This is an error, as there is no optimum structure. At the same time, a strong management would definitely attempt to take advantage of favourable financial leverage in order to avoid the appearance of considerable risk in its

financing mix. The validity of M & M's theory rests on the four major assumptions, namely:

- (i) Perfect Capital Market: It assumes that all financial securities are traded in perfect markets by completely knowledgeable and rational investors.
- (ii) There is no corporate taxes.
- (iii) Absence of Transactions Cost: It also assumes broker's fees and commissions on traded securities are non-existent.
- (iv) Borrowing Against Stock: The theory finally assumes that investors can borrow using their stock as collateral for a loan.

**The Criticisms of the M & M theory are Legion thus:**

- (i) There is no perfect market in the real world. In other words, perfect market does not exist as investors are also not always rational and knowledgeable.
- (ii) The model is over-simplified in the sense that it omits taxes and transactions costs. This does not reflect actual market conditions.
- (iii) Investors may not be willing to borrow or even to accept such a personal risk of leverage that firms may accept.
- (iv) The rates at which the investors may be willing to borrow may be different from those firms.

**Conclusion**

There is no doubt the fact that when we mentioned or discussed a firm's capital structure either in a common place or in academic parlance, the Modigliani and Miller theorem opened a literature on the fundamental nature of debt and equity. The capital structure of a firm is the result of the transaction with various suppliers of finance. In the perfect capital markets world of Modigliani and Miller, the cost of different forms of financing do not vary independently and therefore, there is no extra gain from opportunistically choosing among them. Financing is nevertheless clearly matters as a result of taxes, difference in information and agency costs. It has been revealed in this study that various theories of capital structure differ in their interpretation of these factors, as each emphasizes some cost and benefits of alternative financing strategies and so they are not designed to be general.

**References**

- Abe De Jong, Marno Verbeek, Patrick Verwijmeren (2011) Firms' debt-equity decisions when the static tradeoff theory and the pecking order theory disagree. *Journal of Banking & Finance* 35(5). 1303-1314, 2011

- Ahmed, H.J. & Hisham, N. (2009). Revisiting Capital Structure Theory: A Test of Pecking Order, and Static Order Trade-Off Model from Malaysian Capital Market. *International Research Journal of Finance and Economics*(30) 58-65.
- Arun U. and Michail C. D (2017) Agency Costs, Bankruptcy Costs and the Use of Debt in Multinational Restaurant Firms. *Journal of Hospital Review* 25. 1-12
- Baker, M. & Jarrell, G. Kim, E.H. (1984). On the Existence of an Optimal Capital Structure: Theory and Evidence. *Journal of Financial Economics*,8, 2-29.
- Barberis and Thaler (2005), Advances in Behavioural Finance. *Journal of Financial Economics*, Vol. II. 59-60
- Chen and Chen (2011), Capital Structure Determinants: An empirical study in Taiwan. *African Journal of business management* 5 (27)
- Graham, J.R. (2000). How Big are the Tax Benefits of Debt? *Journal of Finance*, 55, (5) 1901— 1941.
- Ilya A S. (2007), Do tests of capital structure theory mean what they say? *Journal of Finance* 62 (4), 1747-1787, 2007
- Jensen, M.C. & Meckling, H.W. (1976). "Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure." *Journal of Financial Management*. 3 (4) 305-60.
- Ju, N., Parrino, R., Poteshman, A.M. & Weisbach, M.S. (2003). Horses and Rabbits? Optimal Dynamic Capital Structure from Shareholder and Manager Perspectives. Working Paper, University of Illinois, Champaign IL.
- Khemaies B. and Jameleddine C. (2010) Equity Market Timing and Capital Structure: Evidence from Tunisia and France. *International Journal of Business and Management*. 5 (10)
- Lu X., Xi Y., and Lu D. (2014), An Empirical study about catering theory of dividends: The Proof from Chinese Stock Market. *Journal of Industrial Engineering and Management* 7(2) 502-517
- Masulis, R.W. (1983). The Impact of Capital Structure Change on Firm Value: Some Estimates. *Journal of Finance*. 38, 107-126.



- Modigliani, F. & Miller, M.H. (1958), "The Cost of Capital, Corporate Finance and the Theory of Investment." *American Economic Review*. June 48 (4) 261-97.
- Modigliani, F. & Miller, M.H. (1963). "Corporate Income Taxes and the Cost of Capital: A Correction." *American Economic Review*. June 53 (3)443-53.
- Myers, S.C. & Majiuf, N.S. (1984). "Corporate Financing and Investment Decisions when Firms have Information that Investors do not have." *Journal of Financial Economics*. 13(2)187-221.
- Myers, S.C. (1977). "Determinants of Corporate Borrowing." *Journal of Financial Economics*. November 52. 147- 75.
- Myers, S.C. (1984). "The Capital Structure Puzzle." *Journal of Finance*. July, 39 (3). 575 -92.  
Optimal Capital Structure: The Effect of Firm and Industry Debt ratios on Market Value. *Journal of Financial and Strategic Decisions*.7 (3)
- Smriti C. (2018), Theories of Capital Structure (explained with examples) Financial Management. Retrieved from [www.yourarticlelibrary.com/financial-management/theories-of-capital-structure-explained-with-examples-financial-management/29398](http://www.yourarticlelibrary.com/financial-management/theories-of-capital-structure-explained-with-examples-financial-management/29398) on 24th June, 2018.
- Sofiane A. and Emmanuel L. (2017) New Developments on the Modigliani-Miller Theorem, *Theory of Probability and its Applications* 61(1): 3-14 retrieved from <https://www.researchgate.net> 22<sup>nd</sup> June, 2018.