

The modigliani and miller theory finance essay



The Modigliani Miller Theorem is a linchpin of modern corporate finance. At its core, the theorem is an irrelevance proposition: The Modigliani Miller Theorem provides circumstances under which an enterprise's financial decisions are independent on its value. Modigliani (1980, pxiii) explains the Theorem as follows:

... with well-functioning markets (and neutral taxes) and rational investors, who can 'undo' the corporate financial structure by holding positive or negative amounts of debt, the market value of the firm - debt plus equity - depends only on the income stream generated by its assets. It follows, in particular, that the value of the firm should not be affected by the share of debt in its financial structure or by what will be done with the returns - paid out as dividends or reinvested (profitably).

There are four distinct results that are understood from the Modigliani Miller Theorem and they are as follow:

The debt-equity ratio does not affect its market value under certain conditions.

The second proposition inculcates that a firm's debt-equity ratio is unaffected by its weighted average cost of capital that is the cost of equity capital is a linear function of leverage.

Firm's market value is sovereign of its dividend policy.

Stock-holders are non-chalant about the firm's financial policy.

The modern theory of capital structure started with Modigliani Miller(1958) on the plight of capital structure irrelevance. The distinct results shown above were based on the following assumptions:

Market prices cannot be influenced by scale of an individual's transactions that is all investors are price-takers.

Firms and investors being market participants can lend or borrow at the same riskless rate.

Income taxes are neither paid on the corporate level nor at a personal level.

There are no transaction charges or allowances.

Investors are all rational wealth-suitors.

Enterprises are grouped into " homogeneous risk classes" such that all members of the group obtain the same return.

Similar expectations about future company earnings are formulated by investors (normal probability distribution).

The assets of a company that can no longer carry out its business(insolvent) can be sold at full market values.

Criticism of the Modigliani and Miller theory

There is a common argument that Modigliani Miller provides a means of finding reasons why financing may matter but does not provide a reasonable description of how firms finance their operations. This is supported by a number of researchers such as Hamada (1969) and Stigiltz (1974). The

theorem has given rise to a lot of questions. How do firms choose their capital structure? Do firms have target leverage? What are the determinants of firm capital structure decisions? Many researchers have tried to answer these questions in their studies but the results are still enigmatic. The most frequent hypotheses used to address capital structure are static trade-off, pecking order and market timing theory and many others.

The criticism against this theorem can be grouped into two types:

Papers that deal with the limitations of the arbitrage conditions.

Arbitrage process is the operational justification for Modigliani and Miller hypothesis. Arbitraging can be defined as the process of buying a security in a market where the price is low and selling the security in another market where the price is higher. In so doing, an equilibrium is achieved and it implies that the security cannot be sold at different prices. According to the MM hypothesis, the total value of homogeneous firm that differ only in the debt-equity ratio will be similar due to the arbitraging condition. The later is no longer smooth due to institutional restrictions and it is also affected by transaction cost due to the limitations of the MM hypothesis.

The MM leverage irrelevance proposition bumped much controversy and criticism on the methodology section. Their proofs are based on a more appropriate and fundamental notion than a competitive equilibrium. This is where the arbitrage argument comes into play. When the arbitrage is absent, the economy becomes standard to price repetitive securities and Black Scholes (1973) depended on the MM- type arbitrage argument which

was rather clumsy as it was engaged with the comparison of firms whose cash flows had similar risk characteristics.

According to Stiglitz (1969)[1], firms do not issue much debt as there is the consequence of bankruptcy. The focus switched from the idea of risk class to the importance of bankruptcy.

Studies that analyse the effect of market imperfections on the firm's choice of capital structure.

Taxes, bankruptcy costs, transaction costs, adverse selection and agency conflicts are all part of the major explanation for the use of debt in corporate.

Trade-off Theory

The various costs and benefits of an alternative leverage plans are assessed by a decision maker who runs a firm. The trade-off theory is originated from a debate over the Modigliani and Miller theory. This is due to the addition of corporate taxes to the primitive irrelevance proposition. A debt benefit is seen to be created which serve as a shield before the taxes. Bankruptcy is the offsetting cost of debt that is needed. The optimal debt-equity ratio mirrors a trade-off between the tax benefits of debt and deadweight costs of bankruptcy Myers (1984). A firm that anchors a target leverage ratio and gradually moves towards the target is a firm that follows the trade-off theory. The determination of the target is made by stabilizing the tax shields against the cost of bankruptcy Jensen and Meckling (1977); Harris and Raviv (1990); Taggart (1977). It also weighs up the advantages and disadvantages of using debt. As discussed earlier, there is a shield benefit that acts as a barrier to taxes DeAngelo and Masulis (1980). In addition, there is a

reduction of the free cash flow problem Stulz (1990). However, the pitfalls of debt include the feasible cost of financial distress Kraus and Litzenberger (1973); Kim (1978) and the agency cost arising between the shareholders and the creditors. Frank and Goyal (2005[2]) take the Myers' earlier notion of trade-off to a new position namely the static trade-off theory determined within a single period and a target adjustment behavior.

Agency Cost Theory

Jensen and Meckling (1976) launched the agency cost of free cash flow theory. The theory is hinged on the conflict between managers, outside shareholders and bondholders. The conflicts can be either between the bondholders and shareholders which is a result of moral hazards or between managers and shareholders.. According to this theory, the managers do not always use the funds of the firm for the benefit of the company but rather for their own benefits. The managers exploit the powers they have and the abuse can be categorized in three different varieties. Foremost, managers possess ground on which they can enjoy the full value of anything they get from the firm such as private jets since they hold only a fraction of these allowances on the job consumption. Second, they might assay for the entire building as large firms have a tendency to give managers prestige, power and compensation for the work they do just to encourage them. Lastly, they have the power to tyrannise the firm according to their own preferences and make themselves prerequisites by investing in projects which others cannot manage. This negates the wealth of the shareholders.. Harris and Raviv (1990); Bodie and Merton (2000)

agency cost is seen to be more relevant to firms in mature industries. As these firms tend to generate cash which exceeds their investment needs. The availability of free cash in mature industries is higher and easily used for the management of the firms. Nyborg (2010). Therefore, it is true to say that agency cost is more relevant to larger firms.

Market Timing Theory

The market timing theory is based on the fact that enterprises prefer to issue stocks when the prices of the stocks are high and repurchase the stocks when the prices are falling. The assumption they make is that the market can be timed and managers really try to time market. The issue of debt and new equity can be made based on past price movements Marsh (1982). In a survey of British firms, CFOs harbor that they try to time the equity market. Those who considered the issue of shares reported that the amount by which the stocks are undervalued and overvalued is an important factor Graham and Harvey (2001). The shocks of equity price have an inexhaustible effect on the corporate capital structure. Following increments in stock prices, firms tend to issue equity and repurchase shares when the stock prices decline which is actually the opposite of what one might expect if corporate tended to equalize their structures towards a target Welch (2004).

Fischer, Heinkel and Zechner, (1989) observed that with new debt and equity issues over time, firms tend to return to their preferred leverage range. More specifically, firms are forced to march out from the preferred level of debt to equity ratio by embracing more debt as a source of financing to new projects or as a way to self- defend themselves against

take-overs show a transcendence to paying down debt to rebound to a more acceptable mix of leverage. Muscarella and Vetsuypens, 1990.

The Pecking Order Theory

Donaldson (1961) had been the first one to describe the prominent story based on a financing pecking order. He monitored: " Management strongly favoured internal generation as a source of new funds even to the exclusion of external funds except for occasional unavoidable ' bulges' in the need for funds".^[3] According to the picture that Donaldson framed, companies quietly complied retained earnings, becoming less tilted when they are lucrative and gather debt, becoming more uplifted when they are unprofitable. If companies are otherwise heedless about their capital structures as suggested by Miller (1977) then they will not make future capital structure selections which compensate the effect of their earnings history. But the common ' pecking order theory' branches out from Myers (1984). A firm pursues the pecking order if it prefers^[4] internal financing and debt equity if the external financing is used.

The pecking order theory is proposed by Myers and Majluf (1984) and is an application of asymmetric information theory. Following this theory, the managers of a firm who are considered as insiders are likely to possess private information about the firm's quality and investment projects. Ergo, the choice of a firm's capital structure strikes the outsiders who are actually the investors the information to managers. Because outsiders have less information than the managers regarding the value of the firm, the issued equity will be underpriced by the market. Financing the project through a security will prevent such a situation to crop up that is the security will not

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be undervalued by the market. The securities used can be in the form of retained earnings as internal funds and risk-less debts. Hinged by the argument set by Myers and Majluf (1984) , Myers (1984) suggested that the pecking order theory propose that firms finance their projects by firstly using internal funds in the form of retained earnings, secondly through the utility of debts (risk-less debts are used first and when there is a shortage or there is no more of the risk-less debt, risky debts are used) and finally equity is issued. Pecking Oder Theory speculates that managers do not take into consideration an optimal capital structure when making financial decisions. [5]They unpretentiously choose what seem to be the low cost financing devices.

Why do firms prefer debt to equity?

In corporate finance, asymmetric information refers to the fact that firm insiders, routinely the managers have better information than market actors on the value of their firm's asset and investment opportunities. The possibility that the market will wrongly price the firm's claim is created by this asymmetry thus providing a positive role for financing decisions of companies.

Let us think of a firm who wants to make new investments by making use of its growth possibilities. Given that this firm solicits to supply the resources, it needs to issue stocks. The stocks cannot be fully valued by the investors Myers (2001). Pecking order theory is born due to mispricing which comes to light as a consequence of not knowing the actual values of equity.

The existence of asymmetric information lies in the middle of mispricing Halov N and Heider F (2005). As a result of the asymmetric information, the firms quality as good issue stock to find resources, the issued equity are undervalued by investors Koutoukos (2006). Since a price cut is liked to be observed from the investors and to avoid this situation internal resources are preferred rather than issuing equity to finance investment without incurring any cost that arises from asymmetric information. Fama and French (2002) found that later supply resources used in investment financing are debts as they bear a low risk.

Due to the problems that are initiated by asymmetric information, firms hash external resources use as a cheaper policy as compared to the issuance of equity. There are several reasons why firms consider external financing as a better option to finance investment. One of them is the position of organizational sales. Enterprises with sturdy sales line gives the supremacy to finance through debt for their needs by availing form market trust towards them. These firms, therefore, have no trouble in repaying their debts due to the stable sales and their earnings. They are also liable to having recourse to debt more easily.

Additionally, size and structure of firms is another factor to be considered. Firms having more accessorized assets put borrowing first in line of their resources list since they will easily get debt. Tax advantage is as well a factor that can be added to the above list as it prioritize debt financing. A correction on the original model has been suggested by Modigliani and Miller (1963). In the new model, they clearly incorporate the corporate income tax, while the other assumptions were kept untouched. Assuming ceteris paribus, <https://assignbuster.com/the-modigliani-and-miller-theory-finance-essay/>

the value of the firm (VL) will be maximized as it is a function of the market value of debt. In theory when the levered firm reaches its maximum market value as it is financed entirely by debt. To finance their needs of financing, the firm should use as much debt as possible. To further relax the Modigliani-Miller's assumption, Miller (1977) introduced personal taxes together with corporate taxes into the model assuming that all enterprises have similar tax rates. According to him, the relatively higher personal income tax paid on bonds by firms should be grossed up by any differential that bondholders will pay on their interest income otherwise, bonds will have no value and no one would want to hold bonds. Therefore, in equilibrium the debt advantage is negligible. De Angelo and Masulis (1980) brought in the recognition of the existence of a non- identical marginal tax rates among different firms and the outcome of tax-shield items in the financial statement other than interest expenses. As far as capital structure is concerned, they brought in two implications. First, in equilibrium a firm who is considered as a borrower benefits from a positive gain from leverage if the tax rate is higher than the marginal firm because of a low pre-paid interest rate they pay. Moreover, items such as depreciation, oil depletion allowances and investment tax credits are defacto non cash charges. They predicted that there is a positive relationship between the level of debt and the effective tax rate and a negative relationship to the amount of non debt tax shields available to them. The interest rate of debt users is deductible from tax base which in turn relinquishes the importance to debt instead of equity.

Equity financing confers rise to transaction costs and to avoid this problem financing through debt is viewed as another reason Fama and French (2004).

In addition to that, uncertainty of control that might be experienced in enterprises is seen as a plausible factor. The presence of new shareholders confirms the fact that they will prefer stock financing as a lack of resources and will eventually give rise to risk of management control in firm whilst in financing via debt, there is no such risk of control loss.

Lamont (1997) evaluates that more than three-quarter of corporate investments in US are made through internal financing. Further, Fazzari, Hubbard and Pertuse (1988) has shown the delicacy of investment to internal cash flow, accenting the cost advantage of internal resources and thus explaining the fact why firms have recourse to external funds. Leary and Roberts (2005) also found that firms will not have recourse to external capital markets if they have sufficient internal funds but they are more likely to make use of the external funds when they have big investment needs. Event studies also provide a significant amount of evidence indicating that information is conveyed. Repurchases made through debt had larger announcement returns than those financed with cash thus representing larger increases in financial leverages Masulis (1980) and Vermaelen (1981).

Heinkel and Zechner (1990) analysed an expanded catalogue of risky securities that include preferred stocks. Assuming a given capital structure and asymmetric information about investment quality, they showed that in an amalgamated equilibrium, all stock firms tend to overinvest and accepted some negative NPV projects. The overinvestment can be eliminated by issuing an initial debt which resulted in an optimal leverage ratio. Besides, an underinvestment problem is created if managers make use of more debts

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considering the tax advantage of debt. Nevertheless, a kindred issue of preferred stocks will enable the firm to issue a higher level of debt desired without creating the problem of underinvestment. Therefore, managers develop an optimal capital structure with debt, preferred stocks and common r which is consistent with the pecking order theory.

There are also researchers that went through adjustments of capital structure around long run optima.[7]Marsh (1982) was one of them as he predicted that firms that have a leverage ratio below the average for the last 10 years are more likely to issue debt. Jalilvand and Harris (1984) is consistent with the results of Marsh (1982) as he shows that 108 of US manufacturing firms tend to issue long term debt when the long term debts are below average.

The Pecking order theory is tested on both large firms and small firms.

Most of the studies have been carried out on large firms. Few studies focused on small and medium sized firms. Since SMEs confront more information asymmetry problem, it is said that the financing decisions of SMEs are better explained by the pecking order theory. Consequently recent studies have attempted to explain the financing decisions of small firms in the context of the pecking order theory. They also argue that there is a lot of differences between large and small firms. It is not only a matter of size, this is why accurate models are used to study the decisions of the latter. The problem of information asymmetry is more persistent within small firms than in large firms. This is due to the scarcity and informality of information that is available.

The financing structure of small firms is explained by using a financial growth cycle by Berger and Udell (1998). “(...) in which financial needs and option change as the business grows, gains further experience, and becomes less informationally opaque”. For the first two years namely the initial stage or the infant stage, companies face more information asymmetries as their main source of funds are from friends and relatives, trade credit and investors. As the age and size of companies become large enough, credit from financial institutions become more available. This is a typical view of pecking order where the degree of information asymmetry decreases as the firms grow in size and experience.

Small firms find external equity costly due to the fixed costs of initial public offerings. Chittenden et al (1996).

A SME pecking order was described by Zoppa and Mc Mahon (2002).[8]As pecking order theory prescribes, the internal funding is the first choice. In second position, the company uses short -term debt which includes trade credit and personal loans. Long-term debts are then used which include loans from owners, family and relatives. The last alternative is equity.

The study of Gebru (2009) is found to be consistent with other studies as pecking order theory holds to be true for SMEs. The sample used is from Tigray and it is seen that the educational level of owners decreases and there is less intrusion in the form of ownership. Ownership type, acquisition type and owner’s level of education are found to be the major determinants of MSE financing preferences.

However, Murray and Goyal (2003) demonstrated that pecking order theory fails where actually it should be liable and this applies for small firms where the main problem is information asymmetry.

Various studies have been carried out to test the validity of pecking order theory. Evidences have shown that many researchers are for the theory and the others are against and they are as follow:

Shyam- Sunder and Myers (1999) proposed to investigate the pecking order theory in the US market. According to them, the pecking order was described as an excellent first order caption for financial behaviors of companies. The slope of a firm's deficit is alleged to be equal to one and the coefficient of the intercept is zero if the pecking order holds. The regression is made to the change of debt in year t . Besides, results unveil that pecking order shows a greater confidence when tested with the target adjustment model. However Chirinko and Singha (2000) examined the interpretation of Shyam- Sunder and Myers (1999) regression test as it showed that the hypothesis test used by the later suffered from statistical power problems. These problems mustered the questions about the validity of inferences hinged on their new testing strategy. The former found out that the assumption of the slope of the deficit being one was not a necessary assumption for pecking order theory to be valid. The slope coefficient would equal to one if pecking order holds and will fall short to unity if the pecking order is not valid.

Coupled with the above, the importance of information asymmetry as a determinant of capital structure as proposed by pecking order theory is tested by Bharath, Pasquariello and Wu (2009). It is seen that for the period,

the test was carried out, information asymmetry did actually affect the capital structure decisions of US firms. They estimated that for every dollar of financing deficit to cover, firms in highest adverse selection decile issue more debt than those in the lowest decile. They also found out that its only when information asymmetry is to its minimum that firms will prefer to issue equity. These evidences explain the partial relevance of pecking order theory.

Besides, Lemmon and Zender (2006) tested the modified version of pecking order theory. The debt capacity of a firm is taken into consideration. They wrangled that the financing choice of firms may depend on its debt capacity. This is because they believe that to fulfill financing needs, some firms may save on the debt capacity. Internal funds remain first on the financing list for all firms. Firms that are flexible to debt capacity will chiefly use debt to fill their financing deficit. Hinged on these findings, they came to the conclusion that the firms' debt capacity is a good descriptor of financial behavior and goes along with the modified version of pecking order theory.

Tong et al (2011) tested the static trade off theory against the pecking order theory for US firms. According to them, pecking order theory produces issuance of debt until the debt capacity is attained. Their evidence indicated that pecking order is a better headline for US firms' issue decisions than the static trade off theory.

The Australian case was evaluated by Suchard and Singh (2006). The Australian market can be distinguished from typical US and European markets as it has many distinct characteristics. They found out that listed

debt market was limited. This is mostly where firms obtained bank debt, debts that are convertible but not callable and stand alone warrants which are used to raise capital. They examined the determinants of security choice for hybrid issuers based on these differences and claimed that the results supported the pecking order theory.

Coupled with the above, the linkage between managerial optimism and corporate financial decisions was verified by Lin et al (2008)[9]. The evaluation was carried out by testing the Heaton's (2002) model. Apart from information asymmetry, managerial optimism also contributes in the pecking order theory. Lin et al (2008) wanted to know if the pecking order preference was better when the managers were more optimistic. Listed Taiwanese companies were used in their sample and a stronger relationship was found between the issuance of debt and the financial deficit which is consistent with the model used by Lin et al (2008).

In contrast, Faulkender and Wang (2006) provide restrained evidence for the pecking order theory. According to them, approximately a value of \$1.43 is placed on companies' cash holdings by investors of equity firms. This is done as it prevents a company from paying costs when raising capital in the market. Since, external financing becomes more difficult and costly to obtain, the cash value is higher for firms facing hindrance on additional financing. However, the cash value decreases as cash holdings become larger, high leverage, better cash to capital markets and larger cash distributions through dividends rather than the repurchase of shares.

Next, many individual financing decisions of firms were screened by Fama and French (2005).^[10] They found that these decisions were in contradiction with the important prognosis of pecking order theory. To give an example of the contradictions, pecking order theory states that equity issues should be the last option to be used but yet, it is observed that most firms issue some sort of stocks annually.

Leary and Robert (2010) contended that pecking order theory was no way able to meticulously classify more than half of the observed financing decisions of US firms. They also suggested that the little pecking order behavior that was seen was due to incentive conflicts rather than information asymmetry.

Further, Gonenc (2008) studied to verify the extent to which pecking order theory was incorporated in corporations in the US, the UK, Germany and Japan. They speculated that investors from the UK and US had an asymmetric information problem which was caused by the large spread of equity being owned. He proposed that in these countries, two managers and insiders have more information than outsider investors. German and Japanese investors faced the same asymmetric information problem mainly due to the less information flows. But evidences have shown that US, UK and Germany firms were not very supportive when it came to the pecking order theory while Japan supported the pecking order theory during the 1980s and 1990s.

The impact of industry membership on the capital structure dynamics were scrutinized by Tucker and Stoja (2011) over the period from 1968 to 2006.

They recommended that pecking order theory could explain only a few aspects of UK corporations' capital structure policies, but it does not give an adequate explanation of their behaviours in the real world. More explicitly, they perceived that in the short run, old economy firms followed the standard pecking order theory but the new economy corporations prefer equity to debt when external funds are required.

The incremental financing decision for 150 Dutch firms was estimated for the period of 1984 to 1997 by Haan and Hinloopen (2003). A distinction is made between internal financing and three types of external funds: bank borrowing, debt issues and equity issues. They concluded that Dutch companies had ingrained financing preferences namely, internal financing was preferred in the first position, bank loans are used secondly, thirdly equity are issued and finally bonds are issued.

In addition, an investigation was carried out by Delcore (2007)[11] as to whether capital structure determinants in emerging Central and Eastern European (CEE) countries followed the traditional capital structure theory. The explanation of capital structures in CEE cannot be made by the pecking order theory. They came to the conclusion that there are factors that influenced the leverage decisions for CEE countries and they were: the difference of banking systems, disparity in legal systems governing corporate operations, shareholders' and bondholders' rights protection and corporate governance.