

Theories of Capital Structure: A Comprehensive Review

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ABSTRACT

This paper is an attempt to review the capital structure theories that have been put forward in the literature to provide an explanation for a firm's capital structure decision. Modigliani and Miller (1958) introduced the theory of irrelevance of capital structure in determining the market value of a firm based on the assumption of a perfect capital market, the absence of taxes, transaction costs, and bankruptcy costs. Further theories emerged over the years following the M&M approach. Trade-off theory suggests that firms have a unique optimal capital structure that balances the benefits and costs of debt and equity financing. Pecking order theory (Myers, 1984; Myers and Majluf, 1984) explains the hierarchical nature of firms' financing behaviour, where firms prefer internal financing and utilise internal funds first. When these funds get exhausted, firms issue debt and finally, as a last resort, issue equity capital. It has been seen that a more comprehensive approach to the capital structure of firms is required, as the existing theories are unable to explain all important aspects of the selection of an optimal capital structure and may not be applicable to different firms in different economic situations. Overall, the capital structure puzzle is yet to be solved.

Keywords: Capital structure, Modigliani-Miller theorem, Net income approach, Pecking order theory, Trade off theory

INTRODUCTION

Capital structure is the proportion of debt and equity in which a company finances its business. The debt and equity mix of a firm can have important implications for its value and cost of capital. It is essential to identify the important elements of capital structure and the ideal financing mix for a firm at a particular point in time.

Various theories have been put forward in the literature to provide an explanation for a firm's capital structure decision. Durand [2] proposed the Net Income(NI) approach, which states that a firm can increase its value and reduce its cost of capital by using debt financing. Again, the net operating income approach is entirely in contrast to the net income approach. According to the Net Operating Income Approach, the market value of a firm and its overall cost of capital are not affected by its capital structure. Further, the traditional approach propagated that there exists an optimal capital structure at which a firm's cost of capital is minimum and the firm's value is maximum. Hence, judicious use of both debt and equity was suggested to achieve an optimal capital structure.

Modigliani and Miller [9] presented the theory of irrelevance of capital structure in determining the market value of a firm based on the assumption of a perfect capital market, the absence of taxes, transaction costs, and bankruptcy costs. Further theories emerged over the years following the Modigliani and Miller (M&M) approach. Trade-off theory suggests that firms have a unique optimal capital structure that balances the benefits and costs of debt and equity financing. Pecking order theory [11, 12] explains the hierarchical nature of firms' financing behaviour, where firms prefer internal financing and utilise internal funds first. When these funds get exhausted, firms issue debt and finally, as a last resort, issue equity capital.

Numerous empirical studies in the field of finance have also attempted to test these theories and their effectiveness. The aim of this paper is to review the various theories to provide clarification for the firm's capital structure decision.

THE MODIGLIANI-MILLER THEOREM

The theory of modern business finance started with the capital structure irrelevance proposition. The theorem was developed by economists Franco Modigliani and Merton Miller in 1958. According to Modigliani and Miller's papers in 1958, 1961, and 1963, the propositions that can be drawn are:

Proposition I: Irrelevance of the Capital Structure:

The first proposition (1958) suggested that the valuation of a firm is irrelevant to the capital structure of a company. The theory assumed a fully efficient market in which there are no taxes, transaction or bankruptcy costs, or information asymmetry.

i. Without the effect of taxes

The value of a company is equal to the present value of future cash flows. Since companies do not pay any taxes, even leveraged companies cannot obtain the tax-deductible benefits of interest payments on debt. Hence, it was claimed that the capital structure does not affect the market value of the firm.

ii. With the effect of taxes

The first proposition with taxes states that due to the exclusion of interest paid on debt from the payment of taxes, firms that have more debt in their capital structure are required to pay a lesser portion of tax, and hence, such firms have a higher market value than firms that have no debt in their capital structure.

Proposition II: Increase in cost of equity with the debt-equity ratio:

The second M&M proposition states about the direct relationship between a firm's debt-equity ratio and its cost of equity.

i. Without the effect of taxes

The expected return on equity increases proportionately with the debt-to-equity ratio. The expected return on equity is compensated by the benefit of cheaper debt financing. Therefore, the weighted average cost of capital remains the same and is not influenced by the capital structure, as a result of which the firm's value remains unaffected.

ii. With the effect of taxes

When tax is included, firms can decrease the weighted average cost of capital by increasing debt in the capital structure due to the tax shield. This increases the firm's value.

Proposition III: Irrelevance of the Dividend Policy

M&M's third proposition claims that a firm's market value is not affected by its dividend policy.

Modigliani and Miller's papers led subsequently to both clarity and controversy. The 1958 paper stimulated serious research devoted to disproving the capital structure irrelevance theory. Various research has been done to see whether the assumptions of the theory hold in reality given the existence of transaction costs, bankruptcy costs, etc. The M&M theory fails under a variety of circumstances.

Ardalan, K. [1] proved the relevance of capital structure on the assumption that debt is risky and share price maximisation is the goal of the firm. With the increased use of debt in the capital structure, the share price initially rises. However, after a certain point, the share price starts to fall.

Therefore, there is an optimal capital structure for a firm, which shows that the M&M theory of capital structure irrelevance is based on unrealistic assumptions.

TRADE-OFF THEORY

The trade-off theory suggests that firms have a unique optimal capital structure that balances the benefits and costs of debt and equity financing. There are two versions of the trade-off theory, viz., the static trade-off and the dynamic trade-off. The static trade-off theory starts with the capital structure irrelevance theory of Modigliani and Miller but removes the assumption of the absence of costs of financial distress. Thus, when a firm continues to take on more and more debt, there will be a point when the tax shield on debt is exceeded by the cost of financial distress. The benefit of further increases in debt declines as debt increases, while the cost of debt increases. So, firms should focus on the trade-off when selecting the amount of debt and equity to be used for financing.

Hovakimian, A., Opler, T., & Titman, S. [5] examined the deviations in the leverage ratios of 5000 US publicly traded companies from their target leverage ratios over a 19-year period from 1979 to 1997. A statistical regression model was employed to predict the target leverage ratios of the sample companies for each of the 19 years, considering company size, market-to-book ratios, selling expenses as a percentage of sales, and R&D as independent variables on the basis of the findings of several other studies during the period. Larger companies, all other factors remaining equal, are generally in a better-off position to support higher leverage ratios. Companies in which a large proportion of their current value consists of future growth prospects and other intangible assets tend to make less use of debt than companies with tangible assets and stable cash flows. The difference between a company's estimated leverage ratios and its actual leverage ratio in any year was termed "leverage deficit." The study then analysed the behaviour of companies with large or small leverage deficits while making a choice between debt and equity. The working

hypothesis of the model was that companies with higher leverage deficits were more likely to borrow on debt and repurchase equity, whereas companies with negative leverage deficits would raise equity funds and retire debt. The results were found to be consistent with the hypothesis. The findings also confirmed that managers take steps to readjust their capital structures accordingly, depending on whether they are reporting losses or profits. Firms tend to issue equity when they have reported losses. It was also found that companies with high stock returns are more likely to issue equity and retire debt. The findings also showed that firms with negative cash flows are less likely to take actions to retire debt or issue equity, i.e., reduce leverage, if a major portion of their debt obligations have to be paid off after three years. The results of the study were found to be consistent with the suggestions of the “Dynamic Trade-off Theory” that although deviations of debt ratios from their targets may happen in the short run, firms eventually put efforts into moving back towards the targets in the long run.

Leary and Roberts [7] argued that the existence of adjustment costs, e.g., transaction costs due to market imperfections, prevents firms from moving back towards their target capital structure following deviations.

PECKING ORDER THEORY

The pecking order theory suggested by Myers [11] says that firms initially prefer internal sources of financing, i.e., retained earnings, in all possible cases. When internal funds get exhausted, firms go for external financing, and in this case, debt is preferred. Equity issues are kept only as a last resort. This happens because of adverse selection, which occurs due to the presence of asymmetric information among investors regarding the firm’s value.

The empirical evidence is mixed. Shyam-Sunder and Myers [13] and Lemmon and Zender [8] found support for the pecking order theory. Frank and Goyal [3] tested the pecking order model on publicly traded American firms over the 1971-1998 period. The theory does not hold good for small firms that are commonly thought to be particularly subject to adverse selection problems. On the other hand, during the period 1971-1989, large firms were found to match the pecking order prediction. However, even large firms showed declining support for pecking orders in the 1990s. Internal financing was inadequate; firms were heavily dependent on external financing, which is contrary to the suggestions of the pecking order model. Also, net equity issues were found to track the financing deficit more closely than net debt issues.

Halov and Heider [4] studied that under all circumstances, adverse selection may not lead to pecking order in general. When there is adverse selection about firm value, debt is preferred to equity. And in the presence of information asymmetry regarding risk, an equity issue is opted for.

Jarallah, S., Saleh, A. S., & Salim, R. [6] investigated the validity of the pecking order theory and the trade-off theory of capital structure by using data for 1362 publicly listed nonfinancial Japanese companies on the Tokyo Stock Exchange from 1991-2015. The size of the firm, profitability, growth opportunities, and dividend pay-out ratio were considered independent variables affecting the financing behaviour of companies.

The size of the firm was found to have a positive impact on both measures of leverage, therefore indicating that the bigger a firm, the greater its ability to tap the debt market. This finding was not in line with the pecking order model, but it is applicable to the trade-off theory. Also, the rise in the risk of financial distress associated with debt capital is not as rapid as in smaller firms. The relationship between leverage and profitability was negative, which was interpreted as a cause of the significant asymmetric information cost associated with external finance. It suggests that in the presence of information asymmetry, firms should initially depend upon internal funds and, if required, afterwards seek external finance. Growth opportunities were positively associated with leverage, which suggests that when growth-oriented strategies with favourable future prospects are adopted by firms, they choose debt financing and repurchase equity. And the dividend pay-out ratio was found to have a direct relationship with leverage. Hence, the overall findings were consistent with the pecking order model in general, which explains the financing behaviour of Japanese firms.

Various studies on the pecking order model imply that factors other than information asymmetry and agency costs are taken into consideration when firms choose their capital structure in real-world situations.

CONCLUSION

This paper reviewed the various theories to explain the capital structure policy adopted by firms. Several factors come into consideration in explaining a firm’s capital structure. The literature on the relationship between the capital structure of a firm and its performance has produced different results [3, 9, 11]. The various theories of capital structure differ in their interpretation of the costs of different forms of financing. Each emphasises some of the costs and benefits of alternative financing strategies. Considering all of the above-discussed theories, it is clear that there is no single theory that integrates all important concepts and aspects of the selection of an optimal capital structure. Also, a more comprehensive approach to the capital structure of firms is required, as the existing theories are unable to explain

everything and may not be applicable to different firms under different circumstances. Overall, the capital structure puzzle is yet to be solved.

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