CAPITAL STRUCTURE: AN EMPIRICAL REVIEW

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INTRODUCTION

In order to study the issues of corporate capital structure, a summary of the literature is depicting the important theories that concern the value relevance of capital structure. This chapter delineates the theory of corporate capital structure since Franco Modigliani and Merton Miller (M&M) 1958 presented the irrelevance theorem that threw traditional viewers of corporate capital structure into utter confusion. Thus, in financial decision making and especially the capital structure choice is fascinating academic researchers and practitioners alike. Since, then many economists have followed the path and, now, some 50 years later it seems appropriate to take stock of where this research stands and where it is going. My purpose is to synthesize the literature, summarize its results, relate these to the known empirical evidence and suggest a promising avenue for future research. Until the publication of M&M’s landmark paper (1958), it had been generally assumed that there is an optimal mixture of debt and equity in a firm’s capital structure that results in a shallow, U-shaped average cost of capital curve. It means that the market value of the firm will rise to a point with an increase in the debt ratio and any increase beyond that point will cause the market value of the firm to decline. Despite the traditional view appears to be subsequently correct in relation to the recognized real world behavior of capital structures, it suffers from lack of rigorous proof. This implies that there is an optimal capital structure but no analytical means of determining it. Thus, one of the most important decisions confronting a firm in Corporate Finance is the design of its capital structure. While Modigliani and Miller (1958) derive conditions under which the capital structure choice is irrelevant to firm’s valuation, the subsequent theoretical literature has shown that a firm can influence its value and improve its future prospects varying the ratio between debt and equity.
EMPIRICAL EVIDENCES

Marsh, Paul (1982) conducted a study on “The Choice between Equity and Debt: An Empirical Study” on UK companies between 1959 and 1974 by developing a descriptive model of the choice between equity and debt. The study focuses on how companies select between financing instruments at a given point in time. It also throws light on the decision taken by companies is heavily influenced by market conditions and the past history of security prices in choosing between debt and equity. The study also provided evidence that companies appear to make their choice of financing instrument as if they have target levels of debt as per the availability of resources. The results of the study are consistent with the notion that these target debt levels are themselves a function of company size, bankruptcy risk, and asset composition. The predictive model developed in the study itself could be used by investment analysts concerned with forecasting the financial policy of particular companies. Furthermore, financial managers faced with the choice between equity and a debt issue could use the model to gain insight into the decision other managers would make under the same circumstances.

Homaifar, Ghassem, Zietz Joachim, Omar, Benkato (1994) conducted a study on “An Empirical Model of Capital Structure: Some New Evidence” for the period 1979-1988. The study focused on providing long-run steady state equilibrium estimates of the determinants of capital structure. The findings of the study revealed that, in the long run, the corporate tax rate is positively related to the leverage ratio. The regression results also reveal that firm size and future growth opportunities appear to be important determinants of the capital structure. The positive association between leverage and firm size is remarkably robust and consistent with the evidence available in the various studies conducted by researchers. The study also finds a strong negative relationship between future growth opportunities and leverage and also between leverage and stock returns. The negative relation between leverage and future growth opportunities is consistent with Myers' hypothesis that firms with greater future growth opportunities employ less debt. There is no statistically significant relationship between leverage and the unlevered tax rate (T) in any of the annual cross-section regression analysis. The negative relation between stock returns and leverage substantiates the earlier argument that firms tend to substitute equity for debt when stock returns are high.

Michaelas, Chittenden and Poutziouris (1998) authored a very interesting study “A model of capital structure decision-making in small firms” with a sample of 30 small U.S. companies in which they concluded that firms preferred not to raise external equity in particular because they did not want to dilute control. Their findings revealed that retained earnings were the most important source of financing followed by trade credit and then bank loans consistent with Myers’ Pecking Order Theory. They also found that growth oriented firms were more likely to use an external source of financing because they had exhausted their internal source of capital. The study also revealed that more profitable firms are less likely to require external sources of capital, because retained earnings can be used as a major source of financing. The study also concluded that there is a positive relationship between future opportunities and leverage as well as positive relationship are depicted between risk and debt ratio.

Booth, Laurence, VaroujAivazian, Demirguc-KuntAsli, Maksimovic Vojislav (2001) conducted a study on “Capital Structures in Developing Countries”. The study used a new data set to assess whether capital structure theory is porTable across countries with different institutional structures. The study focused on analyzing the capital structure choices
of firms in 10 developing countries India, Pakistan, Thailand, Malaysia, Turkey, Zimbabwe, Mexico, Brazil, Jordan, and Korea from 1980-1990. It also provides evidence that these decisions are affected by the same variables as in developed countries. There is also support for the role of asset tangibility in financing decisions. A consistent result is found in both the country and pooled data results which shows that more profitable the firm, the lower the debt ratio, regardless of how the debt-ratio is defined. This finding is consistent with the Pecking-Order Hypothesis. However, there are persistent differences across countries, indicating that specific country factors are at work. The overall conclusions are that the variables that are relevant for explaining capital structures in the United States and European countries are also relevant in developing countries, despite the profound differences in institutional factors across these developing countries. Thus, the findings suggest that although some of the insights from modern finance theory are portable across countries, much remains to be done to understand the impact of different institutional features on capital structure choices.

Graham, John and Harvey Campbell (2002) conducted a study on “How do CFO’s make capital budgeting and capital structure decisions?” received 392 completed surveys representing a wide variety of firms and industries. The design of the survey provided better understanding of corporate decision making by analyzing CFO’s response in context of various company’s characteristics such as size, price-earnings ratio, leverage, credit rating, dividend policy and industry. The results also enabled to identify the various aspects of corporate practices that are consistent with the finance theory. The study also focused on systematic relationship between financial choices and managerial factors. The findings provided clear evidence that firm size significantly affects the practice of corporate finance. The findings also revealed surprising result that financial flexibility and credit ratings were most important in setting the debt policy and avoiding EPS dilution was the biggest reason for company’s reluctance to issue equity. Further, there was moderate evidence that companies follow the trade-off theory of Capital Structure by setting and attempting to adhere to target debt ratios.

Nishioka, Shinichi, Baba, Naohiko (2004) conducted a study on “Dynamic Capital Structure of Japanese Firms: How Far Has the Reduction of Excess Leverage Progressed in Japan?”. The study focuses on investigating the determinants of capital structure of Japanese firms using a panel data set comprising about 700 firms listed on the first section of the Tokyo Stock Exchange since the early 1990’s. The study adopted the trade-off theory as a basic framework, controlling for various effects implied by alternative hypotheses including governance structure, the pecking order theory, and market timing hypothesis. The findings of the study are that the trade-off theory provides an appropriate framework to assess this issue after controlling for various variables as proxies for other hypotheses including governance structure, the pecking order theory, and market timing hypothesis. Further the results also revealed that, among such variables, profitability as a proxy for the pecking order theory has significant explanatory power. The study also reflects that the governance structure significantly influences the speed at which firms adjust their leverage ratios toward optimal ones. In particular, the higher the shareholding ratio of overseas investors, the more quickly market-value leverage ratios adjust. The other findings of the study are that the implied excess leverage ratios show a marked contrast between the firms in good credit standing and others. Thus, the reduction of excess leverage by highly-rated firms has substantially progressed so far, while others still have a long way to go.

JHvH, de Wet (2006) conducted a study on “Determining the optimal capital structure: a practical contemporary approach” for three companies listed on the JSE South Africa. The aim of the study is to investigate financial structure in practice and apply a model
to determine the optimal capital structure. The study investigated capital structure used in
different countries and industries and different theories of capital structure. The focus is on to
study the trade-off model, incorporating taxes and financial distress costs to determine the
optimal capital structure. The result of the analysis mentions that the greater care needs to be
taken in ensuring the reasonableness of the input data and the valuation model. The further
results suggest that a significant amount of value can be unlocked in moving closer to the
optimum level of gearing. The findings of the study emphasize upon using the model and
preferably within acceptable interval rather than to try to attain the absolute optimum capital
structure. The findings suggested that, Trade-off Model can be used as a point of departure to
assist companies to engineer their capital structure in such a way that they remain in an
optimal interval and maximizing value for the shareholders.

conducted a study on “Regression analysis on the Capital Structure of select diversified
companies” for four industries i.e., Pharmaceuticals, consumer goods, cement and Fabric for
the time period from 2001-2004 to shed light on the financial performance. The study
focused on examining the debt equity and Earning per Share trends in the diversified
companies as well as the impact upon Earning per Share by the debt –equity structure. The
study hypothesize that the diversified companies do not differ significantly in their capital
structure and the findings suggest that the relationship between earning per share and debt
equity in them is not statistically significant. The emphasis is on finding out the significance
level between debt equity and Earning per share. The analysis of the study mentions that, it is
not only the debt-equity factor but also other variables such as risk, income, control flexibility
and timings which have a bearing on the earning per share. The analysis also suggested that
in the diversified company’s debt is not properly used for the purpose of increasing earnings
to shareholders.

Carpentier, Cecile (2006) studied “The valuation effects of long-term changes in
capital structure” on firm value using a sample of 243 French firms over the period 1987-1996. The
main objective of the study was to test the irrelevance proposition whereby changes in capital structure does not affect firm value. The findings of the study were that there was no evidence to support a significant relationship between the change in debt ratio and changes in value. In order to assess the strength of this finding, control for reversion towards the target debt level induced by the Static Trade-off Theory. The paper also focuses on the assessing the control for reversion towards the target debt level induced by the static Trade-off Theory. The findings also revealed that bivariate and multivariate tests do not show a significant relationship between changes in value and leverage. There is a lack of relationship even when the direction of change in financial structure is considered. Thus, the lack of relationship between debt and value affirms the propositions of MM approach and the result is also consistent with the timing capital structure theory.

Woodruff, Gregg S. (2007) conducted a study on “Factors explaining debt capacity”
for 3,707 firms for the period of 2001-2005. The objective of the study is to provide empirical
support for micro economic theory respecting debt capacity and develop a practically useful
model for assessing debt capacity for firms seeking to minimize credit risk and the cost of
debt. The various factors considered important in explaining the variation in debt capacity are
identified as the proportion of property, plant and equipment over total assets, industry group,
sales variability and the depreciation method. The regression results indicate that the
theoretical model explains a statistically significant portion of the variation across firms in
the proportion of debt to total assets a firm is willing to carry. The model developed has
implications for the various firms in assessing the debt capacity. The firm’s whose actual debt
to asset ratio is less than their debt capacity can borrow more, if needed. The estimated debt capacity can also be used by the creditors while deciding the terms of extending credit. Thus, the model so developed can be beneficial lenders, borrowers, and existing and potential investors in explaining the variation in debt capacity across firms.

**Cotei Carmen, Farhat Joseph (2008)** conducted the study on “Testing Capital Structure Theories: Are the Models’ Assumptions Correctly Specified?” for the final sample, of 89,591 firm-year observations for the time period of 1980-2001. The study investigated the models used in testing the trade-off and pecking order theories to examine the symmetric behavior assumption and homogeneous coefficient assumptions. The study applied the spline regression model to test the adequacy of these assumptions for the trade-off model, the results show that symmetrical rate of adjustment assumption is rejected across all industries. The results show that firms tend to adjust faster toward the target leverage when they are above the target compared to when they are below the target leverage. For the pecking order model, the study rejected the hypothesis that firms have a symmetric behavior regardless of the sign of the financing variable. The results show that firms have the tendency to reduce debt by a significantly higher proportion when they have financing surplus compared to the proportion of debt issued when they have financing deficit. The results show that the adjustment rate and the financing deficit coefficient vary significantly across industries.

**Frank Murray Z., Goyal Vidhan K. (2009)** conducted a study on “Capital structure decisions: which factors are reliably important?” Of publicly traded American firms from 1950-2003 to determine which factor has a reliable relation to market based leverages. The study focused on various factors, i.e., industry leverage, market to book ratio, tangible assets, profitability and size. The descriptive statistics reveal significant time-series variation in the structure of balance sheet and cash flow statement of the US firms. The correlation coefficient between leverage measures and various leverage factors are also calculated, and it is concluded that the effects of the market to book assets ratio, firm size are operating through their ability to capture the aspects of the firm’s anticipated future. The roles of tangibility and firm size also do not flow directly from the basic logic of the pecking order theory. The findings suggest that market timings provides cross sectional implication within this empirical framework, and there is no direct explanation for the pattern being followed. The empirical evidence seems reasonably consistent with the trade-off theory of capital structure.

**Seelanatha Senarath Lalithananda (2010)** studied the “Determinants of Capital Structure: Further Evidence from China” for 24 industries from 1999-2005 and studied the impact of a firm’s relative efficiency market share and industry concentration on capital structure decision. The study aims to provide empirical evidence for the relationship between a firm’s choice of capital structure and its productive environment. It was non parametric data envelopment analysis (DEA) to measure the relative efficiency. The findings of the study support the franchise value hypothesis that predicted a negative relationship between leverage and the firm’s relative efficiency. It is also found that relatively large firms in the industry tend to use a lower level of leverage. Further, the variables used for representing a firm’s relative market power have recorded a statistically significant negative relationship. These results are consistent with the Pecking Order Theory. There are another two sets of variables to represent the other control variables and industry and time variant factors.

**Al- Najjar Basil (2011)** conducted a study on “Empirical Modelling of Capital structure: Jordanian Evidence” for 86 non-financial Jordanian firms from 1999-2003. The study reflect that capital structure choice in Jordan is influenced by a similar set of factors suggested in the developed markets, namely institutional ownership, profitability, business risk, asset tangibility, asset liquidity, market to book and firm size. The study adopts two
techniques to investigate the determinants of capital structure by using the pooled and panel data regression analysis. The results indicate that there is a significant negative relationship between leverage and both profitability and business risk. Further the results also indicate that there is a significant and positive relationship between firm size, market to book ratio, asset tangibility and liquidity on one hand and leverage, on the other hand, indicating that the disequilibrium costs and adjusted costs are equally important for firms. The findings also suggest that Jordanian firms adjust quickly to their target capital structure ratios. The overall results of the study are that capital structure in Jordan is affected by the same factors that determine the capital structure in both developed and developing markets.

CONCLUSION

The effective research cannot be accomplished without critically studying what already exists in the form of general literature and specific studies. This helps to formulate hypotheses and a framework for further investigation. The foregoing review of the empirical literature confirms/highlights the following facts. The field of capital structure decisions has been enlarged in the past and so the dimensions of the influencing factors or acceptable variables, which depicts the capital structure choices. The various studies conducted in this regard has considered the capital structure decision as cost minimizing decision, fund raising activity and maximizing the value of the firm. The studies conducted in this regard have identified optimal capital structure decisions constrained by industry dynamics with a single objective of increasing the value of the firm. The empirical and conceptual framework assumed that the value of the firm was a summation of the market valuation of equity and book value of its debt. The research done in the past has been related to US and other developed countries, with limited evidence about this issue in developing countries. The studies concluded that capital structure in developing countries is affected by the same type of factors that are found to be significant in developed countries. The target leverage ratios adjust quickly to their target ratios as compared to developed countries.

BIBLIOGRAPHY


