Chapter 3
Optimal Capital Structure for Maximizing the Firm Value

Rumeysa Bilgin
Istanbul Sabahattin Zaim University, Turkey

ABSTRACT

Capital structure decisions of management affect the value of a firm. This fact leads to the creation of an extremely rich capital structure literature over the last 60 years. This chapter explains main theories of capital structure and discusses the concept of target leverage which maximizes the firm value. The roles of tax payments, profitability, firm size, asset tangibility, growth opportunities, income volatility, and non-debt tax shields are examined as determinants of capital structure. The current status of capital structure research and some important empirical issues are discussed. Considerations for future research are presented.

INTRODUCTION

The main objective of the managers should be maximizing the firm value. Since a firm can be considered as a combination of its investment projects, the value of a firm is merely a function of its future cash flows and weighted average cost of capital. Thus, in order to increase the firm value, it is necessary to either increase free cash flows, or reduce the weighted average cost of capital. Free cash flows are related to sales revenues, operating expenses, taxes and operational investments. Therefore, it is not affected by the financing decisions. On the other hand, weighted average cost of capital is directly related to the capital structure, in addition to market interest rates and the firm's riskiness.

The main objective of the capital structure research is to investigate whether or not the firm value can be increased by changing the capital structure. In other words, is there any importance of capital structure decisions? When the answer to this question is negative, the studies on capital structure do not have any meaning (Rajan, 2012). Modigliani & Miller (1958) showed that the value of a firm is independent from its capital structure under certain assumptions. Their assumptions can be summarized as the inexistence of transaction costs, taxes, bankruptcy costs and information asymmetry between managers and investors. Besides, the firm's pre-tax profit is assumed to be unaffected from the use of debt and investors should

be able to borrow from the same interest rate as firms. Theoretical and empirical studies, conducted in the first 20 years following Modigliani and Miller's paper, focused on whether the firm value is related to capital structure and showed that it is impossible to satisfy all of these assumptions in real life. Thus, it is concluded that capital structure affects the firm value. Once the causal relationship between a firm's capital structure and its value is recognized, a following up question becomes what is the optimal capital structure for maximizing the firm value. As a result of half a century's diligent research, various capital structure approaches (trade-off theory, pecking order hypothesis and free cash flow hypotheses, market timing, signal hypothesis etc.) were developed in order to answer this question.

These approaches differ based on the emphasis each gives to tax advantages of debt, asymmetric information problems and agency theory.

Trade-off theory emphasises the importance of tax advantage of debt and the bankruptcy costs of debt (Modigliani & Miller, 1963). Besides, there are other versions of trade-off theory, which deals with other costs and benefits of capital structures (Frank & Goyal, 2009). All of these versions predict an optimal level of capital structure, which maximizes the firm value. This optimal level is the leverage ratio where the marginal increase in the firm value because of the benefits of debt use (i.e. tax shield of interest) is equal to the marginal decrease of the firm value due to the bankruptcy costs.

On the other hand, pecking order hypothesis argues that there is not an optimal leverage ratio. Firms make their capital structure decisions based on a financing hierarchy (Myers & Majluf, 1984). Market timing and signaling approaches reach similar conclusions.

However, recent literature reveals that managers have target (optimal) capital structures and make their financing decisions in order to reach it (Bancel & Mitto, 2004). An extensive literature with related to the determinants of target capital structure and speed of adjustment in case of deviations from the target is emerged over the recent years (Hovakimian et al., 2004; Drobetz & Wanzenried, 2006; Zhou et al.,2016; Elsas & Florysiak, 2015).

This chapter explains the aforementioned theories of capital structure and the determinants of target leverage which maximizes the firm value. The roles of tax payments, profitability, firm size, asset tangibility, growth opportunities, income volatility and non-debt tax shields are examined as determinants of capital structure. Besides, the current status of capital structure research and some important empirical issues are discussed. Lastly, some considerations for future research are presented.

Background

Firms often need external funds to finance their investments. In such a case, a firm has two main options: borrowing from a bank or issuing equity. The present value of a firm, which uses all its assets in its operations, is estimated by discounting its expected future free cash flows with its weighted average cost of capital. Weighted average cost of capital is estimated as the weighted average of the high cost of equity financing and the relatively lower cost of after tax debt financing. The main goal of the management is to maximize the firm value. Thus, in order to increase the firm value, it is necessary to either increase free cash flows, or reduce the cost of the average capital. Free cash flows are related to sales revenues, operating expenses, taxes and operational investments. Therefore, it is not affected by the capital structure. On the contrary, weighted average cost of capital is directly related to the financing decisions, in addition to market interest rates and the firm's risk. The capital structure literature, which is one of the cornerstones of financial theory, deals with the effect of changes in leverage ratio (financing preferences) on the value of the firm.

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