

Chapter 18

The Effect of Capital Structure on Profitability: An Empirical Analysis

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ABSTRACT

The main objective of this chapter is to understand the trade-off between using debt and equity in the financing decisions of investments and investigate whether capital structure affects profitability of corporate firms in Turkey. This relationship is tested through using observations of 235 firms for 4 years with the inclusion of Correlation Analysis, Independent Sample t-test, and Regression Analysis with random/fixed effect estimation. Results show that in the manufacturing sector, size, growth, GDP, market to book value, short-term debt to total assets, and total debt to total assets came out to be significant factors in determining profitability (i.e. ROA). Findings indicate that the relationship between independent variables (i.e. debt/total assets and profitability) is positive, since firms can benefit from the tax advantages brought through receiving additional debt. For the service firms, contradictory results are obtained, such that the relationship between leverage and profitability is negative.

INTRODUCTION

The capital structure is defined as the mix of debt and equity that the firm uses to finance its investments and assets. The capital structure choice that provides the greatest appeal to investors and shareholders, that results in the lowest cost of capital and maximized firm value in the presence of efficient investment strategies is called *Optimal Capital Structure* (Muzir, 2011) One of the principal objectives of corporate finance is

to make a firm reach an optimal capital structure that would facilitate its operations to maximize profitability and firm value.

While firms can choose among many alternative capital structures, including lease financing, warrants, convertible bonds, forward contracts and bond swaps; under the general headlines firms mainly use either debt or equity. The first common source of capital is debt, which surges the risks up associated with the future earnings while at the same time allowing a firm to generate

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a higher expected rate of return stemming from the tax benefit born from the interest expense; which basically demonstrates a trade-off with the changing levels of the use of debt. On the other hand, the second source of capital, i.e. equity, represents the right of shareholders on the firm's assets. The contribution of equity to the cost of capital is higher as compared to debt financing because creditors have privileged rights over the firm's assets as compared to shareholders in case of bankruptcy and liquidation. The augmenting usage of debt in raising capital to finance investments usually makes the firm's future earnings more risky to the shareholders due to the rising financial risk basically born from borrowing more.

The relationship between capital structure and profitability is an important one since the amelioration in the profit margins of a firm is extremely essential for its long-term survivability. As the interest payment on debt is tax deductible, the addition of debt to the existing capital funding will improve the profitability of the firm. If interest was not tax-deductible, firms' owners would be indifferent as to whether to use debt or equity and in situations where interest is tax-deductible, they would maximize the value of their firms by using 100% debt financing (Azhagaiah & Gavoury, 2011). This is prohibited by the fact that the use of debt in capital structure financing decisions leads to agency costs. Hence, with the ultimate aim of giving sound capital structure decisions, testing the relationship between capital structure and the profitability of the firm carries utmost importance.

The trade-off between using debt and equity in the financing decisions of investments, the lack of an agreement about what would qualify as the optimal capital structure in the manufacturing and non-manufacturing sectors and finally the necessity to comprehend whether capital structure effects profitability or not in Turkey constitute the primary motive to conduct this research.

The rest of the paper is organized as follows: As the initial step, both the theoretical papers, as well as the more recently conducted empirical papers on

the relationship between capital structure and the profitability of a firm will be analyzed. Following this section, the methodology that will be used in this study including Correlation, Univariate and Multivariate analysis will be explained. Finally, the results of the analysis will be stated followed by our conclusion on the subject.

BACKGROUND

The initial attempts to discover capital structure choice is the theory developed by Paton (1922) who states that firm value is free of substituting one form of capital for another in case of no taxation. This conclusion got support from the first proposition of Modigliani and Miller (1958) called "*Irrelevance Theorem*"; which states that firms should be indifferent choosing between debt and equity financing; in which some simplifying and very restrictive assumptions were taken into consideration such as the presence of efficient capital markets, fairly priced securities and distorting taxes. Modigliani and Millers' progressive revision on their first proposition resulted in two further propositions regarding the positive effect of corporate tax shield and the negative effect of personal income taxes, bondholders have to pay through leading to an increase in the cost of capital as the result of upward movement in the expected return by shareholders (Brealey, Myers, & Marcus, 2001). Tax shield as a result of interest expense is perceived to be the most important determinant on capital structure decision and thought to positively motivate firms to use more debt (Modigliani & Miller, 1963). In addition to that, debt financing may also be regarded by investors as a signal for firm's quality (Ross, 1977). On the other hand, the phenomenon that highly leveraged firms has greater likelihood of filing for bankruptcy (Altman, 1984) and is more exposed to financial distress (Opler & Titman, 1994) makes firms unwilling to raise fund through debt issuing.

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