

The Influence of Book Leverage on Firm's Growth

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Abstract: This paper is concerned with the financial choices related to debt capacity as a source of capital and its impact on growth of the firm. The relationship between debt to asset ratio (as a measure of debt capacity) and market to book ratio (as a measure of growth) is investigated in this research paper. A mixed linear regression model is made to study the relationship between Book leverage and growth. 39 companies from the Nifty 50 of the NSE (National Stock Exchange of India) were selected, and their financial data of the previous 4 years is used in the research. Only the companies belonging to non-financial sectors were selected. The results reveal a significant positive relation between debt to asset ratio and market to book ratio, proving that there is no negative impact of debt capacity on the firm's growth.

Keywords: Debt Capacity, Growth, Debt to Asset ratio, Market to Book ratio.

I. INTRODUCTION

The capital structure of a company plays an important role in the growth of organizations as in order to expand- the firm needs the required funds. The empirical literature documents a significant negative relation between market leverage and growth options (Michael J. Barclay, Clifford W. Smith, Jr. and Erwan Morellec (2006)). Several research studies also show that industries associated with high growth opportunities tend to have low book leverage (Bradley, Jarrell and Kim (1984) and Long and Malitz (1985)).

There are only two fundamental ways for businesses to raise funds. The two methods are debt and equity financing. Both of these choices have significant advantages and disadvantages. Proper financial management, including raising suitable financing, is one of the key factors shaping high-growth companies (Nicholls-Nixon (2005)). Although the focus of this research piece will be on debt financing and how it affects growth, we must also have a solid understanding of equity financing in order to proceed with confidence. The goal of every financing decision made by the management of the company should be to maximize the value of the company. When companies increase their debt capacity, they also increase the risk factor because if they do not receive the proper return as anticipated or forecasted, it becomes very risky for the company and could result in a significant loss (Iqbal, Hameed, and Ramzan (2012)). If organizations are somehow unable to pay back their debt, the company may go through liquidation or bankruptcy. The act of raising money (capital) by selling stock of a company is referred to as equity financing. This gives the person or entity buying the stock—an investor—a stake in the company, a share of the earnings, and a say in how the company is run. According to P Gompers and J Lerner (2003), the company is not obligated to repay the investor's investment or to pay interest on the funds it obtained through equity financing. However, the company is required to distribute a dividend—a portion of the profits—to the investor. Because it doesn't strain their resources, equity financing appeals to most businesses.

Contrarily, debt financing requires borrowing money and paying the lender back with interest. There are several ways to do this, the most popular of which is a "loan," which can then be further divided into various categories. Additionally, there is the option to issue bonds and debentures. Debt financing offers numerous advantages, one of which is that the lender has no control over how the business is managed, i.e., no input into how the business is run. Debt financing also guarantees tax deductions for interest payments and often fixed repayment expenses, making estimating repayment costs easy. Although it's crucial to remember that loans have charges associated with them, the repayment obligations must be met on time and

are non-negotiable after the loan has been finalized. When times are rough, this type of financing does strain the company's finances and cause unanticipated issues. Maintaining a low debt-to-equity ratio is helpful for firms because the inability to pay obligations on time can lead to bankruptcy. Lenders also like low debt-to-equity ratios because they provide businesses more freedom to choose from a variety of financing solutions to fund their operations.

Since a smaller firm would not want to forfeit any gains that would otherwise have to be distributed to its shareholders, it is likely that debt financing would be preferred over equity financing (JP Esperanca, APM Gama, and MA Gulamhussen (2003)). This carries a certain amount of risk; if the business doesn't perform as anticipated, the company may go bankrupt. In rare circumstances, the lender may even demand a guarantee from the company's primary founders that they would return the debt, even if doing so requires using their own assets.

Debt Capacity

While the idea of debt capacity is not new, it is difficult to find an exact definition (Stuart M. Turnbull (1979)). Debt capacity should naturally be defined by the greatest amount of credit that lenders are willing to extend. Before using debt to raise capital, there are several elements that must be taken into account; there are no fixed parameters to calculate a firm's debt capacity. Generally speaking, companies with conservative management philosophies favor employing equity financing, whereas companies with aggressive philosophies favor debt financing over equity financing. (Alicia Tuovila, 2022).

The ability of a firm to utilize debt financing depends upon the willingness of lenders to extend credit (Stuart M. Turnbull (1979)). In some circumstances, a corporation is unable to raise the desired amount of money. A firm's growth is the key barrier to borrowing; if the growth is on track, it may raise more capital through debt; on the other hand, if the growth is off track, the company would have trouble raising cash through debt. This is due to the fact that lenders require assurance regarding the security of their capital, and that such assurance cannot be provided by weak financials. This is in line with the Pecking Order Theory's perspective. In general, it can be said that a company's growth should be impacted favorably if its debt level is increased.

Debt to Assets Ratio

This is a type of ratio that compares a company's debt obligations to the company's total assets. It can be calculated using the following formula:

$$\text{Debt-to-Assets Ratio} = \text{Total Debt} / \text{Total Assets}$$

This ratio shows the degree to which a company has used debt financing to purchase its assets. All of the company's debt is considered (both short term and long term) and all of the assets are considered, including intangibles. A ratio greater than 1 shows that a considerable portion of the company's assets are funded by debt.

Creditors use this ratio to determine whether the company can repay its existing debt and whether additional loans should be extended to the firm.

A. Johnson (2003), Wu, Sercu (2001) used this ratio.

Market to Book Ratio

This ratio compares the Market value of a firm to its Book value. The market value is calculated by multiplying the market value of one the shares of the company with the number of shares outstanding. While the book value is calculated by subtracting the total liabilities from the total assets.

$$\text{Market-to-Book Ratio} = \text{Market Value} / \text{Book Value}$$

The ratio is calculated by dividing the current closing price of the stock by the most current quarter's book value per share. Suhaila, Kila and Mahmood (2008) used this ratio.

II. LITERATURE REVIEW

The pecking order theory of capital structure postulates that the primary determinant of corporate debt-equity dilemma is the information asymmetry about firm value between firm insiders and outsiders (Myers and Majluf (1984)). 'Testing the pecking order theory of capital structure '(Murray Z Frank and Vidhan K Goyal) tests the pecking order theory of corporate leverage on a broad cross-section of publicly traded American firms for 1971 to 1998. While large firms exhibit some aspects of pecking order behavior, the evidence is not enough neither to include conventional leverage factors, nor to consider the analysis of evidence from the 1990s.

Small firms have low debt capacities that are quickly exhausted, forcing them to issue equity to meet their financing needs. The pecking order theory-model performs significantly better for those small firms that have rated debt, as well as when the baseline model is extended to account for the debt capacity constraints. (Şenay Ağca and Abon Mozumdar (2004))

There is evidence to support two major predictions of the pecking order theory- that firms should prefer internal to external financing, and within external financing, prefer debt over equity.

Over three-fourths of corporate investments in the U.S. are financed through internal sources(Lamont (1997)). Further, since Fazzari, Hubbard, and Petersen (1988), a large body of evidence has shown the sensitivity of corporate investments to internal cash flow, highlighting the cost advantage of internal resources and thus explaining the reluctance of firms to seek external funds.

On the other hand, however, there is plenty of evidence against the Pecking order theory. One prediction of the theory, as stated earlier, is that the preference for debt over equity should be stronger for more informationally opaque firms. Small, high- growth firms that have most of their value in intangible, hard-to-value growth assets should therefore have the highest levels of debt, but instead, several studies have found that leverage levels are lowest for such firms, which is in fact what the trade-off theory predicts. (See, e.g., Barclay, Smith, and Watts (1995)). Many firms issue equity even when their leverage ratios are relatively low (Fama and French (2002)).

For the first time, Lemmon and Zender (2002) emphasised the importance of debt capacity in evaluating capital structure theories. In the most recent (2004) revision of their study, they employ credit rating as a proxy for (the absence of) debt capacity limitations and discover that the pecking order serves enterprises that have rated debt satisfactorily.

Johnson (2003) found a negative relation between debt and growth opportunities and found that the reason that is an increase of liquidity risk. In the Johnson 2003 research debt maturity and leverage are jointly determined because firms are likely to simultaneously choose the level of debt and the maturity of that debt.

There has been found a significant negative relationship between debt (considering bank loans from the total debt) and growth- considering the minor ranges of growth. Although it also found a significant positive relation in the higher ranges of market to book ratio (Pet and Juo (2001)).

The primary determinant of corporate debt-equity dilemma is the information asymmetry about firm value between firm insiders and outsiders. (Myers and Majluf (1984)). Considering the pecking order theory, firms issue debt before issuing equity, then the debt-deficit profile should be concave and piecewise- linear. (Chirinko and Singha (2000)). Additionally, Market-to-book ratio is a commonly used proxy for growth options, and a negative relationship between book leverage (debt) and market-to- book ratio is stipulated (Long and Malitz (1985), and Barclay, Smith, and Watts (1995)).

The relationship between market-to-book ratio and leverage ratio is not monotonic and is positive for multiples with medium and low values and is negative for multiples with high values (Minjina (2008)). Minjina concludes that those companies who have low or medium market-to-book ratio have more benefits of leverage, and while companies with high market-to-book ratio have high growth opportunities, they have to maintain low leverage ratio.

III. RESEARCH METHODOLOGY

The data for this paper is taken from the Balance Sheets of the respective companies.

All listed firms of Nifty 50 Index of the year 2022 covering the period 2019-2022 is included and all financial firms like banks, insurance companies, investment companies and companies who never used debt to raise capital are excluded from the data. Finally, the remaining 39 companies are taken in the data to examine.

The first analysis that is done is the correlations tests between these two variables, and a significant relationship is identified. Then a regression model is created to analyze and evaluate the empirical investigation.

Market to Book Ratio = $\beta_0 + \beta$ (Debt to asset ratio) + ϵ .

Variable Define

Growth (measured by the Market to Book Ratio) – Dependent Variable: To measure the growth of the company the market to book ratio is used in this study as it shows the market value of company by comparing the book value of firm. This ratio is calculated by the following formula- (Outstanding shares * Year end Share price) / Share Holder's Equity.

Book Leverage (measured by the Debt to Asset Ratio) – Independent Variable: To measure the debt capacity (debt to asset ratio) is used. This is a ratio that compares a company’s debt obligations to the company’s total assets. This ratio is calculated by the following formula- Total Debt / Book value of Assets.

Hypothesis

H₁ : There is a negative relationship between book leverage (measured by debt to asset ratio) and Growth (measured by market to book ratio).

IV. RESULTS

Findings and Interpretation of the result:

The correlation between these two variables shows the following results.

Table 1: Correlations

This study has been done only on 4 years (whole dataset); results are significantly interpretable using the linear mixed effects models.

	market_book_ratio	debt_asset_ratio
market_book_ratio	1.000000	0.327727
debt_asset_ratio	0.327727	1.000000

The correlation analysis between these two variables show a significantly positive relationship between these variables by 32.7%. Now we can proceed with a regression model, which shows the following results-

Table 2: Model Summary

R - Squared	0.107
Adj. R - Squared	0.102
F - Statistic	18.53
Prob (F - Statistic)	2.96e -05
Log - Likelihood	-632.83
AIC	1270
BIC	1276

The change of debt capacity has a 10.7% of change in the book ratio, R-2 is significant and statistically acceptable. (Fisher Statistic Test 18.53 with p-value < 0.05)

Table 3: Coefficients

Mixed Linear Model Regression Results

Table 3.1

Model:	MixedLM	Dependent Variable:	market_book_ratio
No. Observations:	156	Method:	REML
No. Groups:	4	Scale:	197.9819
Min. Group Size:	39	Log-Likelihood:	inf
Max. Group Size:	39	Converged:	Yes
Mean Group Size:	39		

Table 3.2

	Coefficient	Standard Error	z	P > z 	[0.025	0.975]
Intercept	7.220					
asset_debt_ratio	26.011	6.042	4.305	0.000	14.168	37.854
Group Variance	0.000					

Following these results, Debt to Asset Ratio and Market to Book Ratio have a positive relationship, with a coefficient of 6.042 which is statistically acceptable.

The hypothesis of this paper, i.e. there is a negative relation between debt to asset ratio and market to book ratio, is rejected as we do not find a negative relation between these two variables.

V. CONCLUSION

This research paper concludes that there is no negative relation between the debt capacity and growth of companies listed on the Nifty 50 Index. Thus, the hypothesis that there is a negative relation between book leverage and (debt to asset ratio) and Growth (market to book ratio); this hypothesis is supported by the work of X.wu and P.Sercu (2001) and Minjina (2008). As stated earlier, this research paper has ‘Growth ’(Market to Book Ratio) as the dependent variable and Book Leverage (Debt to Asset Ratio) as the independent variable. The data set used in this research is composed of the two mentioned ratios of 39 companies for 4 consecutive years (2019, 2020, 2021, and 2022)- the ratios as at the end of March (i.e. the end of financial year in India) are considered. The results reveal that there is no negative effect found on the growth of a company, whether debt capacity increases or decreases. However, this is mainly because all the companies listed on Nifty 50 Index are very profitable and high rated.

The results imply that a company’s growth is positively related to the debt portion of the respective company. However, in this research paper- only the impact of the debt capacities of the respective companies on the companies ’growth has been taken into account; other factors also play important roles in the growth of companies.

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