

Determinants of Leverage for Unlisted Firms: Evidence from Ethiopian Private Insurance Companies

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Abstract

The objective of this study was to investigate determinants of financial leverage (capital structure) for unlisted private insurance companies of Ethiopia. Secondary data (mainly financial statements) obtained from Ethiopian private insurance companies were used for analysis. In this study both descriptive and econometric analytical methods were applied to describe the level of leverage and to examine the significant factors determining capital structure. The brief look at the result shows that on average the proportion of debt in the capital mix of Ethiopian private insurance companies is moderate. In the same way the result of random effect regression model exhibits that variables like firm liquidity, business risk and non debt tax shield were found to influence leverage negatively. Whereas variables such as asset tangibility, firm size and profitability were significant and had a positive influence on leverage. Thus, the result of this study also reflects that determinants of capital structure for unlisted firm (private insurance companies in this case) is more or less in line with theories and prior studies conducted for listed firms.

Keywords: Determinants, Insurance companies, Leverage, Random effect regression, Unlisted firm

1. Introduction

The term capital structure of an enterprise is actually a combination of debt capital, equity shares, preference shares and retained earnings. Thus, decision as to the optimum capital structure is very vital for any organization, i.e., every organization wants a mix or arrangements that eventually achieves or increases its profitability and overall value. Different alternatives are available to companies for financing itself sometimes through issuing securities, or some time from debt. Therefore, organizations assemble different combinations of sources of finance in which the level of debt capital could be huge or small in capital mix. Studies confirm that an ultimate goal of a firm is the maximization of wealth or value of that firm (Miller & Modigliani, 1958, 1963; Miller, 1977). As a result the issue of capital structure and its impact on firm value has been the subject of remarkable landmark over the past several years in the finance literature. For instance, MM's (1958) irrelevance theory argued that capital structure is unrelated to firm's value. But, in the presence of corporate income tax and the cost of capital MM's (1963) argued that the market value of the firm is positively related to the amount of long term debt used in its capital structure. Moreover, in theoretical models of capital structure, there are different views about the target capital structure. For instance, the static trade off theory argues that there is an optimum capital structure that maximizes firm value while the pecking order hypothesis assumes that there is no well defined target capital structure rather financing is the matter of the risk related to each financing alternatives (Wiwattanakantang, 1999; Fama & French, 2002).

Interestingly there have been inconclusive debates among researchers about what determines firm's capital structure. Findings are different about the determinants of leverage being subject to the nature of industry, market and country at large (Rajan & Zingales, 1995). For instance, most studies found a negative relationship between profitability and leverage. In favour of this Titman & Wessels (1988) argued that firms with high profit levels, ceteris paribus, would maintain relatively lower debt levels since they can realize such funds from internal sources. Moreover, Rajan and Zingalas (1995), and Kester (1986) found similar evidence. On the other hand, some authors observed a positive relationship between profitability and debt levels. For instance, Taub (1975), Petersen & Rajan (1994) and Abor (2005) found positive association between debt level and profitability. From the foregoing discussions based on the available empirical literature, it is clear that results from investigations vary as to what determines optimal capital structure.

Moreover, evidences are rare concerning the determinants of capital structure in the financial system where there is no stock/ secondary market. In Ethiopia financial system is underdeveloped where there is no stock market and the system is closed to foreign investors. Therefore, the present study provides an empirical analysis of what determines the capital structure of private insurance companies in Ethiopia where there is no firm listing in capital market.

2. Literature

Capital structure is one of the most puzzling issues in corporate finance literature (Brounen & Eichholtz, 2001). The concept is generally described as the combination of debt & equity that make the total capital of firms. The proportion of debt to equity is a strategic choice of corporate managers. Capital structure decision is the vital one since the profitability of an enterprise is directly affected by such decision. For instance, unplanned capital

structure harms companies not to economize the use of their funds. As a result, it is being increasingly realized that a company should plan its capital structure to maximize the use of funds and to be able to adapt more easily to the changing conditions (Pandey, 2009) The decision about appropriate capital structure can effectively and efficiently be taken when managers are first of all aware of how capital structure influences firm profitability. This is because the awareness would enable managers to know how profitable firms make their financing decisions in particular contexts to remain competitive. In the corporate finance literature, it is believed that this decision differs from one economy to another depending on market or country context.

In the finance literature, the effects of capital structure to the firm value have been widely applauded with two basic opposing views and off course with conditional justification. For instance, Modigliani and Miller (1958) have a theory of capital structure irrelevance, and argued that financial leverage does not affect the firm's market value with very restrictive and unrealistic assumptions such as homogenous expectations, perfect capital markets (no information asymmetries between market participants) and no taxes. It was asserted that any increase in return on equity resulting from financial leverage is exactly offset by the increase in risk. Further, MM (1963) relaxed their assumption of no corporate tax and demonstrated that interest tax deductibility on debt of corporations calls for 100 percent debt financing.

The dynamic trade-off theory of leverage developed by Hennessy and Whited (2005), on the other way argued that firms trade off the benefits of debt financing (favorable corporate tax treatment) against the higher interest rates and bankruptcy costs. The main notes of this theory were: (1) the fact that interest is a deductible expense makes debt less expensive than common or preferred stock. In effect, the government pays part of the cost of debt capital, or, to put it another way, debt provides *tax shelter benefits*. As a result, using debt causes more of the firm's operating income (EBIT) to flow through to investors. Therefore, the more debt a company uses, the higher its value and stock price. (2) In the real world, firms rarely use 100 percent debt for primary reason of that firms limit their use of debt to hold down bankruptcy-related costs. (3) There is some threshold level of debt, below which the probability of bankruptcy is so low as to be immaterial. The signalling theory based on asymmetric information, proposed that an action taken by a firm's management that provides clues to investors about how management views the firm's prospects and it has an important effect on the optimal capital structure. In a nut shell the ongoing evidence is full of puzzle about capital structure in general and its determinants in particular.

3. Research Methodology

Study Design

To achieve the specified objective, the study design which is focused on positivist paradigm was crafted. Hence, in this paper what determines capital structure is the positivist ontology (objective), based on objective information. Moreover, the study design is explanatory and the methodology is mixed approach, clearly based on positivist paradigm. But the research is quantitative research; as a result positivist methods were applied for both data collection and analysis.

Data, Sample and Method of Analysis

This study employed secondary data from the financial statements (income statements and balance sheets) of Ethiopian insurance companies. Hence, the book value based yearly financial data were collected from the audited financial statements of insurance companies over the period of 2002 - 2011. Additionally, data from National Bank of Ethiopia and Ministry of Finance and Economic Development were used. In the study eight insurance companies, namely; Africa, Awash, Global, NIB, NICE, Nile, Nyala and United insurance companies were included in which they have operating experience of more than ten years. The data was summarized, classified, and presented using text and tables. Moreover, it was analyzed using both descriptive statistics and econometric tool.

Variables and Hypotheses

Dependent variable: In this study the debt ratio (total debt divided to total asset) was used as a proxy of dependent variable which is a measure of capital structure (leverage). Similar measurement was used in the previous studies of (Khalid, 2012; Adesola, 2009; Mohammed, 2007). In this study leverage and capital structure is used interchangeably to represent the dependent variable. Total debt ratio was used because it reflects both short-term and long-term liabilities and claims as far as insurance companies are concerned.

Independent variables: In this study the selection and measurements of determinants factors for capital structure in Ethiopian private insurance companies were based on existing theoretical literature and previous studies of (Mary et al., 2011; Onaolapo & Kajola, 2010; Adesola, 2009; Mohammed, 2007; Cassar & Holmes, 2003; Muhammad et al., 2013).

Liquidity (liqd): The pecking order theory of finance suggests that firms with high liquidity will borrow less. In addition, managers can manipulate liquid assets in favor of shareholders against the interest of debt holders causing agency problem. On the other hand, as the firm's profitability and/or liquidity increase, the internal funds available to the firm and its ability to service previous debts will also increase. Furthermore, it will earn a good standing and hence, become more attractive to potential investors making it easier for the firm to raise

more equity funds to meet future investment opportunities (Rataporn et al., 2004). Thus, the need for debt will be reduced and also the level of leverage. Thus, in this study insurance companies' liquidity is measured by current ratio.

H1: There is negative relationship between Liquidity and capital structure

Business risk (bsrk): Volatility or business risk is a proxy for the probability of financial distress and it is generally expected to be negatively related with leverage. This shows that higher volatility of earnings increases the probability of financial distress, since firms may not be able to fulfill their debt servicing commitments (Titman & Wessels, 1988). On the other hand, the Modigliani-Miller theorems show that as the variance of the value of the firm's assets increases, the systematic risk of equity decreases. So the business risk is expected to be positively related with leverage. In this study business risk is measured risk as standard deviation of total claims divided by total premiums.

H 2: There is negative relationship between business risk and capital structure

Growth (grwt): Firms with high growth opportunity may not issue debt in the first place and leverage is expected to be negatively related with growth opportunities. Jensen and Meckling (1976) also suggest that leverage increases with lack of growth opportunities. Another argument suggests that when growth and investment opportunities increase, huge capital funds will be required for the firm to seize all these possible growth opportunities. Thus, the firm will mainly turn to the external sources for financing the available opportunities. Average sales growth is employed to measure growth opportunities in this study.

H 3: There is negative relationship between sales growth and capital structure

Tangibility (tang): Theories generally state that tangibility is positively related to leverage. Companies with more tangible assets have a higher probability to receive bank credits or to issue bonds. Rajan and Zingales (1995) shows that tangibility of assets provides collateral value to the firm and thus become a determinant of debt ratio.

In this study, tangibility is measured as fixed assets scaled by total assets.

H 4: There is positive relationship between asset tangibility and Capital structure

Size (size): Firm size as measured by natural logarithm of total assets is found to positively influence capital structure. Larger firms are assumed to disclose more information, are more diversified and have stable cash flows than smaller firms (Rajan & Zingales, 1995; Adesola, 2009). A logarithm of total asset is used to measure firm size in this study.

H 5: There is positive relationship between the firm size and capital structure.

Profitability (profit): Other things being constant, tax-based models suggest that profitable firms should borrow more as they have greater needs to shield income from corporate tax. However, pecking order theory suggests firms will use retained earnings first as investment funds and then move to bonds and new equity only if necessary. But, most empirical findings support the notion of pecking-order theory in which profitable firms prefer not to raise external fund (Cassar & Holmes, 2003; Chang, 1999). In this study return on asset is used as a proxy for profitability.

H 6: There is negative relationship between the profitability and capital structure.

Age (age): Evidences are mixed about the relationship between firm age and leverage. For instance, Faris (2010) argued that firms which survive in business for a long time can accumulate more funds for running the operations of the business and hence, uses less debt. On the other hand, Michael et al. (2008) supported that older firms are reputable and easily access debt because as firms grow older more information regarding their future viability becomes available and reduces information asymmetries.

H 7: There is positive relationship between age and leverage.

Non-debt tax shields (ndtax): The tax deduction for depreciation and investment tax credits is termed as non-debt tax shield and it is argued to substitute for the tax benefits of debt financing. A firm with larger non-debt tax shields is expected to use less debt. Empirical studies of Niehaus (1993) and Wald (1999) generally confirm that leverage is negatively correlated with non debt tax shield. In this study, depreciation scaled by total assets is used to measure non-debt tax shields.

H 8: There is negative relation between non debt tax shield and leverage.

Model specification

In order to examine the determinants of capital structure in case Ethiopian insurance companies, the random effect regression model was used. The model was selected due to the nature of data and dependent variable. To chose between fixed and random effects model, the Housman test was conducted and the test result proved that random effect is appropriate supported by the null hypothesis. Therefore, to estimate the relationship between the regressand and explanatory variables, the following specification is formulated;

$$Y_{it} = \alpha + \beta x_{it} + vit \text{ ----- [1]}$$

Where, 'i' represents cross sectional units and 't' denotes the time series dimension.

Y_{it} = represents the dependent variable (debt ratio)

α = constant term

β = slope coefficients

x_{it} = explanatory variables
 u_{it} = error term

Finally the empirical model used in this study becomes;

$$DR_{it} = \alpha + \beta_1 liq_{it} + \beta_2 bsrk_{it} + \beta_3 grwt_{it} + \beta_4 tang_{it} + \beta_5 size_{it} + \beta_6 profit_{it} + \beta_7 age_{it} + \beta_8 ndtax_{it} + u_{it} \quad [2]$$

Where, DR is the debt ratio (dependent variable) and β_1 - β_8 is coefficients of explanatory variables.

4. Results and Discussions

Descriptive statistics

Table 1 displays the descriptive statistics (mean, standard deviation, minimum and maximum) of main variables included in the study. Thus, the mean value of debt ratio (0.48) shows that on average 48 percent of insurance companies asset is financed through debt. It signifies that the leverage position of Ethiopian insurance companies is moderate. Similarly, the liquidity variable (current ratio) of 2.04 mean value indicate that on average, insurance companies has about Birr 2 of current asset for every Birr of their current liabilities.

The mean value of profitability (0.106) shows that the average return for Ethiopian private insurance companies is 10.6 percent and standard deviation of 45 percent, which in turn indicates the volatility of this return.

Econometric Analysis and Hypothesis Testing

From **Table 2** we can observe that liquidity, business risk, profitability and non debt tax shield were found to have a negative and significant influence on capital structure of insurance firms. On the other hand asset tangibility firm size and non debt tax shield were found to have a positive influence on capital structure while the effect of growth and firm age become insignificant determinants of capital structure of insurance companies in Ethiopia.

Liquidity – This variable was found to affect insurance companies leverage significantly but negatively. The coefficient of (-0.146) indicates that leverage decreases by 14.6 percent as current ratio (liquidity) increases by one unit and it is highly significant being at 1 percent level of significance. Therefore, the researcher hypothesis ‘*there is negative relationship between liquidity and capital structure*’ is accepted. This result is consistent with the pecking order theory of finance.

Business risk – The degree of business operating risk was also found to have an inverse relationship with capital structure of Ethiopian insurance companies. The coefficient of this variable (-0.335) exhibits that keeping other factors constant, leverage decreases by 33.5 percent as the standard deviation of earnings increase by one unit. Hence, the hypothesis that states ‘*there is negative relationship between business risk and capital structure*’ is accepted. The result disconfirms with empirical evidence of Muhammad et al. (2013).

Tangibility: The effect of asset tangibility was found to positively influence the capital structure of insurance companies. The coefficient of this variable (0.025) shows that leverage increases by 2.5 percent for one unit increase in the asset tangibility (the ratio of fixed asset to total asset). As a result, the research hypothesis that states ‘*there is positive relationship between asset tangibility and Capital structure*’ is accepted. The result is consistent with bankruptcy law and Rajan and Zingales (1995).

Size: Size of insurance business has been found to affect the leverage positively. The coefficient (0.343) shows that leverage increases by 34.3 percent as total asset (size) increases by one percent. Hence, the hypothesis that states ‘*there is positive relationship between the firm size and capital structure*’ is accepted. The result is consistent with most empirical findings in the literature.

Profitability: The result of this study has found that profitability influences leverage positively which is in contrary to researcher hypothesis. The coefficient (0.033) indicates that leverage increases by 3.3 percent as return on asset (profitability) increases by one unit. Hence, the research hypothesis which states ‘*there is negative relationship between the profitability and capital structure*’ is rejected at 5 percent. This finding is consistent with tax based models and previous studies of Ghazi et al. (2010) in Jordanian Insurance sector. It might be due to the fact that these companies are generating higher rate of return on borrowed fund as compared to its cost of capital.

Non-debt tax shield: The result of this study reveals that non debt tax shield affects leverage negatively. The coefficient of this variable (-0.425) indicates that leverage decreases by 42.5 percent as non debt tax shield increases by one unit. Thus, the research hypothesis which states ‘*there is negative relation between non debt tax shield and leverage*’ is accepted.

5. Conclusion and Policy Implication

This study investigated the determinants of capital structure for the Ethiopian private insurance companies. The study covered 8 private insurance companies over the period of 2002 – 2011. The result of the study generally shows that liquidity, business risk and non debt tax shield are found to influence capital structure negatively. On the other hand, it was found that there is positive relation between capital structure and factors like asset tangibility, firm size and profitability. Thus, the result of this study supports pecking order theory with regard to the effect of liquidity and asset tangibility on leverage. It also supported the static trade off theory with regard to

the influence of business risk, asset tangibility, firm size and profitability. Hence, both trade off and pecking order theories of finance are partially applicable in Ethiopian insurance companies.

The result of this study could be helpful to the practitioners of corporate finance, financial regulators and policy makers. More specifically, it would signal about what determines leverage in Ethiopian insurance in which there is no well developed capital market and the system is full of information asymmetry.

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Annex

Table 1: Summary of descriptive statistics

<i>Variables</i>	<i>Mean value</i>	<i>Standard deviation</i>	<i>Minimum value</i>	<i>Maximum value</i>
<i>debt</i>	0.48	0.14	0.23	0.88
<i>Liqd</i>	2.04	1.05	1.13	8.94
<i>Bsrk</i>	17.38	0.69	15.8	18.4
<i>Grwt</i>	0.09	0.048	0.02	0.13
<i>Tang</i>	0.54	0.19	0.00	0.85
<i>Size</i>	18	0.85	16.52	19.98
<i>Proft</i>	0.106	0.45	0.01	0.154
<i>Age</i>	9.7	5.43	10	18
<i>Ndtax</i>	0.065	0.031	0.004	0.121

Source: Stata output from data 2002-2011

Table 2: Random effect regression model estimation result

<i>Variables</i>	<i>Coef</i>	<i>Std. Err</i>	<i>Z</i>	<i>P > Z </i>
<i>Liqd</i>	-0.146	0.264	-5.55	0.000*
<i>Bsrk</i>	-0.335	0.122	-27.3	0.090***
<i>Grwt</i>	-0.488	0.515	-0.95	0.343
<i>Tang</i>	0.206	0.134	1.53	0.025**
<i>Size</i>	0.343	0.102	32.53	0.000*
<i>Proft</i>	0.273	0.571	0.48	0.033**
<i>Age</i>	0.003	0.004	0.65	0.517
<i>Ndtax</i>	-0.425	1.158	-1.23	0.019**

Statistics:

Number of obs = 80

R sq: Overall = 0.7649

Wald chi2(8) = 1957.07

Prob > chi2 = 0.0000

Source: Stata output from data 2002-2011

*, **and *** indicate level of significance at 1 percent, 5 percent and 10 percent respectively