

Analyzing the Impact of Firm's Specific Factors and Macroeconomic Factors on Capital Structure: A Case of Small Non-Listed Firms in Albania.

Anila Çekrezi, Ph.D.-Candidate

Department of Finance and Accounting, University "A. Xhuvani", Elbasan, Albania

*E-mail: vocianila@yahoo.com

Abstract

This paper attempts to explore the impact of firm specific factors and macroeconomic factors on capital structure decision for a sample of 69 non-listed firms, which operate in Albania, over the period 2008-2011. In this paper is used total debt to total assets (TDTA) as dependent variable and eight independent variables: tangibility (TANG), liquidity (LIQ), profitability (ROA), size (SIZE), business risk (RISK), non-debt tax shields (NDTSH), GDP growth rate (GDP) and prime lending rate (INT). The investigation uses cross-sectional time series data which are collected from the Balance Sheet Annual Reports, the official document delivered to the State Tax Office. This study found that tangibility (fixed assets to total assets), profitability (earnings after taxes to total assets), size (natural logarithm of total assets), risk (standard deviation of EBIT to average value of EBIT) and NDTSH (amortization to total assets), GDP growth rate and interest rate have a significant impact on leverage. Also it is found that liquidity (current assets to current liabilities) has a negative but not a significant relation with leverage.

Keywords: Albania, Capital structure, Firm's specific factors, Macroeconomics factors

1. Introduction

Capital structure describes the proportionate relationship between debt and equity. The Modigliani and Miller (1958) pioneering work commonly known as the MM theory, on capital structure led to the development of several other theories which had in focus to explain the main determinants of the firm's capital structure. Modigliani and Miller (1958) state that capital structure is irrelevant to the firm value under some restrictive assumptions and by including market imperfections, firms seem to get an optimal, value-maximizing debt-equity ratio by trading-off the advantages of debt against the disadvantages. So firms will set a target debt ratio and gradually will move towards achieving it (Myers, 1984).

Two other competing theories are the static trade-off theory and the pecking order theory: The static trade-off theory of optimal capital structure assumes that firms balance the marginal present values of interest tax shields against the costs of financial distress (Shyam-Sunder and Myers, 1999). In the theory of firm's capital structure and financing decisions, the pecking order theory was suggested by Myers & Majluf (1984). This theory contradicts the existence of financial targets, and states that firms follow a financing hierarchy: internal funds are preferred above external financing (Myers, 1984; Myers and Majluf, 1984).

Different authors have studied the firm's specific factors which influence the company's financial decisions (Titman & Wessels, 1988; Rajan & Zingales, 1995; Antoniou et al., 2002; Frank & Goyal, 2009). Several studies (Frank and Goyal, 2009; Paydar and Bardai, 2012) deals with large publicly listed firms which often have different types of securities traded, but this study is focused on small unlisted firms which operate in Albania.

This study is focused on providing empirical evidence on the influence of the firm's specific factors (tangibility, liquidity, profitability, size, risk and non-debt tax shields) and macroeconomic factors (GDP growth rate, inflation rate and interest rate) on the capital structure choice among debt and equity, of non-traded firms in Albania. The data have been retrieved from the Annual Reports submitted by the firms to the State Tax Office. A sample of 69 firms over a four year period, 2008-2011, is used in the analysis and in lack of an active stock market we have taken only accounting measures to estimate the capital structure of each firm. The Tirana stock exchange is established in 2002 but it doesn't trade securities of private enterprises.

The rest of this paper is organized as follows: the next section is literature review on the issue discussed; the third section describes the data, variable definition and regression model; the fourth section is hypothesis development of this study. The fifth section summarizes descriptive statistics and the regression results and the last one is a summary of the conclusions.

2. Literature review

The capital structure decision of firms is one of the most important issues in finance because such decisions affect the cost of capital, capital budgeting decisions, and firm value (Dincerok and Yalciner, 2011). There are different studies done by researchers on capital structure theories beginning with the modern theory of Miller

and Modigliani of 1958 and 1963 and continuing with the more recent ones. Also there are many variables which can influence the firms leverage ratio and can have a positive or negative impact on the value of the firm. So, in this section we will review some of the literature which had in focus the examination of the influence of the selected determinants on capital structure decision of Albanian companies.

Tangibility: Previous studies by Titman and Wessels (1988), Rajan and Zingales (1995) argue that the ratio of fixed assets to total assets (tangibility) should be an important factor for leverage. Asset tangibility was one of the variables examined by Pandey (2002) study in Malaysia. Using panel data and a two-way fixed effect model, Pandey (2002) conclude that there is a positive relationship between asset tangibility and leverage in Malaysia.

Liquidity: The literature on the corporate choice of liquid asset holding is not very large (Anderson, 2002). In the recent studies, liquidity is also considered significantly affecting the capital structure choice of firms (Opler et al., 1999; Antoniou et al., 2002; Anderson, 2002). Studies done in different countries have proved the negative relationship between liquidity and capital structure (Opler et al., 1999; Antoniou et al., 2002; Shahjahanpour et al., 2010) supporting the static trade-off model. Anderson et al. (2002) study found a positive relationship between leverage and liquidity of the firms in the UK and Belgium. Their result is not consistent with Opler et al. (1999) study based on US data which proved a negative relationship between total leverage and corporate liquidity.

Profitability: Among the studies evidenced the negative relationship between profitability and leverage were those of Titman and Wessels (1988), Rajan and Zingales (1995), Antoniou et al. (2002), Daskalakis and Psillaki (2006) and Frank and Goyal (2009) supporting the pecking order theory. Xu (2012) results are consistent with traditional trade-off models of capital structure that predict a positive relation between book leverage and future expected profitability. Using a sample of U.S. public manufacturing firms between 1989 and 2004 and using OLS regressions, he found that profitability (measured by operating income divided by previous year total assets) and book leverage are positively related.

Size: The traditional pecking order theory predicts a positive relationship between firm size and leverage as larger firms incur less adverse selection costs (Bell and Vos, 2009). A number of empirical studies have concluded that leverage ratios may be related to firm size: Titman and Wessels (1988), Rajan and Zingales (1995), Daskalakis and Psillaki (2006), Frank and Goyal (2009). Different authors have proved the positive relation between firm size and leverage (Titman and Wessels, 1988; Rajan and Zingales, 1995; Frank and Goyal, 2009) and Senay and Mozumdar (2004) which found evidence to support the pecking order's prediction that small firms are more likely to follow the pecking order because of more potential problems of asymmetric information.

Risk: The cost of financial distress can be increased by risk, while the tax shield can be reduced. According to the trade-off theory, when the volatility of earnings is high, firms should use less debt. A higher operating risk combined with higher financing risks will result in higher probability of bankruptcy (Myers, 1984).

Non-debt tax shields: DeAngelo and Masulis (1980) argue that the marginal corporate savings from an additional unit of debt decreases with increasing of non-debt tax shields. This is because of the likelihood of bankruptcy increases with leverage. Previous studies that support this relationship are those of DeAngelo and Masulis (1980), Rajan and Zingales (1995), Gurcharan (2010) and Dincergok and Yalciner (2011).

Macroeconomic factors: Different authors have studied the firm's specific factors which influence the company's financial decisions (Titman and Wessels, 1988; Rajan and Zingales, 1995; Antoniou et al., 2002; Frank and Goyal, 2009), but the country factors are as important as firm characteristics in determining the firm leverage. Macroeconomic variables are mentioned as considerable external factors which seem to affect on capital structure of firms in different countries, despite of little attention have been paid to them (Abzari et al., 2012). It was noted that GDP growth rate, which proxies for the overall state of the economy in a country, inflation rate and interest rate (measured by prime lending rate) are considered important factors that significantly influence on the capital structure of firms (Mateus, 2006; Concorou, 1977; Gulati and Zantout, 1997).

GDP growth has been studied by different authors (Korajczyk and Levy, 2003; Joeveer, 2006) and is expected to be positively related to leverage (Joeveer, 2006). At the other side the growth in interest rate may lead firms to increase debt ratio because of its tax benefit or decrease it to reduce the bankruptcy risk (Abzari et al., 2012). According to the trade-off model, as interest rates increase the tax advantage of debt rises, so firms will choose a higher debt level, but as debt increase the bankruptcy risk increase. In some other researches, inflation rate is also been proposed as a macroeconomic factor in determining the amount of debt of the companies (Concorou, 1977; Gulati and Zantout, 1997; Mateus, 2006; Frank and Goyal, 2009). In cases of higher inflation rate, firms may choose short-term debt over equity (Abzari et al., 2012).

Based on the significant effect of macroeconomics on corporate financing proved by empirical researches (Korajczyk and Levy, 2003; Joeveer, 2006; Abzari et al., 2012), the impact of above-mentioned macroeconomic variables: GDP growth rate and interest rate on capital structure of non-traded firms in Albania are analyzed in

this study.

3. Research Methodology

In this section, we describe our sample, variables and the model used in determining the impact of the independent variables on firm's capital structure.

3.1 Data and Sample

The sample used is of 69 non-traded firms covering the period 2008-2011. The average value of total assets, of firms in the sample, is approximately 113,442,029 ALL (ALL is an acronym for Albanian Lek, Albanian's currency) or 810,300 Euro (we note that the exchange rate is roughly 140 ALL/Euro). So, all firms can be classified as SME and based on Strategic Plan for the Development of SME-s 2007-2013 (Ministry of Energy, Transport and Economy of Albania 2007), these firms contributes with about 60 percent of the employment in the private sector. All the data are collected from the Balance Sheet Annual Reports, the official document delivered to the State Tax Office.

3.2 Variables Definitions

The independent variables used in the analysis are:

ROA (Return on asset) = Earnings after taxes / Total asset

TANG (Tangibility) = Net fixed assets / Total assets

SIZE = Natural logarithm of total assets

LIQ (Liquidity) = Current assets / Current liabilities

RISK = Standard deviation of EBIT / Average value of EBIT

NDTSH (Non-debt tax shields) = Amortization / Total assets

GDP = Gross Domestic Products growth rate

INT (Interest rate) = Prime lending rate

And the dependent variable is:

TDTA = Total debt / Total assets.

3.3 The Model

We use a simple multiple regression analysis to test TDTA as the dependent variable against the above mentioned independent variables. The model used in our study is as follows:

$$Y_{tdta} = \alpha + \alpha_1 * TANG + \alpha_2 * LIQ + \alpha_3 * ROA + \alpha_4 * SIZE + \alpha_5 * RISK + \alpha_6 * NDTSH + \alpha_7 * GDP + \alpha_8 * INT + \varepsilon$$

Where Y_{tdta} indicates firm's leverage which will be measured through total debt ratio for the firms in sample and ε is the error terms. Using data as described earlier we will estimate all coefficients (alphas) of the equation.

4. Hypotheses development

In order to identify the effect the selected determinants (tangibility, liquidity, profitability, size, and risk, non-debt tax shields, GDP growth rate and prime lending rate) on the firm's capital structure decision and the effect of industry the study used eight hypotheses which are presented below:

H 1: Asset tangibility is positively related to capital structure decision.

H 2: Liquidity is negatively related to capital structure decision.

H 3: Profitability is negatively related to capital structure decision.

H 4: The size of the company is positively related to capital structure decision.

H 5: Risk is negatively related to capital structure decision.

H 6: Non-debt tax shields are negatively related to capital structure decision.

H 7: GDP growth rate is positively related to capital structure decision.

H 8: Interest rate is positively related to capital structure decision.

5. Empirical Results

5.1. Descriptive Statistics

The tables below present the correlation coefficients between the dependent variables and the independent ones.

Table 1. Correlation coefficients, using the observations 1:1 - 69:4
 5% critical value (two-tailed) = 0.1181 for n = 276

Ytdta	TANG	LIQ	ROA	SIZE	RISK	NDTSH	GDP	INT	
1.0000	0.1970	-0.0433	-0.4832	0.2270	0.1858	-0.0439	0.1089	0.0454	Ytdta
	1.0000	0.1259	-0.2209	0.1153	0.0177	0.2810	0.0027	0.0058	TANG
		1.0000	-0.0584	-0.0531	-0.2405	-0.0305	-0.0151	-0.0369	LIQ
			1.0000	-0.1116	0.1532	0.0351	0.0506	0.0916	ROA
				1.0000	0.1294	0.0754	-0.0934	-0.0686	SIZE
					1.0000	0.0880	0.0000	0.0000	RISK
						1.0000	-0.0457	0.0302	NDTSH
							1.0000	0.1073	GDP
								1.0000	INT

Table 1 shows the correlation between the explanatory variables specifically with respect to TDTA. As we can notice TDTA is positively correlated with TDTA (19.70 percent), SIZE (22.70 percent), RISK (18.58 percent) and GDP (10.89 percent). Also it is demonstrated that TDTA is negatively correlated with ROA (48.32 percent) and has a weak negative correlation with LIQ (4.33 percent), NDTSH (4.39 percent) and INT (4.54 percent).

Table 2. Summary Statistics, using the observations 1:1 - 69:4

Variable	Mean	Median	Minimum	Maximum	Std. Dev.	C.V.	Skew.	Ex.kurt.
Ytdta	0.6177	0.6553	0.0014	1.4546	0.2867	0.4641	-0.2308	-0.2275
TANG	0.2668	0.1691	0.0000	0.9979	0.2768	1.0374	1.0514	-0.0767
LIQ	16.9136	1.7192	0.0597	583.188	68.2318	4.0341	6.6440	46.9099
ROA	0.0665	0.05188	-0.4546	0.6913	0.1023	1.5390	1.1217	8.7293
SIZE	17.5362	17.4169	14.5250	20.9756	1.3780	0.0786	0.3834	-0.3942
RISK	-1.1107	0.4009	-70.6467	2.9900	9.0255	8.1259	-6.9018	49.0567
NDTSH	0.0188	0.0049	-0.0146	0.3952	0.0400	2.1135	6.0778	49.8277
GDP	0.0436	0.0361	0.0272	0.0750	0.0187	0.4282	0.9817	-0.7976
INT	0.1167	0.1152	0.1117	0.1246	0.0051	0.0435	0.6195	-1.1870

Notes: TDTA = total debt to total assets; TANG=net fixed assets to total assets; LIQ=current assets to current liabilities; ROA = return on assets; SIZE=natural logarithm of assets; RISK= standard deviation of EBIT to average value of EBIT; NDTSH= amortization to total assets; GDP= growth rate of gross domestic product; INT= prime lending rate.

Table 2 provides the descriptive statistic on the dependent variable and the independent ones. It shows that the average total debt to total asset ratio (TDTA) for the sample as a whole is 0.6177. It means that the firms of the sample are applying 61.77 % debt on the average in their capital structure. From the above table, the average of tangibility (TANG) is 0.27, liquidity (LIQ) 16.91, profitability (ROA) 0.07, size 17.54, risk (-1.11), non debt tax shields (NDTSH) 0.02, GDP growth rate 0.044 and interest (INT) 0.12.

5.2 The Research Results

Employing panel data (cross pooled sectional data) analysis (Gujarati, 2004) and using Gretl (2012) statistical package we obtain the following results:

Table 3. Summary of regression result

	Coefficient	Std. Error	t-ratio	p-value
Constant	-0.5728**	0.2549	-2.2473	0.02544
TANG	0.0749*	0.0385	1.9481	0.05245
LIQ	-0.0001	9.6e-05	-1.4767	0.14095
ROA	-1.5436***	0.1141	-13.5242	<0.00001
SIZE	0.0355***	0.0071	4.9871	<0.00001
RISK	0.0093***	0.0009	10.5136	<0.00001
NDTSH	-0.5755*	0.3355	-1.7151	0.08749
GDP	2.6305***	0.5153	5.1049	<0.00001
INT	4.8899***	1.8564	2.6340	0.00893

Notes: ***Significant at 1% level, ** Significant at 5% level and *Significant at 10% level.

Table 3 displays the summary of estimated regression model which is given below:

$$Ytdta = -0.57 + 0.0749 * TANG - 0.0001 * LIQ - 1.5436 * ROA + 0.0355 * SIZE + 0.0093 * RISK - 0.5755 * NDTSH + 2.6305 * GDP + 4.8899 * INT + \epsilon$$

The results demonstrate that the estimated model of the study is well fitted because all variables except liquidity are significant in determining the dependent variable (TDTA). Thus, tangibility, profitability, size, risk, non-debt tax shields, GDP growth rate and interest are significant.

Table 4. The coefficient of determination and adjusted R-square of the model.

Coefficient of determination - R^2	0.5564
Adjusted R^2	0.5431

Table 4 shows the coefficient of determination (R^2) which is recorded at 0.56 and indicates that 56 % of the total debt ratio can be explained by the variables chosen. The adjusted R-square results to be equal to 0.54.

6. Conclusions

This paper contribute towards a better understanding of capital structure choose of 69 companies in Albania. Six firm's specific variables namely tangibility, liquidity, profitability, size, risk and non- debt tax shields and two macroeconomic factors (GDP growth rate and prime lending rate) have been added as independent variables to measure their effect on firm's leverage. The results indicate that there is empirical evidence to show that:

1. Tangibility is positively related to capital structure which is consistent with trade-off theory. The pecking order theory makes opposite predictions and leverage ratios should be lower for firms with higher tangibility (Frank and Goyal, 2009).
2. The negative relation between liquidity and leverage is consistent with the suggestions of pecking order theory but this relation is not statistically significant. So we can conclude that the capital structure of Albanian firms is not affected by liquidity.
3. Profitability is negatively related to capital structure. Trade off-theory suggest that profitable firms face lower expected costs of financial distress and find interest tax shields more valuable. Thus, the tax and the bankruptcy costs perspective predict that profitable firms use more debt (Frank and Goyal, 2009). So our results are consistent with the pecking order theory.
4. Size is positively related to capital structure. This result is consistent with trade-off theory which predicts that larger, more mature firms use relatively more debt (Frank and Goyal, 2009).
5. Risk is positively related to capital structure. The cost of financial distress can be increased by risk, while the tax shield can be reduced. According to the trade-off theory, when the volatility of earnings is high, firms should use less debt. Our results don't support the hypothesis five and it is not consistent with the predictions of trade-off theory.
6. Non-debt tax shields are negatively related to capital structure as suggested by the trade-off model. This means that firms can use non-debt tax shields such as depreciation to reduce corporate tax. So, higher non-debt tax shields reduce the potential tax benefit of debt and hence it should be inversely related to leverage.
7. GDP is positively related to capital structure. Several studies have provided empirical evidence on the positive relationship between GDP growth and leverage (Mateus, 2006; Saledi and Manesh, 2012).
8. Interest rate is positively related to capital structure. Our results support the trade-off model which arguments that as interest rates increase the tax advantage of debt rises. This finding is not consistent with Antoniou et al. (2002) and Dincergok and Yalciner (2011) studies which proved that the interest rate is negatively related to leverage.

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