

FIRM SIZE AND FINANCIAL-LEVERAGE CHOICE EVIDENCE FROM AN EMERGING ECONOMY

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Abstract

This paper intends to study the effect of firm size on financial leverage choice while controlling for determinants like profitability and performance. Fixed effect regression model has been employed over an unbalanced panel data of non-financial firms of Pakistan from 2005-2014. Results report negative relation between firm size and leverage ratios; implying less dependence of firms on debt. Profitability shows negative significant association with short term debt and total debt while performance reports insignificant relation. The study reveals that in case of emerging country like Pakistan which is politically and economically instable; results tend to affirm a high influence of pecking order theory in firms financing patterns.

Keywords: Financial leverage, Firm size, Profitability, Firm performance

JEL Classification Code No: G39

1. Introduction

Financial leverage decisions have remained the topic of interest among financial analysts and scholars for several years. Prevalent research has been conducted by researchers elucidating how to form best leverage level (considering risks and benefits associated with it) but till now no one has come up with a definite theory (Baltaci and Ayaydin, 2014, Myers and Majluf, 1984). Rajan and Zingales (1995), Opler and Titman (1994) and Booth et al. (2001) in their studies examined that firm size, risk, growth opportunities, profitability, amount of fixed assets and tax debt shield are important determinants of financial leverage choice.

Analyzing the past studies, firm size is considered among the most theorized module of financial leverage which plays a vital role in evaluating the liaison enjoyed by firms within and outside firms' operating domain. Emergent influence of firms in today's global economy signifies the role played by firm size in firms' environment. Kumar et al. (1999) argued that an attractive feature of economic escalation is that most of it is acquired through growth in the firms' existing size. Schwartz and Van Tassel (1950) are among the preliminary researchers who verified positive association between firm size and leverage while numerous other researchers support negative association between firm size and leverage like Cooley and Quadrini (2001) who found that smaller/younger firms rely more on debt, have more investments and pay fewer dividends. The impact of firm size on the leverage-performance was analyzed by Vithessonthi and Tongurai (2015) during the financial crisis of 2007-2008 in Thailand. Their findings showed that the impact of leverage on performance is negative in case of large firm while it is positive in case of small firms. Another important aspect of financial leverage which this study will investigate is profitability; which is regarded as the measure of economic triumph attained by a firm in association to the capital invested. Mostly highly profitable firms do not rely excessively on external funding for its development, as profitability has a negative effect on leverage (MARETE, 2015). Studies by Negash (2001), Phillips and Sipahioglu (2004) & Myers (2001) determined negative relationship between leverage and profitability while Robb and Robinson (2014), Ruland and Zhou (2005) deemed that there exists a positive association between leverage and profitability. The current study extends the literature by scrutinizing impact firm size have on financial leverage choice in presence of control variables like profitability and performance by empirically examining the relationship between them in an emerging economy.

The paper is organized as follows. The next section gives a review of the existing literature on the subject matter. The following section explicates the data set and variables used in the analysis; then the model used in the analysis is estimated. The subsequent section confers the results of the empirical analysis. The last segment recapitulates the findings of the research and concludes the discussion.

2. Literature Review

Literature illustrates that firm size influences the use of financial leverage by firms. According to Hol and Wijst (2008) size of the firm will determine its leverage. This is because large firms enjoy tax deduction and reputational benefit among prospective investors. Recent researches on capital structure continue to assess the legitimacy of earlier studies; these studies report that firm size has both negative and positive relationship with financial leverage depending on the country. Most of the studies laid emphasis on analyzing the financing choices of smaller\younger firms and larger\mature firms while another mounting assumption among researchers is that the impact of size on leverage may vary across countries. According to MARETE (2015) large firms are more stable and can easily expand their assets and enhance their capacity to qualify for debt by minimizing their risks. Further, he states that financial leverage is significantly correlated to firm size and profitability. From theoretical aspect, pecking order theory argues negative association between size and leverage while trade off theory oppose this theory. Faulkender and Petersen (2005), Bevan and Danbolt (2002) and Marsh (1982) are among the authors that confirm negative association between firm size and leverage while other empirical studies support that there exists a positive relationship between firm size and financial leverage for example; Mahfoudh (2013), Li and Hwang (2011), Njoroge (2014) and Mwangi (2014).

One of the important postulation encountered in prior studies was the varying effect of firm size on leverage across countries. Barbosa and Moraes (2003) affirmed that financial leverage varies across size and then across countries. According to them, small firms depend more on short term borrowing and has the propensity to finance long term asset with short term funding relative to large firms. Barbosa and Moraes (2003) cited Tamari (1980) as the first person to study influence of firm size on leverage across countries. Li (2005) and Li et al. (2009) work interestingly demonstrated that large economies benefit firms of different sizes, especially small firms to access long-term debt while rapidly growing economies only increase the access of large and medium firms to long-term debt. According to Caprio (1997) developing countries firms tend to rely less on long term debt in comparison to the firms in developed countries due to varied distinctiveness while Bhaduri (2002) stated that optimal financing choice was influenced by growth, size, cash flow and industry characteristics by considering developing economies like India. His finding can be viewed as contribution to the working of Rajan and Zingales (1995) and Titman and Wessels (1988).

On the other hand, profitability and performance are accounted as important aspects for firms financial leverage choice. Kinsman and Newman (1999) reported that average debt utilized by firms have mounted significantly over the last years which requires an elucidation of debt's impact on firms performance. According to trade-off theory, a positive relationship could be expected between debt level and firm's performance (i.e. profitability). This hypothesis is verified by studies conducted by Taub (1975); Roden and Lewellen (1995); Champion (1999); Ghosh et al. (2000); Hadlock and James (2002). Several other studies opposed this theory and document a negative correlation between leverage level and firm performance including Fama and French (1998); Gleason et al. (2000); Simerly and Li (2000). Roden and Lewellen (1995) in their study of leverage buyouts found a significant positive association between profitability and total debt; their findings suggested that leverage usage was one of the way to improve the firm performance. Abor (2005) research showed that short term debt and total debt are positively associated with firm's profitability; whereas long term debt is negatively related with firms profitability while considering firms in Ghana. While Pecking order theory, initially presented by Myers (1984) and Myers and Majluf (1984) states that when financing issues have been faced by firms they prioritize their funding sources, initially internal funds are utilized later debt is used and when debt capacity is attained firms issues equity. Profitable the firms will more likely rely on internal financing therefore a negative relation is expected between debt and profitability. Fama and French (1998) found that corporations financial performance is negatively impacted by debt financing. This relation is among the most systematic findings in empirical literature (Harris and Raviv, 1991, Rajan and Zingales, 1995, Booth et al., 2001). Friend and Lang (1988) and Kester (1986) reported a significantly negative association between profitability and debt/asset ratios. Rajan and Zingales (1995) and Wald (1999) also confirms a significant negative correlation between profitability and leverage. According to Jensen (1986) there exists positive correlation between profitability and leverage as profitable firms signify quality by leveraging up, whereas Titman and Wessels (1988) observed that highly profitable firms have subordinate levels of leverage than less profitable firms as earnings are utilized by them

before opting for external funds. Few researchers have inspected no relationship between leverage and profitability; including studies made by Long and Malitz (1985), Hall et al. (2000) and Amjed (2007).

From above cited empirical studies. It is clear that most of the research concerning capital structure and firm size were conducted in developed countries; few studies examined this relationship in emerging economies. This study primarily seeks at investigating the actual effects of firm size on the financial leverage choice in an emerging economy. This study contributes to the research of Ebel Ezeoha (2008); an effort has been made to conduct this study by analyzing emerging economies like Pakistan.

3. Objective

The objective of the paper is to study the impact of firm size on leverage by using 3 different measures of leverage. A sample of 396 non financial firms listed on KSE from 2005-2014 has been analyzed for this purpose.

4. Data and Sampling

Firm level data consists of an unbalanced panel data of all Pakistani Firms (non-financial sector) listed on the Karachi stock exchange from 2005-2014. Since, firms data was not available for same years that's why unbalance panel data has been used on annual basis. Data has been collected from State Bank of Pakistan Publications i.e. "Financial Statement analysis of Companies (Non-Financial) Listed at Karachi Stock Exchange".

Firms who started their business during the study period are considered while the firms having data less than three years are eliminated from the sample. Merger and acquisition of firms are considered. Final sample of the study creates an unbalanced panel data covering 10-year period from 2005-2014 with observations of 396 firms approximately.

5. Variables and Measures

The " Key variables used in the estimation are firm size and financial leverage ratios, with profitability and firm performance as a control variable. Financial leverage serves as dependent variable while firm size is used as independent variable. Three measures of financial leverage are used which are listed below

1. Financial leverage= Short Term Debt/ Total Assets=STD/TA
2. Financial leverage= Long Term Debt/ Total Assets=LTD/TA
3. Financial leverage=Total Debt/Total Assets=TD/TA

Financial leverage ratios are calculated based on the study of Ebel Ezeoha (2008) and Ahmed Sheikh and Wang (2013). Profitability is measured as Net Profit After Tax divided by Total Assets (Sajid et al., 2015). Performance is measured as return on equity (ROE) (Yang et al., 2016) while firm size is taken as log of assets (Yang et al., 2016, Pandey, 2004)

Regression equations used for estimation are mentioned below;

$$STD/TA_{i,j} = \alpha_i + \beta_1 FirmSize + \beta_2 Firm Performance + \beta_3 Profitability + \epsilon_{i,j} \quad (i)$$

$$LTD/TA_{i,j} = \alpha_i + \beta_1 FirmSize + \beta_2 Firm Performance + \beta_3 Profitability + \epsilon_{i,j} \quad (ii)$$

$$TD/TA_{i,j} = \alpha_i + \beta_1 FirmSize + \beta_2 Firm Performance + \beta_3 Profitability + \epsilon_{i,j} \quad (iii)$$

Hypothesis analyzed from previous researches that will be tested in the study are

H₀: There is no relation between financial leverage choice and firm size

H₁: There is relation between financial leverage choice and firm size

6. Empirical Results

Table 1 summarizes the mean and standard deviations of different measures of financial leverage (short term debt, long term debt and total debt) and other exogenous variables which are estimated by using STATA 12. The average short term debt stands at 21% while long term debt ratio is 15%. These averages represent greater dependence of Pakistani firms on short term debt which confirms the findings of Demirgüç-Kunt and Maksimovic (1999) and Ahmed Sheikh and Wang (2013) that firms in emerging countries have substantially lower amounts of long-term debt. This illustrates that Pakistani firms generally finance their operations with short term debt and depend less on long term debt. The average ratio of total liabilities to total assets among Pakistani firms stands at 37% which indicates the proportion of assets financed with total liabilities.

Table 1. Summaries of Basic Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Short Term Debt	1513	.2156455	.1989471	0	2.4191
Long Term Debt	1513	.1586572	.1939236	0	1.730722
Total Debt	1513	.3743027	.2715472	0	2.4191
Firm Size	1513	14.85426	1.587161	8.71029	19.49226
Profitability	1513	.0124136	.24701	-6.831975	3.126064
Performance (ROE)	1513	9.116933	116.5026	-1277.82	2893.03

In order to confirm collinearity error among variables, the data was tested for multicollinearity before estimating the coefficients. The results are presented in Table 2 shows pair-wise correlation among variables and they do not appear to indicate any concern over the multicollinearity problem in estimating the regression. As predicted, the results indicate that both long term and short term debt measures are positively correlated with total debt measured at 68% and 70%, respectively. Hausman's Test is used to decide among the two basic approaches for panel estimation i.e. model-the fixed effect model and random effect models that best fit our estimation model. Results of Hausman's test support fixed effect model as the p-value is less than 0.05. Thus, fixed effect panel regression is opted as a basis for assessing the impact of firm size on financial leverage choice.

Table 2. Correlation Results of Estimation Variables

Variables	Short Term Debt	Long Term Debt	Total Debt	Firm Size	Profitability	Performance
Short Term Debt	1.0000					
Long Term Debt	-0.0447	1.0000				
Total Debt	0.7007	0.6814	1.0000			
Firm Size	-0.0193	-0.1189	-0.0990	1.0000		
Profitability	-0.3021	-0.1249	-0.3105	0.1113	1.0000	
Performance	-0.0076	-0.0617	-0.0496	0.0243	0.0486	1.0000

Results reported in Table 3 indicate that Firm size is negatively related with short term, long term and total debt ratio. The results are consistent with the propositions of pecking order hypothesis i.e. Firm size is negatively and significantly associated to financial leverage. These findings are in consonance with the empirical findings of Cooley and Quadrini (2001), Titman and Wessels (1988), Gupta (1969) and Faulkender and Petersen (2005). According to these researchers, larger firms have easy access to equity market and may have more accumulated internal finances as compared to smaller firms. This indicates that larger firms have less likelihood of using debt financing (Ebel Ezeoha, 2008). Profitability, on the other hand, has negative and significant relation with short term and total debt ratio. The results are similar to the findings of Myers and Majluf (1984), Kester (1986), Negash (2001), Fama and French (2002) who reported negative relation between leverage and profitability and contradicts the findings of Ferri and Jones (1979) and Rajan and Zingales (1995). Firm performance report significant negative relation with short term debt while insignificant relation with long term and total debt ratio. Fama and French (1998); Gleason et al. (2000); Simerly and Li (2000), Tale (2014), Zeitun and Gang Tian (2007) and several other studies also document a negative correlation between leverage and firm performance.

Table 3. Fixed Effect Regression Results

Variables	Short Term Debt	Long Term Debt	Total Debt
Firm Size	-.0601*** (.0101)	-.0865*** (.0102)	-.1466*** (.0133)
Profitability	-.1711*** (.0114)	-.0141 (.0115)	-.1852*** (.0151)
Performance	-.00007** (.00003)	6.31e-06 (.0000)	-.0001 (.0000)
R^2	0.0180	0.0147	0.0241
No. of Obs	1513	1513	1513
No. of groups	345	345	345

Table 3. Reports regression results ***Significant at 1%, **Significant at 5%, *Significant at 10%

In short, descriptive statistics shows the average short term and long term debt utilized by Pakistani firms. This difference indicates that Pakistani firms usually prefer short term debt rather than long term debt. These findings are congruent with the findings of Ahmed Sheikh and Wang (2011) and Ahmed Sheikh and Wang (2013) suggesting that Pakistani firms prefer short term debt due to limited and underdeveloped bond market in the country or because of the high cost long term bank debt. Regression results show that all measures of leverage are negatively associated with firm size which confirms the prior findings of Mat Nor and Ariffin (2006), Drobetz and Fix (2003), Fama and French (2002), Cosh and Hughes (1994) and Baskin (1989) and reaffirmed the validity of the pecking order theory. As far as control variables are concerned profitability reports negative relation with all leverage measures while firm performance shows insignificant relation with long term and total debt ratio. Since, it is observed that in Pakistan non securities market are more dominant which include finance institutes and banks; as these institutions prefer to extend short term loans on favorable terms as compared to risky long term loans because of political and economic conditions in the country. Because of these reasons, it can be concluded that firms appear to prefer short-term debt even for financing their long term investment.

7. Conclusion

Leverage measures and firm size have been the subject to extensive prior discussion in the literature of finance. This study contributes to the literature by investigating the impact of firm size on firm financing behavior considering emerging countries like Pakistan. Using unbalanced panel data from Pakistani non financial firms, the study finds that basic trait of firms are more reliable with fixed effect model rather than a random effect model. Pecking order patterns are found in financial leverage choice of Pakistani firms, i.e. firms tend to depend more on other sources of financing rather than debt financing. The study confirms that due to political and economic instability, inefficient and complex financial system and financial constraints; Pakistani firms rely on short term financing irrespective of their firm size as only 15% on average long term debt is utilized by firms. Even larger firms may remain constrained due to predominant usage of short term debt in making basic capital investments for development. Firms need to take benefit of their sizes to build vigorous collateral values that help to access long term equity and debt finances. Results indicate that all measures of leverage are negatively related to firm size, whereas profitability reports negative and significant relation with short term debt and total debt. On the other hand, performance is negatively related to short term debt and total debt while insignificant relation is found in the case of long term debt.

Findings of this study have important implications for researchers and investors. It contributes to the literature by estimating results considering an emerging economy. The results entailed in the study will enable investors and researchers to evaluate the impact of firm size on leverage in Pakistan. Based on the conclusion drawn from the study; in the future, research can be conducted with a larger sample as in this study sample has been restricted to 10 years, i.e. 2005-2014; for future analysis more recent data and other variables like sales, assets tangibility etc can be used along with different measures of leverage e.g. Asset-liability ratio etc. Research can also be conducted by incorporating the effect of different externalities like financial crises of 2007-2008 in order to get more factual results.

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