

Do Profitability, Firm Size and Liquidity Affect Capital Structure? Evidence from Kenyan Listed Firms

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Abstract

This paper was aimed at determining the effect of profitability, firm size and liquidity on capital structure. The study adopted panel data from financial statements of 34 firms listed in Nairobi Securities Exchange for a period of years (2006-2012) excluding commercial banks. Pearson Correlation was employed to test linear relationship between the variables while multiple regression model were used to test the hypothesis. Findings obtained indicated that that profitability and liquidity are negatively and significantly related to capital structure. However, firm size is positively correlated and not significant on capital structure. Therefore, since the capital structure decision is a significant managerial decision which influences the shareholder's return, risk and the market value of the share, a company has to undertake profitability and liquidity decision whenever funds have to be raised to finance investments.

Key Words: Capital Structure, Liquidity and Profitability

Introduction

The most pivotal decision that any company takes is that of capital structure. Locating the optimal capital structure has for a long time an issue of interest among researchers and academicians. The ratio of debt and equity used to finance the firm's assets has implication for stakeholder's value. Additionally, capital structure affects profitability which in turns affects the expected return and facing owners and creditors of the firm (Pahuja and Sahi, 2012).

Capital structure is as ratio of debt to equity. According to Ajao and Ema, (2012) debt comprises of long term loans such as debenture and equity which includes paid up share capital, share premium, reserves, and retained earnings. Hence, a firm can use debts and/or equity to finance its investments. Apparently, capital structure has been argued to be important management decision since it highly affect the equity return and risks related to owner as well as the market value of the shares. Thus, deciding how to finance a firm is very important not just to the managers of a firm but also to fund providers and owners (Ajao and Ema, 2012). Making a wrong mix of finances employed in the firm might seriously affect the performance and survival of the business enterprise. However, firms financing decisions involve a wide range of policy issues which may be outside the direct control of a firm's management and they have implications for capital market growth, security price determination, regulation, and interest rate. Such decisions affect capital structure, corporate governance and company development at the micro level **Green et al (2002)**. It is therefore incumbent on management of a company to determine an appropriate capital structure which will ensure that their business continues as going concern. Most economies in developing countries are uncertain, thus, capital structure decision are very important since the existence of macro environment factors such as high and soaring interest rates, volatility in economic and political situations are important factors that determines the capital structure of firms (Ajao and Ema, 2012).

According to Booth et al., (2001) and Bas et al., (2009) knowledge about capital structures has mostly been derived from data in developed economies that have many institutional similarities. There are differences in social and cultural issues and in the levels of economic development there is the need to examine differently the determinants of capital structure for firms in developing economies. According to Bulent *et al*, (2013) most studies have given much attention on the developed countries such as United States, leaving a death gap in the

existing literature on the determinants of capital structure in emerging economies such as Kenya. As such this paper attempted to determine the effect of profitability, firm size and liquidity on capital structure.

Literature Review

Firm Profitability and Capital Structure

Pecking order theory holds that firms prefer internal sources of finance to external sources. Firms prefer source of finance that are not risk compared to more risky ones (Myers, 1984). Thus the relationship between firm profitability and capital structure can be explained by the pecking order theory (Ajao and Ama, 2012). Iwarere and Akinyele (2010) carried out an empirical research on determinants of capital structure in the Nigeria banking sector and found a positive relationship between profitability and capital structure. The pecking order theory therefore supports results that capital structure of quoted firms in Nigeria is significantly influenced by the return on asset (profitability).

Some of the numerous studies that have been conducted by researchers have revealed a negative relationship between profitability and capital structure. For instance, Amidu's (2007) and Abor's (2005) study on capital structure of listed firms in Ghana reported a negative relationship between leverage and corporate profitability. In addition, Graham's (2004), Cassar and Holmes' (2003) also indicated that profitability is negatively related to capital structure of a firm. Fama and Graham (2004) concluded in their study that there is an inverse relationship between total debt and profitability. Recently, Gatsi and Akoto's (2010) study on capital structure and profitability of Ghanaian Banks revealed a significantly negative association between short-term debts and net interest margin (profitability). Nevertheless, despite the above empirical evidence on capital structure and profitability, other researchers are of a different view. Abor (2005) observed a significantly positive relationship between the ratio of short-term debt to total assets and profitability, but a negative association between the ratio of long term debt to total assets and profitability. More so, Abor (2005) found a significantly positive relationship between total debt and profitability thus supporting the above previous findings.

Finally, it should be noted that empirical findings have proved that studies to determine the relationship between capital structure and firms' profitability are inconclusive. Some studies show a positive relationship between capital structure and profitability, others show a negative relationship between capital structure and profitability. The present study was interested on the effect of profitability on capital structure. Study therefore hypothesized that;

H₀₁: Firm profitability has no significant effect on capital structure of firms

Firm Size and Capital Structure

Firm size has been used mostly as a control variable in empirical studies of corporate finance while even though not uncommonly it is among the most significant variable. Relationship between capital structure decisions and firm value has been extensively investigated in the past few decades (Kurshev and Strebulaev, 2005). Previous studies have provided precursory evidence of a positive relationship between firm size and capital structure and they conclude that trade-off theory is valid (Daskalakis and Psillaki, 2008; Heyman et al., 2008).

According to Kurshev and Strebulaev (2005) in their study found that firm size was strongly positively related to capital structure. Similarly, Al-Sakran, (2001) and Hovakimian et al., (2004) provide empirical evidence on the positive relationship between firm size and capital structure. Dalbor and Upneja (2002) suggest that long-term debt usage shares a positive relationship with risk and firm size in publicly traded US restaurant firms. In their studies, Al-Sakran (2001) and Hovakimian *et al* (2004) found a positive relationship between firm size and capital structure. Ogbulu and Emeni (2012) in their study found that size of firms had positive relationship with capital structure of listed firms. Hassan (2011) in his study argued that firm size is major determinant of capital structure for listed insurance firms in Nigeria

However, firm size and debt ratio do not seem to share a significant relationship (Karadeniz et al, 2011). Moreover, Phillips and Sipahioğlu (2004) and Tang and Jang (2007) in their studies in publicly traded UK lodging companies and US lodging companies respectively could not find evidence of relationship among leverage ratio, volatility of earnings, firm size, profitability, and free cash flow. Similarly, Karadeniz et al. (2009) in their study in Turkish listed companies reported that firm size do not appear to be related with the debt ratio.

Olderink (2013) argues that static trade-off theory illustrate that there exist a positive relationship between firm size and the debt-to-capital ratio whereas a negative relationship is assumed in the pecking-order theory. The static trade-off theory assumes a positive relationship since larger firms might be able to reduce the transaction costs associated with long-term debt issuance. Nuri and Archer, S. (2001) point out that the trade-off theory rather than the pecking order theory is more consistent with the lodging and retail industries in the UK. Thus, results of his study were consistent with the propositions of the Pecking order theory, the trade off theory and the Agency Cost theory. This study therefore hypothesized that;

H₀₂: Firm size has no significant effect on capital structure of firms.

Firm Liquidity and Capital Structure

As discussed by Weston *et al* (2005) and Hennessy and Whited (2005) liquidity of a firm's equity is related to the ease with which a firm can raise external capital through a stock offering. Less liquid stocks tend to have higher issuance costs and thus a higher cost of equity. Therefore, firms with more liquid equity are more motivated to issue equity than those with less liquid equity (Udomsirikul *et al.*, 2010). As a result, capital structure choices are likely influenced by liquidity position of the firm. Consistent with Lipson and Mortal (2010) and Frieder and Martell (2006) document that firms with more liquid equity are significantly low leveraged. They found that firms with more liquid equity carry less debt. Further, when considering external financing, firms with more liquidity are more inclined to raise equity than debt. These two studies provide insightful empirical evidence on the association between liquidity and capital structure.

Similarly, Anderson (2002) in his research on British companies found a positive relationship between leverage and liquidity of the firm. In agreement, Sibilkov (2007) in her study asserted that liquid assets increased leverage and debt of the companies. In relations to this finding, it is argued that firms with more liquid and reversible assets, are more leveraged (Šarlija, 2012). Since such kind of research that would find relationship between capital structure and liquidity has not been extensively conducted in developing countries Kenya inclusive, it was prudent to fill the gap and basing on the discussion above, it is therefore hypothesized that;

H₀₃: Firm Liquidity has no significant effect on capital structure of firms

Data and Methodology

The data was collected from firm's own financial accounts which comprised of corporate financial data of 238 firms that were publicly listed on Nairobi Securities Exchange (NSE) for a period of seven years (2006 to 2012). However, commercial banks were excluded from sample because they have no current asset or current liabilities in their financial records. The data used in the analysis was taken from various volumes of the Balance Sheet Analysis of Joint Stock Companies Listed on The Nairobi Securities Exchange and annual reports of Nairobi Securities Exchange for the relevant years.

Measurement of variables

For the researcher to get systematic information, documentary guide was used to find out the information concerning profitability, firm size, liquidity and capital structure. Capital structure was measured as ratio of debt to equity, profitability is ratio of Earnings before Interest and Taxes (EBIT) to total asset, firm size was calculated as natural log of total asset and liquidity as the ratio of current asset to current liabilities Rafique, (2010). Data was collected from annual financial report of 60 firms that are listed on the Nairobi Securities Exchange which have been in operation for the period from 2006-2012 consecutively. Banking sector was excluded from the study encompassing a total of 34 firms. The paper used multiple regression to test the hypothesis and the study reported results of cross-sectional regression that used the mean values of variables of sub-periods.

Empirical Results

Table 1 displays both the descriptive statistics and correlation results for the entire sample. From the table findings the average capital structure ratio is 44.81%. These ratio is remarkably comparable to those in Lipson and Mortal (2010), although they use only American firms in their studies. Averages Profitability was reported to be 8.03%, while firm liquidity was 1.83 on average. This is contrary to Amihud's (2002) finding in US firms that liquidity averages 3.22, whereas the illiquidity estimate for Lipson and Mortal (2010) is only 1.21 on average. Finally average firm size was 7.10. This difference clearly shows that there is much less liquid in Kenyan listed firms than it is in the U.S. Moreover, we investigate the correlation between profitability, firm size, liquidity and capital structure. In this study, Pearson correlation analysis was conducted to examine the relationship between the variables Jahangir and Begum, (2008). According to Field (2005), correlation coefficient should not go beyond 0.8 to avoid multicollinearity. Since the highest correlation coefficient in this study is 0.487 there is no multicollinearity problem in this research correlation statistics. Profitability and liquidity correlation coefficients indicated an inverse association with capital structure where as firm size indicated no correlation.

Correlation Results

The findings indicate that profitability was negatively correlated to capital structure ($r = -0.337$). In addition, firm size was positively associated with capital structure ($r = 0.036$). Liquidity showed a negative relationship with capital structure ($r = -0.209$). From the findings it showed that all the three variables (profitability, firm size and liquidity) were negatively related to capital structure apart from firm size which was positively associated with capital structure.

Table 1: Summary Statistics and Correlation Results

	Mean	Std. Deviation	Capital Structure	Profitability	Firm size	Liquidity
Capital Structure	0.4481	0.50017	1			
Profitability	0.0803	0.09548	-.337**	1		
Firm Size	7.1013	1.0831	0.036	.487**	1	
Liquidity	1.8324	1.34726	-.209**	.371**	0.047	1

** Correlation is significant at the 0.01 level (2-tailed).

Hypothesis Testing

Hypothesis 1 (H_{01}) stated that profitability has no significant effect on capital structure. However, the hypothesis was rejected. Study findings in table 2 indicated that $\beta_1 = -0.395$ was significant at $p < 0.05$ and t value -4.426. Thus, profitability negatively affected capital structure, providing grounds for rejection of hypothesis 1. Hence, the findings are in agreement with Cassar and Holmes' (2003) that profitability is negatively related to capital structure of firm. Contrary to the findings, Iwarere and Akinyele (2010) in their empirical research of the determinants of capital structure in the banking sector in Nigeria where they concluded that there is a positive relationship between profitability and capital structure.

Study hypothesis 2 (H_{02}) stipulated that firm size has no significant effect on capital structure. Findings showed that $\beta_2 = 0.018$ was not significant at p value=0.873. In addition t test value for firm size was 0.161 hence hypothesis 2 was accepted. Thus, firm size had no effect on capital structure. The findings therefore disagrees with studies by Kurshev and Strebulaev (2005) and Al-Sakran, (2001) that firm size was strongly positively related to capital structure

Hypothesis 3 (H_{03}) hypothesized that liquidity has no significant effect on capital structure. Hypothesis 3 was rejected on the basis that $\beta_3 = -0.618$ was significant at p value = 0.000. In addition, t ratio = -6.371 provided more evidence that liquidity negatively affected capital structure. Therefore, firms with more liquid equity are more motivated to issue equity than those with less liquid equity thus capital structure choices are likely influenced by liquidity (Udomsirikul *et al*, 2010).

Finally, the study findings in table 2 revealed that 65.7 percent variation of capital structure is explained by profitability, firm size and liquidity as supported by $R^2 = 0.657$ and F value 17.635 showing that the model can be used in future to predict capital structure.

Table 2 Multiple Regression Results

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
(Constant)	0.196	0.484		0.404	0.688		
Profitability	-0.966	0.218	-0.395	-4.426	0.000	0.918	1.089
Firm size	0.051	0.317	0.018	0.161	0.873	0.587	1.703
Liquidity	-0.759	0.119	-0.618	-6.371	0.000	0.829	1.206
Other Statistics							
R Squared	0.657						
Adjusted R squared	0.62						
F-Statistics (ANOVA)	17.635						
Prob(F-Statistics)	0						

Dependent Variable: Capital structure

Conclusion and Recommendation

The results of this study have delivered some insights on the capital structure of Kenyan listed firms. The issue of capital structure is an important strategic financing decision that firms have to make. Clearly, profitability and liquidity tend to dominate the capital structure determinants. Therefore firms should be careful in optimizing capital structure since having high profitability and liquidity means reducing debt thus increases tax as indicated by pecking order theory. The results of this research showed that the liquidity of the firm, which is reflected in the ongoing ability to pay financial obligations, affects the firm's capital structure. Thus, we argue that the increase of the firm liquidity reduces firm capital structure. Similarly, profitability which reflects the firm ability to cover all its expenditures had negative effect on firm capital structure hence, the higher the firms profitability the lower the firm's capital structure. Therefore, the financing or leverage decision is a significant managerial decision which influences the shareholder's return and risk and the market value of the share. A company has to undertake profitability and liquidity decision whenever funds have to be raised to finance investments. However, scholars have provided mixed results on effect of capital structure on firm performance. For instance Ghosh *et al* (2000), and Berger and Bonaccorsi di Patti (2006) reported a positive relationship between leverage and financial performance, while Gleason *et al* (2000), Simerly and Li (2000) showed negative or weak/no relationship between firms performance and leverage level firms need to be careful on the direction they tend to drive their capital structure. This study was however limited to only to firm size, profitability and liquidity, it is therefore prudent for future research to consider other factors such as collateral and corporate governance.

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