CAPITAL STRUCTURE AND FINANCIAL PERFORMANCE IN KENYA: EVIDENCE FROM FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

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ABSTRACT

The research aims at establishing, the effect of capital structure on financial performance of firms listed at the NSE. The population of interest of this study was the firms quoted at the NSE, and a census of all firms listed at the NSE from year 2002-2011 was the sample. Secondary data was collected from the financial statements of the firms listed at the NSE. The study used Causal research design and Gretl statistical software to perform the panel Regression analysis. The study concluded that debt and equity are major determinants of financial performance of firms listed at the NSE. There was evidence of a negative and significant relationship between capital structure (DE) and all measures of performance. This implies that the more debt the firms used as a source of finance they experienced low performance. The study also concluded that firms listed at NSE used more short-term debts than long term.

Key words: Capital Structure, Financial Performance, Nairobi Securities Exchange (NSE), Debt, Equity, Financial statement.

Introduction

The theory of capital structure and its relationship with financial performance of firms has been a controversial issue in corporate finance since the seminal work of Modigliani and Miller (1958). The question firms are faced with is making a decision on the capital structure choice to use. The decision is crucial given that it has an effect on the financial performance of firms. The capital structure of a firm is generally the specific mix of debt and equity the firm uses to finance its operations (Abor, 2005). A firm can issue a large amount of debt or a large amount of equity; hence it's important for a firm to deploy the appropriate mix of debt and equity that can maximize its overall market value. Utilization of different levels of equity and debt by managers is one strategy used by firms to improve their financial performance (Gleason et al., 2000).

Statement of the Problem

Financial Managers have a responsibility of determining the optimal mix of debt and equity that will ensure maximization of shareholders wealth. This has led to the desire to establish whether there is an optimal capital structure that maximizes firm's value. Studies on the impact of capital structure on firm performance have mostly been carried out in developed economies on large and listed firms. In the developing economies, Chiang Yat Hung et al., (2002) concluded that while high gearing is positively related to asset, it's negatively related to profit margins in Hong Kong. In Kenya, Kiogora (2000), the only study in the literature, found a positive relationship between capital structure and value of the firm.

Since Kiogora's (2000) study, equity levels of firms listed at the NSE have substantially risen. A random observation shows that debt equity ratios have dropped substantially from 5.03, 1.53 and 1.89 in 2002 to 1.07, 0.64 and 1.51 in 2012 respectively for Kenya Power, BAT Kenya and Kenya Airways. Over the same period, the returns on equity have improved substantially for the three firms from –1.18, 0.20 and 0.17 in 2002 to 0.94, 0.31 and 0.72 in 2012 respectively for the three companies. A similar pattern is observed for many firms listed at the NSE. Given these observations, it would be interesting to establish, whether there is a clear linkage between capital structure and the performance of firms listed at the Nairobi Securities Exchange.

Objective of the Study

The general objective of this study was to focus on examining the link between capital structure and financial performance of firms listed at the NSE.

Specific objectives of the Study

- 1. Determine effect of equity financing on financial performance of firms listed at the Nairobi Securities Exchange.
- 2. Determine the effect of debt financing on the financial performance of firms quoted at the Nairobi Securities Exchange.

Literature Review

Theories of Capital Structure

The capital structure of a firm could be explained, in general terms, by two dominant theories; the trade-off and pecking order theories. Based on an arbitrage argument, Modigliani &Miller (1958) ascertained that with the existence of perfect capital market, the capital structure decisions would have no impact on the value of the firm. Arbitrage, they argued would ensure that an individual's exposure to risk would not change because home-made leverage was as good as corporate leverage. However, there was a reaction from Duraud (1959) to Modigliani and

miler's irrelevant theory. He questioned the applicability of arbitrage process and the assumptions they made of a risk-less world that are somehow unrealistic. In response to this and other criticisms, Modigliani and Miller (1963) modified their original hypothesis. Relaxing the assumption of zero taxation, they argued that levered firms will be more value than unlevered firms due to the fact that debt is a tax deductible expense.

Since Modigliani & Miller (1963) made an oversight of the impact of personal taxes, Miller (1977) made an important contribution by correcting the 1963 contention. Relying on several assumptions, Miller (1977) introduced a model designed to show how leverage affects a firm's value. When both personal and corporate taxes are taken into account, this model suggests that in that market equilibrium, corporate tax advantage are cancelled out by the effects of personal taxes hence capital structure irrelevance. Taggart (1980) extended Miller's analysis to conditions of incomplete capital markets and special costs associated with corporate debt. He concluded that Miller's findings could be upheld and all equity capital structures are seen as perfectly rational for at least some firms.

In perfect and efficient markets, Modigliani and Miller (1958) showed that capital structure is irrelevant to the cost of capital, and thus firm value . The trade-off theory argued for the existence of an optimal capital structure by adding various imperfections to capital markets assumed by the MM theorem, but retaining the assumptions of market efficiency and symmetric information. Major imperfections that lead to an optimal capital structure are as follows. First, higher taxes on dividends lead to more leverage, as suggested by Modigliani and Miller (1958) and Miller and Scholes (1978). Second, higher costs of financial distress lead to more equity. These two imperfections constitute the trade-off between benefits and costs from borrowing. The trade-off theory of capital structure therefore predicts that firms will choose their mix of debt and equity financing to balance costs and benefits of debt. The tax benefit of debt and control of free cash flow problems push firms to use more debt financing while bankruptcy costs and other agency problems provide firms with incentives to use les. The theory describes a firm's optimal capital structure as the mix of financing that equates the marginal costs and benefits of debt financing. One of the main empirical prediction of this theory is that debt ratios will tend to be mean reverting as firms use the external capital markets strategically to keep their values at a close to their optimum (Lemmon et al., 2002).

There are types of agency costs which can help explain the relevance of capital structure. First, Asset substitution effect which explains that as the debt-equity ratio increases meaning the firm is using more debt than equity, management has an increased incentive to undertake risky (even negative NPV) projects. This is because if the project is successful, shareholders get all the benefit, whereas if it is unsuccessful, debt holders get all the loss. If the projects are undertaken, there's a chance of firm value decreasing and a wealth transfer from debt holders to shareholders. Therefore there managers should have an optimal combination of equity and debt to maximize the value of the firm. Secondly, underinvestment problem if debt is risky (e.g. in a growing company), the gain from the project will accrue to debt holders rather than shareholders. Thus,

management has an incentive to reject positive NPV projects, even though they have the potential to increase firm value. Lastly, free cash flow; unless free cash flow is given back to investors, management has an incentive to destroy firm value through empire building and perks etc. Increasing leverage imposes financial discipline on a management.

This was expounded by Pinegar and Wilbricht (1989) who discovered that principal-agent problem can be dealt with to some extent through the capital structure by increasing the debt level and without causing any radical increase in agency costs. Similarly, Lubatkin and Chatterjee (1994) argue that increasing the debt to equity ratio will help mangers return excess cash flow to shareholders rather than investing in risky negative NPV projects, hence there will be more efficient management of the firm since the managers will have to make sure that the debt obligations of the firm are repaid.

The pecking order theory can be explained from the perspective of asymmetric information and the existence of transaction costs. Myers (1984) suggests that asymmetric information and transaction costs overwhelm the forces that determine optimal leverage in the trade-off models. To minimize these financing costs, firms prefer to finance their investment first with internal cash flows. Only if there's residual financing need will they use external capital in the following order; first safe debt, then risky debt and finally equity issues. So, contrary to the trade-off theory, the pecking order theory predicts no long run target capital structure. There is no optimal debt-equity mix because there are two kinds of equity, retained earnings at the top of the pecking order and the issue of new shares at the bottom (Myers, 1984).

In summary, there is no universal theory of the debt-equity choice. Different views have been put forward regarding the financing choice. This study will use one of the theories that best fits this research which aims at finding the effect capital structure has on firm's financial performance

External Equity Capital and Performance

According to Kisgen (2006), equity capital is the mode that enables equity holders to exert influence and monitor managerial decisions continuously through the board of directors. Therefore, they are able to take immediate corrective action when they spot the initial signs of inefficient utilization of resources. When control is to be exerted, the equity holders, as residual claimants, have the right to revise the employment terms of managers, (Boateng, 2004). They can successfully adapt by bringing about the desired changes through coordination with firm managers. Such form of coordination is more expensive than coordination through price-based systems. (Gibson, 2002). It is also likely to result in greater value to equity holders and thereby increasing firm performance. Hall (2002) suggests that strategic assets should be financed through equity. A deviation from this relationship can lead to higher organizing costs, which could have far reaching implications in the long run resulting in poor performance.

Graham (2000) discussed the main costs of equity as; tax costs, adverse selection, Premium and floatation costs. These costs have an effect on the performance of firms when aggregated. These

findings by Graham are consistent with existing theoretical models and empirical studies. Myers and Majluf (1984) consider a firm with a single all-or-nothing investment opportunity shows that asymmetric information increases the cost of equity if the firm is pooled with those of lower quality resulting in decreased performance.

Contrarily, Booth (2002) argues that the firm that uses equity finance is able to make its performance better since there is direct control and because all the equity holders are the residual claimants they have to ensure that resources are allocated efficiently to be able to maximize shareholders wealth. Booth's arguments have been supported by Boateng and Jones (2003) who found that use of equity capital is positively related to the performance of family owned businesses in Pakistan.

Effect of Debt on Performance

Watson and Wilson (2002) defined debt capital a capital which a business raises by taking out a loan. Debt capital differs from equity or share capital because subscribers to debt capital do not become part owners of the business, but are merely creditors, and the suppliers of debt capital usually receive a contractually fixed annual percentage return on their loan, known as the coupon rate. Debt may be short term or long term. According to Watson and Wilson (2002), debt capital ranks higher than equity capital for the repayment of annual returns. This means that before any dividends are paid to suppliers of equity, interest on debt capital must be paid in full.

A company that is highly geared has a high debt capital to equity capital ratio. There are several capital structure perspectives showing how decision to use debt affects the firm's value. The use of debt in capital structure of the firm also leads to agency costs. The need to balance gains and costs of debt financing emerged as a theory known as the static trade-off theory by Myers and Majluf (1984). It values the company as the value of the firm if unlevered plus the present value of the tax shield minus the present value of bankruptcy and agency costs.

In their analysis of the agency problem between professional managers and dispersed shareholders, Jensen and Meckling (1976) argued that debt constrains managerial expropriation by imposing fixed obligations on corporate cash flow. Jensen (1989) further examined this argument in the context of free cash flow, debt, and leveraged buyouts. Jensen argues that free cash flow, debt, and leveraged buyout forced managers to disgorge their corporations' free cash flow, replacing equity with debt.

Hutchinson (1999) argues that provided that earning power of firms exceed leverage interest cost of debt, financial leverage will have a positive effect in firms return on equity. Hadlock and James (2002) argue that the extent to which a firm's earnings' power is likely to remain above the breakeven point and the potential speed or flexibility with which it can adjust its debt usage, if its earnings' power falls below average interest costs, should help to determine the level of debt that the firm is willing to commit itself to at a given point in time.

The agency model of Jensen (1986) suggests that since debt sales bring additional cash into the firm, this could exacerbate agency problems. Alternatively, if firms use the debt issue proceeds to address the gap between investments needs and internal sources of funding, this would not necessarily lead to an increase in excess cash within the firm. The periodic interest payments on debt would then commit managers to pay out excess free cash flow. Hence, debt issues could reduce agency costs, and have positive effects on firm value. In contrast, Miller and Rock (1985) and Smith (1986) argue that all securities sales (including debt) indicate decreases in future operating performance, and hence impact negatively on firm value. In conclusion, the use of debt is one way to improve performance and firms value (Champion, 1999)

Conversely, some studies have shown that debt has a negative effect on firm performance. Fama and French (2000), for instance are of the view that the use of excessive debt creates agency problems among shareholders and creditors and that could result in negative relationship between leverage and firm performance. Majumdar and Chhibber (1999) found in their Indian study that leverage has a negative effect on performance, while Krishnan and Moyer (1997) connect capital and performance to the country of origin. Gleason et al., (2000) support a negative impact of leverage on the profitability of the firm.

Research Methodology

The population of interest of this study was the firms quoted at the Nairobi securities exchange, and a census of all firms listed at the Nairobi Security Exchange from year 2002-2011 was the sample. Secondary data was collected from the financial statements of the firms listed at the NSE. The study used Causal research design and Gretl statistical software to perform the panel Regression analysis.

The panel character of the data allowed the use of panel data methodology which involved pooling of observations on a cross-section of units over several time periods. One advantage of using panel data is that because of several data options, the degree of freedom are increased and co-linearity among the explanatory variable is reduced hence improving efficiency

The relationship between debt and profitability/performance thus estimated in the following regression models:

$$Y_{it} = \alpha_0 + \alpha_1 D E_{it} + \alpha_2 S Z E_{it} + \alpha_3 S G_{it} + \alpha_4 T ang + \alpha_5 G R O W + e_{it}$$
 (1)

$$Y_{it} = \alpha_0 + \alpha_1 LDE_{it} + \alpha_2 SZE_{it} + \alpha_3 SG_{it} + \alpha_4 Tang + \alpha_5 GROW + e_{it}$$
 (2)

$$Y_{it} = \alpha_0 + \alpha_1 T A_{it} + \alpha_2 SZE_{it} + \alpha_3 SG_{it} + \alpha_4 Tang + \alpha_5 GROW + e_{it} \qquad (3)$$

Where:

 Y_{it} Are alternatively ROA, ROE and Tobin's Q, for firm i in time t as a measure of performance hence having 9 regression models.

 DE_{it} is the debt equity ratio for firm i in time t

 TA_{it} is the total debt to asset ratio for firm I in time t

 LDE_{it} Is the long-term debt to equity for firm i in time t.

 SZE_{it} Is the log of total assets for firm i in time t.

GROW Is the growth opportunity of firm I in time t

Tang Is the asset tangibility ratio of a firm I it time t

SG it Is sales growth for firm i in time t.

 e_{it} is the error term.

Research Results

Descriptive Statistics

The summary statistics from the study show that the mean value for Return on Equity was 16.51%. Return on Asset invested in the company was 51.80%. This two accounting measures of performance shows relatively good accounting performance of firms listed at Nairobi securities Exchange. The standard deviation, of 0.622 with respect to ROA suggests that while a few firms are doing well, most of them are not. This is given more credence with -79.17 % and 870% representing minimum and maximum ROA respectively. Indeed, this story is not substantially different in the case of ROE.

Tobin's Q which is a measure of market performance shows a high percentage of 1828.11%. This could be due to increase in firms share price and equity without increase in real activities of performance for the firms. The capital structure ratios shows that firms listed at the NSE 31.85% of Long-term Debt to equity and 192.837% of total debt to equity. This shows that the firms use more of short-term debt may be due to the high cost of long-term debt,or difficulty in accessing long-term credit from financial institutions. Another reason could be due to the under-developed nature of the Kenyan long-term debt market. Total debt to Asset ratio was 219.416%, this shows that most of the assets of the firm listed at the NSE are financed through debt and are tangible to an extent of 51.38 %

Correlation Matrix

The correlation matrix for the variables reported examined the correlation between the explanatory variables. To address this problem the study tested for multi-co linearity by running a correlation of one independent variable against the other(s). The results shows a negative correlation coefficient between ROE, ROA, Tobin's Q with LDE at -0.0687, -0.0026 and -0.0496. ROE, Tobin's Q also have a negative correlation coefficient with DE and TA respectively. The correlation coefficient between the independent variables are relatively low hence no problem of multicollinearity in the model. The correlation coefficient lies between zero and one, thereby measuring the linear association between the observed values.

Panel Unit -Root Analysis

Panel unit-root test analysis has been proposed by several researchers like Maddala and Wu (1999). It's mostly preferred than single time series units because the test statistics are approximately normally distributed for the finite sample sizes. It requires that variables considered in the panel model need to be stationary in order to avoid the so-called spurious regression. The null hypothesis is rejected if test statistics is significant.

Results for Panel Data Model Using ROE

Findings indicated that there exist a non significant negative relationship between capital structure and performance meaning an increase in total debt to asset ratio does not affect ROE. Results also show that asset tangibility has a negative and significant (at 1% level) relationship with ROE, meaning that if firms increase their retention of large investments in tangible assets, this would lower their performance. This finding is consistent with the result obtained by Muritula (2012). A positive relationship between ROE and Size, Grow and SG for all the firms was shown.

Durbin-Watson Statistic is a statistic used to test for first order serial correlation in the errors of a regression model under the classical linear model assumptions (Wooldridge, 2004). It helps in specifying the right combination of the explanatory variables (Gujarati, 2004). The Value of Durbin-Watson test shows that there is no problem of auto-correlation. Values approaching 0 indicate positive autocorrelation and values toward 4 indicate negative autocorrelation. Results showed values of 1.36 respectivelyAdjusted R² shows a 92.94% goodness-of-fit measure in multiple regression analysis. The higher the R², the higher the goodness of fit and the reliability of the model.

Results showed a negative relationship between ROE and capital structure. The combination of debt and equity of the firms is not significant. This means a 100% increase/ decrease in leverage will reduce performance by only 3.15% and 0.8 respectively. Compared to asset tangibility, the relationship with performance will be significant at 1% level of significance with 40.1% and 40.8% change respectively. Both in model 2&3, Size, Grow and SG show a positive relationship

with performance. Model 2 and 3 shows a goodness of fit measure in multiple regression analysis of 93.03% and 93% hence the models were reliable. The Durbin Watson (D.W) statistics of 1.36 for ROE; as it is significantly within the bench mark value of 2; we can conclude that there is no auto-correlation or serial correlation in the model specification.

Results for Panel Data Model Using ROA

Research result indicates a negative relationship between capital structure and performance at 5% level of significance. This evidence is in support of agency cost hypothesis which suggests that due to agency conflicts between a firm's stakeholders, firms tend to over-leverage themselves and this leads to negative financial performance. This outcome is consistent with the findings of previous studies such as Zeitun and Tian (2007), Akintoye (2008), among others.

The relationship between ROA and firm's asset tangibility is negative and significant at 10% level. This shows that firms with high ratio of tangibility have a lower financial performance ratio. It provides significant evidence that the sampled firms were not able to utilize their fixed asset composition in the total asset wisely to impact on their performance. The results showed a positive but not significant relationship between Grow, SG and ROA. Thus, they are not major determinants of the sampled firms' performance.

Results of model 2 and 3 have shown similar results of asset tangibility in terms of significance and negative relationship with ROA though with different coefficient of -0.30 and -0.31 respectively. The same results are reported about Size, Grow and SG. As the adjusted (R²) tends to show the variability of the dependent variable that is explained by the variation of the independent variables. Results show a 50.9%, 51.7% and 53% for model 1-3 respectively, meaning having removed the influence of the explanatory variables, the model is still of good fit, hence, in terms of the goodness of fit we can say that the test is fair. The Durbin Watson (D.W) statistics of 1.07, 1.07 and for ROA; can conclude that there is no auto-correlation or serial correlation in the model specification.

Results for Panel Data Model Using Tobin Q

The results obtained from the models indicate that the overall coefficient of determination (R²) shows that the equation has a good fit with 59.2%, 69.4% and 59.14 % for model 1, model 2 and model 3 respectively. This shows these percentage changes in the dependent variable (Tobin Q=market value/book value) are caused by the independent variables (DE, LDE, TA, SG, SIZE, TANG and GROW). The higher the R², the higher the goodness of fit hence higher reliability of the model. The regression results showed a negative and statistically significant relationship existing at 1% between asset tangibility and Tobin's Q. This is consistent with all other measures of performance in the study.

The relationship between TA, SG, GROW and Tobin's Q is positive whereas the control variable (firm size) shows a negative relationship with the performance variable measured by Tobin's Q,

as large size firms shows inefficiency and affects the firm performance negatively. This finding is consistent with the result obtained by Abdul (2012). The Durbin Watson (D.W) statistics concludes that there is no auto-correlation or serial correlation in the model 1, 2 and 3 specifications. The study embraced adjusted coefficient of determination R^2 to determine the variability of the dependent variable that is explained by the variation of the independent variables after accounting for the intercept and number of independent variables. The adjusted R^2 is calculated for all possible subset models. Using this technique, the model 1, 2 and 3 had the largest adjusted R^2 hence declared the best linear models for the study.

Conclusions

In summary, the results shown in model 2 indicate that capital structure choice measured by (LDE, DE and TA), in general terms, has no significant impact on Kenyan listed firms' performance measured by (ROE, ROA and Tobin's Q). These results contradict with findings of previous literature either in developed or transition economies which document a significant impact of capital structure on firm's performance either positively (Gosh et al., 2000; Abor, 2005; Kyereboah-Coleman, 2007) or negatively (Balakrishnan and Fox, 1993; Majumdar and Chibber, 1999; Gleason et al., 2000; Zeitun and Tian, 2007; Abor, 2007). This rejects the H1 and accepts H0 because the result shows that capital structure doesn't affect performance of firms listed at the NSE. Model 1 is the only model showing a negative and significant relationship between capital structure measured by DE and performance (ROA) hence rejecting the H0 and rejecting H1. This may be due to agency conflicts hence companies over-leveraged themselves thus affecting performance negatively This results are consistent with the findings of previous studies such as Gleason, Mathur and Mathur (2000), Tzelepis and Skuras (2004), Krishnan and Moyer (1997). Model 3 however shows a situation where capital structure measured by TA affects performance measured by Tobin's Q positively at 5% level of significance. This result though is consistent with Nirajini and Priya (2013) in their study at Sri Lanka. Therefore it rejects H0 and accepts H1

Recommendations

In line with our finding, the study recommend that firms (both highly and lowly geared) should take into cognizance the amount of leverage incurred because it is a major determinant of firms performance, this is obvious in both the highly geared and lowly geared firms.

The study provides evidence of a negative and significant relationship between asset tangibility and ROA as a measure of performance in the model. The implication of this is that the firms were not able to utilize the fixed asset composition of their total assets judiciously to impact positively on their firms' performance. Hence, this study recommends that asset tangibility should be a driven factor to capital structure because firms with more tangible assets are less likely to be financially constrained.

In addition, the government should create an enabling business friendly environment so that businesses can thrive and thus increase firm's performance level. This is evident in the fact that macroeconomic variables positively affect the performances.

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