THE IMPACT OF FINANCIAL LEVERAGE ON FIRM PERFORMANCE: THE CASE OF NON FINANCIAL FIRMS IN KENYA.

KALE AHMED ALI
X51/60410/2013

Research project submitted to the University of Nairobi, School of Economics in partial fulfillment for the award of the Degree of Masters of Arts in Economic Policy Management.

2014
DECLARATION

This research paper is my original work and to the best of my knowledge it has not been presented for the award of a degree in any other university.

Sign………………………………………. Date…………………………………….

Kale Ahmed Ali

This research has been submitted for examination with my approval as the university supervisor

Signed………………………………………. Date…………………………………….

Dr. Peter Muriu
DEDICATION

This project is dedicated to my mother Mrs. Shumi K. Lali and my wife Mrs. Rahma G. Abbas for their prayers and moral support that enabled me pursue my master’s degree.
ACKNOWLEDGEMENT

First and foremost am grateful to Almighty Allah, through His mercy am able to complete this project. Completing this journey was not an easy task and credit cannot be on me alone rather through the support of individuals. First, my supervisor Dr. Peter Muriu whose guidance, suggestions and positive criticism with timely corrections and feedback enabled my completion despite his busy schedule.

My gratitude also goes to the Ministry of Devolution and Planning and Africa Development Bank for sponsoring my study. I also acknowledge my fellow students for their support and friendship, without forgetting the entire staff of School of Economics for their services.

Finally I appreciate the encouragement from my dear wife and for taking care of our children while am studying. The views in this study are mine and I bear full responsibility for any errors and omissions.
**LIST OF ABBREVIATIONS**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIMS</td>
<td>Alternative Investments Market Segment</td>
</tr>
<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
</tr>
<tr>
<td>CMA</td>
<td>Capital Market Authority</td>
</tr>
<tr>
<td>FISMS</td>
<td>Fixed Income Securities Market Segment</td>
</tr>
<tr>
<td>GEMS</td>
<td>Growth Enterprise Market Segment</td>
</tr>
<tr>
<td>KRA</td>
<td>Kenya Revenue Authority</td>
</tr>
<tr>
<td>MIMS</td>
<td>Main Investment Market Segment</td>
</tr>
<tr>
<td>MM I</td>
<td>Modigliani and Miller Proposition I</td>
</tr>
<tr>
<td>MM II</td>
<td>Modigliani and Miller Proposition II</td>
</tr>
<tr>
<td>NASI</td>
<td>NSE All Share Index</td>
</tr>
<tr>
<td>NPV</td>
<td>Net Present Value</td>
</tr>
<tr>
<td>NSE</td>
<td>Nairobi Securities Exchange</td>
</tr>
<tr>
<td>OLS</td>
<td>Ordinary Least Squares</td>
</tr>
<tr>
<td>ROA</td>
<td>Return on Assets</td>
</tr>
<tr>
<td>ROE</td>
<td>Return on Equity</td>
</tr>
<tr>
<td>ROS</td>
<td>Return on Sales</td>
</tr>
<tr>
<td>WAN</td>
<td>Wide Area Network</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS

DECLARATION ...................................................................................................................... ii
DEDICATION ....................................................................................................................... iii
ACKNOWLEDGEMENT ........................................................................................................ iv
LIST OF ABBREVIATIONS ................................................................................................... v
TABLE OF CONTENTS ........................................................................................................ vi
LIST OF TABLES ................................................................................................................ viii
ABSTRACT ........................................................................................................................ ix

CHAPTER ONE: INTRODUCTION ....................................................................................... 1
  1.1 Background of the study .............................................................................................. 1
    1.1.1 Firm’s Performance and Leverage ........................................................................ 2
    1.1.2 Nairobi Securities Exchange .............................................................................. 3
  1.2 Problem Statement .................................................................................................... 5
  1.3 Objectives of the Study ............................................................................................. 6
  1.4 Significance of the study ........................................................................................... 6
  1.5 The Scope and Organization of the Study ................................................................. 6

CHAPTER TWO: LITERATURE REVIEW ......................................................................... 8
  2.1 Introduction ................................................................................................................. 8
  2.2 Theoretical literature ................................................................................................. 8
    2.2.1 Modigliani and Miller Proposition I and II ......................................................... 8
    2.2.2 Agency Theory .................................................................................................... 8
    2.2.3 Static Trade-Off Theory .................................................................................... 9
    2.2.4 Pecking Order ................................................................................................... 9
    2.2.5 Capital Structure Signaling Theory .................................................................. 10
  2.3 Empirical literature ................................................................................................... 11
  2.4 Overview of Literature .............................................................................................. 13

CHAPTER THREE: METHODOLOGY ............................................................................. 15
  3.1 Introduction ................................................................................................................. 15
  3.2 Theoretical Framework ............................................................................................. 15
  3.3 The Empirical Model Specification .......................................................................... 15
  3.4 Definition and Measurement of Variables .................................................................. 16
  3.5 Econometric approach .............................................................................................. 19
    3.5.1 Univariate Analysis ............................................................................................. 20
    3.5.2 Unit Root test .................................................................................................... 20
3.5.3 Hausman test for fixed and random effects .............................................. 20
3.5.4 Post-estimation tests/Diagnostic Tests .................................................. 21
3.6 Sources of Data ........................................................................................... 21

CHAPTER FOUR: EMPIRICAL RESULTS AND DISCUSSION ..................... 22
4.0 Introduction ................................................................................................. 22
4.1 Descriptive Statistics .................................................................................. 22
4.2 Correlation Analysis .................................................................................... 23
4.3 Unit Root Test ............................................................................................. 24
4.4 Hausman Specification test ......................................................................... 24
4.5 Empirical results and discussion ................................................................ 25

CHAPTER FIVE.: SUMMARY, CONCLUSION AND POLICY IMPLICATIONS. ... 29
5.0 Introduction .................................................................................................. 29
5.1 Summary ..................................................................................................... 29
5.2 Conclusion ................................................................................................... 30
5.3 Policy Implications ....................................................................................... 30
5.4 Areas for Further Research ......................................................................... 31
REFERENCES ................................................................................................. 32
LIST OF TABLES

Table 3.1. Summary of variables and measurement................................................................. 19
Table 4.1: Descriptive Statistics ............................................................................................... 23
Table 4.2: Correlation Matrix .................................................................................................. 24
Table 4.3 Unit root test results ................................................................................................. 24
Table 4.4: Hausman fixed random specification test ................................................................. 25
Table 4.5: Financial leverage and return on assets OLS estimation ........................................ 26
Table 4.6: Financial leverage and return on equity OLS estimation ...................................... 27
Table 4.7: Financial leverage and Tobin’s Q OLS estimation .................................................. 28
ABSTRACT
Optima capital structure is a puzzle to every manager and board of directors. Failure to put considerations on capital structure might lead to low profitability, bankruptcy, failure to invest in high returns project and ultimately decrease in the value of the firm. This study set out to investigate the impact of financial leverage on firm performance of the non-financial blue chip companies listed under the NSE 20 share index. It took performance measures in a wider perspective using ROA, ROE and Tobin’s Q. In addition to financial leverage the study expanded its explanatory variables by controlling for liquidity, firm size and firm age. The study analyzed the data from the three models using random effect model after the Hausman test results preferred the random effect model while Levin Lin Chu test results for unit roots indicated that the data was stationary.

The results revealed that there is a significant negative relationship between leverage and return on assets. The result is also buttressing that profitable firms uses pecking order theory in its financing, the more profitable a firm is, the more likely they are going to reduce its debts hence internal financing is preferred. Findings from the Tobin’s Q model indicated that large firms have a positive insignificant relationship between financial leverage and firm performance while the older firms showed an increase in its market value; this is an indication of investors’ confidence on the older firms who have built their reputation over a long period.
CHAPTER ONE
INTRODUCTION

1.1 Background of the study

The key objective of firm financing decisions is wealth maximization and the quality of any financing decision has an effect on firm’s profitability (Mwangi et al, 2014). Financial decision making is very important for the profitability of any firm. Financial decisions include long term financing and short term financial decisions. The long term decisions are mode of capital sourcing and dividend decisions while the short term financing decisions involve liquidity decisions. The key responsibility of determining the optimal mix of debt and equity that will ensure maximization of shareholders wealth falls under the financial managers (Maina and Kondongo, 2013). The capital structure of a firm is the mix of debt and equity the firm uses to finance its real investments (Myers, 2001).

Firm’s performance and profitability is very important in any economy, among them are; first the profits to the firm means income to the shareholders and hence spillover effects and multiplier effects for individual, households and the economy in general. Secondly the corporate taxes that the government will earn will enable the implementation of infrastructure projects and social welfare programs. Thirdly when firms are profitable it means they can attract more investors and hence raising large capital for bigger and high returns projects. Finally profitable firms are able to employ more people hence creating employment which ultimately lead poverty reduction.

Firm’s performance is the measurement of what has been attained by the firm, which is an indicator of the good conditions for a period of time. The objectives of measuring performance are to obtain very useful information about flow of funds, the uses of firm finances, their efficiency and effectiveness. Besides, the managers are able to make best decisions from the information on firm’s performance (Almajali et al, 2012). Research has found the following among the many factors that affect the Financial Performance of Companies: Company Size, Leverage, Liquidity, Company Age and Management Competence index (Almajali et al, 2012).

Profitability is very crucial for an enterprising firm. It’s through profitability that investors are willing to buy the company’s shares due to enhanced reputation, and if the demand for its shares increases the shares prices increases hence an increase in the firm’s value. Profitability
enables a firm to withstand negative economic shocks and enhances stability of the firm. Profitability also maximizes the utility for shareholders through dividend and increased firm value and stakeholders’ interest through corporate social responsibility (Bhutta and Hasan, 2013)

Stable, established and companies that make huge profits have been seen to perform well in good economic environment, can withstand bad economic times and recover quicker from economic shocks than low or middle level firms. Financial leverage has shown negative relationship to profitability in Kenya, Maina and Kondongo (2013) using all listed firms and Mwangi et al (2014) using all non-financial listed firms at the NSE all found negative relationship. The results are converging to a negative relationship between leverage and profitability contrary to most theories, although they used different data set with financial sector firms likely to affect the results of the former, while low profitability and poor performance of some of the listed firms may affect the results of the later.

Therefore this study sheds light on the impacts of leverage on profitability in companies that are most profitable and stable among the companies listed at the NSE 20 Share Index firms excluding financial sector firms. Financial sector is highly regulated by the Central Banks with emphasis on liquidity and assets while their debt structure is not like other firms due to the nature of their work which also includes provisions for bad debts since 1988 Basel Accord on capital standards for banks (Santos, 2000).

1.1.1 Firm’s Performance and Leverage
Leverage is the ratio between total debt to the total assets of the firm and it indicates the extent at which total assets are financed by debts (Mwangi et al, 2014). A higher leverage ratio depicts the dependence of the firm on debt financing is high.

There are two parties that will be concerned about the firm performance due to leverage; one will be equity holders, who are owners of the firm and they carry the highest risk in the business as they have a residual claim to the assets of the firm. They are rewarded through appreciation of the value of their share equity and through dividends. Secondly are the debt holders, they are rewarded through interest payment and their principal will be repaid. They take assets of the firm as collateral and have first claim on the assets of the firm in case of failure to honor the debts by the firm (Harris and Raviv, 1991).
Finance theories offer different perspectives on the relationship between leverage and firm performance while also the empirical findings are divided into three perspectives: positive, negative and insignificant effect of leverage to profitability.

1.1.2 Nairobi Securities Exchange
The stock market has a critical role in the economic growth and development of any country, as it facilitates a range of economic activities including trading, investment and speculation and hedging opportunities to various local and foreign investors. It also provides an alternative and important platform through which institutions and the government can mobilize capital for investment, assess growth and stability.

The Nairobi Stock Exchange was formed in 1954, as a voluntary association of stockbrokers registered under the societies Act 1954 mainly to develop and regulate stock trading. This was brought about by the urge to have investments for economic growth and give firms capital to expand and run its operations. Low activities were experienced at first due to the market uncertainty in Kenya emanating from colonialism and post-independence Kenya and the fact that most of the people had no knowledge of the market operations, not forgetting that Asians and Africans had no rights to trade, until Kenya got its independence. For a long time now, the Nairobi Security Exchange is an important segment of the Kenya’s and East Africa economies in general. The firms listed at NSE have an important role of ensuring smooth transactions in stock market in Kenya. Sufficing to say the most critical part is providing economically stable, consistent profits to investors.

NSE is an emerging stock market with low activities beginnings but which has now grown with considerably improved trading. The Government of Kenya offered one of the most traded Initial Public Offer in the history of NSE, it was in 1996 when they privatized Kenya Airways which saw them reduce its shareholding and ordinary shareholders both locally and internationally bought the shares.

The increased activities experienced in the 1990s up to mid-2000’s resulted to the tremendous growth of the stock market with the NSE 20 share index recording an all-time record high of 5774 points in 2007. Also in 2007, a Wide Area Network (WAN) was implemented and this removed the necessity for dealers to conduct business presently at the
trading floor. A new T+3 Equity cycle was introduced allowing investors to sell their shares and be paid after 3 days.

The NSE has four trading segments;

1. Main investment market segment (MIMS):
2. Alternative investment market segment (AIMS);
3. Fixed income Security market segment (FISMS)
4. Growth Enterprise Market Segment (GEMS)

The AIMS provides alternative method of investment to young and medium sized firms that face difficulties to meet the quite stringent trading requirements of MIMS. Thirdly the FISMS facilitates an independent market for fixed income securities e.g. treasury bills and bonds. While the newly introduced GEMS is to facilitate small and medium sized firms to raise capital, while also gaining by having better profile and liquidity within an environment that is safely regulated. By doing all this NSE plays an active role in facilitating the mobilization of resources for development and giving opportunities to Kenyans and Foreign savers with a secure savings mechanism. Finances that would have been idle and unproductive are directed to spur economic growth.

In Kenya, the capital market is regulated by the Capital Market Authority (CMA). CMA supervises the trading of stocks and the performance of NSE to ensure solvency, liquidity and stability of the capital markets. Parliament of Kenya enacted the Capital Market Authority Act (2002) which empowers the CMA to carry out its mandate of ensuring the licensed firms that are allowed to trade at NSE are meeting the minimum capital requirements, disclosure of information to the public, publication of statement of accounts e.tc. The CMA in ensuring a healthy financial liquidity of the listed firms, it requires them to be profitable with prudent financial management.

The NSE 20 share index is the main index consisting of stocks form 20 blue chip companies. The series of index values for each month is calculated by averaging the daily values of index while the Nairobi Stock Exchange All Share Index was introduced in 2008 and it incorporated all the shares traded at the NSE.

---

1 See http://www.nse.co.ke/ and http://www.cma.or.ke/.
1.2 Problem Statement

Optima capital structure is a puzzle to every manager and board of directors, failure to put considerations on capital structure might lead to low profitability, bankruptcy, failure to invest in high returns project and ultimately decrease in the value of the firm. Since Modigliani and Miller capital structure irrelevance theorem, the determination of optimal capital structure has been very controversial in Financial Economics. According to trade-off theory an optimal ratio of debt and equity is to be determined after accessing the costs of both debt and equity. While the pecking order theory ranks the capital sources but does not suggest an optimal ratio between debt and equity. Signaling theory has been known for information asymmetry, adverse selection and moral hazards.

The empirical literature provides mixed results on the relationship between leverage and firm’s performance. For example Mwangi et al (2014), Dogan (2013), Maina and Kondongo (2013) and Nunes et al (2008), pointed that there is negative correlation between leverage and Profitability. While Khalid et al (2014), Fosu (2013), Almajali et al (2012) found a positive relationship between leverage and profits, Velnampy and Anojan (2014) found that there is no significant impact of Leverage on profitability. These studies did not differentiate between the most profitable blue chip firms with the middle level, low level and poor performing firms.

Some firms perform better than others in financial management and profitability while most of the research in Kenya has been generalizing the correlation between these variables with all the firms listed at the NSE (Mwangi et al, 2014 and Maina and Kondongo, 2013) and this may give wrong conclusions. Some firms are underperforming and facing financial or managerial problems e.g. CMC Holdings faced boardroom challenges and Mumias Sugar moved into losses, while Unga group and Uchumi profits fell by 43% and 35% respectively as per their half year results for the period ending December 2012. The most consistent in terms of profitability and performance are the firms under NSE 20 Share Index and are the best twenty firms at the NSE. Furthermore most studies uses only ROA and ROE, but in this study we are also measuring performance using Tobin’s Q ratio hence we expect more robust findings.

---

This paper analyzed the impact leverage levels on firm profitability while controlling liquidity, firm size and firm age on the most stable, consistent and well performing firms listed at NSE, the 20 share index firm’s excluding the financial sector firms. Consistent with the research problem, this study answered the following research question

- To what extent does leverage affect the profitability of the blue chip firms?

### 1.3 Objectives of the Study

i. The main objective of this study was to examine the impact of financial leverage on firm’s performance of the 14 blue chip firms listed at the NSE 20 share index while controlling for; liquidity, firm size and firm age on profitability.

ii. Draw conclusion and make relevant policy recommendations on matters pertaining leverage for profit maximization of firms in Kenya.

### 1.4 Significance of the study

This study makes a contribution to existing literature and policy several ways. This study has three distinct features that differentiate it from existing studies. First it combines market based measure (Tobin Q) and standard accounting financial measures (ROA and ROE) to test the financial performance linkage for the most stable and profitable firms, as most studies uses ROA and ROE, while a few uses Earnings per share. Secondly it controls for liquidity which other studies have failed to do particularly in the Kenyan context. Finally the study uses only the most stable, consistent profitable firms hence avoiding generalization of findings, unlike previous studies in Kenya (Mwangi et al 2014, Maina and Kondongo, 2013). CMA can use the findings to assess the leverage trends, its impact on firm’s financial performance and draw up some policies and conditions for the listed firms on selling of bonds and acquiring of debt from financial institutions. KRA can use the information from this study in assessing the tax debt shield effect on revenue collection and profitability.

### 1.5 The Scope and Organization of the Study

This study focuses on leverage and profitability of the non-financial firms categorized by the NSE as the 20 Share Index firms. They are the most profitable, stable, very active in share trading and well managed firms, covering a period from 2008 to 2013. The remainder of the study paper is organized as follows: Chapter two is about literature review discussing both
theoretical and empirical review. Chapter three discusses the methodology used and Chapter four presents and discusses the data results. Finally its chapter five with conclusion and policy recommendations based on the findings.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction
This chapter presents both theoretical and empirical literature review on leverage and how it affects profitability of firms. It concludes with an overview of the literature and identifies the research gap.

2.2 Theoretical literature
2.2.1 Modigliani and Miller Proposition I and II.
According to Modigliani and Miller (1958) capital structure irrelevance theorem, capital structure decisions would have no impact on the value of the firm. The MM proposition I, is also known as “pie model” because no matter the capital structure a firm chooses, the value of the firm will remain the same.

\[ V_L = V_u \]

Where \( V_L \) is the value of a levered firm
\( V_u \) is the value of an unlevered firm

Modigliani and Miller (1958) capital structure irrelevance theory only holds under the assumption of perfect capital markets.

Modigliani and Miller (1963) modified their original theory to MM II by dropping the zero tax assumption, stating that levered firms will be more valued than the unlevered firms due to the fact that interest is a tax deductible expense but the cost of equity increases due to high debt since shareholders bear higher business risk due possibility of bankruptcy, hence no much difference between levered and unlevered firms, although levered firms are expected to have the tax advantage. In supporting MM II, Dasgupta and Sengupta (2003) showed that there is a positive correlation between leverage and firm profits.

2.2.2 Agency Theory
Jensen and Meckling (1976) noted the manager’s interest and the interest of shareholder is not always the same and in this case, the manager who is responsible of running the firm tend to achieve his personal goals rather than maximizing returns to the shareholders. According to this theory agency costs are costs that occur as a result of conflicts of interest and appear in terms of conflicts between the managers and owners of firms or the debt holders and equity holders. For the Manager-shareholder agency cost; shareholders prefer leverage but managers
do not prefer much of leverage. The shareholders view that debt is a tool to discipline management and avoid unnecessary expenditures. While Shareholder-debtor agency cost; shareholders most likely prefer dividend payouts but extreme dividend payout may likely suffocate liquidity of the firm while the debters shield and protect themselves by introducing protective covenants in their loan contracts (Harris and Raviv, 1991)

Jensen and Ruback (1983) postulated that managers will use the excess free cash flow available to fulfill his personal interests instead of increasing return to the shareholders. Thus the critical problem facing shareholders is to make sure that managers do not finish the excess free cash by investing it in unprofitable or low/negative returns projects instead these cash flows should be returned to the shareholders. Excessive debt creates agency problems among shareholders and creditors and this could result in negative relationship between leverage and firm performance (Fama and French, 2000).

2.2.3 Static Trade-Off Theory
It’s also known as the Tax - Bankruptcy trade-off theory, it states that firms will decide on the capital structure by considering the trade-off between the cost of bankruptcy and tax benefits of the debt. Voutsinas and Werner (2011) argued that firms regard debt-equity decisions as a trade-off between tax shield of debt and leverage costs like agency cost, loss of non-debt tax shield and bankruptcy. This theory postulates that highly profitable firms that have more debts repayment capacity with high taxable income to shield so they will have higher debt to equity ratio compared to low profits firms. The higher profitable firms will use more debt due to lower bankruptcy probability and higher debt ratings while in the contrary the pecking order theory implies that firms with higher profits will use less debt as they have more retained earnings to finance their operations and new projects.

2.2.4 Pecking Order
According to Myers (1984) the information and transaction costs overwhelm the forces that determine optimal leverage in the trade-off models. According to Pecking order theory financing comes from three sources, they are: 1. Internal financing
2. New equity
3. Debt.

Myers (2001) postulated that’s firms arrange their priorities in financing, first by using internal financing, then debt and lastly is new equity. The firms will first use retained
earnings as this will avoid the floatation cost, also avoiding the deep disclosure of information to the public and the managers do not want to lose control of the firm to new owners by way of selling new shares. Therefore should a need for extra funds arise then the firm will use debt financing. But according to this theory there is no optimal debt-equity mix as the capital sources are just ranked in the order above. Good high profitable firms will use more internal financing as much as they can but the low profitable firms do not have as much profits and retained earnings, they will not be able to use internal financing so they will opt for debt, this assists in explaining the puzzle about negative correlation between debt and profitability (Miglo, 2014).

2.2.5 Capital Structure Signaling Theory.

Due to Asymmetric information that exist between management and shareholders, signals are vital for financing in a company, the high quality firms will use more long term debt and have higher leverage as a signal of future profitability (Ross, 1977). In order to separate the good profitable firms from the low quality firms ‘the lemons’, the quality firms will go for high debts and thus attracting scrutiny while the low quality firms cannot be able mimic because with scrutiny they will be discovered

Signaling theory argues that most financial decisions taken by firm’s senior management are designed to signal management’s confidence in the future profitability of the firm to the stock market and also its ability to meet future obligations. The action of adding more debt is a sign of higher future cash flow expectation. This theory has faced a lot of economic challenges, the information asymmetry between management with the insider information and investors and lenders with no such information. The wrong signals may lead to moral hazard as managers are not likely to bear the costs of the risks but the cost of the risk will be borne by the shareholders and adverse selection where banks/debt holders will have to charge high interest rate and insurance costs to cover up from potential losses.

---

4 This theory is attributed to Stephen Ross (1977) on the famous work titled “The Determination of Financial Structure: The Incentive-Signalling Approach”.

10
2.3 Empirical literature

Quang and Xin (2014) used a set sample of non-financial firms listed on HoSE (Vietnam) in the period 2009-2012 to study and analyzing the impact of ownership structure and capital structure on firms’ performance through multiple regression analysis method. They found that capital structure is significantly and inversely correlated with firms’ financial performance (ROA and ROE). Hasan et al (2014) investigated 36 Bangladeshi firms listed in Dhaka Stock Exchange during the period 2007 to 2012. They used ROA, EPS and Tobin’s Q to measure performance. They found that there is significant negative correlation between ROA and Capital leverage. While there is no significant relationship between leverage and firm’s performance as measured by ROE and Tobin’s Q. They associated the negative relationship to higher cost of debt and strong covenants attached to the use of debt. Mahmoudi (2014) conducted a study using panel data of 28 cement firms listed at the Tehran Stock Exchange for a period from 2008 to 2011. He investigated the effects of leverage on firm’s profitability measure by ROA and ROE. He found a significant negative relationship between leverage and firm profitability. Tsuji (2013) studied the relationship between firm capital structure and profitability in the Japanese machinery firms listed on Tokyo Stock Exchange using panel data from 1981-2011 from 73 firms. The results showed that leverage has a negative relationship with profitability. In another study Dogan (2013) investigated firm profitability of 200 companies listed at the Istanbul stock exchange using data from 2008 to 2011 by a multivariate regression model. He found that liquidity was positively related to profitability as measured by ROA while leverage was negatively related to profitability. Similar results from Pacini et al (2008) and Nunes et al (2008), they found that leverage is inversely related to performance. Nunes et al (2008) found a positive effect of liquidity on profits.

Results from their study found a positive and significant relationship between leverage and profitability.

Velnampy and Anojan (2014) studied the impact of Liquidity and Capital structure on profitability, for all the listed telecommunication firms at the Colombo Stock Exchange, Sri Lanka from 2008-2012. The regression and correlation results showed that there is no significant impact of both liquidity and leverage on profitability. While Siahaan et al (2014) conducted a study research on 60 firms out of 131 listed firms at the Indonesia Stock Exchange. The firms were clustered into two, 30 firms as the large listed firms and another cluster of 30 firms listed as small firms. The results indicated that there is a positive but not significant relationship between leverage and firm value for the large firms (upper cluster) while for the lower cluster there is negative and significant relationship.

In Africa, Umer (2014) did a study on the determinants of capital structure; evidence from large taxpayer share companies in Ethiopia. The research used panel data of 37 firms from 2006 to 2010, the results found a negative relationship between leverage and profitability. Akinlo and Asaolu (2012) conducted a study on 66 purposeful selected non-financial firms listed at the Nigeria Stock Exchange. The panel data covered a period from 1999-2007 and the results showed that leverage was negatively and significantly related to profitability. On the Contrary Fosu (2013) investigated 257 South African firms for the period from 1998 to 2009. The analysis from the panel data indicated that there is a positive effect of leverage on firm’s performance. While Salawu et al. (2012) investigated using 70 firms out of the 100 firms listed at Nigerian Stock Market from 1990 to 2006 cutting across 14 sectors of the Nigerian Stock Exchange classification, the estimation from the panel data showed that long term debts and tangibility (asset structure) were positively related to firm’s performance (ROA).

Little research has been done in Kenya, Mwangi et al (2014) they researched on capital structure on all the 42 non-financial sector firms listed at the NSE, the study applied panel data model from 2006-2012, and the results reveal that financial leverage had statistically negative relationship with firm’s performance measured by ROE and ROA. While Maina and Kondongo (2013) analyzed capital structure and financial performance of all the firms listed at Nairobi stock exchange from the year 2002-2011 without excluding the financial sector firms. The research used ROA, ROE and Tobin’s Q as a measure of performance. It was
found that there is a negative relation between capital structure and all measures of performance.

Finally as profitability increases we expect a change in capital structure, a study by Antoniou et al, (2007) on the determinants of Capital Structure: capital market oriented firms and Bank oriented firms. The study researched on how firm in capital market countries like the US and UK compared to firms from bank oriented countries like Japan and France determined their capital structure. Using panel data the study found that leverage ratio declines with an increase in profitability in both economies. While confirming this is also Nyang’oro (2013) in his study on impact of taxes on capital structure decisions on all firms listed at the NSE from 2003-2012 found that structure of debt in leverage decision is important and depends on the size of the firm, profitability and whether the firm has non-debt tax shield. He found that the profitable firms at higher debt levels will reduce the use debt in their capital structure.

2.4 Overview of Literature

Literature reviewed indicates that studies from outside Africa gives conflicting results and findings on the relationship between leverage and firm’s performance. For example Quang and Xin (2014), Hasan et al (2014), Mahmoudi (2014), Dogan (2013), Tsuji (2013), Pacini et al (208), and Nunes, Serrasqueiro and Sequeira (2008), pointed that there is negative correlation between leverage and Profitability. While Khalid et al (2014), Almajali et al (2012), Singapurwoko and El-Wahid (2011) found a significant positive relationship between leverage and profits, while Siahaan et al (2014) found positive insignificant relationship for large firms and Velnampy and Anojan (2014) found no significant relationship.

Studies from Africa are few and also their findings are mixed. For example, Fosu (2013) and Salawu et al (2012) analysis on leverage and profitability found a positive relationship. Conversely Umer (2014) and Akinlo and Asaolu (2012) regression analysis between leverage and profitability found negative relationship.

Capital structure and profitability studies in Kenya are very few, Mwangi et al (2014) studied all non-financial firms while several firms have not been performing well and had serious financial challenges to the extent being suspended by NSE, while Maina and Kondongo (2013) used all listed firms, their findings suffer from methodological weaknesses, because of the nature of financial sector firms and the underperforming companies are combined with
the best performing firms. Liquidity was not included in both of the studies in Kenya compared to studies from other countries. Therefore there is need to avoid generalization of the results in Kenya, as firms under 20 share index are highly profitable firms which have simultaneously good market capitalization and have high debt repayment capacities at same time, as Antoniou et al, (2007) results indicates decrease in leverage ratio due to increase in profitability.
CHAPTER THREE
METHODOLOGY

3.1 Introduction
This chapter presents the details of the research methodology used for the study. We begin with Theoretical Framework, Empirical model, Definition and measurement of variables, sources of data and finally econometric data analysis procedures.

3.2 Theoretical Framework
The theoretical framework for this study is based on capital structure theories. The Modigliani and Miller Proposition II asserts that there is an increase in the value of the firm due to financial leverage in an economy where interest is a tax deductible expense thus debt acts as tax shield. MM II is based on the argument that debt offers tax shield, hence should be preferred and improves the value of the firm although cost of equity will increase because equity holders are taking more risk. Agency theory, Jensen and Meckling (1976) asserted that agency theory stems from the fact that debt financing acts as a control tool restricting the managers from personal opportunistic expenditures and freedom to spend unnecessarily at the expense of the firm’s performance and value. While pecking order theory is very influential in that the huge profits from these firms, the management are expected to choose retained earnings over debt and equity, but this might not go well with the shareholders who prefer dividends. Finally capital structure Signaling theory, it shows us if there are any improvement in firm value due to leverage signals sent by this large firms, this is clearly seen through Tobin’s Q measure by indicating the changes in market value of the companies that have huge debts.

3.3 The Empirical Model Specification
The study used the following econometric models:

\[ ROA_{it} = \beta_0 + \beta_1 L_{it} + \beta_2 Liq_{it} + \beta_3 Size_{it} + \beta_4 Age_{it} + \mu_t + \lambda_i + \epsilon_{it} \]  
\[ ROE_{it} = \pi_0 + \pi_1 L_{it} + \pi_2 Liq_{it} + \pi_3 Size_{it} + \pi_4 Age_{it} + \mu_t + \lambda_i + \epsilon_{it} \]  
\[ T_{it} = \alpha_0 + \alpha_1 L_{it} + \alpha_2 Liq_{it} + \alpha_3 Size_{it} + \alpha_4 Age_{it} + \mu_t + \lambda_i + \epsilon_{it} \]

\( \epsilon_{it} \sim IIN(0, \delta^2) \) for all \( i \) & \( t \).

\( i = 1 \ldots 14 \)  
\( t = 1 \ldots 6 \)  
\( i = 1 \ldots 13 \)  
\( t = 1 \ldots 6 \)  
For equation 1 and 2  
For equation 3
Where:
ROA\(_{it}\) is the ROA of firm \(i\) at time \(t\)
ROE\(_{it}\) is the ROE of firm \(i\) at time \(t\).
\(T_{it}\) is the Tobin’s Q of firm \(I\) at time \(t\)
\(L_{it}\) is the leverage of firm \(i\) at time \(t\)
\(Liq_{it}\) is the liquidity of firm \(i\) at time \(t\).
\(Size_{it}\) is the size of firm \(i\) at time \(t\).
\(Age_{it}\) is the age of firm \(i\) at time \(t\).
\(\beta_j, \pi_j, \alpha_j\) where \(j = 0,1,2,3,4\) these are unknown parameters to be estimated.
\(\mu_t\) – individual effects i.e. firm specific unobserved effects.
\(\lambda_t\) – time specific effects.
\(\varepsilon_{it}\) – idiosyncratic disturbance term.

Previous studies that have used similar model include, Mule et al (2013) and Muriu (2011), and was modified appropriately.

### 3.4 Definition and Measurement of Variables.

**Dependent variables:**

In Financial economics, firm’s performance is measured through profit margin, return on assets (ROA), return on equity (ROE), return on sales (ROS) and Tobin’s Q (Ross et al, 2003). However financial performance measures are historical hence have lag indicators rather than being focused with the future, but Tobin’s Q has enabled performance measures to consider the current market value of the capital and gives robustness to the measurements. Market performance measure and financial performance measures are very important in order to get both angles of firm’s profitability. Hence Profitability in this study is analyzed in to three perspectives: the Tobin’s Q perspective, Return on Assets (ROA) and Return on Equity (ROE).

**ROA** is a measure of performance which is not affected by whether the assets are financed by creditors or shareholders. According to Ross et al (2003) Return on Assets is measured by using either net profits or pre-tax profits: in this study we used:

\[
\text{ROA} = \frac{\text{Pre-tax profit}}{\text{Total Assets}}
\]
**Tobin’s Q**: Tobin (1969) postulated that the driving force for investment is the Q-ratio. He defined the Q-ratio as the ratio of the market value of existing capital to its replacement value. The Q-framework states that in the absence of capital market imperfections, value maximizing firms will invest as long as the shadow price of a marginal unit of Q exceeds unity.

So Tobin’s Q is the ratio of market capitalization to book value of assets and was measured by:

\[
\text{Tobin’s Q} = \frac{\text{Market Capitalization}}{\text{Book Value of Net assets}}
\]

High value of Tobin’s Q indicates strong growth opportunities and better performance i.e. high market value compared to its replacement cost (Ross et al, 2003).

**ROE**: Ordinary shareholders are entitled to the residue profits of the firm, ROE shows the returns on shareholders’ equity (Owalabi and Obida, 2012). Return on equity is the ratio of net income to average common stockholder’s equity (Ross et al, 2003).

\[
\text{ROE} = \frac{\text{Net Income}}{\text{Average stockholders’ equity}}
\]

**Independent variables**

**Leverage** is defined as a ratio of interest bearing debt to total assets; it shows the extent in to which the firm depends on debt financing. Financial economic theories predict positive relationship between leverage and profitability. For example Agency theory shows that debt will control management hence reducing agency costs, signaling provides positive signal and MM II predicts positive relationship in the presence of tax shield.

Leverage is measured by:

\[
\text{Leverage} = \frac{\text{Total debt}}{\text{Total assets}}
\]

(Ross et al, 2003).
**Liquidity** refers to the degree to which debt obligations coming due in the 12 months and can be paid from cash or assets that will be easily converted into cash. Firms use its liquid assets to handle contingencies that are unexpected (Almajali 2012). Liquidity profitability trade off theory predicts negative relationship because finance that would have been invested to positive NPV projects is left idle as liquid assets. In Economics risk is directly related to profitability, so high liquidity means less risk hence low expected returns. In this study it was measured by:

\[
\text{Liquidity} = \frac{\text{Total current assets}}{\text{Total current liabilities}} \quad \text{(Almajali, 2012).}
\]

**Firm size** = this variable is very important because larger firms are known have more capacities and resources hence enjoying economies of scale, qualified personnel and they are diversified to resist economic shocks. It is expected that firm size is positively related to profitability. In confirming Baumol’s size-profits hypothesis, Hall and Weiss (1967) found positive relationship between firm size and firm profitability, similar findings also from Nunes et al (2008) and Babalola (2013), all confirmed Baumol’s hypothesis.

In this study firm size was measured by natural logarithm of assets.

**Firm age** =A priori, it’s uncertain what is the expected relationship between firm age and profitability. Coad et al (2013)\(^5\) found evidence of both positive and negative relationship between firm age and profitability. The older the firm the more experienced and resilient it becomes. The market shocks and challenges that they have endured give them an added advantage in terms of profitability, sales growth and stability. On other hand firm performances deteriorates with age as older firms experience inertia in profitability. Also older firms have obsolete assets, high labor costs, declining investments and rent seeking behaviors like large boards and higher CEO pay (Loderer and Waelchli, 2010).

The number of years in operation was used as a proxy to firm age in this study.

---

\(^5\) Coad et al (2013) on their research ‘Like Milk or Wine: Does firm performance improve with age’ they analyzed both learning by doing where firm age is advantageous and analyzed Inertia, where older firms are inert and inflexible due to liability of senescence.
Table 3.1. Summary of variables and measurement

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Predicted Effect</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Leverage</td>
<td>Leverage is the ratio of interest bearing debt to total assets; it shows the extent in to which the firm depends on debt financing.</td>
<td>Positive</td>
<td>NSE/CMA</td>
</tr>
<tr>
<td>2. Liquidity</td>
<td>Liquidity refers to the degree to which debt obligations coming due in the 12 months and can be paid from cash or assets that will be easily converted into cash.</td>
<td>Negative</td>
<td>NSE/CMA</td>
</tr>
<tr>
<td>3. Firm Size</td>
<td>It refers to how large the firm is.</td>
<td>Positive</td>
<td>NSE/CMA</td>
</tr>
<tr>
<td>4. Firm age</td>
<td>The number of years in operation.</td>
<td>Indeterminate</td>
<td>NSE/CMA</td>
</tr>
</tbody>
</table>

3.5 Econometric approach

The study used panel estimation technique in analyzing independent variables to the dependent variables. Pooled OLS could be used but it may distort the true picture of the relationship between the variables. Pooled OLS disregards the space and time dimensions while individual heterogeneity of companies exist i.e. it assumes that all companies are the same (Gujarati, 2004).

The panel data is better because it combines both time series and cross sectional data and hence it is expected to give unbiased estimators. Secondly Panel data are suitable for studying data which vary over time and cross sectional. Thirdly, panel data set includes more data information, more degrees of freedom, reduces Collinearity among variables, and hence provides a more efficient estimation than pure cross sectional or time series estimations.
Lastly panel data methodology gives researchers greater flexibility in controlling for the effects of individual-specific variables and time-specific variables (Baltagi, 2013).

3.5.1 Univariate Analysis
The study carried out a number of tests to the empirical model in order give it the proper functional and mathematical form. Descriptive data analysis and other statistical tests were done; the tests done include the normality test which will analyze both skewness and Kurtosis to provide an overview whether the data is normally distributed or not. Also the study determined the spread of the data, mean values, frequencies, standard deviations and also the correlation matrix.

3.5.2 Unit Root test
The study conducted unit root tests to determine whether the variable were stationary or non-stationary. Non-Stationary will affect the behavior of a series and hence resulting to spurious regression. If the data is non-stationary it will go for differencing, the method used for testing for unit roots is; Levin Lin Chu test
The assumption of this test is that the data contains unit roots hence it is not stationary, thus the hypothesis for the Levin Lin Chu test is as follows:

H₀: Panel Data contain unit roots
H₁: Panel data is stationary.

The P values will be used to accept or reject the null hypothesis.

3.5.3 Hausman test for fixed and random effects
To decide between fixed and random effects, the study conducted a Hausman test, where the null hypothesis is that the preferred model is of random effect model against the alternative the fixed effect model.

The null hypothesis in Hausman test is that the random effect estimator is correct. It tests whether the omission of fixed effects has any effect in the consistency of the random effect estimate. The random effect estimator is consistent and efficient if the effects are uncorrelated with the explanatory variables in which the fixed effect estimator is also consistent but not efficient. If however the effects are correlated with the explanatory variables, then the fixed effect estimator is consistent and efficient but the random effect estimator is inconsistent.

20
3.5.4 Post-estimation tests/Diagnostic Tests

The study did not test for serial correlation since this test is not conducted when dealing with small panel data i.e. a panel for few years like in this case it is 8 years only. This test is vital and necessary for large macro panel which have long time series, and test to be done will be Durbin-Watson Test which will provide evidence for existence of first order auto correlation. The ideal Durbin Watson test statistics is 2, which means errors are not correlated, but it also be accepted to fluctuate from 1.75 to 2.5. So in most cases Durbin Watson statistic lower than 2 shows positive serial autocorrelation and above two and almost 4 shows negative autocorrelation.

The study also did not conduct Heteroscedasticity tests because using panel data Heteroscedasticity is not considered a serious problem. But in cases where there is Heteroscedasticity the researcher should employ Generalized Least Square (GLS) method to avoid it.

3.6 Sources of Data

The data consisted of all the companies listed under the 20 Share Index excluding the financial sector firms at the Nairobi securities exchange as at 1st August, 2014. Financial sector is highly regulated by the Central Banks with emphasis on liquidity and assets while their debt structure is not like other firms due from the nature of their work which also includes provisions for bad debts (Santos, 2000).

This study focused on the period from 2008 – 2013, the companies listed at the NSE have clear and international standards of statements of account i.e. balance sheet. The study used secondary data and the data was collected from audited published financial statements, NSE Hand Books which are available at NSE and the Capital Market Authority.
CHAPTER FOUR

EMPIRICAL RESULTS AND DISCUSSION

4.0 Introduction

This chapter presents the findings of the study. This includes descriptive statistics, correlation analysis, and regression analysis. The firm performance was modeled against leverage, liquidity, firm size and firm age as the determinants.

4.1 Descriptive Statistics

This study carried out the following descriptive statistics: mean, variance, standard deviation, minimum and maximum values, normality test using skewness and kurtosis and the results are reported in Table 4.1.

The number of observations for Tobin’s Q is 78 because one company was left out, Britam Limited was listed in 2011 and its market capitalization data was incomplete for the computation of Tobin’s Q. The results on Table 4.1 indicates that the blue chip firms have a mean of 13.34% return on assets, 20.01% return on equity and 2.555 of the Q ratio which indicates the market capitalization to book value of assets, this shows the investors’ good opinion and high confidence of the firms under the NSE 20 share index and it’s a very important indication of the stock performance of the firms. The Q ratio results shows that the firms market capitalization supersedes their asset book value by close to 155.5%, with the highest Q ratio of 10.4. For skewness only ROE is negatively skewed while Tobin’s Q is positively skewed and ROA is the closest to normal distribution. Kurtosis value indicates that ROE has more flat peak compared to the others.

The descriptive statistics for the independent variables indicates that firms under this study we have a mean leverage of 18.11% showing the ratio of debt to equity, thus indicating that averagely the debt financing is lower compared to equity financing and internal financing like retained earnings. The average firm age is 45 and liquidity is the most positively skewed variable and the most flat compared to the rest of the independent variables. The firms under the NSE 20 share index have average liquidity of 1.7, showing their ability to settle short term liabilities.

Leverage and firm age are closer to normal distribution of zero for skewness and three for Kurtosis, while liquidity will have a more flat peak compared to others. The minimum value of leverage ratio is zero indicating that there exists a time when the blue chip firms operated...
without debts and also a maximum of 55.6% leverage ratio showing that there also exist firms who have more debt than equity in capital structure.

**Table 4.1: Descriptive Statistics**

<table>
<thead>
<tr>
<th>Statistics</th>
<th>ROA</th>
<th>ROE</th>
<th>Tobin’s Q</th>
<th>Leverage</th>
<th>Liquidity</th>
<th>Size (Natural Log of Assets)</th>
<th>Firm Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.1334</td>
<td>0.2001</td>
<td>2.5549</td>
<td>0.18</td>
<td>1.7013</td>
<td>0.2779</td>
<td>45</td>
</tr>
<tr>
<td>Maximum</td>
<td>0.46974</td>
<td>0.838</td>
<td>10.4129</td>
<td>0.556</td>
<td>11.497</td>
<td>2.442</td>
<td>91</td>
</tr>
<tr>
<td>Minimum</td>
<td>-0.2743</td>
<td>-0.975</td>
<td>0.0548</td>
<td>0</td>
<td>0.274</td>
<td>-1.295</td>
<td>11</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.12338</td>
<td>0.22133</td>
<td>2.292</td>
<td>0.179</td>
<td>1.751</td>
<td>0.6612</td>
<td>18.997</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.1668</td>
<td>-1.2627</td>
<td>1.145</td>
<td>0.785</td>
<td>4.11</td>
<td>0.4419</td>
<td>0.239</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>3.8296</td>
<td>12.06</td>
<td>3.781</td>
<td>2.198</td>
<td>21.564</td>
<td>5.0017</td>
<td>3.22</td>
</tr>
<tr>
<td>Observations</td>
<td>84</td>
<td>84</td>
<td>78</td>
<td>84</td>
<td>84</td>
<td>84</td>
<td>84</td>
</tr>
</tbody>
</table>

4.2 Correlation Analysis

Correlation test is very vital for any econometric analysis; if the explanatory variables are highly correlated then we expect multicollinearity. If multicollinearity is perfect, the regression coefficients of the explanatory variables are indeterminate and their standard errors are infinite. If multicollinearity is less than perfect, the regression coefficients, although determinate, cannot be estimated with great precision or accuracy. The suggested rule of thumb is that if the pair-wise correlation coefficient between two explanatory variables is in excess of 0.8, then we expect multicollinearity (Gujarati, 2004).

Table 4.2 shows an assessment of correlation among variables in this study. It shows that pairwise correlations between the independent variables are low except for the liquidity and size (0.8943). Thus the two variables were separated during regression to avoid multicollinearity. The negative correlation between profitability and leverage shows that the blue chip firms tend to reduce borrowing as their profits increases, supporting the pecking order theory, because profitable firms can raise extra capital internally which has no bankruptcy cost, debtors-shareholders agency cost and costs involved in selling new equity shares. The positive relationship between age and profitability shows that as the firm grows older it is associated with increased profits due to enhanced consumer confidence, shareholders confidence, ability to withstand negative economic shocks, sales growth, etc.
and that the value of the firm increases with age as shown by Tobin’s Q. The size of the assets is associated positively with the value of the firm though not that much but it shows that the bigger the firm’s asset size the higher its market value.

**Table 4.2: Correlation Matrix**

<table>
<thead>
<tr>
<th></th>
<th>ROA</th>
<th>ROE</th>
<th>Tobin’s Q</th>
<th>Leverage</th>
<th>Liquidity</th>
<th>Size</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROE</td>
<td>0.6769</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tobin’s Q</td>
<td>0.5498</td>
<td>0.3383</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leverage</td>
<td>-0.5726</td>
<td>-0.1668</td>
<td>-0.1049</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquidity</td>
<td>0.0672</td>
<td>-0.1063</td>
<td>0.054</td>
<td>-0.3137</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>0.1214</td>
<td>-0.1222</td>
<td>0.0925</td>
<td>-0.3514</td>
<td>0.8943</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.2901</td>
<td>0.2631</td>
<td>0.371</td>
<td>-0.0012</td>
<td>0.2247</td>
<td>0.2897</td>
<td>1</td>
</tr>
</tbody>
</table>

**4.3 Unit Root Test**

The study conducted the Unit root test using Levin Lin Chu statistic and the results are found on Table 4.3. The results indicate the p values are significant at 0.05 significant level hence we do not accept the null hypothesis and conclude that the data is stationary thus there is no need for differencing.

**Table 4.3 Unit root test results.**

<table>
<thead>
<tr>
<th></th>
<th>Levin Lin Chu Statistic</th>
<th>P-value</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>-7.9441</td>
<td>0.000</td>
<td>Stationary panels</td>
</tr>
<tr>
<td>ROE</td>
<td>-4.9061</td>
<td>0.000</td>
<td>Stationary panels</td>
</tr>
<tr>
<td>Tobin’s Q</td>
<td>-1.991</td>
<td>0.0232</td>
<td>Stationary panels</td>
</tr>
<tr>
<td>Leverage</td>
<td>-3.1002</td>
<td>0.000</td>
<td>Stationary panels</td>
</tr>
<tr>
<td>Liquidity</td>
<td>-33.4691</td>
<td>0.000</td>
<td>Stationary panels</td>
</tr>
<tr>
<td>Firm Size</td>
<td>-32.3966</td>
<td>0.000</td>
<td>Stationary panels</td>
</tr>
</tbody>
</table>

**4.4 Hausman Specification test.**

The study used panel data analysis and the critical test before regressions are done is the Hausman test. In this test the null hypothesis is that the preferred model is random effect model against the alternative the fixed effect model. Table 4.4 shows the results of the Hausman test, regressing without liquidity in order to get efficient estimates of the coefficients as liquidity and asset size are highly correlated. The Hausman test shows that the probability of chi-square statistic is not significant, thus we do not reject the null hypothesis.
Table 4.4: Hausman fixed random specification test

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Coefficient</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leverage</td>
<td>-0.197</td>
<td>-0.2596</td>
<td>0.0623</td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.0135</td>
<td>0.0073</td>
<td>0.00617</td>
</tr>
<tr>
<td>Firm Age</td>
<td>-0.0028</td>
<td>0.00145</td>
<td>-0.0042</td>
</tr>
</tbody>
</table>

Hausman Test: \( \text{Prob}>\chi^2 = 0.5012 \), not significant at both 0.01 and 0.05, therefore we use the Random effect.

\[ \chi^2 (3) = (b-B)^T[(V_b-V_B)^{-1}](b-B) = 2.36 \]
\[ \text{Prob}>\chi^2 = 0.5012 \]

4.5 Empirical results and discussion

The regression process separated the firm liquidity from being in the same regression model with firm size to avoid multicollinearity as the two explanatory variables are highly correlated. Model 1 is the model that excluded liquidity while model 2 excluded firm size. Table 4.5 shows the regression results of the panel data using random effects model for equation 1 where ROA is the dependent variable. The coefficient of leverage is negative and significant in both models, while firm size and firm age have a positive but insignificant coefficients for model 1. Liquidity coefficient is very small negative and insignificant. R squared of 30.52% for random effect model 1 shows that for model 1, 30.52% of the return on assets is explained by the independent variables in the model and the remaining 69.48% is unexplained and is attributed to other factors not included in the model, while for the R squared for model 2 is 11.06%, this shows that 88.94% is unexplained and is attributed to other factors not in the model. The difference between R squared for model 1 and model 2 shows that firm size explains more about ROA than liquidity.

Therefore results for the blue chip firms’ performance from this study indicates a significant negative relationship between return on assets and leverage from the analysis of the first model, which confirms the findings of Quang and Xin (2014), Hassan et al (2014), Mahmoudi (2014), Mwangi et al (2014), Maina and Kondongo (2013) and Dogan (2013) while it is contrary to the findings of Khalid et al (2014), Fosu (2013) and Salawu et al (2012) who found a positive relationship. The findings are supporting the pecking order theory where firms prefer internal financing due to information asymmetry and the costs involved in debts, thus they use more of internal financing rather than debt and avoiding the costs of issuing new equity. As firms become more profitable like the blue chip firms in this study,
they tend to reduce their debts and utilizing more of their internal financing. Although ordinary shareholders prefer dividend payout they have little control over the management decisions. Mostly in Kenya the ordinary shareholders of the listed firms meet the management of the companies once in a year and that is at the annual general meeting. So the control of the management of these firms is under the supervision of the board of directors, where some are executive directors but most them are non-executive board of directors. Problem of rent seeking behaviour by the board of directors and the information asymmetry involved in acquiring more debt by blue chip firms may be among the reasons of the negative relationship. All other dependent variables were insignificant.

**Table 4.5: Financial leverage and return on assets OLS estimation.**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>P values</th>
<th>Coefficient</th>
<th>P values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leverage</td>
<td>-0.2596</td>
<td>0.000</td>
<td>-0.2785</td>
<td>0.000</td>
</tr>
<tr>
<td>Liquidity</td>
<td>-</td>
<td>-</td>
<td>-0.000099</td>
<td>0.983</td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.0073</td>
<td>0.581</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Firm Age</td>
<td>0.00145</td>
<td>0.262</td>
<td>0.001663</td>
<td>0.127</td>
</tr>
<tr>
<td>F-Statistic</td>
<td>Prob &gt; chi2 = 0.0016</td>
<td>Prob &gt; chi2 = 0.0006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R Squared</td>
<td>30.52%</td>
<td>11.06%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For robustness, we also estimated a random effects model using ROE as the dependent variable. Table 4.6 indicates the regression results of the panel data using random effects model for equation 2 where ROE is the dependent variable. The coefficient of leverage is negative and but not significant in both random effects model 1 and 2. Return on equity and leverage has shown a negative but insignificant relationship confirming the Anojan (2014) results which showed insignificant relationship.

Firm size and liquidity coefficients have negative and insignificant coefficients while firm age coefficient is positive and significant for model 2 and it is insignificant for model 1 at 0.05 significant level. R squared of 9.64% for random effects model 1 and this shows that 9.64% of the return on equity is explained by the independent variables in model 1 and the remaining 90.36% is unexplained and is attributed to other factors not included in the model while for the R squared for model 2B is 1.82%, this shows that 98.18% is unexplained and is attributed to other factors not in model 2. The difference between R squared for model 1 and model 2 shows that firm size explains more about ROE than liquidity.
Table 4.6: Financial leverage and return on equity OLS estimation.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>P values</td>
<td>Coefficient</td>
<td>P values</td>
</tr>
<tr>
<td>Leverage</td>
<td>-0.1248</td>
<td>0.439</td>
<td>-0.1429</td>
<td>0.341</td>
</tr>
<tr>
<td>Liquidity</td>
<td>-</td>
<td>-</td>
<td>-0.007</td>
<td>0.616</td>
</tr>
<tr>
<td>Firm Size</td>
<td>-0.029</td>
<td>0.456</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Firm Age</td>
<td>0.0032</td>
<td>0.057</td>
<td>0.0031</td>
<td>0.037</td>
</tr>
<tr>
<td>F-Statistic</td>
<td>Prob &gt; chi2 = 0.2495</td>
<td></td>
<td>Prob &gt; chi2 = 0.1631</td>
<td></td>
</tr>
<tr>
<td>R Squared</td>
<td>9.64%</td>
<td>1.82%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.7 indicates the regression results of the panel data using random effects model for equation 3 where Tobin’s Q is the dependent variable. The coefficient of leverage is positive and insignificant in both model 1 and 2. Firm asset size has a negative insignificant coefficient in model 1 and firm age has a significant positive coefficient in both models 1 and 2 at 0.05 significance level. R squared of 11.07% for model 1 and indicates that for model 1, 11.07% of Tobin’s Q ratio is explained by the independent variables in the model and the remaining 88.93% is unexplained and is attributed to other factors not included in the model, while for model 2, R squared is 10.56% hence the residual explains 89.44%.

This third model of Tobin’s Q, is giving us an analysis on the market perspective of the firm’s performance. Results shows a positive but insignificant relationship between leverage and firms value, which corroborates the findings by Siahaan et al (2014) who found positive but insignificant relationship between leverage and firm value for large firms. Hassan et al (2014) also found no significant relationship between Tobin’s Q and financial leverage. This is an indication that for large firms there is no significant impact on their value in whichever way they finance their capital pie. A firm with zero leverage and a firm with more than 50% of the capital pie from debt financing, they are all performing well and their values are not affected. This supports the Modigliani and Miller proposition one, Ceteris Paribus on the Kenyan economic factors like corporate taxes, information asymmetry and market efficiency, the value of the blue chip firms is the same no matter how the blue chip firms acquire their capital. Key important factor to note is that age is positively significant to profitability with an average of 45 years. This suggests that firm age is important in determining the value of a firm. It’s an indication that older firms are more experienced and resilient to negative economic shocks and the investors’ confidence to the older firms is higher compared to the
younger firms hence demand for its stock is high leading to improved value of the firm. The market shocks and challenges that they have endured give them an added advantage in terms of profitability, sales growth and stability.

It is also equally important to note that there existed at a particular time a firm that had no interest bearing debt, this is an indication that the tax incentive from interest is not always a key incentive for acquiring of debts by the large firms. Alternatively others are financially levered up to 55% of their total capital and this indicates that blue chip firms have the capacity to incur huge debts and have the ability to repay. The management of such highly levered companies are sending signals to the market of their ability to sustain such huge debts and still remain competitive and profitable hence increasing their market value as shown by average Tobin’s Q ratio of 2.5549.

Total assets which is a proxy for firm size in this study has a negative insignificant relationship to firm value, this is an indication that having large amount assets does not mean improved productivity and efficiency. Therefore with technological advancement the blue chip firms need to invest in more efficient and technologically advanced assets that will lead to improved efficiency. Instead of holding funds into large assets which are less profitable, it’s better for the firms to invest them in positive NPV projects.

Table 4.7: Financial leverage and Tobin’s Q OLS estimation.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>P values</th>
<th>Coefficient</th>
<th>P values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leverage</td>
<td>1.855</td>
<td>0.256</td>
<td>1.7188</td>
<td>0.261</td>
</tr>
<tr>
<td>Liquidity</td>
<td>-</td>
<td>-</td>
<td>0.00886</td>
<td>0.967</td>
</tr>
<tr>
<td>Firm Size</td>
<td>-0.0599</td>
<td>0.884</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Firm Age</td>
<td>0.0614</td>
<td>0.033</td>
<td>0.0594</td>
<td>0.033</td>
</tr>
<tr>
<td>F-Statistic</td>
<td>Prob &gt; chi2 = 0.0859</td>
<td></td>
<td>Prob &gt; chi2 = 0.0874</td>
<td></td>
</tr>
<tr>
<td>R Squared</td>
<td>11.07%</td>
<td></td>
<td>10.56%</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER FIVE.
SUMMARY, CONCLUSION AND POLICY IMPLICATIONS.

5.0 Introduction
This chapter provides the summary of the findings, conclusion and policy implications while suggesting areas for further research.

5.1 Summary
This study set out to investigate the impact of financial leverage on firm performance of the blue chip companies listed under the NSE 20 share index. We used performance measures in a wider perspective using ROA, ROE and Tobin’s Q to provide for robustness of this study. In addition to financial leverage the study expanded its explanatory variables by controlling for liquidity, firm size and age which have been argued to have an impact on firm’s performance. The study used non-financial sector firms and a balanced panel of fourteen firms for six years for the panel models which had ROA and ROE as the dependent variables. For Tobin’s Q panel model which required market capitalization data, the study used thirteen firms for six years because one of the firms was recently listed and thus it had no market capitalization data.

The study analyzed the data from the three models using random effect model after the Hausman test results preferred the random effect model while Levin Lin Chu test results for unit roots indicated that the data is stationary.

The estimation results revealed that there is a significant negative relationship between leverage and firm performance as measured by return on assets, this is contrary to Modigliani and Miller proposition two and agency theory. These two theories supports the notion that financial leverage is going to improve the performance of the firm and with tax incentive in Kenya firms were expected to improve performance as the corporate taxes of 30% in Kenya is fairly high. The result is also buttressing that profitable firms uses pecking order theory in its financing, the more profitable a firm is, the more likely they are going to reduce its debts hence internal financing is preferred.
5.2 Conclusion

From the research findings, we can conclude that financial leverage is vital for any profit maximizing firm and the negative relationship is a wakeup call for the management and board of directors of these blue chip firms to consider the costs associated with debts and its implications to the shareholders who bears the residual costs of decreased profits or losses. Firm age is significant in terms of its market value and investors’ confidence and the significant positive relationship of firm age with return on equity gives more confidence of returns to shareholders.

5.3 Policy Implications

The findings of this study has led us to conclusively draw some important policy implications. First and foremost is the importance of financial leverage on the big firms. The negative relationship shows that firms must be careful on how much debt they take as this may undermine their return on assets. Management which is heedless on the costs and risks associated with financial leverage may lead to reduced profitability.

The older large firms have a better market value as shown by average firm age and Tobin’s Q, this shows the importance of increased considerations to the new small and medium sized firms by the government of Kenya. It is encouraging to see that NSE has established Growth Enterprise Market Segment (GEMS) to facilitate in the growth of the small and medium firms as market is very competitive. More effort is needed to also facilitate the young companies in achieving their goals. A very important implication of this study is the behaviour of the investors at the NSE towards the established blue chip firms which reflects their high levels of confidence on these firms.

The study also indicated that large firms in Kenya prefer pecking order in their capital financing. Although some firms are highly levered and this is an indication of signaling theory. These signals are seen to be accepted positively in the market as the values of the firms are good with a high market capitalization. Finally the Kenya Revenue Authority policy of tax incentive on debts does not appear to have a major influence on the source of financing by the blue chip firms.
5.4 Areas for Further Research

The study considered static trade off theory where the financial leverage is considered at that particular time but there is a need to look at the dynamic trade off theory as firms’ shift and change their financing behavior quite often. Also very important is the market timing theory which will look at the behavior and the timings when firms go for debts or otherwise. This will help to unravel the factors behind the firms which are highly levered, low levered and those who often keep alternating their capital structure.

Lastly there are many factors that affects firm performance that are not included in this study, apart from internal firm characteristics there are also external market factors and macro-economic factors that affect firms’ profitability.
REFERENCES


32


34


