EFFECTS OF FIRM SPECIFIC VARIABLES ON CAPITAL STRUCTURE CHOICE OF NON FINANCIAL FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

[1.] Jacob Joseph Omondi Mananda

[2.] Dr. George Kipngetich Kosimbei

[1.]The Department of Commerce and Economic Studies in the School of Human Resource Development

[2.]Jomo Kenyatta University of Agriculture and Technology.

P.O. Box 62000-00200, Nairobi, Kenya.

Email: info@jkuat.ac.ke

Corresponding author Email: Jacob.mananda@gmail.com

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ACRONYMS

NSE - Nairobi Securities Exchange

CMA - Capital Markets Authority

OLS - Ordinary Least squares

ABSTRACT

This study investigates the effect of firm specific variables on capital structure choice of non-financial firms listed at the Nairobi Securities Exchange. Capital structure choice is considered as resulting from financial characteristics of the firm, the environment and the decision-makers' choice; particularly insiders and significant owners that both influence decision making in the firm. Two theories on capital structure changes considered relevant in guiding this study are signaling theory and pecking order theory. The study specifically tested the effect of insider holdings, ownership concentration, market capitalization, growth opportunities, firm size and profitability on debt to equity ratio, as proxy for capital structure choice. The study developed balanced short panel data derived from published financial statements and NSE Handbook 2013, in respect 28 non-financial firms out of the 57 firms listed at the Nairobi Securities Exchange as at 31st December 2012. The data was for the ten year period, 2003 to 2012, providing a total of 280 observations. The data series were subjected to panel unit root tests to establish their stationarity conditions and were found to be stationary at level. The data was then analysed using descriptive statistics, panel data methodology and Ordinary Least Square (OLS). The study established evidence of a statistically significant effect on capital structure choice, of four out of the six explanatory variables studied namely; market capitalization, growth opportunities, firm size and profitability. A positive association with capital structure choice is observed in market capitalization and firm size while a negative correlation is observed with growth opportunities and profitability. It can be inferred that the variables have influence on capital structure choice of non-financial firms listed at the NSE. However, insider holding and ownership concentration are not statistically significant to explain variations in capital structure choice which implies a higher extent of information asymmetry at the NSE. The results are consistent with existing empirical findings that capital structure is not homogeneously used as a signaling tool, and that it is not always the case that capital structure contains signaling values. The study is expected to provide useful insights to managers, investors and policy makers to help them better understand and interpret firms' capital structure signals. It will also contribute to studies in corporate finance, and more specifically capital structure and support further research.

Key words : Capital Structure, Debt-to-equity ratio (D/E), firm-specific variables, Signaling theory, Pecking order Theory and Asymmetric Information

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the study

The Modigliani-Miller theorem on the irrelevancy of capital structure implicitly assumes perfect and frictionless capital markets; that the market possesses full information about the activities of firms. Other researchers have since developed several hypotheses which model capital structure choices under different assumptions to explain why, more generally, a firm's capital structure might affect its market value (Harris and Raviv, 1991).

The differences in the level of information which the outsiders and insiders have about the investment opportunities and income distribution of the firm should help to explain the capital structure of firms. Information Asymmetry can lead to adverse selection and moral hazard problems. According to Ross (1977), the choice of a capital structure signals information to the market. When debt is issued, it may generate positive signals to the market, with the empirical implication that the value of firms rise with leverage, since increasing leverage increases the market's perception of value.

Prasad, Green and Murinde (2001) stated that managers may exercise three main choices to fund new investments: use retained earnings, borrow through debt instruments, or issue new shares, and that the standard capital structure of a firm includes these three components which reflect firm ownership structure. The first and third components reflect ownership by shareholders while the second component represents ownership by debt-holders.

According to Antoniou, Guney and Paudyal (2002), firms in three European countries namely, France, Germany and Britain adjust their debt to equity ratios to

attain their target capital structure but at different pace, and that the capital structure decisions of a firm is not only the product of its own characteristics, but also the result of environment and traditions in which it operates. Gill, Biger, Pai and Bhutani (2009) in a study on the determinants of capital structure of service industry in the USA finds that leverage is negatively related to the firm's profitability.

In the study by Wanjeri (2012), a firm's capital structure measured by Debt to equity ratio has significantly negative impact on the firm's financial performance measured by Return on Assets, Return on Equity, Price / Earnings ratio and Earnings per Share. Mwangi, Muathe and Kosimbei (2014) finds that financial leverage had a statistically significant negative association with performance as measured by return on assets (ROA) and return on equity (ROE).

According to published information on distribution of shareholders of firms listed at the NSE, the count of shareholders with small units is much greater compared to only a few significant shareholders. Grossman and Hart (1982) assert that in corporations owned by many small shareholders there is an "incentive problem". Managers or directors have goals of their own, such as the enjoyment of perquisites or the maximization of their own income, which are at variance with the goals of shareholders which is assumed to be profit or market value maximization.

Closely held corporations with non-managerial principal stockholder are characterized by a higher average debt to equity ratio than for closely held corporations without non-managerial principal stockholders, and the level of debt decreases as the level of management shareholding in the firm increases (Friend and Lang, 1988).

The assertion that agency conflicts within firms are an important determinant of capital structure is now widely accepted. This is motivated by evidence that debt, by restricting the availability of free cash flow at a manager's disposal, serves to constrain the manager from pursuing self-interest at the expense of value

maximization (Zwiebel, 1996).

Signaling theory states that corporate financial decisions are signals that are sent by managers to the markets, and investors rely on these signals to make informed investment decisions. A fully revealing signaling equilibrium, according Myers (2001), obtains if (a) demand equals supply for every security, (b) the insiders prefer to signal their information honestly, and (c) the outsiders can infer the insiders' values of all securities unambiguously from observing their decisions. Then insiders cannot exploit the outsiders by choice of the firms' policies or by trade in the secondary market.

Most of the research on capital structure has focused on the proportions of debt vs. equity in corporations' financial statements. Empirical results from a study by Tse and Ying (2007) on a set of data derived from 327 UK listed firms show that capital structure is not homogeneously used as a signaling tool. Theoretical explanations, however, exist and therefore there is a need to find the missing link. In the Kenyan context previous research have largely been conducted on the effect of capital structure on financial performance of listed firms (Maina, L. & Ishmail, M., 2014).

This study explored the effect of firm specific variables on capital structure choice, using data on non-financial firms listed at the NSE. Guided by the Signaling and pecking order theories, insider holding, ownership concentration, market capitalization, growth opportunities, profitability and firm size are used as the independent variables while debt to equity ratio is used as proxy for capital structure. All the explanatory variables have signaling effect that impact on information asymmetry, which is the basis for their choice. The relationship between insider ownership and debt level was derived based on Ross's (1977) incentive signaling model. In Ross' signaling model, insiders are able to observe firm's future earnings perfectly owing to their private information; they use capital structure to signal in order to maximize their own interest.

1.2 Statement of the problem

Findings in existing literature on capital structure decisions in situations of information asymmetry vary depending on the environment, data sources, variables and assumptions used in the analysis. Heinkel (1982) model implies that high quality firms have low levels of debt. This is exactly the reverse of an empirical implication of Ross (1977) model which states that the value of the firm is positively related to its debt to equity ratio: higher quality firms issue more debt. Agrawal and Mandelker (1987) find evidence that debt level is positively related to insider holding; however, Friend and Hasbrouck (1987) suggest a negative relationship.

According to Mule, Mukras and Oginda (2013), firms listed at the NSE are characterized by higher ownership concentrations. The firms also have a large number of small shareholders. Both characteristics are indicators of an "incentive problem", consistent with Grossman and Hart (1982).

Capital structure choice signal value in theories but empirical test results are inconclusive regarding the relationship between signaling and debt levels, and that the relationship may not be that straightforward negative (Tse and Ying, 2007). Existing literature on capital structure choice under information asymmetry also mainly relate to studies undertaken in developed economies. This study aimed at establishing the missing link by analyzing relationship between debt to equity ratio and selected firm specific variables, under signaling and pecking order theories namely, insider holdings, ownership concentration, market capitalization, growth opportunities, firm size and profitability. The target population was 41 non-financial firms out of 57 firms listed at the Nairobi Securities Exchange at end of the year 2012.

1.3 Objectives of the study

1.3.1 General objective:

The main objective of the study was to investigate the effect of firm-specific variables on capital structure choice of non-financial firms listed at the NSE.

1.3.2 Specific objectives:

i). To analyse the effect of insider holding on debt to equity ratio.

ii). To establish the effect of ownership concentration on debt to equity ratio.

iii). To examine the effect of market capitalization on debt to equity ratio.

iv). To analyse the effect of growth opportunities on debt to equity ratio.

v). To establish the effect of firm size on debt to equity ratio.

vi). To establish the effect of profitability on debt to equity ratio.

1.4 Research Questions

1. What is the effect of insider holding on debt to equity ratio?
2. What is the effect of ownership concentration on debt to equity ratio?
3. What is the effect of market capitalization on debt to equity ratio?
4. What is the effect of growth opportunities on debt to equity ratio?
5. What is the effect of firm size on debt to equity ratio?
6. What is the effect of profitability on debt to equity ratio?

1.5 Significance of the study

The study makes significant policy recommendations based on the findings. It also provides useful practical insights to both insiders and investors to help them better understand how the specified firm specific variables affect capital structure choice, and interpret firms' capital structure signals with the aim of reducing asymmetric information. The findings of the study will also be used for reference in other studies and help establish possible areas for further research by students and other researchers on corporate finance and specifically, capital structure decisions.

1.6 Scope of the study

This study was guided by the pecking order and signaling theories, and use of debt in capital structure choice as a signal to the market. The study used secondary data from non-financial firms listed at the NSE for the period 2003 to 2012. As at 31.12.2012, there were 57 listed companies of which 41 are non-financial. The variables studied were Debt to equity ratio, as a measure of capital structure and the dependent variable. The independent variables were insider holdings, ownership concentration, market capitalization, growth opportunities, profitability and firm size which are all firm specific variables with signaling effect that impact on information asymmetry. The choice of listed non-financial firms is because the firms have access to a wide range of sources of funds. The firms are also not subject to capital structure ratios of the regulators such as the Central Bank or Basel Accord that apply to financial firms. Listing disclosure requirements also make information easily accessible.

1.7 Limitations of the study

The subject area of capital structure decisions is very large with many theories developed over the years. Capital structure decisions are affected by many variables under different situations. The study only evaluated a few selected firm-specific variables that have signaling effect to the market, guided by the signaling and pecking order theories. The environment under which the firms operate is therefore a significant constraint on the choice of appropriate guiding theory, variables and their impact on capital structure choice.

CHAPTER TWO

2. LITERATURE REVIEW

2.1 Introduction

This chapter presents review of some of the existing literature relevant to the study on capital structure choice under signaling effect and pecking order theories. It is discussed under three sub topics namely, theoretical literature, empirical literature and conceptual framework.

2.2 Theoretical Literature

2.2.1 Capital structure theories: Signaling, Static trade-off and Pecking order.

a) Signaling theory:

Signaling theory commenced with a study by Akerlof (1970), that forms the basis of the theory regarding asymmetric information. Arkelof uses the market for used cars as an example of the problem of quality uncertainty. Asymmetric information refers to a situation in which one party in a transaction has more or superior information compared to another. It can lead to two main problems namely, adverse Selection and moral hazard.

Jensen and Meckling (1976) stressed that managers act in their own economic self-interest. That self-interest can be redirected by share ownership plans, compensation schemes, the possibility of bankruptcy or other devices but the alignment between shareholders' and managers' objectives is necessarily imperfect.

Ross (1977) provides a theoretical framework for the possibility of using capital structure to signal. Leland and Pyle (1977) derive a signaling model wherein insiders' willingness to invest their own money in a project serves as a signal to the market of the true quality of the project. The market place a value on the project that reflects the information transferred by the signal.

Franke (1987) derives a similar signaling model by looking at the "outsider-rationality condition" and "no-arbitrage condition" on the outsiders' behaviour required by the signaling equilibrium. John (1987) suggests a positive correlation between the leverage and firm value based on risk-shifting incentive arguments.

According Myers (1984), two theories seek to explain financing behaviour namely, a static trade off framework and a pecking order framework. Under the static tradeoff framework, the firm is viewed as setting a target debt–to–value ratio and gradually moving towards it. The pecking order framework states that a firm prefers internal to external financing, and debt to equity if it issues securities, and that the firm has no well-defined target debt to value ratio.

b) The Static Trade-off Theory:

The static trade-off theory says that a firm's adjustment toward an optimal leverage is influenced by three factors namely taxes, costs of financial distress and agency costs. Interest being a tax deductible expense, decreases the tax liability and increases the after tax cash flows. Thus tax rate and leverage have positive relationship. The probability of default on debts increases with the increase in level of debt beyond the optimal point. Jensen and Meckling (1976) identify the possible conflict between shareholders and managers interests because of the manager's share of less than full ownership in the firm. The managers' given role has many implications for the capital structure of a firm, more specifically as summarized under the Free Cash Flow Hypothesis.

Free cash flow refers to cash flow available after funding all projects with positive cash flows. Managers having less than 100 percent stake in business may try to use the free cash flows sub-optimally or use them to their own advantage rather than to increase value of the firm. Jensen (1986) suggests that this problem, to some extent can be controlled by increasing the stake of managers in the business or by increasing debt in the capital structure, thereby reducing the amount of "free" cash available. Reduction in cash flow resulting from debt financing is considered to be the benefit of debt financing.

Overinvestment and Underinvestment problems (Myers, 1984): The bondholder expropriation hypothesis says that shareholders try to gain advantage at the cost of bondholders share extra risks for no reward in the event that the firm fails. Being agents to shareholders, management tries to invest even in projects that may not have good chances of viability. This phenomenon is termed as "overinvestment problem". The losses sustained by shareholders because of this incentive are termed as "asset substitution effect". On the other hand, the underinvestment problem refers to the tendency of managers to avoid safe net present value projects in which value of equity may decrease a little; however, increase in value of debt maybe high. This happens because management, being primarily responsible to shareholders, does not concern itself with the overall increase in value of the firm rather it tries to increase the value of equity only".

c) The Pecking order theory

Myers and Majluf (1984), states that investors generally perceive that managers use private information to issue risky securities when they are overpriced. This perception of investors leads to the underpricing of new equity issue and can cause substantial loss to the existing shareholders. Consequently, firms avoid issuing equity for financing new projects and instead first finance from internally generated funds then issue debt if further financing is required and finally issue new equity as a last resort. This has been termed as "Pecking Order Theory". Myers (1984) summarized Pecking Order Theory in four parts as follows:

> "Firstly, firms prefer internal finance to external finance to finance new investments. Asymmetric information creates the possibility that they may choose not to issue new securities and therefore miss a positive NPV investment; or may issue equity at a low price which disadvantages existing shareholders.
>
> Secondly, managers adapt their target dividend payout rates to their investment opportunities, notwithstanding the downward inflexibility of dividends. In

setting the target payout rates, managers try to ensure that "normal" investment plans can be met by internal finance.

Thirdly, if retained earnings are less than investment outlays, the firm first depletes its financial "slack" (its cash balances or marketable securities). If instead, retained earnings exceed investment, it first invests in cash or marketable securities, and then pays off debt. If the firm is persistently in surplus, it may increase its target payout rate.

Fourthly, if financial slack is depleted, the firm resorts to external finance. In this event, it starts with the safest security (straight debt); then hybrid securities such as convertible bonds. As it climbs up the pecking order, a firm faces increasing costs of financial distress inherent in the risk class of debt and equity securities. Only when it runs out of debt capacity and the potential costs of financial distress become important, it finally resort to a new equity issue".

2.2.2 Debt to equity ratio and insider holding:

According to Ross' (1977) incentive signaling model, insiders are able to observe firms' future earnings perfectly owing to their private information; they use capital structure to signal in order to maximise their own interest. Thus, there is no explicit treatment of management incentives, as in Ross' (1977) signaling equilibrium, where the design and parameters of the manager's compensation package drive the choice between debt and equity. The firm's financing decision then reveals the managers' information about the intrinsic value of the firm. Agrawal and Mandelker (1987) find evidence that debt level is positively related to managerial shareholdings. However, Friend and Hasbrouck (1987) suggest a negative relationship.

Friend and Lang (1988), and Jensen, Solberg and Zorn (1992) also provide empirical evidence to supporting this relationship. The relationship between insider

ownerships and debt level may not be that straightforward negative but is dependent on managers' risk preference and predictability of cash flows. When cash flow has the same probability of being favourable and unfavourable, insider ownerships have no impact on debt level any more. If capital structure is a signaling tool, insider ownerships should be observed negatively related with debt level; and the signaling decision depends on investment risk level and insiders' risk preference.

The study focuses on signaling value of debts and keeps other benefits in constant for ease of analysis. Normal benefits of gearing include lower cost of capital, and the value of signaling. Directors' shareholding was used in the study as proxy for insider holding.

2.2.3 Debt to equity ratio and ownership concentration:

Ownership concentration is another measure of the extent of information asymmetry, as suggested by Stoll (1978), Brennan and Subrahmanyam (1995).

Part IV of the NSE listing manual (2013) provides that an issuer shall at the end of each calendar quarter, disclose to the Securities Exchange every person who holds or acquires 3% or more of the issuer's ordinary shares. An issuer is also required to publish in its annual report, among others, names of the ten largest shareholders and the number of shares in which they have an interest as shown in the issuer's register of members. The study considered shareholding of 3% or more by a single holder as ownership concentration.

2.2.4 Debt to equity ratio and market capitalization:

In Tse and Jia (2007), market capitalization is a much more forward-looking measure than historic accounting figures and reflects market assessment of firm value. A positive relationship between market capitalization and debt level is also predicted under signaling theory of capital structure. In Ross (1977), Noe (1988)

and Narayanan arguments, if market capitalization reflects firms' future profitability, then firms expecting a favourable earning prospect are more likely to signal using debt.

2.2.5 Debt to equity ratio and growth opportunities:

According to the pecking order theory, growth opportunities should be positively related to the debt ratio of a firm (Myers, 1984). This is because there is an asymmetrical information problem across outside investors and firm managers in the firms that have more growth opportunities than the assets they have (particularly small firms). The pecking order theory implies a positive relationship between growth opportunities and debt level (Jensen, 1986; Myers, 1984; Myers and Majluf, 1984).

Smith and Watts (1992) argue that the degree of information asymmetry is larger for firms with significant growth opportunities, since managers of high growth firms have privileged knowledge about the firm's investment opportunities and insights in the expected future cash flows from their firm's existing assets. Resulting from this reasoning, a firm's set of investment opportunities is used as a proxy for signaling that reduce information asymmetry.

Adam and Goyal (2003) provide evidence that the market-to-book asset ratio is the best proxy for growth opportunities, demonstrating that it has the highest correlation with a firm's actual investment opportunities, reflects the information in other proxies, and is least affected by confounding factors. The market value of assets is estimated as the book value of assets minus the book value of equity plus the market value of equity.

2.2.6 Debt to equity ratio and firm size:

It is expected that large firms are usually more diversified, have better reputations in debt markets, and face lower information costs when borrowing. Therefore, large

firms are predicted to have more debt in their capital structures. Signaling can also be measured by the firm size. Chae (2005) found that small firms have higher information asymmetry than large firms. Demsetz (1986) notes that small firms have high amounts of internal information and wide bid-ask spreads due to the low number of insiders. This study measures firm size as the ratio of net sales divided by total assets.

2.2.7 Debt to equity ratio and profitability:

Existing literature provides conflicting evidence on the relationship between debt to equity ratio and profitability. In Myers and Majluf (1984), firms follow a pecking order in their financing choice since retained earnings are more preferred to debt capital, therefore a negative relationship can be inferred between debt to equity ratio and profitability. Profitable firms can generally tolerate high debt levels since they can easily meet debt repayment obligations, therefore a positive relationship can be inferred (Petersen and Rajan, 1994). This study measures firm's profitability using the ratio of earnings before interest and taxes (EBIT) to total assets.

2.3 Empirical Literature review

Friend and Lang (1988) provide a test on whether capital structure decisions are at least in part motivated by managerial self-interest. The study was conducted on 984 New York Securities Exchange (NYSE) listed firms for the period 1979 to 1983. Variables in the study were Debt/Asset ratio (Dependent), Ratio of net property, plant, and equipment to book assets, Mean of earnings (before interest payments and taxes)/asset ratio, Standard deviation of earnings (before interest payments and taxes)/asset ratio used as a proxy for risk, Log of total assets, Market value of equity held by dominant managerial insider (officer and/or director), Fraction of equity held by dominant managerial insider, Fraction of equity held by dominant non-managerial stockholder who is not an officer or director but holds more than ten

percent of shares outstanding. Multivariate relationships for the debt to equity ratio were estimated using ordinary least squares. The findings of the study were that the level of debt decreases as the level of insider shareholding in the firm increases, reflecting the greater non-diversifiable risk of debt to management than to public investors for maintaining a low debt to equity ratio. Where corporations have large non-managerial investors, the average debt to equity ratio is significantly higher than in those with no principal stockholders, which may suggest that the existence of large non-managerial stockholders might make the interests of managers and public stockholders coincide.

Tse and Jia *(*2007) investigated the kind of firms that are more likely to use capital structure to signal; and the impacts of corporate ownership structures on firms' capital structure signaling decisions. They hypothesized that a firms' Debt/Equity (D/E) ratio should be explained by four variables namely, insider ownerships, ownership concentration, market capitalization and dividend yield. The study used OLS multiple regression, piecewise regression and logistic regression analysis on a set of data derived from 327 UK firms listed in the Financial Times Stock Exchange (FTSE) ALL share index to test the hypotheses. The empirical findings show that capital structure is not homogeneously used as a signaling tool. The findings suggest that it is not always the case that capital structure contains signaling values, and that it only applies to certain firms. However, market capitalization, dividend yield and debt level have strong positive relationship in all ranges of D/E levels.

Ngugi (2008) investigated capital financing behaviour of firms listed on the NSE. The study used a sample of 22 firms for the period 1990 to 1999 and using modified static trade off and pecking order models, the findings are that the main determinants of capital financing behaviour of listed firms in Kenya are information asymmetry, non-debt tax shields and local capital market infrastructure.

Kago (2011) tested for the determinants of capital structure of firms in the tea

subsector in Kenya using leverage, measured by mean debt to equity ratio, as proxy for capital structure. The study finds that capital structure is positively influenced by collateralizable value of assets, profitability, liquidity and non-debt tax shield. Size was found to be significant while collateralizable value of assets more significant.

Chhapra and Asim (2012) investigated the determinants of optimal capital structuring that affect growth and financing behavior of textile sector firms in Pakistan. The study was conducted on a sample size of 90 textile companies across the country and their data for the 2005 – 2010 periods was used. The variables were Financial Leverage (dependent variable) and Fixed assets, Size, Profitability, Taxes as the independent variables and the error term. Estimation technique used was correlation and regression analyses. F-value was calculated to test the fitness of overall model. The results of the study showed a negative relationship between dependent variable financial leverage and independent variables. The statistical analysis outcome of weaving unit, however, showed a significantly positive relationship between dependent and independent variables.

Magara (2012) tested for the determinants of capital structure for companies listed at the NSE from the period 2007-2011. Age of firm, size of firm, tangibility, liquidity, business risk, growth rate and profitability were used as the independent variables and the degree of leverage as the dependent variable. The study used a casual research design to investigate the cause effect relationship between the independent (determinants) and the dependent (leverage) variables. The data collected was then analyzed using descriptive statistics, ANOVA and OLS regression. The results of the study were a positive significant relationship between the firm size, tangibility and growth rate and the degree of leverage at different significant levels of 1% and 5%. But there is a negative significant relationship between profitability and leverage at a significant level of 5%. The results also show there is no significant relationship between age of firms and business risk and leverage.

Mule, Mukras and Oginda (2013) investigated the effect of ownership concentration on financial performance of firms listed at the NSE using data for the period 2007 to 2011. Specifically, the study sought to: (1). Determine the level of financial performance of firms listed at the NSE, (2). Establish the ownership concentration levels among firms listed at the NSE (3). Ascertain the effect of ownership concentration on financial performance of firms listed at the NSE. Variables of the study were Ownership Concentration, Return on Equity (ROE), Return on Assets (ROA) and Tobin's Q.A vector of control variables namely asset tangibility, firm's size, age, management efficiency and profitability. Study adopted panel methodology and OLS. Regression analysis finds ownership concentration to be negatively related to all the three measures of performance in firms listed at the Nairobi Securities Exchange namely Return on equity, Return on assets and Tobin's Q.

A study by Maina and Ishmail (2014) examined the effect of capital structure and financial performance of firms listed at the NSE. Secondary data was collected from the published financial statements for the period 2002 to 2011. Equity and debt were used as proxies for capital structure. The study used Causal research design and 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 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.

2.4 Conceptual Framework

2.4.1 The study examined debt to equity ratio as the dependent variable and the independent variables comprising insider holding, ownership concentration, market capitalization, growth opportunities, firm size and profitability using both market and accounting based financial information for the ten year period 2003 to 2012. In this framework, the use of debt in capital structure decisions is analysed as signal that is sent by insiders to the market. Investors rely on these signals to make informed investment decisions.

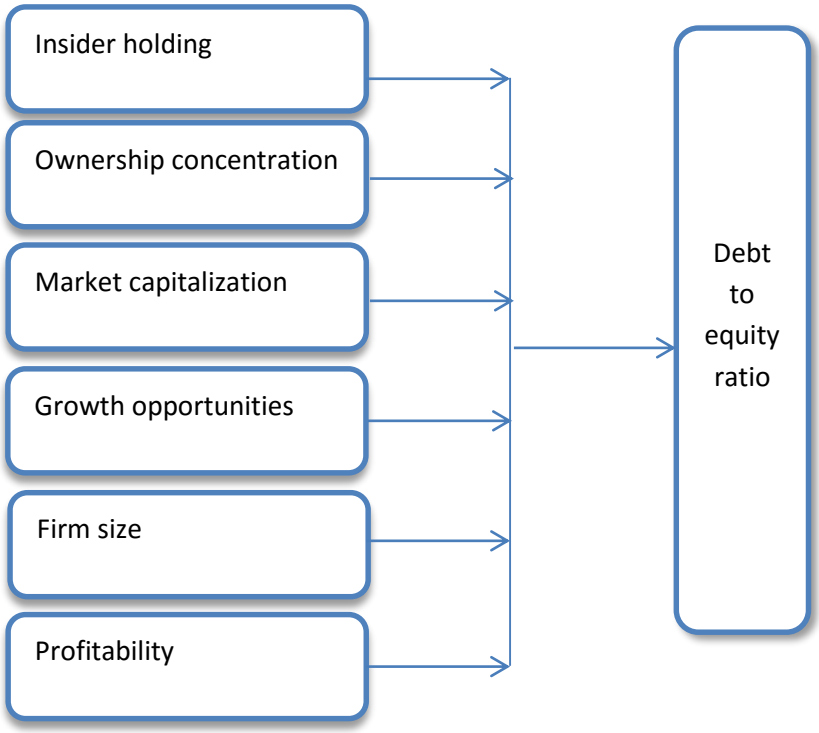

Figure 2.1: Conceptual framework

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1 Introduction

This section describes the procedures that were followed in conducting the study. It presents the research design, target population, sampling frame, variables and measurement, model specification, data collection and analysis methods.

3.2 Research design:

According to Robson (1983), research design begins with selection of the topic and a paradigm, which encompass both theories and methods. The study followed a quantitative

paradigm. A correlational research design was used to establish the effect of firm specific variables on capital structure choice, and specifically the effect of insider holdings, ownership concentration, market capitalization, growth opportunities, firm size and profitability on debt to equity ratio, for the case of non - financial firms listed at Nairobi Securities Exchange over a ten year period, 2003 to 2012.

Econometric analysis procedures that have been applied in Corporate financing decisions include the Probit and Logit models (Mackie-Mason, 1990) as well as panel data estimation techniques (De Miguel and Pindado, 2001; Ayot, 2013). Following the latter studies, this study adopted panel data estimation technique. The technique is used because this study's observations have two dimensions namely, cross-section and time-series. Panel data also assumes correlation (clustering) over time for a given individual. It further allows for greater flexibility in modeling differences in behaviour across firms which enable control for unobserved heterogeneity (Wooldridge, 2002)

3.3 Target population:

The population of study comprised all non-financial companies listed at the Nairobi Securities Exchange over the ten year period, 2003 to 2012. At 31.12.2012 there were 57 listed companies out of which 41 were non-financial corporations. The unit of analysis was the companies. Out of the non-financial firms, a balanced short panel data was developed in respect of 28 firms only that had complete information over the ten year period. The NSE listed firms were chosen because the disclosure requirements make it possible to obtain all the relevant information, an aspect that was pertinent to the research. The firms also have access to a wide range of sources of finance which is relevant for a study on capital structure decisions. The companies are also considered a representative sample of other firms in Kenya as they operate under specified regulatory requirements and in the key sectors of the economy.

3.4 Sampling frame:

Sampling frame was all the 41 non-financial firms out of the 57 listed companies at 31st December 2012. The selected firms were screened for those with complete information for the ten year period, 2003 to 2012 and only 28 companies provided complete information. Financial firms are excluded because the capital structure decisions are regulated and may not be freely influenced by the variables of interest in the proposed research.

3.5 Variables, Measurement and Data collection:

The following variables and the respective measurements were used in the study:

Number	Variable	Measurement
1	Debt to equity ratio	Total liabilities divided by shareholders funds
2	Insider holding	Directors shareholding as a proportion of total shareholding
3	Ownership concentration	Shareholdings of at least 3% as a proportion of outstanding shares.
4	Market capitalization	The logarithm of Market capitalization of outstanding shares multiplied by the market price
5	Growth opportunities	Torbin's Q: determined as the book value of assets minus book value of equity plus market value of equity

		divided by book value of assets.
6	**Firm size**	**Net sales divided by total assets**
7	**Profitability**	**Pre – tax profit divided by total assets**

The study was based on secondary data extracted from published financial statements of non-financial corporations listed at the NSE over a ten year period, 2003 to 2012. Other sources of data were the NSE Handbook 2013 and the websites of the NSE, CMA and respective listed companies.

3.6 Model specification and estimation

Data analysis was based on quantitative approaches notably descriptive statistics such as the mean, standard deviation, minimum, and maximum; and OLS multiple regression. The following testable OLS regression model used by Mule et al. (2013) was applied in the context of establishing the relationship between the dependent and independent variables:

$$Y_{it} = \alpha_i + \beta_i X_{it} + \varepsilon_{it} \quad \text{(Equation 3.1)}$$

Y_{it} = is a measure of capital structure choice (debt to equity ratio) for firm i in period t.
α_i = refers to time invariant firm specific effects
β_i = Coefficients
X_{it} = is a measure of firm specific variable for firm i in period t.
ε_{it} = Error term

Based on the above general model, the effect of signaling on capital structure decisions was evaluated using the model specified below:

$$\text{Debt to equity ratio}_{it} = \alpha_i + \beta_1 \text{Insider holding}_t + \beta_2 \text{ownership concentration}_t + \beta_3 \text{Log of Market capitalization}_t + \beta_4 \text{growth opportunities}_t + \beta_5 \text{Firm size}_t + \beta_6 \text{Profitability}_t + \varepsilon_{it}$$

(Equation 3.2)

3.7 Data Analysis :

A panel of 28 non-financial firms out of 57 firms listed at the NSE as at 31.12.2012 was the unit of analysis. The data for a ten year period spanning over 2003 to 2012, was extracted from published financial statements of the respective companies and NSE Hand book 2013. Other sources of data were the websites of NSE and CMA.

Panel data allows for control of variables that a researcher cannot observe or measure such as cultural factors or difference in business practices across companies; or variables that change over time but not across entities like government policies and other regulatory requirements. It accounts for individual heterogeneity. It is also possible with panel data to include variables at different levels of analysis.

The panel data extracted was subjected to OLS diagnostic tests for the error correction. Before conducting empirical estimations, the data series were subjected to unit root tests to establish their orders of integration and were found to be stationery at level. When the OLS conditions were satisfied, the panel data methodology and OLS model estimation were performed with the aid of STATA software since it increases efficiency by combining time series and cross-section data.

CHAPTER FOUR

4. RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

In this chapter the research findings and results of the estimation of the panel data regression models employed in the study is presented. Balanced Panel data was developed from published information in respect of 28 nonfinancial firms listed at NSE, for a 10 year period 2003 to 2012. Two analytical techniques were employed namely, descriptive statistics and Panel data econometrics. The descriptive statistics considered in this study include; the mean, standard deviation, minimum and maximum values as well as a correlation matrix. Under Panel data methodology, the Pooled Ordinary Least Squares (OLS) model, Fixed Effects Model, Random Effects Model and Hausman test were used in the analysis.

4.2 Descriptive statistics and observations

4.2.1 Descriptive statistics was considered in identifying statistical properties of the data. Table 4.1 below presents a summary of these statistics.

Table 4.1 (a) - Extract - Summary Statistics of the data

Variable	Obs	Min	Max	Mean	Std. Dev.	Coefficient of variation.
debt to equity	278	0.0084	5.2626	0.9884	0.7934	0.8027
insider holding	280	0.0000	0.5233	0.0663	0.1397	2.1071
ownership concentration	280	0.2000	0.9726	0.6744	0.1530	0.2269
Log market capitalization	280	8.0931	11.3213	9.5903	0.6757	0.0705
growth opportunities	280	0.8057	6.0419	2.1214	1.1480	0.5412
Size	280	0.0586	5.8905	1.0601	0.9009	0.8498
Profitability	252	0.0016	0.6590	0.1403	0.0995	0.7092

The key observations from the results in Table 4.1 above are summarized as follows:

4.2.2 For the NSE listed non-financial firms debt financing range between 0.83% and 84.03% with an average of 49.71% while the rest is financed by Equity. Insider holding accounts for 6.63% of total shares issued and outstanding.

4.2.3 The study also finds that the highest ownership concentration is at 97.26%, while the lowest is 20%, with an average ownership concentration of 67.43% and variability of 15.29% implying that the percentage of shares held by those considered as large shareholders range between 97.26% and 20.00%, with a mean of 67.43%. High level of ownership concentration can cause the major shareholders to expropriate the firm's resources for their own interests. This may compromise the benefits of ownership such as monitoring management and aligning their interest with shareholders' interests, exposing the firm to operational and financial risks.

4.2.4 Stock markets provide information about firms, and in liquid stock markets, there is more incentive to signal the investors which makes monitoring activity easier. Demirgüç-Kunt and Maksimoviç (1995) found that initial improvements in stock markets increase debt ratios, but in already-developed stock markets, further development results in firms using equity instead of debt. A positive relationship though, is expected, between the stock market development indicators and the leverage ratios. The log of market capitalization results range between 8.0931 and 11.3213 with a mean of 9.5903 and standard deviation of 0.6757.

4.2.5 Growth opportunities range between a ratio of 0.8057 and 6.0419. Growth opportunities measure is a proxy for the financial market's assessment and confidence in the firm's net worth and is a major determining factor in stock valuation (Rajni, 2012). The results above show an average ratio of 2.1214 implying that the firms' market capitalization exceeds the book value of assets by close to 112.1 percent.

4.2.6 The firm size ratios vary between 0.0586 and 5.8905 with a mean of 1.0601 and a high variability measured by the standard deviation of 0.9009. Profitability range from a minimum of 0.16% to maximum of 65.9% with a mean of 14.03% and a low variability measure by a standard deviation of 9.95%.

4.2.7 The coefficient of variation (CV), is a standardized measure of dispersion of a probability distribution. It shows the extent of variability in relation to the mean of the population. Market capitalization returned the lowest variability at 7.05% while insider holding is highest at 210.71%.

4.3 Correlation matrix and observations

4.3.1 To ascertain the effect of firm specific variables on capital structure decisions of firms listed at the NSE a correlation matrix is summarized in table 4.2 as under:

Table 4.2 : Correlation Matrix among Variables

	debt to equity	insider holding	ownership concentration	Log market capitalization	growth opportunities	Size	Profitability
debt to equity	**1.0000**						
insider holding	**0.0826**	**1.0000**					
ownership concentration	**0.1145**	**-0.3349**	**1.0000**				
Log market capitalization	**0.2217**	**0.2106**	**-0.1943**	**1.0000**			
growth opportunities	**-0.1639**	**-0.0859**	**0.0321**	**0.4217**	**1.0000**		
Size	**0.3286**	**-0.2501**	**0.2450**	**0.0364**	**-0.0877**	**1.0000**	
Profitability	**-0.3056**	**-0.1553**	**-0.0343**	**0.2103**	**0.5669**	**-0.0742**	**1.000**

4.3.2 From Table 4.2 above, the correlation matrix attempts to explain the research questions the study intended to answer. A positive correlation is observed between debt to equity ratio; and insider holding, ownership concentration, market capitalization and firm size while a negative correlation is observed between debt to equity ratio; and growth opportunities and profitability. The correlation between the explanatory variables is mixed. The findings are consistent with the existing theory and literature. From the matrix, it can also be observed that the degree of associations among the variables is weak as reflected in the low coefficient values. However, it is worth noting that descriptive statistics and correlation analysis only measure statistical properties and the degree of association among the variables, respectively. Further econometrics techniques are considered in the subsequent sections in the analysis of definite causal nexus between debt to equity ratio as a proxy for capital structure choice and firm specific variables specified as the explanatory variables.

4.4 Panel data econometrics estimation results and analysis

4.4.1 Unit root tests :

The Short panel data developed comprised 28 cross sections and 10 regular yearly time periods, providing a total of 280 observations. The data was subjected to panel data unit root tests to establish their stationarity conditions, that is, their orders of integration. Panel unit-root test analysis requires that variables considered in the panel model need to be stationary in order to avoid spurious regression.

Table 4.3: Unit Root Test Results

Variable	Levin, Lin, Chu P-values	Hadri LM test P-values	Conclusion
debt to equity	**0.0000**	**0.0000**	**I (0)**
Insider Holding	**0.0000**	**0.0000**	**I (0)**
Ownership concentration	**0.0000**	**0.0000**	**I (0)**
Log market Capitalization	**0.0000**	**0.000**	**I (0)**
Growth Opportunities	**0.0077**	**0.0000**	**I (0)**
Size	**0.0000**	**0.0000**	**I (0)**
Profitability	**0.0002**	**0.0000**	**I (0)**

This study used the Levin, Lin, Chu (LLC) and Hadri LM stationerity test to test for unit roots and results in table 4.3 above indicate that all variables are integrated of order zero, that is, each variable is stationary at level. Cointegration in the series was therefore not tested.

4.4.2 Panel data models: Estimation results and analysis

This section presents the econometric results obtained by empirically testing the equation as presented in paragraph 3.6 for a panel of 28 firms between 2003 and 2012. The regression analysis was carried out using panel data. The panel data used to estimate this model consist of *i* cross-sectional units where *i* = 1, 2. . . 28 firms observed at each of *t* time periods, t = 1, 2. . . 10 (2003 to 2012). Equation 3.2 was estimated and the results obtained are summarized in Tables 4.4, 4.5 and 4.6. All the three models namely; Pooled model, Fixed Effects model and Random Effects model were tested for appropriateness.

4.4.3 Pooled model

The method pools all the observations ignoring the time series and cross-section nature of data. It also ignores the heterogeneity that may exist between the individuals. It was therefore considered not appropriate for this study. The model's estimation results are presented in Table 4.4 (a) below.

Table 4.4 (a) : Pooled effects estimation results

Debt to equity ratio	Coef.	Std. Err.	t	P>|t|
insider holding	0.3942	0.3344	1.1800	0.2400
ownership concentration	0.6336	0.2871	2.2100	0.0280
Log market capitalization	0.3689	0.0710	5.1900	0.0000
growth opportunities	-0.0803	0.0461	-1.7400	0.0830
Size	0.2398	0.0514	4.6600	0.0000
Profitability	-1.9893	0.4943	-4.0200	0.0000
_cons	-2.8529	0.6982	-4.0900	0.0000
R-squared	0.2863		F(6, 245)	16.38
Adj R-squared	0.2688		Prob > F	0.00
Root MSE	0.6313			

The results, however, show that insider holding and growth opportunities are not statistically significant to individually explain variations in debt to equity ratio while the other variables are significant.

4.4.4 Fixed Effect and Random Effects models and Hausman test

The Hausman test was used to decide between fixed or random effects model. The null hypothesis was that the preferred model was random effects against the alternative, the fixed effects (Greene, 2008). Hausman test basically tests whether the unique errors (εi) are correlated with the

regressors; the null hypothesis is they are not. Fixed effects model was run and the estimates obtained in Table 4.5 of Appendix 3. Random effects model was then run and estimates obtained in Table 4.6 (b) of Appendix 4. The Hausman test was then conducted and returned the results summarised in Table 4.7 following:

Table 4.7 - Hausman Test results

	---- Coefficients ---			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fixed	random	Difference	S.E.
insider holding	-0.2372	-0.2313	-0.0058	0.1349
ownership concentration	-0.3945	-0.1339	-0.2605	0.1686
Log market capitalization	0.6407	0.5441	0.0966	0.0858
growth opportunities	-0.0852	-0.0851	-0.0001	0.0190
Size	0.1344	0.1797	-0.0453	0.0643
Profitability	-1.5074	-1.6450	0.1375	0.1462
b = consistent under Ho and Ha; obtained from xtreg B = inconsistent under Ha, efficient under Ho; obtained from xtreg Test: Ho: difference in coefficients not systematic chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 9.10 Prob>chi2 = 0.1678				

The results contained in Table 4.7 above are a chi-square statistic of 9.10 with a p-value of 0.1678, implying that at 5 percent level, the chi-square value obtained was statistically insignificant. The decision is the test fails to reject the Null Hypothesis, that is, the Random Effects model is appropriate.

4.4.5 Random Effects Model Estimation Results

Following the results of Hausman Test, random effects model was used in estimation of the equation and the results are summarized in Table 4.3 below:

Table 4.6 (a) Random-effects GLS regression results (Equation 3.2) extracts.

Dependent variable : Debt to equity ratio						
Independent Variable:	**Coef.**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
insider holding	**-0.231**	**0.335**	**-0.690**	**0.490**	**-0.888**	**0.425**
ownership concentration	**-0.133**	**0.343**	**-0.390**	**0.697**	**-0.807**	**0.540**
Log market capitalization	**0.544**	**0.107**	**5.060**	**0.000**	**0.333**	**0.754**
growth opportunities	**-0.085**	**0.041**	**-2.050**	**0.041**	**-0.166**	**-0.003**
Size	**0.179**	**0.077**	**2.310**	**0.021**	**0.027**	**0.332**
Profitability	**-1.645**	**0.416**	**-3.950**	**0.000**	**-2.462**	**-0.827**
_cons	**-3.940**	**1.067**	**-3.690**	**0.000**	**-6.031**	**-1.848**
Number of observations		**=**	**252**			
Wald chi2(6)		**=**	**41.84**			
Prob > chi2		**=**	**0.00**			
R-squared- between : 0.2740 and overall : 0.2261						
Rho	**0.5768**	**(fraction of variance due to u_i)**				

4.5 Random effects model Estimation Results Analysis

4.5.1 Fitted Coefficients in the estimation model (equation 3.2):

Debt to equity = -3.9400 - 0.2313insider holding - 0.1339ownership concentration + 0.5441 log market capitalization -0.0851 growth opportunities + 0.1797 firm size -1.6450 profitability + εit

4.5.2 The decision criteria:

The decision criteria; on p-values and the coefficients is explained as follows: The p-value for each term tests the null hypothesis that the coefficient is equal to zero, that is, has no effect. A low p-value of less than 0.05 is statistically significant, indicating that the null hypothesis can be rejected. Conversely, high p-value greater than 0.05 is statistically insignificant suggesting that the null hypothesis cannot be rejected. The regression coefficients represent the mean change in the dependent variable for one unit change in the independent variable, holding other independent variables in the model constant.

4.5.3 The effect of insider holding on debt to equity ratio.

From the estimation results, Insider holding has a probability value of 0.49 which is greater than 0.05 decision criteria. It is therefore not significant on its own to explain variations in debt to equity ratio. The results are consistent with Wiwattanakantang (1999) evidence based on Thai firms and, Tse and Jia (2007) findings based on UK firms. The coefficient of -0.2313 indicates a negative correlation between debt to equity ratio and Insider holding and that for every one unit increase in insider ownership, holding other explanatory variables in the model in constant, debt to equity ratio decreases by 0.2313 units. This implies as insider holding increases less of debt is used, and is consistent with existing findings in Friend and Hasbrouck (1987) which suggest a negative relationship, Friend and Lang (1988), and Jensen, Solberg and Zorn (1992). Insiders use Capital structure decisions as signals to the market in order to maximize own interest.

4.5.4 The effect of ownership concentration on debt to equity ratio.

The estimation results indicate that ownership concentration has a probability value of 0.697 which is greater than 0.05 and therefore not significant on its own to explain variations in debt to equity ratio. The

findings are consistent with Tse and Jia (2007) evidence on a study based on U.K. firms. The coefficient of -0.1339 indicates a negative association between debt to equity ratio and ownership concentration, implying less use of debt as ownership concentration increases.

4.5.5 **The effect of market capitalization on debt to equity ratio.**

Market capitalization returned a probability value of 0.0000 which is less than 0.05 and therefore significant on its own to explain variations in debt to equity ratio. The coefficient of 0.5441 indicates a positive relationship between debt to equity ratio and market capitalization. The coefficient indicates that an increase in market capitalization by one unit would translate to an increase in debt to equity ratio by 0.5441 units. This is consistent with the existing prediction under signaling theory of capital structure that market capitalization of a firm serves as a signal to the market.

4.5.6 **The effect of growth opportunities on debt to equity ratio.**

The estimation results indicate that growth opportunities has a probability value of 0.041 which is less than 0.05 and therefore significant on its own to explain variations in debt to equity ratio. The coefficient -0.0851 indicates a negative association between debt to equity ratio and growth opportunities. This implies that for every unit increase in growth opportunities debt to equity ratio reduces by 0.0851 units. Existing studies find that that asymmetric problem is more severe for firms with significant growth opportunities. Signaling is therefore necessary to reduce information asymmetry. However, in conformity with the pecking order and signaling model assertion that firms with higher growth opportunities have higher demand for internal funds, a negative relationship may be inferred. The results are consistent with Gucharan (2010) but inconsistent with a study by Jorgensen and Terra (2002).

4.5.7 **The effect of firm size on debt to equity ratio:**

The estimation results indicate that firm size has a probability value of 0.0210 which is less than 0.05 and therefore statistically significant on its own to explain variations in debt to equity ratio. The coefficient of 0.1797 indicates a positive relationship between debt to equity ratio and firm size, implying increase in use of debt as firm size increases. This is consistent with theoretical prediction that a positive relationship between size and leverage exists in NSE listed nonfinancial firms, and that a firm's size matters when it comes to decisions on raising capital. This finding is consistent with the results in Booth et al. (2001) who argue that large companies can tolerate high level of debt. In Harris (1994), large firms tend to be more mature, have established and tested disclosure policies and practices and receive more attention from the market and regulators.

4.5.8 **The effect of profitability on debt to equity ratio.**

Profitability returned a probability value of 0.000 which is less than 0.05 and therefore statistically significant on its own to explain variations in debt to equity ratio. The coefficient of -1.6450 implies a negative association between profitability and debt to equity ratio in NSE listed nonfinancial firms and that for every one unit increase in profitability, holding constant other explanatory variables in the model, debt to equity ratio decreases by -1.6450 units. The negative relationship is consistent with the pecking order theory, that is, more profitable firms prefer to finance their investment activities using internally generated funds as opposed to external financing. Such a policy may be used to allow for financial flexibility and to minimize the amount of information signalled to the market. According to Myers and Majluf (1984), firms follow a pecking order in their financing choice in order to minimise underinvestment problems and project mispricing.

According to signaling theory, the most profitable companies provide more and better information to the market.

CHAPTER FIVE

5 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The study investigated the effects of firm specific variables on capital structure choice of non-financial firms listed at the NSE. Specifically, the study investigated the effects of insider holding, ownership concentration, market capitalization, growth opportunities, profitability and firm size on debt to equity ratio as proxy for corporate capital structure choice. The study focused on signaling theory and pecking order theory in selection of the explanatory variables; and the signaling value of debt and kept other benefits in constant.

The study developed a balanced panel data that was derived from published financial statements and NSE Handbook 2013. Only 28 out of 41 non-financial firms were considered to have complete data to form a balanced panel. There were a total of 57 companies listed at the Nairobi Securities Exchange as at 31st December 2012. The data was for the ten year period, 2003 to 2012.

The data series were subjected to panel unit root tests to establish their stationarity conditions before conducting empirical estimations. The data series was found to be stationary at level. The data was then analysed using descriptive statistics and panel data econometrics.

According to the objectives of the study, the elasticities between the explained and the explanatory variables has been established and is consistent with other findings on existing literature. The results indicate a negative correlation between insider holding, ownership concentration, growth opportunities and profitability, and debt to equity ratio as a proxy for capital structure choice. Market capitalization and firm size are positively associated with debt to equity ratio. Four explanatory variables namely;

market capitalization, growth opportunities, firm size and profitability are individually (holding in constant other independent variables in the model) statistically significant to explain variations in debt to equity ratio while insider holding and ownership concentration are not significant. The R-squared for the random effects model is 22.6%. The Wald joint test for the model returned a p-value of 0.000, implying that at 5 percent level of significance, the chi-square value of 41.84 obtained is statistically significant to confirm suitability of the model. Considering the objectives of the study, the effects of the explained on the explanatory variables has been established by interpretation of the p-values and regression coefficients and fit both the pecking order and signaling theories of capital structure. The findings are also consistent with existing evidence from other studies.

5.2 Conclusions

Financial markets decisions are influenced by the quantity, reliability and the timeliness of information. If that information is not equally distributed in the market then asymmetric information is created which result in capital allocation inefficiencies, mispricing of new securities and possible market failure.

Firms signal the market to disclose their true types. From the results of this study, insider holding and ownership concentration, that possess inside information and exert significant influence in firm decisions are not statistically significant to affect capital structure choice. A negative correlation with capital structure choice is also observed. The results, which are consistent with empirical findings (Friend and Lang, 1988), are partly due to the ownership structure of the NSE listed firms. Insider holding only account for 6.63% and ownership concentration is at 67.44%, against a significantly high number of small holders of the total issued and outstanding shares. The structure presents an incentive problem leading to high information asymmetry about the firms and the consequent inefficiencies at the NSE.

Four out of the six firm specific variables of interest studied namely; market

capitalization, growth opportunities, firm size and profitability are statistically significant, at 5% level of significance, to explain variations in capital structure choice. A positive association with capital structure choice is observed in market capitalization and firm size. For the case of large firms, there is less asymmetrical information since they are more diversified, release a lot of information to the market, and are followed by many security analysts as the stocks attract attention from many investors. Large firms consequently have easy access to debt financing contrary to the small firms. The study also finds a very high variability in sizes of the listed firms.

A negative correlation is observed with growth opportunities and profitability. Firms with high growth opportunities face high agency costs due to their flexibility with regard to future investments. Growth opportunities add value to the firms but cannot be collateralized and do not generate current income which, together with high agency costs translate to negative association with debt to equity ratio. Profitable firms use less of debt and in conformity with the pecking order theory internal financing is preferred to debt and new equity issues.

5.3 Recommendations

Following the above conclusions the study makes the following policy recommendations.

The NSE listed non-financial firms are closely held by a few significant owners, a situation that contributes to high information asymmetries at the market. The study recommends policy initiatives to diversify ownership structures with aim of reducing ownership concentration across all classes of investors. However, the low level of insider holding observed that is also statistically insignificant is desired and should be sustained and checked by appropriate regulations.

Market capitalization and profitability are the most significant statistically in explaining variations in capital structure of NSE listed nonfinancial firms. Market capitalization signals market assessment of the value of the firm and is a significant

determinant of portfolio returns. The NSE listed firms are financed 49.7% by debt and 50.3% equity. However, the study considered book values for both equity, and total liabilities in measuring debt. Bank debt financing is generally short term and it was observed only corporate bonds are the long term funds traded at the bonds market. In Caprio and Demirgüç-Kunt (1998), availability of long term funds in an active stock market enable firms to enter into long-term contracts that allow increased productivity and faster growth rates than they could attain by relying on internal sources of funds and short term credit alone. This study therefore recommends development and diversification of a secondary market for other debt products at the NSE such as securitization and hedging products to supplement corporate bonds. This is also expected to improve on the signaling value of debt.

Firm size is observed as the third most significant statistically to affect capital structure choice, but also has a very high variability. Firm size is a key determinant in access to debt financing and there is significant effort within the financial system to enhance access to credit by the small firms. Some of the initiatives are *ad-hoc* and not sufficient. The study recommends a framework to support the development of a secondary market for funds under institutions with the capacity to raise and manage pools of funds targeting the small firms under appropriate regulations to ensure sustainable access to credit.

Growth opportunities is the least significant variable statistically to explain variations in capital structure choice and the relation between the two variables is negative. High growth firms increasingly require financing. In Billet et. al (2007), growth opportunities is significantly attenuated by covenant protection, suggesting that covenants can mitigate the agency costs of debt for high growth firms. However, the slow judicial process which result in weak contract enforcement, and negatively impact on debt recovery process thus limiting access to credit by such firms. This study therefore recommends reforms in the judicial system to expedite settlement of disputes, to develop the necessary confidence by the lenders.

Environmental factors have significant influence on capital structure decisions and subject to availability of appropriate guiding theories further research may be conducted on the effect of such factors on capital structure choice. It is also recommended to conduct similar research on firms not listed at the NSE and compare the findings. Firms not listed may not be subjected to equal measure of disclosure requirements and may also require use of appropriate equity valuation methodologies as such firms are not subjected to market valuation.

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