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Effect of capital structure on financial performance:

The case of banks listed on the Nairobi Securities Exchange.

Onyango Allen Alexander - 066804

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ABSTRACT

This paper seeks to examine the relationship between capital structure and bank performance in Kenya. This study has employed the use of panel data techniques to analyze the relationship between capital structure and bank performance. The performance variables used in the study were return on asset (ROA), Return on equity (ROE) and net interest margin (NIM). The results from Levin-Lin-Chu and Im-pesaran-shin unit root test show that all the variables were stationary in levels. The study hypothesized negative relationship between capital structure and bank performance. The results also indicate that capital structure does not determine bank performance but rather it is performance that determines banks capital structure.

DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the Research Project contains no material previously published or written by another person except where due reference is made in the Research Project itself.

ONYANGO ALLEN ALEXANDER [*Name of Candidate*]

..... [*Signature*]

11/04/2016 [*Date*]

This Research Proposal has been submitted for examination with my approval as the Supervisor.

Ekuru John [*Name of Supervisor*]

..... [*Signature*]

15/4/2016 [*Date*]

School of Finance and Applied Economics

Strathmore University

DEDICATION

This research is dedicated to my family, lecturers, classmates and work colleagues, without their support, prayers, patience and understanding, the compilation of this work would not have been possible. I would also wish to dedicate it to all other academicians, researchers and other readers.

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I cannot conclude this without the mention of my friends, colleagues, and all who made my time a pleasurable learning experience in this university. May the Almighty Lord bless you all.

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CHAPTER ONE: INTRODUCTION

1.0. INTRODUCTION

In today's highly dynamic, competitive and vibrant business environment, where many stakeholders have an interest, in some form or another, in the progress of a certain company, the various metrics of financial performance for a company is arguably as important as ever to measure and monitor for the company's stakeholders. Capital structuring has been a debated subject ever since Miller and Modigliani (1958) presented their theories on debt financing. For a long time, academic and financial institutions have been trying to solve the puzzle of capital structure. Academically the problem is interesting since it is fairly open ended and therefore a subject to criticism and controversies while empirically, it has been proven that stock prices tend to change upon news on increased or decreased leverage mainly due to the market belief that value can be created or destroyed by using more or less debt, Shyam-Sunder(1991).

1.1. Background of the Study

The capital structure decision is crucial for any business organization in any sector or economy. It is usually difficult for business firms to identify the right combination of debt and equity. The decision is important because of the need to maximize returns to various organizational constituencies. It is also important because of the impact such a decision has on a firm's ability to deal with its competitive environment. A firm can choose among many alternative capital structures. It can choose to either issue a large amount of debt or very little debt. It can arrange lease financing, use warrants, issue convertible bonds, sign forward contracts or trade bond swaps. It can issue many distinct securities in countless combinations. However, it attempts to find the particular combination that maximizes its overall market value.

Capital structure study attempts to explain the mix of securities and financing sources used by companies to finance investments, Myers (1984). Capital structure is the way in which a firm finances its operations which can either, be through debt or equity capital or a combination of both, Brigham (2004). Most firms usually seek to increase the amount of debt finance in their capital structure, in anticipation of improving their performance. The principle of increasing risk indicates that, with increased debt the potential for a decrease in gain is higher than the potential for an increase in gain and yet some firms use more debt than others and still perform better. Previous research on the relationship between the capital structure and the performance of firms, which is mostly in reference to the developed countries in Europe and America, has produced mixed results.

Some authors propose that there exists an optimum capital structure that maximizes shareholder wealth, as a result of the return on their investment and basing on the trade-off theories of capital structure. Other authors on the other hand argue that there is no optimum capital structure and that the performance of a firm is not related to the structure of its financing. Wagacha (2001) in a survey of enterprise attitudes found that firms seemed to increase their borrowing after listing. For large listed firms the debt to equity ratios seemed to rise, while for the small firms they fell, indicating that market development favoured large listed firms. Financial performance of a firm is a subjective measure of how well a firm can use its' assets to generate revenues. Erasmus (2008) noted that financial performance measures like profitability and liquidity among others provided a valuable tool to stakeholders to evaluate the past financial performance and the current position of a firm. Brigham and Gapenski (1996) argued that in theory, the Modigliani and Miller model was valid however in practice, bankruptcy costs did exist and that these costs were directly proportional to the debt levels in a firm. This conclusion implied a direct relationship between capital structure and financial performance of a firm.

1.2. Statement of the Problem

The success of financial institutions in Kenya's dynamic business environment depend on them being able to effectively determine the optimum and appropriate capital mix that is necessary to ensure that the shareholders get good returns. Financial institutions depend on their ability to identify, assess, monitor and manage risks in a sound and sophisticated way. In order to assess and manage risks, banks must have effective ways of determining the appropriate amount of capital that is necessary to absorb unexpected losses arising from their market, credit and operational risk exposures. The continued good performance of the banking sector against a backdrop of an economy that is not performing well has raised more questions than answers. The banking sector has recorded growth in profits for most of the past decade, when the economic growth has not been performing well. Previous research work done in Kenya on capital structure include Rutto (2008) who studied the effect of capital structure change on share prices for firms quoted at Nairobi Stock exchange. Musyoka (2009) examined the relationship between capital structure and corporate governance of the firms listed at the Nairobi Stock Exchange. Etyang', (2012) studied the determinants of capital structure of private hospitals in Nairobi. Arising from the findings of Berger (2006), the capital structure employed by firms could be a reason influencing their financial performance trends, an issue that has not been given serious attention by previous researchers. This research aims at

determining how managers of the banks listed on the stock exchange in Kenya combine the different sources of funding for their businesses, given the unique characteristics of these economies and to determine whether there exists a relationship between the capital structure and the return on shareholders' funding for these firms.

1.3. Objectives of the Study

1.3.1. General Objective

To investigate the effect of capital structure on financial performance of banks listed at Nairobi Stock Exchange

1.3.2. Specific Objectives

i) To ascertain the relationship between debt and performance of financial firms listed at Nairobi Stock Exchange (NSE).

ii) To scrutinize the effect of interest rates on capital structure of financial firms listed at Nairobi Stock Exchange (NSE).

iii) To determine the effect of debt-equity combinations on performance of financial firms listed at Nairobi Stock Exchange (NSE).

1.3.3. Research Questions

i) What is the relationship between debt and performance of financial firms listed on Nairobi Stock Exchange (NSE)?

ii) What is the relationship between capital structure, interest rates and performance of financial firms listed on Nairobi Stock Exchange (NSE)?

iii) What is the ideal debt-equity combination that enhances the performance of financial firms listed on Nairobi Stock Exchange (NSE)?

1.4. Significance of the Study

In the past, studies carried out on capital structure have concentrated on the developed countries and on the relationship between firm growth and firm value. This study sought to establish the effect of

capital structure on financial performance of financial firms listed at Nairobi stock exchange. Its output will be significant in the following ways.

i) Managers of firms listed at the NSE have the sole obligation of maximizing shareholders wealth and may be able to use the output of this research to predict the possible outcomes of the changes the firm undertakes on capital structure

ii) The output of this study might help firms' management be aware of the invisible cost of capital borne by their shareholders as a consequence of their capital financing decisions.

iii) The study may also provide a basis for further research in capital structure theories, focusing on developing countries.

1.5. Scope of the study

There are sixty four (64) listed companies in Nairobi Stock Exchange distributed among ten (10) different sectors, that is, Agricultural, Automobile & Accessories, Commercial &Services, Banking, Energy & Petroleum, Construction, Insurance, Investment, Manufacturing and Telecommunication & Technology. This study concentrated on the banking sector which has eleven (11) companies.

2.0. CHAPTER TWO: LITERATURE REVIEW

A firm's capital structure is the mix of its' financial resources available for carrying on the business and is a major determinant on how the business operates. As financial capital is an uncertain but critical resource for all firms, suppliers of the finance are able to exert control over firms. The two major classes of financing for a business are debt and equity. While debt holders exert lesser control over the company, and do not determine how the business is run, they earn a fixed rate of return and are protected by contractual obligations. The contractual obligations dictate what return is to be paid for the finance and when it is due. Equity holders are the residual claimants of all the business' returns, bearing most of the risk and having greater control over decisions, Kochhar (1997). The capital structure of a firm is described as the components of its sources of financing, broadly categorized as equity and debt finance, Brockington (1990).

Equity finance is finance provided by owners of the business and it is the risk bearing finance. The holders of this finance own a portion of the firm denominated in shares and they are entitled dividends. However, it is not mandatory to pay a dividend all the time as the company may retain the profits for financing expansion of its operations. Equity owners also share in the risks of the business and are the last to benefit when a business is wound up after debt holders have been paid.

Debt finance is finance generated through borrowing from external sources such as banks or from issues of bonds, all of which attract a fixed return. Debt may be short term, (repayable over periods shorter than one year) or long term, (repayable over periods longer than one year). The lender does not gain a control of the business, but is paid interest for the use of his funds. The borrower has a contractual obligation to pay the interest and to repay the principal when due, in spite of the performance or profitability of the business. Brealey and Myers (2003) defined capital structure as the firm's mix of different securities. The firm may issue dozens of different securities, but it attempts to find a combination that maximizes its overall market value by minimizing the cost of capital. When the firm is financed entirely by common stock, all its resultant cash flows will go to the stock holders. When it issues debt alongside the equity, the cash flows are shared between the common stockholders and the debt holders, with the debt holders getting a fixed amount, while the common stockholders get the residual amount depending on the overall performance of the business.

2.1. Theories of Capital Structure

2.1.1. Modigliani Miller Irrelevance Theory

Modigliani - Miller (1958) theorem is considered the greatest breakthrough in theory of optimal capital structure. The theorem specifies the financial decisions by firms that are irrelevant to the firm's value. Modigliani- It has four prepositions which are;

i. The value of a firm is the same regardless of whether it finances itself with debt or equity. The weighted average cost of capital is constant. The assumptions of Modigliani- Miller theorem are; Perfect and frictionless markets, no transaction costs, no default risk, no taxation, both firms and investors can borrow at the same interest rate; there is homogeneous expectation homogeneous risk and equal access to all relevant information.

ii. The rate of return on equity grows linearly with the debt ratio implying that the higher the debt equity ratio the higher the expected return on equity.

iii. The distribution of dividends does not change the firm's market value it only changes the mix of Equity and Debt in the financing of the firm.

iv. In order to decide an investment, a firm should expect a rate of return at least equal to cost of capital no matter where the finance would come from. Hence the marginal cost of capital should be equal to the average cost of capital. The constant cost of capital is sometimes called the "hurdle rate" (the rate required for capital investment).

In summary the theory states that the value of a firm is invariant with respect to its leverage policy in an arbitrage-free market when there is no corporate income tax and no bankruptcy cost: whether firm is financed through debt or equity, its value remains the same.

2.1.1.1. Criticisms and Improvements of the theory

Baxter (1976) advanced the theory by introducing the issue of bankruptcy costs and their effect on the value of the indebted firm. These costs include liquidation fees, legal fees and reorganization costs, which would result from the firm going bankrupt. Hence a firm with a higher debt would incur higher bankruptcy costs than one with less debt. Berens and Cuny (1995) criticized the theorem proposition with corporate tax on the grounds that if firm value is an increasing function of indebtedness, due to tax deductibility of the interest payments on debt, then it implies that the more debt a firm employs the less tax it would pay, indicating that the value-maximizing (optimal) capital structure should be all debt, since the tax benefits are maximized. This implication is not supported by empirical observations of firm behaviour. Shuetrim, Lowe and Morling (1998) noted flaws in the

first proposition of the theorem and stated that the cash flows of the firm are divided between debt holders, equity holders and the government, and that the capital structure of the firm that maximizes its value will be the one that minimizes the portion of cash flows that go to the government in the form of taxes.

2.1.2. Pecking order theory

Pecking order theory of capital structure states that firms have a preferred hierarchy for financing decisions. Firms will borrow instead of issuing equity when internal cash flow is not sufficient to fund capital expenditure. The highest preference is to use internal financing before resorting to any form of external funds. Internal funds incur no flotation costs and require no additional disclosure of financial information that may lead to a possible loss of competitive advantage. If a firm must use external funds, the preference is to follow a certain order of financing sources: debt, convertible securities, preferred stock, and common stock, Myers (1984). This order reflects the motivations of the financial manager to retain control of the firm, reduce the agency costs of equity, and avoid negative market reaction to an announcement of a new equity issue. The amount of debt will reflect the firms' cumulative need for external funds. The theory has two key assumptions about financial managers. The first of these is the likelihood that a firm's managers know more about the company's current earnings and future growth opportunities than outside investors. There is a strong desire to keep such information proprietary. The use of internal funds prevents managers from having to make public disclosures about the company's investment opportunities and potential profits to be realized from investing in them. The second assumption is that managers will act in the best interests of the company's existing shareholders. The managers may even forgo a positive-NPV project if it would require the issue of new equity, since this would give much of the project's value to new shareholders at the expense of the old, Myers & Majluf (1984). However the theory has some limitations since it does not explain the influence of taxes, financial distress, security issuance costs, agency costs, or the set of investment opportunities available to a firm upon that firm's actual capital structure. It ignores the problems that can arise when a firm's managers accumulate so much financial slack that they become immune to market discipline. As such the theory is offered as a complement to, rather than a substitution for, the traditional trade-off model.

2.1.3. Trade off Theory

In this theory, the firm is viewed as setting a target debt-equity ratio and gradually moving towards it. The firms seek debt levels that balance the tax advantages of additional debt against the costs of

possible financial distress. In particular, capital structure moves towards targets that reflect tax rates, assets type, business risk, profitability and bankruptcy costs. The firm is balancing the costs and benefits of borrowings, holding its assets and investment plans constant, Myers (1984).The firm's optimal capital structure will involve the trade-off between the tax advantage of debt and various leverage-related costs. Due to the distinctions in firm-specific characteristics, target leverage ratios will vary from firm to firm. Institutional differences, such as different financial systems, tax rate and bankruptcy law etc, will also lead the target ratio to differ across countries. The theory predicts that firms with more tangible assets and more taxable income to shield should have high debt ratios. Firms with more intangible assets, whose value will disappear in case of liquidation, should rely more on equity financing. In terms of profitability, trade-off theory predicts that more profitable firms should mean more debt-serving capacity and more taxable income to shield, thus a higher debt ratio will be anticipated. Under trade-off theory, the firms with high growth opportunities should borrow less because they are more likely to lose value in financial distress.

2.1.4. Factors affecting firms' choice of capital structure

i) Tangibility

Tangible assets can be used as collateral in external borrowing, the presence of large tangible assets can help a firm get bank loans at a lower interest rate, and it also helps to reduce the risk of the lender suffering from the agency cost of debt. Since the debts can be secured by the collateralization of tangible assets, the firm's opportunity to engage in asset substitution is reduced by the presence of a large fraction of secured debts. The costs of capital for firms with more intangible assets are higher since monitoring is more difficult. Hence, a firm with a large fraction of tangible assets is expected to have more debt. Most studies have found positive relationship, such as Titman and Wessels (1988), Rajan and Zingales (1995) and Ozkan (2002). Therefore, we would expect the asset tangibility to be positively related with leverage. Since small firms are not as informationally transparent as large firms, collateral is vital for them to borrow. So we would expect positive relation between leverage and asset tangibility for both small6 firms as well as large firms. According to the maturity matching principle, the length of loans should be matched to the length of life of assets used as collateral (Myers, 1977); therefore, long term assets should be financed with long term debt (Booth et al., 2001). Van der Wijst and Thurik (1993), Hall et al., 2004 and Sogorb-Mira (2005) have found a positive relation between asset tangibility and long term debt and an inverse relation between asset tangibility and short term debt. Therefore, we expect asset tangibility to be positively related to long term debt, while negatively related to short term debt.

ii) Taxation

Most of the empirical studies that examine the relationship between capital structure and bank performance include taxation as a controlled variable. Some of these studies include Mackie-Mason (1990), shum (1996) and Graham (1999). Makie-Mason studies in 1990 provide evidence of the external effect that marginal corporate tax as on corporate financing decision regarding equity and debt. They concluded that changes in the marginal tax rate of a firm should affect its financing decision. They established the fact that a firm with a high tax shield is less to finance with debt if the probability of facing a zero tax rate is high. The main reason is that tax shields lower the effective marginal tax rate on interest deduction. Graham (1999) concluded that indeed tax rate do affect corporate financing decision and performance but the magnitude of the effect is mostly not significant. However, De Angelo and Masulis (1980) show that there are other alternative tax shields such as depreciation, research and development expense that could be substituted for the fiscal role of debt.

iii) Size

Size is positively related to leverage; larger firms are usually more diversified and have more stable cash flow. The probability of bankruptcy is smaller for large firms compared with small ones. They can lower costs (relative to firm value) in the occasion of bankruptcy. Therefore, size has a positive effect on leverage. Many studies suggest that large firms prefer to issue long-term debt while small firms choose short-term debt to finance their projects. Large firms bear lower costs in issuing debt and equity compared with small firms, Michaelas et al. (1999), because of the advantage of economies of scale and bargaining power with creditors.

iv) Growth Opportunities

Studies generally suggest a negative relationship between growth opportunities and leverage. In underinvestment situation, firms with high growth opportunities may forgo positive NPV projects because of existence of outstanding debt, Myers (1977). Since the returns from such investment will be transferred to debt holders rather than shareholders. If management pursues growth objectives, management and shareholder interests tend to coincide for firms with strong investment opportunities. In overinvestment, debt limits the agency costs of managerial discretion. Hence firms with high growth opportunity may not issue debt in the first place and an inverse relationship between growth opportunities and leverage is expected to hold

v) Volatility of earnings

Firms with high volatility in earnings face a higher risk of earnings level dropping below the debt service commitment. This may force firms to arrange funds at high cost to pay the debt. However, if financed by equity, firms can choose to forgo dividends payments during the period of financial distress. This indicates that firms with high earnings volatility will borrow least and prefer equity to debt when facing external financing choices.

vi) Liquidity

Pecking-order theory suggests that firms prefer internal financing to external financing, firms are likely to create liquid reserves from retained earnings. If liquid assets are sufficient to finance the investments, firms will have no need to raise external funds. Thus, liquidity is expected to be negatively related to leverage.

vii) Profitability

Profitability is another variable which affects leverage of the firms. According to the trade-off theory, higher profitability lowers the expected costs of distress; therefore, firms increase their leverage to take advantage from tax benefits. Also, agency theory supports this positive relation because of the free cash flow theory of Jensen (1986). Therefore, leverage and profitability are positively related. On the other hand, according to Pecking Order theory, Myers and Majluf (1984) discussed that firms prefer to finance with internal funds rather than debt if internal equity is sufficient due to the asymmetric information. Hence, profitability is expected to have negative relation with leverage. Most studies using large listed companies have found this negative relationship, including Titman and Wessels (1988), Rajan and Zingales (1995), Booth et al. (2001). The studies about SMEs also confirm the pecking order relationship (Van der Wijst and Thurik, 1993; Sogorb-Mira, 2005). Since the managers of the small firms are also the owner of the company, they do not prefer to lose the control over their firms (Holmes and Kent, 1991; Hamilton and Fox, 1998), so they do not want to accept new shareholders; that s why, they prefer internal financing to external resources to finance firm activity. So we expect profitability to be inversely related to leverage and debt maturities for small and large firms.

2.2. Empirical Literature

Abor (2005) investigated the relationship between the capital structure and profitability of listed firms on Ghana Stock Exchange (GSE). Data taken for this between 1998 and 2002, twenty-five listed firms qualified for this study. Regression analysis methodology used in the assessment of functions involving the return on equity (ROE) with measure of capital structure. Result of the research is that capital structure is related to the marketing, because different firms issue different securities in many different combinations, which maximize the market value. Huge return and profitable firms always use more short-term debt, short term is important part of total debt, and usually firms use 85% of short-term loan against long-term debt. Long-term debt and return on equity have negative relationship; total debt and return on equity are positively related. Chen et al (2009) studied the insurance industry Taiwan, to know the relationship among capital structure, operational risk, and profitability. Factor analysis and path analysis methodologies were used to examine correlation among the capital structure, operational risk, and profitability sample of listed insurance companies in America was also taken. Result of research was firms values are not related with capital structure, a close relationship was shown among operational risk, profitability, capital structure. Capital structure is negatively related with profitability if equity ratio increases or reserve-to-liability ratio decreases which result in higher profits. Ebaid (2009) studied the relationship between the different debt-equity combinations with company's performance. Multiple regression technique was used to find out the impact of debt policy on company's performance. Findings of the study reveal that both short-term debt and total debt are negatively related by return on assets. Capital structure including total debt (TTD) is not significantly related with Return on Equity and Gross profit margin (ROE and ROA). Findings of the study reveal that ROA and firm performance are negatively related. Hung et al (2002) investigated the inter-relationship between profitability cost of capital and capital structure. Regression analysis was applied on data to find out the results. The results show that capital is positively related with assets and have negative relationship with profitability.

Abor (2007) investigated the effect of capital structure on the financial performance of small and medium-Sized enterprises (SMEs). The observed finding of the study reveals that long-term debt and gross profit margin (GPM) are positively related; whereas short-term debt has significant and negative relationship with gross profit margin (GPM), with both South African and Ghanaian perspective. It is also observed that the total debt ratio is also significantly and negatively related with (GPM); whereas trade credit and gross profit margin (GPM) is also significantly negatively related with each other in case of both countries such as South Africa and Ghana. In Ghanaian

perspective; return on assets has significant and negative relationship with all the measures of capital structure; whereas return on assets has significant and positive relationship with both trade credit and short-term in South African case. The findings of the study reveal significant negative relationship between long-term debt and total debt with the return on assets. It further reveals that there is a significant and positive relationship between the performance of the SMEs and capital structure in the existence of the managed variables, where as SMEs performance is particularly negatively affected by total debt and long-term debt. Madan (2007) investigated the relationship between the capital structure and in the overall performance of Indian firms and also assessed the capital structure. Study further assessed how different debt-equity combinations play an important part in firm's overall performance and expansion. The findings revealed that both lower and higher gearing ratios are not enviable for the firms. Companies which operate at break-even point also use debt in capital structure to insure the profits. Indian firms use 30/70 or 40/60 percent of debt and equity combination, other need is fulfilled through the reserves and capital and surplus. Eriotis et al (2000) investigated the relationship between debt-equity ratio and firm's profitability. In the study, the level of the firm in investment and its degree of market power was observed. The facts and figures of various industries of 1995-96 were taken into study. It was observed through the study that the financial structure plays a key role in a firm's profitability. A firm's profitability depends on debt-to-equity ratio. The debt -to-equity ratio varies from firm to firm. It is the selection of debt- to- equity ratio which makes successful financial strategy for this purpose some firms choose a high rate equity ratio and the others depend on lower rate equity ratio. It was observed from the study of various industries that debt-to-equity ratio has a negative impact on a firm's profitability. The study further revealed that the firms that finance their investment on their equity entertain much profit in comparison to the firms that finance their activities through borrowed capital.

Ager (2009) carried out an empirical analysis of capital structure rebalancing by firms listed at Nairobi Stock Exchange to establish whether firms actively try to rebalance their capital structure when optimality is thrown off balance. The study findings showed that in some instances there were attempts at capital structure rebalancing but the evidence was weak and this can be attributed to inertia in capital adjustment by the listed firms. This concurs with Myers (1984) assertion that the cost of such adjustment outweighs the benefits. Gill, et al., (2011) sought to extend Abor's (2005) findings regarding the effect of capital structure on profitability by examining the effect of capital structure on profitability of the American service and manufacturing firms. A sample of 272 American firms listed on New York Stock Exchange for a period of 3 years from 2005 – 2007 was selected. The findings of this paper show also a positive relationship between short-term debt to total

assets and profitability, long-term debt to total assets and profitability, and between total debt to total assets and profitability in the manufacturing industry.

Serrasqueiro and Marcia (2009) conducted a study to analyze the company capital structure. In the study the result of Portuguese companies is examined which shows a negative and statistically significant relationship between the profitability of listed Portuguese companies and their level of debt. The results of the study further show that there is great influence of tangibility of assets, size and profitability on the structure of Portuguese companies. Findings of the study suggest that most firms rely on internal source of financing or bank debt to fulfil their financing needs in less developed capital markets.

2.3. Reverse Causality

Based on the theories of capital structure reviewed in this paper, there is a possible endogeneity problem to exist between capital structure and bank performance and hence a reverse causality. The general notation of a Granger causality test which try to determine whether lagged terms of X predict Y and whether lagged terms of Y predict X respectively are specified as follows.

$$Y_t = \alpha_o + \alpha_1 Y_{t-1} + \alpha_2 Y_{t-2} + \cdots + \alpha_p Y_{t-1} + \cdots + \beta_p X_{t-p} + e_i \ldots\ldots\ldots (1)$$

$$X_t = \beta_o + \beta_1 X_{t-1} + \beta_2 X_{t-2} + \cdots + \beta_p X_{t-1} + \cdots + \alpha_p Y_{t-p} + u_i \ldots\ldots\ldots (2)$$

Where p is the number of lags, e_i and u_i are error terms. Equation 1 tests whether X Granger causes Y. If $Beta\ (\beta)$ does not equal to zero (0) significantly, we can say that Y Granger causes X.

In this paper, return on Asset (ROA) and return on equity (ROE) shall be used as proxies for bank performance and the total debt ratio (TDR) as proxy for capital structure of banks in Kenya. To perform the granger causality test the total debt ratio shall be used since it contains both short-term and long-term debt ratios. Short-term debt is considered because bank deposits which represent short-term debt are liabilities to the bank. The Granger – causality model is specified as follows.

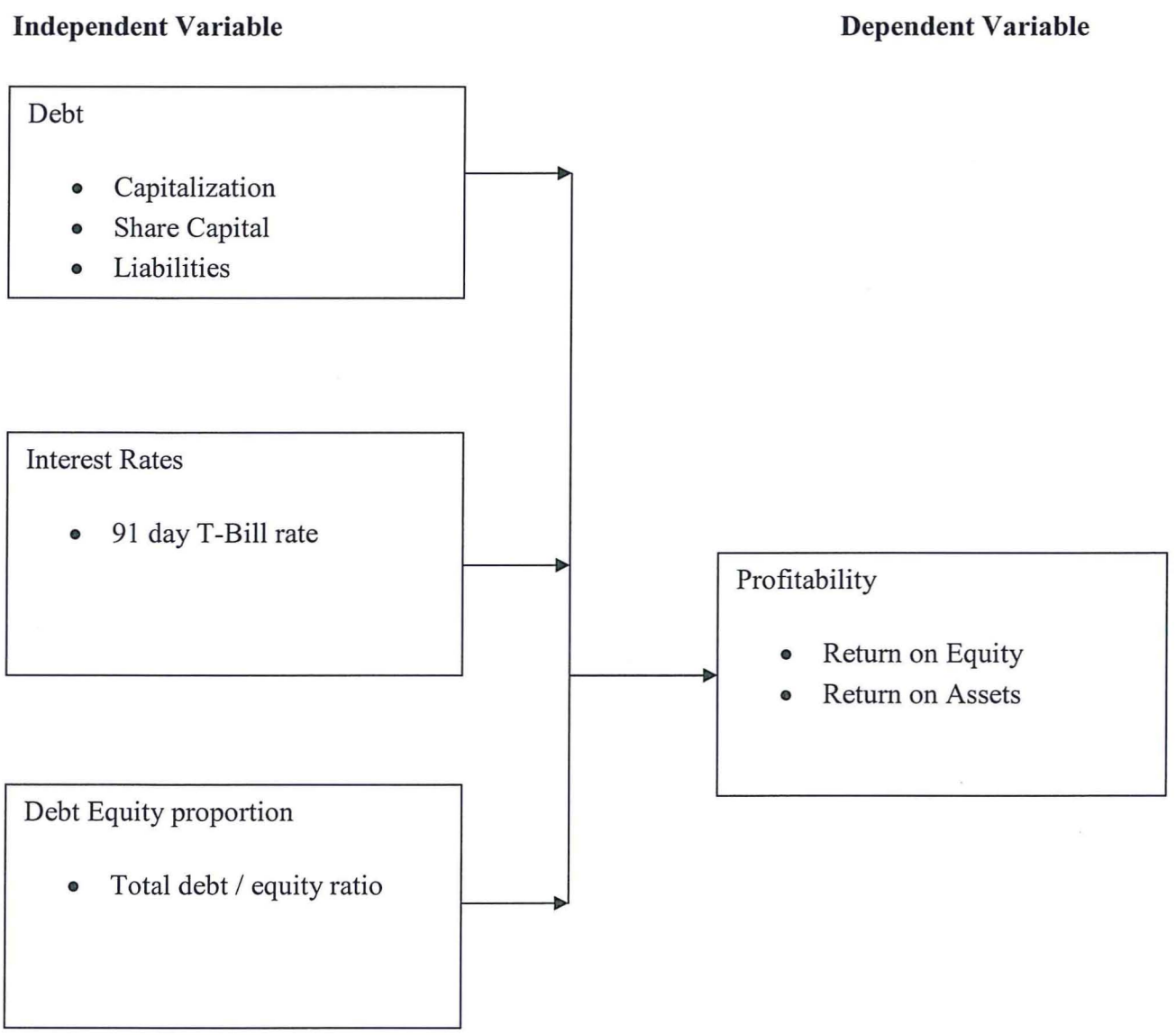
$$ROA = \alpha_0 + \alpha_1 ROA_{t-1} + \alpha_2 ROA_{t-2} + \cdots + \alpha_p TDR_{t-1} + \cdots + \beta_p TDR_{t-p} + e_i \ldots\ldots\ldots (3)$$

$$TDR = \beta_0 + \beta_1 TDR_{t-1} + \beta_2 TDR_{t-2} + \cdots + \beta_p ROA_{t-1} + \cdots + \beta_p ROA_{t-p} + u_i \ldots\ldots\ldots (4)$$

$$ROE = \alpha_0 + \alpha_1 ROE_{t-1} + \alpha_2 ROE_{t-2} + \cdots + \alpha_p TDR_{t-1} + \cdots + \beta_p TDR_{t-p} + e_i \ldots\ldots\ldots (5)$$

$$TDR = \beta_0 + \beta_1 TDR_{t-1} + \beta_2 TDR_{t-2} + \cdots + \beta_p ROE_{t-1} + \cdots + \beta_p ROE_{t-p} + u_i \ldots\ldots\ldots (6)$$

2.4. Conceptual Framework



The sources of funding for a business are divided into two main categories, owners' funding (equity) and borrowed funding (debt). The objective of the business owners is to increase their wealth and the performance of firms. In relation to this objective the increase in the performance is measured by the increase in return on the shareholders' funds.

The independent variable in this study was capital structure and the dependent variable was financial performance. The concept illustrated above assumes that increasing the level of the debt in the capital structure will increase the turnover of the business and hence its profit, resulting in an

increase in returns to the business owners. An increase in interest rate is expected to result in reduced borrowing, increased interest expenses and thus reduced returns to business owners.

3.0. CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Introduction

This chapter discusses the research methodology that will be used in the study. The chapter includes the research design, target population and research instruments. The chapter also presents how the validity and reliability of the instruments will be ensured.

3.2. Research Design

An unbalanced panel regression model will be used for the estimation in this study. This is because the data used in this study involves both cross-sectional data and time series. The use of panel data is advantageous because of the several data points, the degrees of freedom are increased and collinearity among the explanatory variables is reduced leading to an improvement of economic efficiency and an increase in the predictive power of the model.

3.3. Target Population

The study population comprises of financial firms listed on the Nairobi Stock Exchange for the period between January 1995 and December 2014, a period of 20 years. This period is considered sufficient enough given time constraint over which the study will be conducted. Abor (2005) in his effect of capital structure on profitability: an empirical analysis of listed firms in Ghana used a 5 year period using data from Ghana Stock Exchange between 1998 and 2002. The firms listed are Barclays Bank Ltd, CFC Stanbic Holdings Ltd, I&M Holdings Ltd, Diamond Trust Bank, Housing Finance Co Ltd, Kenya Commercial Bank, National Bank of Kenya, NIC Bank, Standard Chartered Bank, Equity Bank Ltd and The Co-operative Bank of Kenya.

3.4. Data sources and instruments

The study will make use of secondary data. All the data will be collected by review of documents, annual reports of the companies and the Nairobi Securities Exchange reports.

3.5. Model Specification

In answering the question of whether capital structure determines banks performance in Kenya, the study employs return on asset (ROA) and returns on equity (ROE) as the two dependent variables that measures bank performance.

Some writers such as Bettis and Hall (1982), Demsetz and Lehn (1985), Habib and Victor (1991), Zkeitun and Tian (2007) among others, used the return on Assets (ROA) and return on equity (ROE) as proxies for firms performance in their studies. The main independent variable used in this study is the total debt ratio (TDR). However, a number of other factors that influence and determine banks performance known as the controlled variables are also included in this study. These controlled variables are treated as the explanatory variables. The controlled variables used in this model include firm's size, asset tangibility, growth rate of firm's assets, marginal corporate tax, GDP growth rate and interest rates. The model is therefore specified as;

$$Y_{it} = \beta_0 + \beta_{it} TDR_{it} + \beta_{it} \sum_{i=1}^{n} Z_{it} + e_{it}$$

With the subscript (i) denoting the cross-sectional dimension and t representing the time series dimension. The left hand-side variable represent the dependent variable in the model which is the banks performance, X_{it} represents the independent variables in the estimation model, $\beta_i$is the constant overtime t and specific to the individual cross-sectional unit i. The model for estimating capital structure and bank performance base on the variables discussed is specified as;

Y_{it}– *the dependent variables ROA, ROE*

TDR_{it} - *the independent variable (TDR)*

Z_{it} - *the controlled variables*

e_{it} – *is the error term, it is assumed to have zero mean and constant variance*

The equation above can be estimated as follows:

Model

$$ROA_{it} = \beta_0 + \beta_1 TDR_{it} + \beta_2 SIZE_{it} + \beta_3 TANG_{it} + \beta_4 GROWTH_{it} + \beta_5 TAX_{it} + \beta_6 GDPGR_{it} + \beta_7 INTEREST_{it} + e_{it}$$

$$ROE_{it} = \beta_0 + \beta_1 TDR_{it} + \beta_2 SIZE_{it} + \beta_3 TANG_{it} + \beta_4 GROWTH_{it} + \beta_5 TAX_{it} + \beta_6 GDPGR_{it} + \beta_7 INTEREST_{it} + e_{it}$$

Variable Definition and Measurement

TDR_{it} = leverage (Total debt/equity + debt) for firm i in time t.

$TANG_{it}$ = fixed tangible assets divided by total assets for firm i in time t.

$SIZE_{it}$ = the size of the firm (natural log of total assets) for firm i in time t'.

$GROWTH_{it}$ = growth rate of total assets for firm i in time t.

ROA_{it} = earnings before interest and taxes divided by total assets for firm i at time t.

ROE_{it} = earnings before interest and taxes divided by shareholder's equity for firm i at time t

e_{it} = the error term. The error term takes care of other explanatory variables that equally determine capital structure but are not included in the model.

TDR=Debt ratio, TANG = asset tangibility, SIZE=Size of the bank, GROWTH= growth rate of totalAssets, ROA=return on asset, ROE=return on equity, TAX=corporate marginal tax rate, GDPGR=GDP growth rate, INTEREST=Represents the interest rate as a proxy of 91 day Treasury bill rate.

4.0. CHAPTER FOUR: RESULTS AND DISCUSSION

4.1. Unit Roots Test

The study carried out two panel unit root test (Levin-Lin-Chu and Im-pesaran-shin) in order to determine whether the variables used to test for reverse causality using the Granger causality method are stationary. According to theory, to test for reverse causality by Granger causality method the variables used must be stationary. The variables used were all stationary at levels and hence they are integrated of order zero I (0) stochastic process. However only the results obtained by Levin-Lin-Chu unit root test are reported in the appendix.

4.2. Reverse Causality

The purpose of this study was to examine the problem of simultaneity or endogeneity problem between capital structure and bank performance. Granger causality test was carried out to determine whether capital structure Granger causes bank performance or it is bank performance that Granger causes capital structure of banks in Kenya to examine the endogeneity problem. According to the results obtained, there is no reverse causality or Granger causality between capital structure of banks in Kenya and bank performance and hence the problem of endogeneity does not exist.

Table 1: Granger Causality Test

The following table represents the results obtained from the granger causality test of the dependent variables:

Pairwise Granger Causality Test

Null Hypothesis:	F-Statistic	Prob.
ROA does not Granger Cause TDR	2.0466	0.0636
TDR does not Granger Cause ROA	1.4579	0.1972
ROE does not Granger Cause TDR	1.0299	0.4086
TDR does not Granger Cause ROE	1.7844	0.1067
NIM does not Granger Cause TDR	2.9536	0.0096
TDR does not Granger Cause NIM	0.8265	0.5513

4.3. Descriptive Statistics

Table 2 below shows the descriptive statistics of all the variables used in the study. The mean of the ROA of the sample banks is 2.41 while that of the ROE and NIM is 19.21 and -0.1149 respectively. The results indicates that on the average, for every shilling worth of total assets of the banks, 2.41 was earned as profit after tax, whiles Ksh 11.49 was earned as profit after tax on every equity share issued. However, the mean net interest margin (NIM) is negative indicating that the banks interest expense far exceeds their interest income. The analysis showed that the selected banks have high performance ratios except that of the net interest margin. The mean total debt ratio is 0.7127, equity multiplier is 7.6453, and size is 7.98. The mean tangible assets is 0.0421, this means that the proportion of the firms fixed asset to total asset is about 4.2%. Growth rate of the banks on the average is 0.1047, average tax rate is 28.67, and the mean GDP growth rate is 5.19% which is significant. The mean interest rate on loans and inflation rate is 16.21% and 14.2% respectively

Table 2: Descriptive Statistics of Variables

VARIABLE	MEAN	STD. DEV.	MIN	MAX
ROA	2.4104	4.1590	-56.7000	49.6412
ROE	19.2136	29.3317	-400.0000	348.1134
NIM	-0.1143	2.8446	-71.5806	0.2787
EQUM	7.6453	55.5514	-1067.33	143.7958
STDR	0.6579	0.2754	0.04334	0.9620
LTDR	0.1252	0.1355	0.0000	0.9285
TDR	0.7127	0.1083	0.1972	1.0000
SIZE	7.9807	2.9095	-0.1054	14.3495
TANG	0.0421	0.0337	0.0008	0.3292
GROWTH	0.1047	48.4012	-1462.0734	237.3132
TAX	28.6789	4.7774	20.0000	40.0000
INTEREST	16.2094	12.7014	0.8365	84.67
GDPGR	5.1879	3.8801	0.2516	12.4617
INFLR	14.2115	60.9702	-9.6162	1096.6783

4.4. Correlation Analysis

Due to the problem of multicollinearity among variables, a correlation matrix of the variables used in the regression is presented in table 3. With regards to the total debt ratio it has a significant positive correlation with the equity multiplier, return on equity (ROE) and the growth rate but has a significant negative correlation with GDP growth rate, inflation rate and the net interest margin. The return on asset (ROA) exhibits a significant positive correlation with tax and GDP growth rate and significant negative correlation with the equity multiplier and the net interest margin and growth rate. The return on equity (roe) also exhibits a significant negative correlation with growth rate and the long term debt ratio at the 5% level but the rest of the variables the correlation is not significant. The net interest margin (NIM) is also significantly negatively correlated with the equity multiplier (EQUM), the total debt ratio, asset tangibility (tang) and the return on asset (ROA) and the tax rate but significantly positively correlated with the growth rate.

	roa	roe	nim	Equm	stdr	ltdr	tdr	size	Tang	Growth	tax	interest	gdpgr	inflr
Roa	1.000													
oe	0.783	1.000												
im	0.512	0.325	1.000											
equm	-0.292	0.163	-0.332	1.000										
tdr	-0.355	-0.029	-0.265	0.564	1.000									
ltdr	0.250	0.179	0.122	-0.103	-0.761	1.000								
dr	-0.339	0.113	-0.375	0.910	0.582	-0.041	1.000							
ize	-0.229	-0.113	-0.218	0.213	0.330	-0.260	0.187	1.000						
tang	-0.019	-0.127	0.192	-0.246	-0.200	0.167	-0.255	0.064	1.000					
rowth	0.223	0.188	0.048	-0.010	-0.143	0.151	-0.042	-0.250	-0.030	1.000				
Tax	0.051	0.126	-0.055	0.090	-0.098	0.182	0.077	0/066	0.189	0.080	1.000			
nterest	0.415	0.298	0.397	-0.226	-0.310	0.264	-0.225	-0.482	0.165	0.235	0.120	1.000		
dpgr	0.062	0.067	0.063	0.023	-0.061	0.076	-0.007	-0.002	0.039	0.200	0.063	0.027	1.000	
inflr	0.399	0.308	0.378	-0.235	-0.366	0.304	-0.251	-0.449	0.174	0.315	0.067	0.693	0.139	1.000

TDR=Debt ratio, STDR=short-term debt ratio, LTDR=long-term debt ratio, EQUM=equity multiplier, TANG= asset tangibility, SIZE=Size of the bank, GROWTH= growth rate of total assets, ROA=return on asset, ROE=return on equity, NIM=net interest margin, TAX=corporate marginal tax rate, GDPGR=GDP growth rate, INTEREST= interest on loans, INFLR= inflation rate

4.5. Capital Structure and Bank Performance Results

Table 4 represents the regression results of capital structure and bank performance. The total debt ratio of the sampled banks in Kenya is not statistically significant in determining banks performance as measured by the return on asset (ROA), the return on equity (ROE) and the net interest margin (NIM). This therefore implies that, the performance of banks in Kenya do not depend on their capital structure. Size is not statistically significant in determining return on asset (ROA) and return on equity (ROE) but it is statistically significant in determining net interest margin (NIM) at 5%. Asset tangibility (tang) is statistically significant at 10% in determining ROA and ROE but not significant in determining NIM. The growth rate of banks is also statistically significant in explain is consistent with theory. Growth rate is not statistically significant in determining banks' performance. Tax rate is not statistically significant in determining ROA and ROE but it is statistically significant at 10% level in determining the net interest margin (NIM) of banks in Kenya. GDP growth rate is not statistically significant in determining banks performance (ROA, ROE and NIM) in Kenya. However, it is an expected sign in ROA indicating that as the economy grows banks will also perform well which is consistent with theoretical arguments. Interest rate is also significant in determining ROA and ROE at 1% and 10% respectively but it is not statistically significant in determining the net interest margin (NIM) (Bartholdy and Mateus, 2008). The inflation rate is not statistically significant in determining ROA and ROE of banks in Kenya but it is statistically significant at 1% in determining the net interest margin (NIM). According to previous studies, there is a positive relationship between bank performance and inflation rate especially if the inflation is anticipated (Perry, 1992;Thorton, 1992;Bourke, 1989).

Table 4: The table shows the regression results of Capital structure and bank performance in Kenya with ROA, ROE and NIM as performance variables and TDR as capital structure measure.

	ROA	ROE	NIM
TDR	-17.01	12.78	-2.044
	(-1.55)	(0.19)	(-0.88)
SIZE	0.266	0.583	2.037**
	(1.02)	(0.29)	(2.63)
TANG	-31.17*	-192.7*	0.496
	(-2.53)	(-2.29)	(0.07)
GROWTH	0.00141	0.00587	0.000734
	(0.99)	(0.40)	(0.37)
TAX	-0.0380	0.779	0.0874*
	(-0.89)	(0.87)	(2.04)
GDPGR	0.0860	-0.377	-0.146
	(1.27)	(-0.75)	(-0.131)
INTEREST	0.0643***	0.270*	0.0429
	(3.53)	(2.10)	(1.13)
INFLR	0.00324	-0.000979	0.0183***
	(0.61)	(-0.04)	(4.06)
_CONS	16.48	-10.79	-18.95**
	(1.51)	(-0.16)	(-3.17)
N	1049	1049	1049
R-Sq	0.148	0.026	0.411
Adj. R-sq	0.141	0.019	0.407

t-statistics in parentheses (bracket) * - $p<0.10$, ** - $p<0.05$, *** - $p<0.01$

4.6. Robustness Test: Capital Structure and Bank Performance Results

In the previous section, total debt ratio (TDR) was used as the measure of capital structure. This measure includes short-term debt (deposit) and long-term debt. As a robustness test, long-term debt ratio (LTDR) is used as a measure of capital structure in order to be consistent with the literature. The regression results of the robustness test of capital structure and bank performance are presented in table 5. The long-term debt ratio is not statistically significant in determining banks performance

as measured by the return on asset (ROA), the return on equity (ROE) and the net interest margin (NIM) in Kenya. This implies that, the performance of banks in Kenya do not depend on their long-term debt ratio (capital structure). The other explanatory variables are not significantly different from the earlier regression when using the total debt ratio as the main independent variable. It can be concluded that, the results from the robustness test is not different from the earlier regression using the total debt ratio as a proxy for capital structure.

Table 5: The table shows the results of the robustness test with ROA, ROE and NIM as performance variables and LTDR as capital structure measure.

	ROA	ROE	NIM
TDR	-4.046	-10.18	0.361
	(-1.06)	(-0.22)	(0.41)
SIZE	0.167	0.759	2.018**
	(0.58)	(0.37)	(2.65)
TANG	-26.34*	-195.2*	1.004
	(-2.48)	(-2.79)	(0.15)
GROWTH	0.00134	0.00480	0.000797
	(1.04)	(0.35)	(0.41)
TAX	-0.104	0.766	0.0902*
	(-0.24)	(0.83)	(2.01)
GDPGR	0.0889	-0.390	-0.145
	(1.23)	(-0.77)	(-1.31)
INTEREST	0.0711***	0.274*	0.0432
	(3.28)	(1.74)	(1.14)
INFLR	0.00497	-0.00429	0.0186***
	(0.79)	(-0.16)	(4.07)
_CONS	1.878	0.688	-20.73**
	(0.59)	(0.02)	(-2.87)
N	1049	1049	1049
R-Sq	0.088	0.026	0.410
Adj. R-sq	0.081	0.019	0.406

t-statistics in parentheses (bracket) * - $p<0.10$, ** - $p<0.05$, *** - $p<0.01$

5.0. CHAPTER FIVE: SUMMARY AND CONCLUSION

This paper examines capital structure and bank performance in Kenya; eight variables were selected as the determinants of banks performance which include debt ratio, size of a bank, asset tangibility, growth rate of banks, taxes, GDP growth rate, interest rates and inflation rate.

This paper examines capital structure and banks performance in Kenya by using the total debt ratio as a proxy for capital structure since it includes both the short-term and long term debt ratios. The main objective was to examine whether capital structure affects banks performance in Kenya and also to examine nature of relationship between capital structure and bank performance.

The results show that the capital structure of banks in Kenya is statistically insignificant. This implies that capital structure does not impact banks' performances, that is, banks' performance does not depend on their capital structure but rather it is capital structure that depends on banks' performance from the previous analysis of the determinants of capital structure. The pecking order theory suggests that firms first of all rely on internally generated funds which are their retained earnings and if internal funds are exhausted then they fall on debt capital. This is evident on the fact that all the debt ratios are not statistically significant. The results also indicate that size is an important determinant of total debt ratio and asset tangibility is also an important determinant of bank performance but it does not carry the expected signs in the ROA and ROE. Tax rate and inflation are significant in determining only the net interest margin (NIM), however growth rate of banks, size and the GDP growth rate are not significant in determining banks performance in Kenya.

The study performed a robustness test by replacing the total debt ratio with the long-term debt ratio as a proxy for capital structure to examine whether the results will be different from the above analysis. However, according to the results obtained, they are not significantly different from the earlier results obtained using the total debt ratio as the main independent variable. This confirms that banks performance do not depend on their capital structure from the above analysis.

6.0. CHAPTER SIX: REFERENCES

Abor, J. (2005). The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana. *The Journal of Risk Finance*, 6 (5), 438-445.

Abor, J. (2007). Debt policy and performance of SMEs. *The Journal of Risk Finance, 8*(4), 64- 379.

Ager O.J ,2009. "*An empirical analysis of capital structure rebalancing by firms listed at the Nairobi stock Exchange*'', Unpublished MBA project, University of Nairobi.

Bartholdy, J.and Mateus C.(2008), Taxes and Corporate Debt Policy.

Baxter N .1976. Leverage risk ruin and the cost of capital . *Journal of Finance 22 September, 395 - 403.*

Berens, James L. and Cuny, C.J (1995), The Capital Structure Puzzle Revisited, *The Review of Financial Studies, 8.*

Berger, A. N., & di Patti, B. (2006). *Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry* (Vol. 30, pp. 1065-1102): Elsevier.
Bourke, P. (1989). "Concentration and Other Determinants of Bank Profitability in Europe, North America and Australia," *Journal of Banking and Finance,*13,65-79.

Brealey, Richard and Myers, S.C. (2003); *Principles of Corporate Finance*, 7th Edition, McGraw Hill, London UK.

Brigham, E. F., & Houston, J. F. (2004) *Fundamentals of financial management*: Cengage Learning.

Brigham, Eugene F. dan I.C. Gapenski. (1996) *Intermediate Financial Managememt*. Fifth Edition. New York: The Dryden Press.

Brockington, Raymond (1990); *Financial Management*, 1992 Edition, ELBS, London, UK

Chen, J.-S., Chen, M.-C., Liao, W.-J., & Chen, T.-H. (2009). *Influence of capital structure and operational risk on profitability of life insurance industry in Taiwan*. Modelling in Management , 4 (1), 7-18.

Cooper & Schindler, D.R. (2003). *Business Research Methods*, (8th Edition), New York, NY, McGraw-Hill.

Ebaid, I. E.-S. (2009). The impact of capital-structure choice on firm performance: empirical evidence from Egypt. *The Journal of Risk Finance* ,10.

Eriotis, N. J., Frangouli, Z., & Ventoura-Neokosmides, Z. (2000). Profit Margin and Capital Structure: An Empirical Relationship. *The Journal of Applied Business Research, 18 (2).*

Erasmus, P. D. (2008). *Evaluating Value Based Financial Performance Measures.*

Hung C. Y., Chuen C. P., Eddie H. C. (2002), Capital Structure and Profitability of the Property and Construction Sectors in Hong Kong, *Property Investment &Finance.* 20(6) 19-23

Kochhar, Rahul ; Strategic assets, Capital Structure, and Firm Performance, *Journal of Financial and Strategic Decisions, Volume 10 Number 3, Fall 1997.*

Madan, K. (2007). An analysis of the debt-equity struture of leading hotel chains in India. *International Journal of Contemporary Hospitality Management, 19 (5), 397-414.*

Michaelas, N., Chittenden, F., Poutziouris, P. (1999), Financial Policy and Capital Structure

Choice in U.K. SMEs: Empirical Evidence from Company Panel Data, *Small*

Business Economics, 12 (2) 113-130.

Miller, M. and Modigliani, F. (1958).The Cost of Capital, Corporation Finance and the Theory of lnvestment, American *Economic Review,* 48 (4), 261-297

Modigliani, F., Miller, M. (1963), Corporate Income Taxes and the Cost of Capital: A Correction, *The American Economic Review,* 53 (3),433-443.

Myers, Stewart C. (1977). "Determinants of Corporate Borrowing." *Journal of Financial Economics. November, 52, pp.147-75.*

Myers, S. C. (1984). The Capital structure puzzle. *39*(3), 575-592.

Myers, S. C., Majluf, N, S. (1984), Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have, *Journal of FinancialEconomics,* 13 (2),187-221.

Perry, P. (1992), "Do Banks Gain or Lose from Inflation?" Journal of Retail Banking, Vol. 14,

No. 2, 25-30.

Serrasqueiro, Z. M. S. & Rogao, M. C. R. (2009). Capital structure of listed Portuguese companies: Determinants of debt adjustment. *Review of Accounting and Finance,8 (1), 54-75.*

Shuetrim, Geoffrey and Lowe, Philip and Morling, Steve (1993); The Determinants of Corporate Leverage: *A Panel Data Analysis, RBA Research Discussion Papers, RDP 9313*

Wagacha, Mbui (2001); A Survey of Enterprise Attitudes towards Kenya's Capital Market, *IPAR Discussion Paper No. 028*