EFFECTS OF CAPITAL STRUCTURE ON EFFICIENCY OF INSURANCE COMPANIES IN KENYA

BY

MERCY MANDELA ESILABA

D63/86156/2016

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN FINANCE, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

DECEMBER, 2018

DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

Signed: _____Date: _____

MERCY MANDELA ESILABA

D63/86156/2016

This research project has been submitted for examination with my approval as the University Supervisor.

Signed: _____Date: _____

DR. DUNCAN ELLY OCHIENG' (PhD, CIFA)

Lecturer, Department of Finance and Accounting

School of Business, University of Nairobi

ACKNOWLEDGEMENTS

I would like to express my great appreciation to Dr. Duncan Elly for his valuable and constructive guidance during the entire development of this research work. His willingness to give his time and his understanding is so generously appreciated. I would also like to express my gratitude for the role played by the department of Accounting and Finance as well as all my lecturers in the Msc. Finance degree program. Finally, I wish to thank my family and friends for their support and encouragement throughout my study. May God bless you all.

DEDICATION

I dedicate this project to God Almighty my creator, my strong pillar, my source of inspiration, wisdom, knowledge and understanding. He has been the source of my strength throughout this program and on his wings only have I soared. I also dedicate this work to my loving husband; Kimani Edward who has encouraged me all the way and whose encouragement and support has made sure that I give it all it takes to finish that which I have started and to my son Nathan Johari (infant) who has been affected in every way possible by this quest. Thank you, my love for you both can never be quantified. God bless you.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

AKI	Association of Kenya Insurers
CMA	Capital Market Authority
EPS	Earnings Per Share
IRA	Insurance Regulatory Authority
NSE	Nairobi Securities Exchange
ROA	Return on Assets
ROE	Return on Equity
SPSS	Statistical Package for Social Sciences

ABSTRACT

Capital structure plays an important role in firm's efficiency provided it is utilized efficiently and in an effective manner at its optimal level. However, the questions of what constitutes an optimal capital structure remains unanswered and the most controversial issue in the finance circles. There is no agreement on the nature of effects of capital structure on the efficiency from both the theoretical and different empirical studies. The information asymmetry proposition proposes a negative correlation because companies regardless of their market position would rely on the retained earnings for expansion instead of costly external finance. On the other hand, MM's tax/ interest shield proposition predicts a positive relationship since at higher income level, corporation would want to utilize more debt finance in their capital structure in order to shield their profits from taxation. This study sought to determine the effect of capital structure on efficiency of insurance firms in Kenya. The population for the study was all the 53 insurance firms operating in Kenya. The independent variables for the study were capital structure as measured by debt ratio, profitability as measured by return on equity, liquidity as measured by current ratio and firm size as measured by natural logarithm of total assets. Firm efficiency was the dependent variable and was measured by the ratio of total revenue to total assets on an annual basis. Secondary data was collected for a period of 5 years (January 2013 to December 2017) on an annual basis. The study employed a descriptive cross-sectional research design and a multiple linear regression model was used to analyze the relationship between the variables. Statistical package for social sciences version 21 was used for data analysis purposes. The results of the study produced R-square value of 0.188 which means that about 18.8 percent of the variation in efficiency of insurance firms in Kenya can be explained by the four selected independent variables while 81.8 percent in the variation of firm efficiency was associated with other factors not covered in this research. The study also found that the independent variables had a weak correlation with firm efficiency (R=0.433). ANOVA results show that the F statistic was significant at 5% level with a p=0.000. Therefore the model was fit to explain the relationship between the selected variables. The results further revealed that only profitability and liquidity produced positive and statistically significant values for this study. Capital structure and firm size were found to be statistically insignificant determinants of efficiency of insurance firms in Kenya. This study recommended that adequate measures should be put into place to improve and grow profitability and liquidity of insurance firms as they significantly influence efficiency. The study was not exhaustive of the independent variables affecting firm efficiency of insurance firms in Kenya and this study recommends that further studies be conducted to incorporate other variables.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Capital structure choice is imperative for the firm, this is for the reason that it determines how well a firm can identify and invest in projects that can promise better returns. An investment decision made by the firm has an influence on its competitive abilities to cope with an aggressive environment (Wald, 1999). A company's capital structure essentially is a blend of various securities. In broad, a company can go for amongst numerous options of capital structures. A firm can issue a huge quantity of debt or meager debt. A firm can also organize to lease financing, issue convertible bonds, use warrants, trade bond swaps and sign forward contracts. Also it can issue dozens of different securities in limitless blends; nevertheless, it tries to get the exact blend that makes best use of its general market worth (Hadlock & James, 2002).

Capital structure theories try to explain whether combination of debt and equity matters, and if it does, what might be the optimal capital structure. These theories include; the theory of Modigliani and Miller (1958) which proposed that the cost of obtaining capital is not linked to the type of funds that a company uses and there isn't any existence of an optimal capital structure, hence the capital structure of a firm is not relevant or has no influence on the value of a firm. The trade-off theory suggests that for a firm achieves an optimal capital structure, there must be a tradeoff between benefits-costs of borrowing and equity financing. The main gain linked with borrowing is the tax deduction of interest and the cost to be incurred are bankruptcy and agency costs (Jensen & Meckling, 1967). According to the pecking order theory, there exists an information asymmetry problem between the agents of a firm who are managers and

shareholders who are the owners, in order to reduce this problem firm will prefer to use funds generated internally as compared to external funds (Myers & Majluf, 1984).

In the Kenyan insurance industry, poor financial management strategies have been associated with weak efficiency on the part of some companies. In the recent past, 9 insurance firms have either collapsed and/or placed under statutory management. The 9 companies include: Invesco Assurance Company, Stallion Insurance, Standard Assurance, Lake Star Assurance Company, Blue Shield Insurance, Access Insurance Company, Kenya National Assurance Company, United Insurance Company, and Concord Insurance Company. Cheluget (2014) found that this can be explained by poor capital structure and liquidity management. As the regulator, IRA bears the responsibility of monitoring insurance firms in Kenya, especially with respect to capital structure and liquidity, with a view to ensuring stability of the industry.

1.1.1 Capital Structure

Capital structure provides the blend of a company's sources of finance which include debt and equity. It gives a structure of how a firm finances its assets either by debt (long term or short term), equity (common or preferred) or a hybrid of the two (Saad, 2010). Capital structure is important in explaining how an organization finances its growth and operations by use of various sources of funds (San & Heng, 2011). The ownership structure of the firm is a mixture of its liabilities and it gives a combination of current liabilities, for example, creditors and bank overdrafts and noncurrent liabilities, for example, ordinary and preference shares, debentures, convertible loans, banks loans, et cetera (Saad, 2010).

Debt finance has both the advantages and disadvantages in the growth of companies and expansion of the economy. Debt finance results to benefits such as tax shield and

the diminution of free cash flow problems by enhancing managerial behavior while the expenses of debt financing include agency expenses and bankruptcy cost which results from the conflicts between shareholders and debt holders (Fama & French, 2002). Managers therefore, should try to balance these costs and benefits of debt when making debt capital decisions in order to improve performance (Kraus & Litzenberger, 1973).

Capital structure is measured using debt ratios. The debt ratios make comparison of the total debt with the total assets owned by the company. A low ratio indicates that a company depends less on debt while a high percentage indicates that a firm rely more on debt finance. Another measure of capital structure is the ratio of debt to aggregate capital. Nevertheless, the widely preferred method of measuring capital structure as used by various researchers to compute capital structure in studies using capital structure to predict different variables is the proportion of debt to equity (Abhor, 2005).

1.1.2 Firm Efficiency

Firm efficiency refers to the ability of a firm to minimize waste and maximize resource capabilities so as to offer it's to customer's quality products and services (Kalluru & Bhat, 2009). It involves the identification of wasteful resources and processes that affects productivity and growth of organizations profits. Firm efficiency entails redesigning new work processes that improves productivity and quality (Darrab & Khan, 2010. According to Cooper and Rhodes (1978), firm efficiency is the maximum ratio of weighted outputs to weighted inputs.

Firm efficiency is determined through calculating the ratio of the actual productivity over the highest anticipated productivity. The highest possible productivity equates to the desired performance. According to Hackman (2008), the steps involved in analyzing the productivity and efficiency analysis is linked to production economics, which seeks

to examine and generalize the description of technology in responding to the questions. One may be curious to determine the firm's efficiency before committing a specific amount of inputs and during the scaling of its operations. It is equally important to understand the trend of the company's capability over time. Finally, one might be curious to compare the performance of the firm against its competitors.

There are several ratios of measuring firm efficiency. To begin with, we can use the Total Asset Turnover ratio which measures the ability of the company to generate sales with regard to its investment in total assets. The formula for the ratio is dividing net sales by average total assets. Secondly we can use the Fixed-Asset Turnover ratio which is analogous to total asset turnover ratio except is that only fixed assets are taken into account here. Fixed-asset turnover is calculated by division of the net sales by average net fixed assets. Another ratio for measuring firm efficiency is Revenue Turnover. This ratio measures the ability of the company to spend given its investment in generating revenue. It is calculated as the ratio of total expenditure to average total revenue. These ratios shows whether the firm is managing operational cost efficiently which will ultimately have an influence upon its performance (Rao & Lakew, 2012). The current study will use revenue turnover as a measure of firm efficiency.

1.1.3 Capital Structure and Firm Efficiency

Modigliani and Miller (1958) proposed that a type of funds that a firm uses is not linked to its cost and there isn't any existence of a capital structure that is optimal, hence it is irrelevant or has no influence on the value of a firm. The tradeoff theory suggests that when trying to find an optimal capital structure, firms will trade off main benefits which is tax deductibility of interest and costs which is bankruptcy cost of debt and equity financing (Myers, 1977). However, it cannot be concluded from this theory that interest

tax shield has a substantial contribution to the debt ratios or the market value of a particular firm. According to pecking order theory, Myers and Majluf (1984) noted that internal finance is preferred over external finance by firms since information asymmetry creates a problem between the firm's agent and the owner. Hence, less debt capital will be used by firms that are considered to be profitable and generate better earnings as compared to those that don't generate high earnings.

Modigliani and Miller (1963) contended that the utilization of debt-financing fundamentally alters the market for shares as multiple providers of funds are brought on board and shareholders have to compete for a share of the company's earnings with the debt providers. Their assertion implied that the firm value is maximized when it employs debt. The fundamental change will impact on efficiency which is expected to be higher given that equity investors will demand a higher return with the introduction of debt to guard against the risk introduced by leverage.

According to Jensen and Meckling (1984), debt has an influence on the quality of the investment opportunities that are undertaken by the management by forcing managers to invest in the projects, which add value to the shareholders. This in return minimizes agency and other related costs hence enhancing efficiency of the firms. The effect of the capital structure on the firm's efficiency has for long time been investigated by different researchers and seen to have an effect on the efficiency of firms. For instance, Eldomiaty and Azim (2008) carried out a study on the effects of capital structure on the firm's efficiency and established that capital structure is positively linked to the firms' efficiency.

1.1.4 Insurance Companies in Kenya

Insurance is a relatively new concept in Kenya compared to the developed world. It was originally introduced during the early part of the 20th century. Since then, the industry has grown tremendously. Most insurance companies emerged in the 1980s, and others in the 1990s following reforms aimed at liberalizing the economy. Currently, there are 49 registered insurance companies in Kenya (IRA, 2016). Out of these, 25 are involved in non-life insurance products only, 13 are involved in life insurance products only, and 11 sell both life and non-life insurance products (IRA, 2015). Dissimilar to developed countries, the Kenyan insurance market is largely dominated by non-life insurance products, which account for 65% of the total premiums. Even so, the industry has registered tremendous growth in the last five years, with gross premium income growing from Kshs 63.5 billion in 2010 to Kshs 173.3 billion in 2016, which represents a growth of approximately 174% (AKI, 2016).

The minimum capital requirements as described in the insurance Act is paid up share capital for General Insurance business Kshs. 300 million and Reinsurance business Ksh. 800 million, Long term insurance business of Kshs. 150 million , a detailed statement of assets and liabilities in Kenya at the date of application, details of the shareholding structure and shareholders of the company, CBK certificate indicating the amounts of deposits under section 32 of the Insurance Act (equivalent to 5% of the total admitted assets) among other requirements and conditions. Borrowings that affect the capital structure like issue of corporate bond and debt instruments requires an authority from Capital Market Authority (CMA).

A deepening corporate bond market in Kenya provide insurance companies with incentives that encourage them to make capital structure (borrowing) decisions in order

to expand their business, open more branches which at the end lead to performance improvement. In Kenya, Britam was granted authority by CMA in June 2014 to issue Kes. 6 Billion Corporate bond to finance local and regional expansion, property investments as well as fund other strategic incentives. On the same note, CMA approved UAP to issue Kes 2 Billion bond in July 2014 towards geographic expansion, investment in property projects, provide additional capital to enhance capacity in existing insurance businesses as well create other strategic ventures that will help the firm to record monumental growth in revenues and profitability. These bonds lead to increased financial leverage that directly impacts on capital structure decision and efficiency.

1.2 Research Problem

Capital structure plays an important role in firm's efficiency provided it is utilized efficiently and in an effective manner at its optimal level. However, the question of what constitute an optimal capital structure remains unanswered and the most controversial issue in the finance circles (Kajola, 2010). There is no agreement on the nature of effects of capital structure on the efficiency from both the theoretical and different empirical studies. The information asymmetry proposition of Myers & Majluf (1984) proposes a negative correlation because companies regardless of their market position would rely on the retained earnings for expansion instead of costly external finance. On the other hand, MM's tax/ interest shield proposition predicts a positive relationship since at higher income level, corporation would want to utilize more debt finance in their capital structure in order to shield their profits from taxation.

The insurance sector needs a keen attention in order to make meaningful contribution to Kenya's economy. A deepening corporate bond market in Kenya provide insurance

companies with incentives that encourage them to make capital structure (borrowing) decisions in order to expand their business, open more branches which at the end lead to performance improvement. Insurance firms are borrowing towards geographic expansion, investment in property projects, provide additional capital to enhance capacity in existing insurance businesses as well create other strategic ventures that will help the firm to record monumental growth in revenues and profitability. These bonds lead to increased financial leverage that directly impacts on capital structure decision and efficiency.

Empirical evidence is largely inconsistent and quite varied on the impact of capital structure on firm efficiency. Saeedi and Mahmoodi (2011) did the study on the effects of capital structure on performance of firms in the Tehran Stock Exchange and concluded that capital structure has no effects on the performance of firms. Nirajini and Priya (2013) discovered a positive correlation linking capital structure and financial performance. Sebnem and Vuran (2012) affirmed this when they found a positive correlation between stock returns and financial structure. Akbarian (2013) explored the impact of leverage on firms' performance in Tehran stock exchange and found that there exist a negative relationship between leverage and free cash flow per share but the study also found a significant positive relationship with return of equity. Another study by Barakat (2014) examined the effect of financial leverage and profitability in Saudi industrial firms and established an insignificant inverse relationship between financial leverage and share value.

Locally, Maina and Ishnail (2014) found no weighty association between capital structure choice and financial performance of Kenyan listed firms. The conclusion is contrary to Njeri and Kagiri (2015) who noted that capital structure and financial

performance of listed commercial banks are positively correlated. Mwangi, Muathe, and Kosimbei (2014) found a statistically significant negative association between financial leverage and performance. Koech (2013) and Ogutu, Riro and Ofunya (2015) affirmed this when they concluded that capital structure has an inverse association with performance. The lack of consensus among the various scholars on the effect of capital structure on efficiency of firms is reason enough to conduct further examination on the area of study. In addition, most of the local studies done have concentrated on the effect of capital structure on financial performance. More research needs to be done on the area of capital structure and firm efficiency. This paper sought to identify how capital structure influence efficiency of insurance companies in Kenya. It attempted to give an explanation to the research question; what is the effect of capital structure on efficiency of insurance companies in Kenya?

1.3 Objectives of the Study

To determine the effect of capital structure on efficiency of insurance companies in Kenya

1.4 Value of the Study

This study's findings acts as a reference to scholars, students and researchers who might want to undertake studies in the same field. The study will also help both researchers and scholars in identifying research gap in this field which will prompt and guide them in executing further studies.

Value of this study is to the various managers who are tasked with the management of insurance companies in Kenya; this study provides useful information and recommendations to assist them in making more informed management decisions leading to shareholders' wealth maximization. The study increases the pool of

knowledge available to assist both insurance firms and other firms seeking to improve their performance and ensure sustainability.

The outcome of this study will also aid the various regulatory agencies such as IRA when developing legislation and regulatory framework around companies' capital structure. The regulators should thus consider this study as they formulate policies that will create a favorable environment for investors.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the theoretical framework applied in the study and reviews previous studies on capital structure and efficiency. It contains the theoretical review, determinants of firm efficiency, empirical review, the conceptual framework and a summary of the literature.

2.2 Theoretical Framework

This presents review of the relevant theories that explains the capital structure of firms. The theoretical reviews covered are; Modigliani and Miller model, Pecking Order theory, Trade-off theory and the Agency theory.

2.2.1 Modigliani and Miller Model

Modigliani and Miller (1958) contended that the capital structure of a company is immaterial to the company's worth, supposing faultless markets and zero business deal charges. Modigliani and Miller (1963) presented the influence of business revenue levies on the capital structure of a company and established that companies will upsurge their use of debt to exploit the duty deductibility of interest. Though, greater debt funding upsurges the likelihood of insolvency. Market symmetry must be real in which the value of using debt-financing equals increased peril of insolvency owing to the great leverage of companies. This was supported by Staking and Babbel (1995) who argued that they concurred with the hypothesis made by Modigliani and Miller.

Modigliani and Miller (1963) revised their previous opinion through integrating duty welfares as causes of the capital structure of companies. Important feature of tax policy

is that interest is a tax-deductible outlay. Company which remits duties obtains partly counterweighing interest duty-shield in the form of smaller levies remitted. Consequently, as Modigliani and Miller (1963) propose, companies ought to expenditure equally considerable debt capital as possible acceptable to exploit their worth. Alongside with company tax policy, scholars were also concerned in investigating the situation of individual duties levied on persons.

2.2.2 Pecking Order Theory

According to this theory, developed by Myers and Majluf (1984), there is no predefined optimal capital structure but instead asserts that, firms displays different preference for utilizing internal funds or retained earnings over external capital. It is the one of the most significant theories of company leverage and goes against the firm's idea of having distinctive combination of equity and debt finance, which minimizes the corporation costs of funds. It suggests that the firm should follow a well-specified order of priority with respect to financing sources to minimize its information asymmetry costs, first choosing retained earnings, then debt and finally raising equity as a last option. It advocates for retained earnings to be used first in funding long-term projects and when they are exhausted or not available, then debt is issued; and when it is insufficient or not available, equity is issued (Myers, 1984).

The explanation of the pecking order stems from the existence of the information asymmetry where managers are assumed to know more about their company risk, prospects and project value than external investors including capital markets. According to Myers and Majluf (1984), investors places low value on the company stock because of the inability of managers to convey information on the company prospects including the new investment opportunities identified. This in return makes

managers who are believed to be at the core of company information to finance their project using readily available retained earnings. If the retained earnings are insufficient, managers will choose debt capital in the preference to issuing equity shares since they are undervalued in the capital markets. The asymmetric information effect therefore favors use of debt over equity and shows management confidence that the newly identified investment opportunity is profitable and the current share price is underpriced (Myers & Majluf, 1984).

2.2.3 Trade-Off Theory

This theory was proposed by Myers (1984). The theory holds that, there exists an optimal capital structure for every firm, which can be determined by balancing the costs and benefits of equity. As a result, a firm decides on how much debt capital and how much equity capital to include in their capital structure by balancing on the costs and benefits of each source. Debt capital results to benefits such as tax shied though high debt levels in the capital structure can result to bankruptcy and agency expenses. Agency expenses results from divergence of interest among the different firm stakeholders and because information asymmetry (Jensen & Meckling, 1976).

Thus, including cost of agency into the trade-off theory signifies that a corporation ascertains its optimal financial structure by balancing the benefit of debt (the tax advantage of debt) against expenses of excessive debt (financial distress) and the resultant equity agency expenses against debt agency costs. The theory further assert that, as firm increases debt in their capital structure, the marginal cost associated with debt increases while the marginal benefits associated with debt decreases until an optimal point is reached. Beyond that point, the marginal costs of debt exceed the marginal benefits resulting to reduced firm value. In this regard, the firm should set an

optimal financial structure in order to enhance its stock returns (Jensen & Meckling, 1976).

According to Myers (1984), firms with more tangible assets should have high debt ratios while firms with more intangible assets should depend more on equity capital because they are subject to lose of value in case of liquidation. Under this theory, firms should evaluate the various costs and benefits of each debt level and determine an optimal debt structure that balances the incremental costs and incremental benefits (debt tax shields against costs of bankruptcy). This further explains why firms are partly financed by equity and also partly financed by debt in their capital structure.

2.2.4 Agency Theory

The theory of agency exists when the principle is unable to do the business by himself and thus delegates this responsibility to the agent (Jensen & Meckling, 1976). The issue of agency when there is a contradiction between the goals and desires of the principle and the agent. The principle incurs a lot of costs in the process of monitoring the actions of the agent so as to ascertain whether the agents is working as per is interests and adequately serving is interests . The agency theory therefore offers a solution to the problems between the agent and the principle so as to offer lasting associations between them (Itiri, 2014). This concept is leans on the notion that the interests of the executives and shareholders are not perfectly affiliated in a manner that allows for easy attainment of the organizational goals. The theory is highly applicable in solving the issues between the managers and shareholders in making financial decisions (Aliu, 2010).

The Agency theory suggests that managers (agents) prefer to maintain huge cash flows despite lack of profitable investments so as to use the funds to serve their own interests (Calabrese, 2011). The agency theory explains that capital structure decisions must seek

to reduce the agency costs by reducing capital structure equity. This is done be increasing the debt financing which increases the firm's market value as well as reducing the conflicts that may exist between managers of a firm and shareholders.

Agency theory suggests that debt is used as a tool to control the manager since with debt financing; managers will be forced to focus on using the free cash flows to service the debt other than trying to invest the funds in some unprofitable projects (Calabrese, 2011). The theory is founded on the notion that manager's behavior can be controlled by debt financing since the managers will adopt the free cash flow to interest payment of the debt obtain to finance the firm's investment projects. Thus, the theory of agency supports the use of debt to improve the firm's financial performance (Mwangi, Muturi & Ngumi, 2016).

2.3 Determinants of Firm Efficiency

The efficiency of firms can be influenced by elements either external or internal to the firms that define the level of output. The internal factors are different for each firm and determine its efficiency. These factors result from managerial decisions together with the board. The internal factors include capital structure, firm size, liquidity, management efficiency, capital, market power among others. External factors are not within the control of management. They are factors that the firm does not have control over them but rather they need to develop strategies to deal with them (Athanasoglou, Brissimis, & Delis, 2005).

2.3.1 Capital Structure

According to the international prudential regulation, capital ratio is a vital tool for determining capital adequacy and should examine the firms' safety and soundness. The reduction of costs by highly capitalized firms significantly reduces their funding costs,

which significantly influences their efficiency. Alternatively, highly capitalized firms do not utilize external funds which improve their efficiency. Furthermore, if we factor in the conventional risk return hypothesis, firms with lower capital ratios will have higher efficiency compared to better-capitalized firms. Bourke (1989) report a positive and significant association between capital structure and efficiency.

Usage of debt comes with some agency costs like the existence of constraints put by the firm providing debt on how an organization is to run its affairs (Lee, 2009). This may bring about inflexibility in undertaking some projects even if they promise greater return on equity (Amato & Burson, 2007). This may negatively affect the overall performance of the organization which will in turn affect its efficiency.

2.3.2 Liquidity

Liquidity is defined as the degree in which an entity is able to honor debt obligations falling due in the next twelve months through cash or cash equivalents for example assets that are short term can be quickly converted into cash. Liquidity results from the managers' ability to fulfill their commitments that fall due to creditors without having to liquidate financial assets (Adam & Buckle, 2003).

According to Liargovas and Skandalis (2008), liquid assets can be used by firms for purposes of financing their activities and investments in instances where the external finance is not forthcoming. Firms with higher liquidity are able to deal with unexpected or unforeseen contingencies as well as cope with its obligations that fall. Almajali et al., (2012) noted that firm's liquidity may have high impact on efficiency of firms; therefore firms should aim at increasing their current assets while decreasing their current liabilities as per his recommendation. However, Jovanovic (1982) noted that an abundance of liquidity may at times result to more harm.

2.3.3 Management Efficiency

Management efficiency is a key internal factor that qualitatively measures and determines the operational efficiency of a firm. The ability of the management to efficiently utilize the resources of the firm, their ability to maximize funding and their ability to efficiently allocate those funds are some of the ways of assessing the management efficiency.

Management efficiency is a qualitative measure and determinant of operational efficiency and it can be assessed by looking at the quality of the staff, the effectives and efficiency of the internal controls, the discipline within the organization and the effectiveness of the management systems (Athanasoglou, Sophocles & Matthaois, 2009). The quality of the management has an influence on the level of operating expenses which affects the bottom line of a firm hence management efficiency significantly affects the operational efficiency of firms (Kusa & Ongore, 2013).

2.3.4 Firm Size

The most fundamental question underlying firm policy is at what size is firm efficiency maximized. The expansion of the size of the firm increases its efficiency up to a certain level where any further increase becomes harmful since bureaucratic and other managerial issues and challenges set in. Hence the relationship between size and efficiency is nonlinear in nature. We utilize the logarithm of the assets of the firm (logarithm) and their square so as to curb this likely non-linear association (Yuqi, 2007).

Burca and Batrinca (2014) asserts that the relationship existing between size and financial performance is positive in the sense that more resources are available in larger firms, better risk diversification strategies, complex information systems and are able to manage expenses well compared to small firms. This may have an impact on the

financial performance of insurance companies in different ways for example large firms may be advantaged compared to smaller firms as they can be able to exploit economies of scale and scope; as such they are more efficient in their operations and as a result reap higher level of profits.

2.3.5 Age of the Firm

According to Sorensen and Stuart (2000), company's age may have an effect on firms' efficiency. They further noted that older firms may have organizational inertia which tends to make them inflexible which may result to their inability to appreciate the changes that occur in changing environment. However, Liargovas and Skandalis (2008), noted that older firms may have more skills because they have been in operation longer thus have more experience having enjoyed the benefits that come from learning and aren't easily prone to the liabilities that result from newness, therefore they tend to have performance that is superior as compared to newer firms.

According to Loderer, Neusser, and Waelchli (2009), the relationship that exists between the age of a company and efficiency is positive. However, it has also been observed that a firm's efficiency may at times decline as companies grow older due to the fact that old age may lead to knowledge, abilities and skills being obsolete thereby resulting to decay in organizations. Agarwal and Gort (2002) this may explain why some older companies are usually taken over.

2.3.6 Macro-Economic Factors

A number of studies have been undertaken to ascertain the effect of macroeconomic factors on efficiency of companies. The factors are monetary aggregates, rate of interest, investment level in the economy, consumer price index, producer price index, GDP growth, inflation, financial depth and the degree of market efficiency. Kwon and

Song (2011) carried out a research on mergers in the Korean market. He found out that the global financial crisis has a significant negative effect on the cumulative abnormal returns of the acquiring company when a merger announcement is made. He also stated that it may be possible that investors are more aversive to large cash outflows during a period of crisis. Flannery and Protopapadakis (2002) pointed out that inflation and money supply are well documented as the two macro-economic factors that have a significant effect on firm efficiency.

2.4 Empirical Review

There are numerous empirical studies both locally and internationally to support the relationship between capital structure and firm efficiency, but these studies have produced mixed results.

2.4.1 Global Studies

Gill and Nahum (2013) examined the impact of capital structure on the manufacturing firms' profitability among the American service. 272 listed firms were selected from the New York stock exchange from 2005 – 2007. The study adopted the regression and correlations analyses to approximate the purposes connecting to profitability (measured by ROA) to measure the capital structure. The consequences display an affirmative connection among short-term debt to profitability and total assets and between total debt to total assets and the service industry profitability. The outcome of this study indicates an optimistic association between long-term debt to profitability, short-term debt to total assets and profitability and among entire debt to profitability and the manufacturing industry's total assets.

Mohohlo (2013) probed the bearing of capital structure on the firm value of firms listed on Johannesburg Stock Exchange (JSE). The focus was on a sample of 65 nonfinancial

firms listed on JSE on grounds that regulations dictate the capital structure of financial firms. Secondary sources of data from listed firm's databases, that is, Bloomberg and Mcgregor BFA over the ten year period from 2002 to 2011 were used. The secondary data analyzed in panel data form and subjected to regression analysis led to a deduction that no statistical relationship exists between firm value and capital structure of JSE listed firms. While the financial structure of financial firms is regulated, all financial firms cannot have the same financial structure; the researcher ought to have included the financial firms and studied them separately to see if the relationship still holds for the financial firms.

Enekwe, Agu and Eziedo (2014) explored effect of financial leverage on financial performance of Nigeria pharmaceutical companies. The study used secondary data for the year 2001 to 2012 a sample of three companies. The study employed Pearson correlation and regressions models to analyze data collected. It was established that both debt ratio and debt-equity ratio had a negative relation with profitability when measured using ROA. The study also found that the ration on interest coverage had a positive relation with profitability of pharmaceutical companies in Nigeria. However, the study revealed that debt to equity ratio, debt ratio and interest coverage ratio had insignificant impact on profitability of the pharmaceutical industry in Nigeria.

Idris and Bala (2015) explored firms' specific attributes and stock returns for listed Nigerian food and beverages firms. Their study adopted the correlation and ex-post facto research design. Using a sample of 9 firms from 21 food and beverages firms and secondary data, the researchers analyzed the collected secondary data using ordinary least squares regression and multiple panel data regression analysis. They concluded

that firm's debt-to-equity financing and earnings per share positively and statistically impact on stock market returns.

2.4.2 Local Studies

Tale (2014) investigated the link among capital structure and financial performance of non-financial registered firms at the Nairobi securities exchange in Kenya between the periods January 2008 to December 2013. The study population consisted of all the 40 non- financial listed firms and duly registered with capital market authority. Secondary information used was got from financial statements of listed firms. Data was analyzed using a regression model. Financial performance was established to be absolutely connected to debt-to-equity proportion.

Maina and Ishnail (2014) examined the link between financial structure and the financial performance of all firms listed on the NSE. Using a causal research design and secondary data from financial statements of NSE listed firms between 2002 and 2011; the researchers subjected the data to panel regression analysis using Gretl statistical software. The research concluded that capital structure choice measured by Debt to Equity (DE), Long Term Debt to Equity (LDE), Total Assets (TA) has no substantial effect on NSE listed firms performance denoted by ROA, ROE, and market value/book value.

Njeri and Kagiri (2015) probed the Influence of Financial Structure on Financial Performance of banks listed on Nairobi Securities Exchange. Debt to equity ratio was the proxy for measuring capital structure while net profit margin, ROA and ROE were used to measure financial performance. The descriptive research study design was used and primary data obtained by administering questionnaires to 35 respondents who were mainly branch managers of listed banking institutions. The collected data was then

subjected to correlation and multiple regression analysis, leading to the conclusion that 56.4% of financial performance of listed commercial banks could be explained by the capital structure of the firm. Given that this study relied on views of branch managers as opposed to using available secondary data, the results may reflect the opinion of the respondents as opposed to the facts.

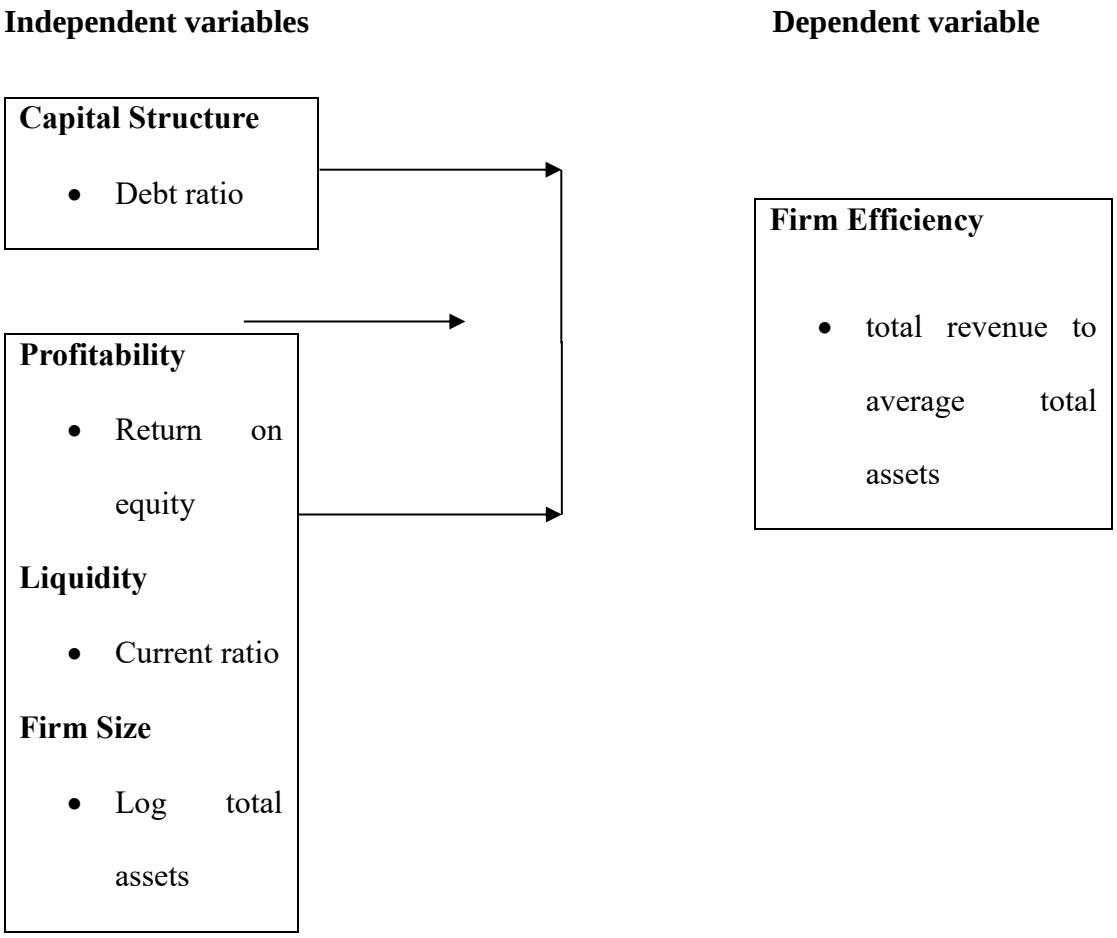
Ogutu et al., (2015) investigated the weight of financial elements on the performance of commercial and services firms listed on Nairobi Securities Exchange. The study covered the ten year period from 2003 to 2013. The researchers utilized secondary data from nine commercial and services companies listed companies and adopted the descriptive research design in conducting the research. The data was subjected to panel multiple regression analysis and correlation analysis leading to a conclusion that increased financial leverage negatively affects the performance of commercial and services companies.

2.5 Conceptual Framework

According to Jensen and Meckling (1984), debt has an influence on the quality of the investment opportunities that are undertaken by the management by forcing managers to invest in the projects, which add value to the shareholders. This in return minimizes agency and other related costs hence enhancing efficiency of the firms. The effect of the capital structure on the firm's efficiency has for long time been investigated by different researchers and seen to have an effect on the efficiency of firms. The current study seeks to determine this association among insurance companies in Kenya. The factors characterized here are capital structure and firm efficiency. The independent variable is capital structure as measured by debt ratio. The control variables are profitability as ROE, firm size as measured by natural logarithm of total assets and

liquidity as measured by the current ratio. Firm efficiency will be measured by the ratio of total revenue to total assets.

Figure 2.1: The Conceptual Model



Source: Researcher (2018)

2.6 Summary of the Literature Review

Various theoretical frameworks have attempted to explain the concept of capital structure. Four theories have been discussed in this theoretical review. The theories are namely: Modigliani and miller model, pecking order theory, trade-off theory and the agency theory. Some of the key determinants of firm efficiency have also been discussed in this section. Several empirical studies have been conducted both

internationally and locally on capital structure and firm efficiency. The findings of these studies have also been discussed in this chapter.

The lack of consensus among the various scholars on the effect of capital structure on firm efficiency is reason enough to conduct further examination on the area of study. Maina and Ishnail (2014) found no weighty association between capital structure choice and financial performance of Kenyan listed firms. The conclusion is contrary to Njeri and Kagiri (2015) who found that capital structure and financial performance of listed commercial banks are positively correlated. Mwangi, Muathe and Kosimbei (2014) found a statistically significant negative association between financial leverage and performance. Koech (2013) and Ogutu, Riro and Ofunya (2015) affirmed this when they concluded that capital structure is inversely related to performance. This study contributed to this debate by investigating the effect of capital structure on efficiency of insurance companies in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes methods of research applied to objectively establish the influence of capital structure on firm efficiency. It also shows the population of study, research design, data collection and analysis criteria.

3.2 Research Design

Research design is defined as a blue print of those procedures, which are adopted by a researcher for testing the relationship between dependent variables and independent variables (Khan, 2008). Descriptive cross sectional design was adopted for the study. A descriptive study involves a description of all the elements of the population. It allows estimates of a part of a population that has these attributes. Cross-sectional study methods are done once and they represent summary at a given timeframe (Cooper & Schindler, 2008).

3.3 Population

According to Burns and Burns (2008), population refers to the characters of interest upon which the study seeks to draw deductions. The population of the study comprised of all the 53 insurance companies operating in Kenya between 1st January 2013 and 31st December 2017.

3.4 Data Collection

Data was exclusively collected from a secondary source. It is always a regulatory requirement for insurance companies to report their values annually to Insurance Regulatory Authority (IRA). The secondary data was obtained solely from the

published annual financial reports of the insurance firms in Kenya for the period contained from January 2013 to December 2017 and was captured in a data collection sheet. The end result was information detailing capital structure and firm efficiency. The specific data collected was the firms' revenue, total expenses, current liabilities, long term liabilities, current assets and equity.

3.5 Data Analysis

The collected data was sorted, classified, coded and then tabulated for easy analysis. Collected data will be analyzed using both the descriptive and the inferential statistics. SPSS computer package version 21 was used in the analysis since it's more user-friendly. The data was inputted into the SPSS and examined using descriptive, correlation and regression analyses. In descriptive statistics, the study used mean, standard deviation and scatter plot. In inferential statistics, the study used multivariate regression analysis to determine the relationship between the dependent variable (Firm Efficiency) and independent variables: capital structure, profitability, firm size and liquidity.

3.5.1 Diagnostic Tests

To determine the viability of the study model, the researcher carried out several diagnostic tests, which included normality test, test for multicollinearity, test for homogeneity of variances and the autocorrelation test. The normality assumption assumes that the data was normally distributed and the assumption was determined using skewness, kurtosis and the Shapiro Wilk test. In the case where one of the variables is not normally distributed it was transformed and standardized using the logarithmic transformation method. The homogeneity of variance assumption was assessed using the Levene test and the plotting of residual plots. In cases where the data

failed the assumption of homogeneity of variances the study used robust standard errors in the model.

Multicollinearity on the other hand refers to the correlation among the variables and was assessed using the correlation matrix and the variance inflation factors (VIF) where a VIF of more than 10 was an indication of multicollinearity. Any multicollinearity variable would be dropped from the study and a new measure selected and substituted with the variable which exhibits co-linearity. Finally, serial correlation (autocorrelation) was assessed using the Durbin Watson statistic where a value of 1.5 and 2.5 indicated the absence of autocorrelation and incase the assumption is violated the study employed robust standard errors in the model.

3.5.2 Analytical Model

Using the collected data, the researcher conducted a regression analysis to establish the extent of the relationship between capital structure and firm efficiency. The study applied the following regression model:

$Y= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon.$

Where: Y = Efficiency of insurance companies as measured by ratio of total revenue to average total assets.

β_0 =y intercept of the regression equation.

β_1, β_2 β_3 and β_4, =are the slope of the regression

X_1 = Debt ratio given as long term debt / (shareholders equity + long term debt)

X_2 = Profitability as measured by the ratio of net income to total equity

X_3 = Firm size, as given by; natural logarithm of total assets

X_4 = Liquidity, as given by current assets divided by current liabilities

ε =error term

3.5.3 Tests of Significance

To test the statistical significance the F- test and the t – test were used at 95% confidence level. The F statistic was utilized to establish a statistical significance of regression equation while the t statistic was used to test statistical significance of study coefficients.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1 Introduction

This chapter focused on the analysis of the collected data from the Insurance Regulatory Authority to establish the effect of capital structure on the efficiency of insurance firms in Kenya. Using descriptive statistics, correlation analysis and regression analysis, the results of the study were presented in table forms as shown in the following sections.

4.2 Diagnostic Tests

The researcher carried out diagnostic tests on the collected data. A test of Multicollinearity was undertaken. Tolerance of the variable and the VIF value were used where values more than 0.2 for Tolerance and values less than 10 for VIF means that there is no Multicollinearity. For multiple regressions to be applicable there should not be strong relationship among variables. From the findings, the all the variables had a tolerance values >0.2 and VIF values <10 as shown in table 4.1 indicating that no Multicollinearity exists among the independent variables.

Table 4.1: Multicollinearity Test for Tolerance and VIF

	Collinearity Statistics	
Variable	**Tolerance**	**VIF**
Capital structure	0.310	1.326
Profitability	0.380	1.367
Liquidity	0.706	1.417
Firm size	0.503	1.99

Shapiro-walk test and Kolmogorov-Smirnov test was used in normality test. The null hypothesis for the test was that the secondary data was not normal. If the p-value recorded was more than 0.05, the researcher would reject it. The test findings are as illustrated in table 4.2.

Table 4.2: Normality Test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
Firm efficiency	Statistic	Df	Sig.	Statistic	Df	Sig.
Capital structure	.149	265	.300	.857	265	.853
Profitability	.156	265	.300	.906	265	.822
Liquidity	.172	265	.300	.869	265	.723
Firm size	.165	265	.300	.880	265	.784

a. Lilliefors Significance Correction

Both Kolmogorov-Smirnova and Shapiro-Wilk tests recorded o-values greater than 0.05 implying that the data used in research was distributed normally and therefore the null hypothesis was rejected. This data was therefore appropriate for use to conduct parametric tests such as Pearson's correlation, regression analysis and analysis of variance.

Autocorrelation tests were executed so as to check for correlation of error terms across time periods. Autocorrelation was tested using the Durbin Watson test. A durbin-

watson statistic of 1.896 indicated that the variable residuals were not serially correlated since the value was within the acceptable range of between 1.5 and 2.5.

Table 4.3: Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.433[a]	.188	.175	.064674	1.896

a. Predictors: (Constant), Firm Size, Capital Structure, Liquidity, Profitability

b. Dependent Variable: Firm Efficiency

Cameron & Trivedi's IM-test was used to test for heteroscedasticity. The null hypothesis stated that there is no heteroscedasticity. Results in Table 4.4 show that the p-value (p=0.3822) is greater as compared to the critical value of 0.05. Therefore, we fail to reject the null hypothesis and conclude that the variance is homogenous.

Table 4.4: Cameron & Trivedi's decomposition of IM-test

Source	chi2	Df	P
Heteroskedasticity	18.42	17	0.3822

4.3 Descriptive Analysis

Descriptive statistics gives a presentation of the average, maximum and minimum values of variables applied together with their standard deviations in this study.

Table 4.5 below shows the descriptive statistics for the variables applied in the study. An analysis of all the variables was obtained using SPSS software for the period of five

years (2013 to 2017). Capital structure had a mean of 0.834 and standard deviation of 0.494. Profitability had a mean of 0.0219 with a standard deviation of 0.0206. Liquidity recorded a mean of 0.3806 with a standard deviation of 0.1252. Firm size resulted to a mean of 7.6622 with a standard deviation of 2.863. Firm efficiency which was the dependent variable in this study had a mean of 0.2081 and a standard deviation of 0.712.

Table 4.5: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Firm Efficiency	265	.079	.480	.20813	.071214	1.286	2.043
Capital Structure	265	.1772	8.2233	.834076	.4940511	12.763	190.995
Profitability	265	-.05320	.06700	.0218851	.02063164	-1.060	1.538
Liquidity	265	.140	.948	.38064	.125179	1.392	2.654
Firm Size	265	6.794	8.703	7.66223	.508919	.083	-1.238
Valid N (listwise)	265						

4.5 Correlation Analysis

Correlation analysis is used to establish if there exists a relationship between two variables which lies between (-) strong negative correlation and (+) perfect positive correlation. Pearson correlation was employed to analyze the level of association

between the firm efficiency and the independent variables for this study (profitability, liquidity, size and capital structure).

The study found out that there was a positive and statistically significant correlation (r = .288, p = .000) between profitability and firm efficiency. The study also found out that there was a positive and significant correlation between liquidity and firm efficiency as evidenced by (r = .363, p = .000). Capital structure was found to have a weak positive association with firm efficiency but the association was not significant as evidenced by (r = .061, p = .321). Firm size was found to have a weak but insignificant association with firm efficiency as evidenced by (r = .143, p = .020). Although the independent variables had an association to each other, the association was not strong to cause Multicollinearity as all the r values were less than 0.70. This implies that there was no multi-collinearity among the independent variables and therefore they can be used as determinants of firm efficiency in regression analysis.

Table 4.6: Correlation Analysis

		Firm Efficiency	Capital Structure	Profitability	Liquidity	Firm Size
Firm Efficiency	Pearson Correlation	1				
	Sig. (2-tailed)					
Capital Structure	Pearson Correlation	.061	1			
	Sig. (2-tailed)	.321				

Profitability	Pearson Correlation	.288**	.039	1		
	Sig. (2-tailed)	.000	.527			
Liquidity	Pearson Correlation	.363**	-.052	.182**	1	
	Sig. (2-tailed)	.000	.402	.003		
Firm Size	Pearson Correlation	.143*	.063	.513**	.128*	1
	Sig. (2-tailed)	.020	.305	.000	.038	

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

*. Correlation is significant at the 0.05 level (2-tailed).

c. Listwise N=265

4.5 Regression Analysis

Firm efficiency was regressed against four predictor variables; capital structure, profitability, liquidity, and firm size. The regression analysis was undertaken at 5% significance level. The critical value obtained from the F – table was compared with the one obtained from the regression analysis.

The study obtained the model summary statistics as shown in table 4.4 below.

Table 4.7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.433[a]	.188	.175	.064674	1.896

a. Predictors: (Constant), Firm Size, Capital Structure, Liquidity, Profitability

b. Dependent Variable: Firm Efficiency

R squared, being the coefficient of determination indicates the deviations in the response variable that is as a result of changes in the predictor variables. From the outcome in table 4.7 above, the value of R square was 0.188, a discovery that 18.8 percent of the deviations in firm efficiency of insurance firms is caused by changes in profitability, liquidity, size and capital structure of the firms. Other variables not included in the model justify for 81.2 percent of the variations in firm efficiency of insurance firms in Kenya. Also, the results revealed that there exists a weak relationship among the selected independent variables and the firm efficiency as shown by the correlation coefficient (R) equal to 0.433. A durbin-watson statistic of 1.896 indicated that the variable residuals were not serially correlated since the value was more than 1.5.

Table 4.8: Analysis of Variance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.251	4	.063	15.022	.000[b]
	Residual	1.088	260	.004		
	Total	1.339	264			

a. Dependent Variable: Firm Efficiency

b. Predictors: (Constant), Firm Size, Capital Structure, Liquidity, Profitability

The significance value is 0.000 which is less than p=0.05. This implies that the model was statistically significant in predicting how profitability, liquidity, firm size and capital structure, affects efficiency of insurance firms in Kenya.

Coefficients of determination were used as indicators of the direction of the relationship between the independent variables and efficiency of insurance firms. The p-value under sig. column was used as an indicator of the significance of the relationship between the dependent and the independent variables. At 95% confidence level, a p-value of less than 0.05 was interpreted as a measure of statistical significance. As such, a p-value above 0.05 indicates a statistically insignificant relationship between the dependent and the independent variables. The results are as shown in table 4.9

Table 4.9: Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.138	.068		2.021	.044
	Capital Structure	.010	.008	.070	1.253	.211
	Profitability	.823	.227	.239	3.629	.000
	Liquidity	.186	.032	.326	5.721	.000
	Firm Size	-.003	.009	-.025	-.383	.702

a. Dependent Variable: Firm Efficiency

From the above results, it is evident that only profitability and liquidity produced positive and statistically significant values for this study (high t-values (3.629 and 5.721), $p < 0.05$). Capital structure and firm size were found to be statistically insignificant for this study as evidenced by (t= 1.253, p= 0.211) and (t= -.383, p= 0.702) respectively.

The following regression equation was estimated:

$Y = 0.138 + 0.823X_1 + 0.186X_2$

Where,

Y = Firm efficiency

X_1= Profitability

X_2 = Liquidity

On the estimated regression model above, the constant = 0.138 shows that if selected dependent variables (capital structure, profitability, liquidity and firm size) were rated zero, the firm efficiency would be 0.138. A unit increase in profitability would lead to increase in firm efficiency by 0.823 while a unit increase in liquidity would lead to an increase in firm efficiency by 0.186. Capital structure and firm size were found to have an insignificant effect on efficiency of insurance firms in Kenya.

4.6 Discussion of Research Findings

The study sought to determine the relationship between capital structure and firm efficiency of insurance firms in Kenya. Capital structure as measured by debt ratio was the independent variable. The control variables were profitability as measured by ROE, liquidity as measured by current ratio and firm size as measured by natural logarithm of total assets while firm efficiency as measured by the ratio of total revenue to total assets was the dependent variable. The effect of each of the independent variable on the

dependent variable was analyzed in terms of strength and direction.

The Pearson correlation coefficients between the variables revealed that a weak positive correlation exists between profitability and firm efficiency. The relationship between liquidity and firm efficiency was found to be weak, significant and positive. The study also showed that there exist a weak positive but insignificant relationship between capital structure and efficiency of insurance firms while firm size was found to have a weak and insignificant positive relationship with firm efficiency.

The model summary revealed that the independent variables: capital structure, profitability, liquidity and firm size explains 18.8% of changes in the dependent variable as indicated by the value of R^2 which implies that the are other factors not included in this model that account for 81.2% of changes in firm efficiency. The model is fit at 95% level of confidence since the F-value is 15.022. This confirms that overall the multiple regression model is statistically significant, in that it is a suitable prediction model for explaining how the selected independent variables affects firm efficiency of insurance firms in Kenya.

The findings of this study are in line with Maina and Ishnail (2014) who examined the link between financial structure and the financial performance of all firms listed on the NSE. Using a causal research design and secondary data from financial statements of NSE listed firms between 2002 and 2011; the researchers subjected the data to panel regression analysis using Gretl statistical software. The research concluded that capital structure choice measured by Debt to Equity (DE), Long Term Debt to Equity (LDE), Total Assets (TA) has no substantial effect on NSE listed firms performance denoted by ROA, ROE, and market value/book value.

This study is also in agreement with Enekwe, Agu and Eziedo (2014) who explored effect of financial leverage on financial performance of Nigeria pharmaceutical companies. The study used secondary data for the year 2001 to 2012 a sample of three companies. The study employed Pearson correlation and regressions models to analyze data collected. It was established that both debt ratio and debt-equity ratio had a negative relation with profitability when measured using ROA. The study also found that the ration on interest coverage had a positive relation with profitability of pharmaceutical companies in Nigeria. However, the study revealed that debt to equity ratio, debt ratio and interest coverage ratio had insignificant impact on profitability of the pharmaceutical industry in Nigeria.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings of the previous chapter, conclusion, limitations encountered during the study. This chapter also elucidates the policy recommendations that policy makers can implement to achieve the expected efficiency of insurance firms in Kenya. Lastly the chapter presents suggestions for further research which can be useful to future researchers.

5.2 Summary of Findings

The study sought to investigate the effect of capital structure on efficiency of insurance firms in Kenya. The independent variables for the study were capital structure, profitability, liquidity and firm size. The study adopted a descriptive cross-sectional research design. Secondary data was obtained from the Insurance Regulatory Authority and was analyzed using SPSS software version 21. The study used annual data for the 53 insurance firms covering a period of 5 years from January 2013 to December 2017.

From the results of correlation analysis, a weak positive correlation was found to exist between profitability and firm efficiency. The relationship between liquidity and firm efficiency was found to be weak, positive and significant. The study also showed that there exist a weak positive and insignificant relationship between capital structure and efficiency of insurance firms while firm size was found to have a weak and insignificant positive relationship with firm efficiency.

The co-efficient of determination R-square value was 0.188 which means that about 18.8 percent of the variation in efficiency of insurance firms in Kenya can be explained

by the four selected independent variables while 81.2 percent in the variation of firm efficiency was associated with other factors not covered in this research. The study also found that the independent variables had a weak correlation with firm efficiency (R=0.433). ANOVA results show that the F statistic was significant at 5% level with a p=0.000. Therefore the model was fit to explain the relationship between the selected variables.

The regression results show that when all the independent variables selected for the study have zero value the firm efficiency will be 0.138. A unit increase in profitability would lead to increase in firm efficiency by 0.823 while a unit increase in liquidity would lead to an increase in firm efficiency by 0.186. Capital structure and firm size were found to have an insignificant effect on efficiency of insurance firms in Kenya.

5.3 Conclusion

From the study findings, the study concludes that efficiency of insurance firms in Kenya is significantly affected by profitability and liquidity of the firms. The study found that profitability had a positive and significant effect on firm efficiency. The study therefore concludes that higher profitability of insurance firms leads to an increase in firm efficiency. The study found that liquidity had a positive and significant effect on firm efficiency and therefore it is concluded that higher levels of liquidity leads to an increase in firm efficiency. Firm size and debt ratio were found to be statistically insignificant determinants of firm efficiency and therefore this study concludes that firm size and capital structure do not significantly influence efficiency among insurance firms in Kenya.

This study concludes that independent variables selected for this study capital structure, profitability, liquidity and firm size influence to a large extent efficiency of insurance

firms in Kenya. It is therefore sufficient to conclude that these variables significantly influence the efficiency as shown by the p value in anova summary. The fact that the four independent variables explain 18.8% of changes in firm efficiency imply that the variables not included in the model explain 81.2% of changes in firm efficiency.

This finding concurs with Enekwe, Agu and Eziedo (2014) who explored effect of financial leverage on financial performance of Nigeria pharmaceutical companies. The study used secondary data for the year 2001 to 2012 a sample of three companies. The study employed Pearson correlation and regressions models to analyze data collected. It was established that both debt ratio and debt-equity ratio had a negative relation with profitability when measured using ROA. The study also found that the ration on interest coverage had a positive relation with profitability of pharmaceutical companies in Nigeria. However, the study revealed that debt to equity ratio, debt ratio and interest coverage ratio had insignificant impact on profitability of the pharmaceutical industry in Nigeria.

5.4 Recommendations

The study established that there was a positive influence of profitability on efficiency of insurance firms in Kenya. This study recommends adequate measures to be put into place to improve and grow the profitability of the firms. Insurance firms and other sectors should invest in profitable assets that will yield higher returns in the future to enhance their efficiency and increase their returns to shareholders in future. The management of the firms should ensure a good proportion of assets are sufficiently utilized to revenue which will eventually lead to better performance.

The study found out that a positive relationship exists between firm efficiency and liquidity position. This study recommends that a comprehensive assessment of a firm's

immediate liquidity position should be undertaken before investing in ay long term project as firm's liquidity has been found to be a significant determiner of firm efficiency.

The relationship between capital structure and efficiency of insurance firms in Kenya was found to be positive but insignificant. This implies that although an increase in debt financing may improve efficiency of a firm, the effect is negligible. This study recommends that management of insurance firms should look for other determiners of efficiency other than capital structure.

5.5 Limitations of the Study

The scope of this research was for five years 2013-2017. It has not been determined if the results would hold for a longer study period. Furthermore it is uncertain whether similar findings would result beyond 2017. A longer study period is more reliable as it will take into account major economic conditions such as booms and recessions.

One of the limitations of the study is the quality of the data. It is difficult to conclude from this research whether the findings present the true facts about the situation. The data that has been used is only assumed to be accurate. The measures used may keep on varying from one year to another subject to prevailing condition. The study utilized secondary data, which had already been obtained and was in the public domain, unlike the primary data which is first-hand information. The study also considered selected determinants and not all the factors affecting the firm efficiency mainly due to limitation of data availability.

For data analysis purposes, the researcher applied a multiple linear regression model. Due to the shortcomings involved when using regression models such as erroneous and misleading results when the variable values change, the researcher cannot be able to

generalize the findings with certainty. If more and more data is added to the functional regression model, the hypothesized relationship between two or more variables may not hold.

5.6 Suggestions for Further Research

This study focused on capital structure and efficiency of insurance firms in Kenya and relied on secondary data. A research study where data collection relies on primary data i.e. in depth questionnaires and interviews covering all the 53 insurance firms registered with the Insurance Regulatory Authority is recommended so as to compliment this research.

The study was not exhaustive of the independent variables affecting firm efficiency of insurance firms in Kenya and this study recommends that further studies be conducted to incorporate other variables like growth opportunities, industry practices, a firm lifecycle stage, political stability and other macro-economic variables. Establishing the effect of each variable on firm efficiency will enable policy makers know what tool to use when controlling the firm efficiency.

The study concentrated on the last five years since it was the most recent data available. Future studies may use a range of many years e.g. from 1970 to date and this can be helpful to confirm or disapprove the findings of this study. The study limited itself by focusing on insurance firms. The recommendations of this study are that further studies be conducted on other non-insurance firms operating in Kenya. Finally, due to the shortcomings of regression models, other models such as the Vector Error Correction Model (VECM) can be used to explain the various relationships between the variables.

REFERENCES

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

Adams, M., & Buckle, M. (2003).The determinants of corporate financial Performance in the Bermuda Insurance Market. *Applied Financial Economics*, 13(2), 133-143

Agarwal, R., & Gort, M. (2002).Firm product lifecycle and financial intermediation on the profitability of insurance companies in Nigeria. *First Bank of Nigeria Quarterly Review*, 2(1), 52-63

Akbarian, S. (2013). The investigation Effect of Financial Leverage and Environment Risk on Performance firms of Listed Companies in Tehran Stock Exchange. *Journal of Applied Science and Agriculture*, 8(3), 249-255

Aliu, N. O. (2010). *Effect of Capital Structure on the Performance of Quoted Manufacturing Firms in Nigeria*. Unpublished Thesis. Ahmadu Bello University

Aliyu, S. U. R. (2011). *Does inflation has an impact on Stock Returns and Volatility. Evidence from Nigeria and Ghana*. Bayero University, Kano-Nigeria

Almajali, Y.A., Alamro, S.H., & Al-Soub, Y.Z (2012).Factors affecting financial performance of Jordanian insurance companies listed at Amman stock exchange. *Journal of Management Research*, 4(2), 91-101

Al-shubiri F. (2010). Analysis the Determinants of Market Stock Price Movements: An Empirical Study of Jordanian Commercial Banks, *International Journal of Business and Management*, 12(7), 214-221

Amato, L. and Burson , T. (2007). The Effects of Firm Size on Profit Rates in the Financial Service, *Journal of Economic and Economic Research*, 8(1).61- 81

Association of Kenya Insurers (AKI) (2016). *Insurance Industry Annual Report*. Association of Kenya Insurers

Athanasoglou, P., Brissimis, S., & Delis, M. (2005), "Bank-Specific, Industry-Specific and Macroeconomics Determents of Bank Profitability", *Bank of Greece*, No. 25.

Baker, M. & Wurgler, J. (2002). Market timing and capital structure. *Journal of Finance*, 57(2).

Banafa, A. S, Muturi, W & Ngugi, K (2015). The Impact of Leverage on Financial Performance of Listed Non-Financial Firm in Kenya. *International Journal of Finance and Accounting*, 4 (7), 1-20

Barakat, A. (2014). The Impact of Financial Structure, Financial Leverage and Profitability on Industrial Companies Shares Value (Applied Study on a Sample of Saudi Industrial Companies). *Research Journal of Finance and Accounting*, 5(1), 55 – 66

Burca, K. & Batrinca, L. (2014). The Determinants of Financial Performance in the Romanian Insurance Market. *International Journal of Academic Research in Accounting, Finance and Management Sciences*. 4(1), 299-308

Burns, N. & Burns, S. (2008). *The Practice of Nursing Research: Conduct, Critique and Utilization*: 5th Edition: St Louis, Elsevier Saunders

Calabrese, T. D. (2011). Testing Competing Capital Structure Theories of Nonprofit Organizations. *Public Budgeting & Finance*, 119-143

Charnes, A., Cooper, W. & Rhodes, E. (1978). Measuring the Efficiency of Decision Making Units, *European Journal of Operational Research*, 2, 429-444.

Cheluget, J. (2014). Liquidity as a determinant of financial distress in insurance companies in Kenya. *Prime Journal of Business Administration and Management*, 4(1), 1319-1328.

Cooper, R., & Schindler, S. (2008). *Business research methods.* New York: Mc Grawhill

Daferighe, E. & Sunday, C. S. (2012). The Impact of Inflation on Stock Market Performance in Nigeria. *American Journal of Social and Management Sciences*, 3 (2), 76-82

Darrab, I. A. & Khan, M. R. R. (2010). Development of analytical relation between maintenance, quality and productivity. *Journal of Quality Maintenance*, 16(4), 341-353.

Dehuan, J., & Jin, Z. (2008). Firm performance and stock returns: an empirical study of the top performing stock listed on shanghai stock exchange. *Academy of Accounting and Financial Studies Journal*, 24(2), 12-19

Enekwe, C. I., Agu, C. I. & Eziedo, K. N. (2014). The Effect of Financial Leverage on Financial Performance: Evidence of Quoted Pharmaceutical Companies in Nigeria. *IOSR Journal of Economics and Finance*, 5(3), 17-25

Erdugan, R. (2012). *The Effect of Economic Factors on the Performance of the Australian Stock Market.* Unpublished Dissertation. Victoria University, Melbourne

Fama, E. F. (1981). Stock returns, real activity, inflation, and money. *The American Economic Review, 71(*4), 545-565.

Fama, E. F. and French, K. R. (1998). Value versus Growth, The international Evidence, *Journal of Finance,* 53 (6) 1975

Fisher, I. (1930). *The theory of interest*. New York, 43.

Fisher, I. (2009). *The Theory of Interest*, Macmillan, New York, 323-352

Flannery, M., & Protopapadakis, W. (2002). Macroeconomic Factors that Influence Aggregate Stock Returns. *The Review of Financial Studies*, 7(4)751-782.

Gitman, L. (2003). *Basic Managerial Finance*. 2nd edition. New York: Harper & Row

Hadlock, C and James, C (2002). Do Banks provide financial slack? *Journal of Finance*, 57(9):34-35

Harris, M. and Raviv, A. (1991). The theory of capital structure, *Journal of finance*, 46,297-355

Idris, I., & Bala, H. (2015). Firms' Specific Characteristics and Stock Market Returns (Evidence from Listed Food and beverages Firms in Nigeria). *Research Journal of Finance and Accounting*, 6 (16), 188 -200.

Insurance Regulatory Authority (IRA) (2016). *Insurance Industry Report for the Year Ended 31st December, 2015.* Insurance Regulatory Authority, Kenya

Itiri, I. O. (2014). *Impact of Financial Structure on the Performance of Quoted Firms in Nigeria.* University of Nigeria

Jensen M, and Meckling, W. (1976), The Theory of the firm: managerial behavior, agency costs and ownership structure, *Journal of financial Economics* 3, 305-360

Jovanovic, B. (1982). Selection and the evolution of industry. *Econometrics*, 50,649-670

Kalluru, S. & Bhat, K. (2009). Determinants of Cost Efficiency of Commercial banks in India. *ICFAI Journal of Bank Management*, 8(2), 32-50.

Khan, J. A. (2008). *Research Methodology*. New Delhi. APH Publishing Corporation

Koech, S. K. (2013). *The effect of Capital Structure on Profitability of Financial Firms Listed at the Nairobi Stock Exchange* (Unpublished masters' research project). University of Nairobi, Nairobi.

Kraus, A. & Litzenberger, R. H. (1973). A State-Preference Model of Optimal Financial Leverage. *Journal of Finance*, 28(4), 911–922.

Kusa, G., & Ongore, O. (2013).Determinants of the financial performance of commercial Banks in Kenya. *International Journal of Economics and Financial Issues, 3*(1) 237-252

Kuwornu, J. K. M. (2012). Effect of Macroeconomic Variables on the Ghanaian Stock Market Returns: A Co-integration Analysis. *Agris on-line Papers in Economics and Informatics, 4* (2), 1-12

Lee, J. (2012). Does Size Matter in Firm Performance? Evidence from US Public Firms. *Journal of the Economics of Business*, 16, 2, 189 –203.

Liargovas, P., & Skandalis, K. (2008).*Factors affecting firm's financial performance*. The case of Greece, Athens. University of Peloponnese Press.

Loderer, Neusser, K, &Waelchli U. (2009).Firm age and survival.*Working paper, University of Bern, Switzerland*

Maina, L., & Ishmail, M. (2014). Capital structure and financial performance in Kenya: Evidence from firms listed at the Nairobi Securities Exchange. *International Journal of Social Sciences and Entrepreneurship,* 1 (11), 209-223.

Masereti, E. N. (2014). *Capital Structure and Stock Returns: Evidence from the Nairobi Securities Exchang*e (Unpublished bachelor's research project). Strathmore University, Nairobi.

Mishkin, F.S. & Eakins S. (2009). *Financial Markets and Institutions* (6thed.). Pearson Prentice Hall

Modigliani, F. and Miller, M. H. (1958). The Cost of Capital, Corporate Finance and the Theory of Investment. *American Economic Review,* 48, 261-97.

Mohohlo, N. R. (2013). *Capital structure and its impact on firm value of JSE Securities Exchange listed companies* (Unpublished master's research project). University of the Witwatersrand, Johannesburg.

Mugambi, M. & Okech, T. C. (2016). Effect of Macroeconomic Variables on Stock Returns of Listed Commercial Banks in Kenya. *International Journal of Economics, Commerce and Management*, 4 (6), 390-418

Muriuki A.M (2013). *The role of central bank rate on commercial banks profitability in Kenya*. Unpublished MBA Project, University of Nairobi.

Mwangi, L. W. Muathe, S. K. and Kosimbei, G. (2014). Relationship between Capital Structure and Performance of Non-Financial Companies Listed in the Nairobi

Securities Exchange, Kenya. *Global Journal of Contemporary Research in Accounting, Auditing and Business Ethics*, 1(2), 72-90.

Mwaniki, C. (2016, February Fourth). Industrial stocks register slower fall as NSE opens year on a downward trend. p. Business Daily

Myers, S. (1977). Determinants of Corporate Borrowing, *Journal of Financial Economics*, 5, 146-175

Myers, S. C. and N. S. Majluf. (1984). Corporate Financing and Investment Decision when Firms have Information that Investors do not have. *Journal of Finance and Accounting* , 9(7), 36-69.

Ndung'u, N. (2001). *Liberalization of the foreign exchange market in Kenya and short term capital flows problem*, AERC Research Paper No. 109, Nairobi: African Economic Research Consortium.

Ndung'u, C. N. (2014). *The Relationship between Capital Structure and Stock Returns of Firms Quoted in the Nairobi Securities Exchange* (Unpublished master's research project). University of Nairobi, Nairobi.

Njeri, M. K., & Kagiri, A. W. (2015). Effect of Capital Structure on Financial Performance of Banking Institutions Listed in Nairobi Securities Exchange. *International Journal of Science and Research*, 4(7), 924 – 930.

NSE (2017). The organization website-*www.nse.co.ke*

Nyamita, M. O. (2014). *Factors Influencing Debt Financing and Its Effects on Financial Performance of State Corporations in Kenya*. Doctorate Thesis. Durban University of Technology

Ogutu, A. W., Riro, K., & Ofunya, A. (2015). Effect of Capital Attributes on the Performance of Commercial and Services Companies Listed in Nairobi Stock Exchange. *International Journal of Social Sciences Management and Entrepreneurship*, 2 (1), 313 – 326.

Onaolapo A. A., and Kajola S.O. (2010). Capital structure and firm performance. Evidence from Nigeria. *European Journal of Economics, Finance and Administrative Science,* 25 70-82.

Rao, K. R. M., & Lakew, T. B. (2012). Determinants of Profitability of Commercial Banks in a Developing Country: Evidence from Ethiopia, *International Journal of Accounting and Financial Management Research (IJAFMR),* 2(3), 1-20

Saad, M. (2010).Corporate governance, compliance and the effects to capital structure international. *Journal of Financial Economics,* 2(1), 105-114.

Saeedi, A. & Mahmoodi, I. (2011). Capital Structure and Firm Performance: Evidence from Iranian Companies, *International Research Journal of Finance and Economics*, 70(7), 20-29

Sebnem, E. R., & Vuran, B. (2012). Factors Affecting Stock Returns of Firms Quoted in ISE Market: A Dynamic Panel Data Approach. *International Journal of Business and Social Research,* 2(1), 109 – 122.

Sireesha, P. B. (2013). Effect of Select Macro Economic Variables on Stock Returns in India. *International Journal of Marketing, Financial Services & Management Research,* 2 (6), 197-207

Širucek, M. (2013). *The Impact of the Money Supply on Stock Prices and Stock Bubbles*. Mendel University

Sloman, A.N & Kevin, J. (2007). *Economics for Business*. Prentice Hall, Financial Times.

Sorensen, B.,& Stuart, E. (2000).Age, obsolescence and organizational innovation. *Academy of Management journal*, 25(6), 121-132

Tahmoorespour, R., Ali-Abbar, M., & Randjbaran, E. (2015). The Impact of Capital Structure on Stock Returns: International Evidence. *Hyperion Economic Journal*, 1(3), 56 – 78.

Tale, N. (2014). *Relationship between capital structure and performance of nonfinancial listed firms at the Nairobi securities exchange*, Unpublished MBA project, School of Business, University of Nairobi

Taofik, M. I. & Omosola, M. A. (2013). The Relationship between Stock Return and Inflation in Nigeria. *European Scientific Journal*, 9 (4), 146 – 157

Uddin, G. (2009). Relationship between Interest Rate and Stock Price: Empirical Evidence from Developed and Developing Countries (2009). *International Journal of Business and Management* 4(3), 43-51

Vieira, R. S. (2010). The Relationship between Liquidity and the Profitability: An Exploratory Study of Airline Companies between 2005 and 2008

Wakiaga, P. (2016, June Monday). Manufacturing's big winners in Treasury's Sh2.3trn budget Nairobi. *European Scientific Journal*, 6 (2), 58 – 69

Wald, J.K. (1999). How firm characteristics affect capital structure: an international comparison, *Journal of Financial Research*, 22, 2,161-87.

Wang F. (2012). *Determinants of Chinese Stock Market Returns*. Unpublished MSc Thesis. Universiti Utara Malaysia

Welch, I. (2004). Capital Structure and Stock Returns. *Journal of Political Economy*, 112 (1), 106 – 131

Yuqi, I. (2007). *Determinants of banks' profitability and its implication on risk management practices*. Unpublished Dissertation, University of Nottingham, UK.

APPENDICES

Appendix I: Research Data

COMPANY	Year	Profitability	Capital Structure	Firm Efficiency	Liquidity	Firm Size
AAR Insurance Company Limited	2013	0.02690	0.6973	0.144	0.425	7.280
	2014	0.02190	0.8346	0.151	0.380	7.293
	2015	0.01260	0.9381	0.172	0.306	7.331
	2016	0.01230	0.7801	0.165	0.214	7.344
	2017	0.00707	0.8835	0.160	0.271	7.351
Africa Merchant Assurance Company Limited	2013	0.03300	0.5630	0.235	0.558	7.664
	2014	0.04100	0.5831	0.216	0.606	7.716
	2015	0.03900	0.5860	0.242	0.605	7.792
	2016	0.03100	0.5611	0.271	0.615	7.834
	2017	0.03900	0.5781	0.305	0.652	7.919
AIG Kenya Insurance Company Limited	2013	0.04980	0.7832	0.250	0.468	8.267
	2014	0.03890	0.7612	0.162	0.450	8.316
	2015	0.03870	0.8806	0.160	0.442	8.354
	2016	0.03600	0.9457	0.184	0.341	8.382
	2017	0.02840	0.9055	0.179	0.283	8.414
Allianz Insurance Company of Kenya Limited	2013	0.01100	0.8101	0.129	0.256	7.690
	2014	0.01500	0.9230	0.127	0.345	7.722
	2015	0.00250	0.7960	0.159	0.283	7.794
	2016	-0.01600	0.9152	0.164	0.415	7.841
	2017	0.00017	0.8675	0.162	0.422	7.748

APA Insurance Limited	2013	0.04100	0.4685	0.405	0.659	7.716
	2014	0.03900	0.5017	0.415	0.752	7.792
	2015	0.03100	0.7255	0.394	0.742	7.834
	2016	0.03900	0.7201	0.423	0.565	7.919
	2017	0.04980	0.6598	0.457	0.610	8.267
APA Life Assurance Company Limited	2013	0.02110	0.7617	0.159	0.430	7.691
	2014	0.02500	0.7168	0.150	0.410	7.884
	2015	0.02520	0.9760	0.153	0.464	8.030
	2016	0.00300	0.9723	0.159	0.430	7.150
	2017	-0.01510	0.9782	0.150	0.410	7.144
Barclays Life Assurance Kenya Limited	2013	0.06140	0.5561	0.150	0.470	7.842
	2014	0.04260	0.4694	0.108	0.270	7.853
	2015	0.03240	0.4293	0.110	0.360	7.900
	2016	0.04060	0.4581	0.094	0.328	7.945
	2017	0.03590	0.5845	0.079	0.258	8.014
Britam General Insurance Company (K) Limited	2013	0.02870	0.5901	0.420	0.820	8.002
	2014	0.03090	0.6090	0.354	0.625	8.096
	2015	0.02510	0.6409	0.273	0.798	8.245
	2016	0.02470	0.6084	0.280	0.762	8.298
	2017	0.03220	0.5483	0.260	0.948	8.324
Britam Life Assurance Company (K) Limited	2013	0.00840	0.9269	0.161	0.476	7.255

	2014	-0.00630	0.8657	0.135	0.411	7.225
	2015	-0.01770	0.9225	0.179	0.340	7.178
	2016	0.00300	0.9652	0.179	0.367	7.150
	2017	-0.01510	0.9740	0.185	0.451	7.144
Cannon Assurance Company Limited	2013	0.02510	0.7852	0.150	0.470	6.807
	2014	0.02470	0.7663	0.108	0.270	6.864
	2015	0.03220	0.9753	0.110	0.360	6.948
	2016	0.00840	0.8647	0.094	0.328	7.012
	2017	0.00940	0.8865	0.079	0.258	7.086
Capex Life Assurance Company Limited	2013	0.01900	0.7340	0.307	0.489	7.491
	2014	0.03300	0.6881	0.266	0.367	7.638
	2015	0.03400	1.1253	0.172	0.322	7.791
	2016	0.02700	1.4772	0.149	0.165	7.910
	2017	0.00440	1.5140	0.228	0.327	7.842
CIC General Insurance Company Limited	2013	0.04980	0.8615	0.198	0.400	8.267
	2014	0.03890	0.8552	0.205	0.318	8.316
	2015	0.03870	0.9149	0.189	0.399	8.354
	2016	0.03600	0.7824	0.177	0.400	8.382
	2017	0.02840	0.8754	0.185	0.335	8.414
CIC Life Assurance Company Limited	2013	0.03300	0.8552	0.325	0.357	7.664
	2014	0.04100	0.9149	0.306	0.346	7.716
	2015	0.03900	0.7824	0.325	0.286	7.792
	2016	0.03100	0.8754	0.250	0.275	7.834
	2017	0.03900	0.2460	0.197	0.227	7.919

Continental Reinsurance Limited (Kenya)	2013	-0.03580	0.6516	0.089	0.390	7.502
	2014	-0.02570	0.8019	0.123	0.370	7.567
	2015	-0.00773	0.7038	0.107	0.410	7.662
	2016	0.00184	0.7686	0.175	0.310	7.720
	2017	-0.04070	0.8702	0.163	0.140	7.673
Corporate Insurance Company Limited	2013	-0.03570	0.6516	0.226	0.401	7.149
	2014	0.00375	0.8019	0.191	0.287	7.192
	2015	-0.02030	0.7038	0.203	0.296	7.220
	2016	-0.03130	0.7686	0.188	0.224	7.160
	2017	-0.05320	0.8702	0.208	0.390	7.140
Directline Assurance Company Limited	2013	0.01900	0.8080	0.158	0.380	7.491
	2014	0.03300	0.8046	0.148	0.460	7.638
	2015	0.03400	0.8907	0.112	0.540	7.791
	2016	0.02700	1.2118	0.153	0.570	7.910
	2017	0.00440	0.9179	0.140	0.353	7.842
East Africa Reinsurance Company Limited	2013	0.01800	0.8080	0.180	0.285	7.234
	2014	0.01500	0.8046	0.210	0.331	7.409
	2015	0.01800	0.8907	0.200	0.298	7.518
	2016	0.01500	1.1511	0.212	0.385	7.468
	2017	0.01500	0.6859	0.209	0.300	7.472
Fidelity Shield Insurance Company Limited	2013	0.02400	0.7261	0.164	0.420	6.998
	2014	0.01200	0.7321	0.156	0.320	7.053

	2015	0.00380	0.8858	0.209	0.310	7.184
	2016	-0.00081	0.8644	0.205	0.300	7.163
	2017	-0.00380	0.6584	0.216	0.355	7.175
First Assurance Company Limited	2013	0.04000	0.7261	0.284	0.333	7.290
	2014	0.04200	0.7321	0.182	0.313	8.043
	2015	0.02300	0.7286	0.139	0.300	8.138
	2016	0.04100	0.7104	0.140	0.303	8.170
	2017	0.04100	0.7234	0.119	0.355	8.215
GA Insurance Limited	2013	0.01800	0.6243	0.227	0.340	7.234
	2014	0.01500	0.6570	0.225	0.305	7.409
	2015	0.01800	0.7435	0.210	0.340	7.518
	2016	0.01500	0.7150	0.154	0.370	7.468
	2017	0.01500	0.7444	0.199	0.340	7.472
GA Life Assurance Limited	2013	0.01600	0.7695	0.161	0.420	7.167
	2014	0.01900	0.7614	0.190	0.380	7.108
	2015	0.01900	0.7397	0.189	0.230	7.163
	2016	0.01600	0.7289	0.202	0.202	7.165
	2017	0.01600	0.7330	0.182	0.368	7.167
Geminia Insurance Co. Limited	2013	0.04490	8.2233	0.260	0.331	8.291
	2014	0.04460	0.8734	0.260	0.308	8.343
	2015	0.04710	0.8113	0.270	0.280	8.347
	2016	0.02780	0.7443	0.163	0.211	8.369
	2017	0.03740	0.7434	0.201	0.460	8.399
The Heritage Insurance Company Limited	2013	0.02650	0.3634	0.295	0.340	6.945
	2014	0.01710	0.6314	0.238	0.304	6.985
	2015	0.01260	0.4641	0.151	0.291	7.010

	2016	0.01620	0.5751	0.181	0.477	7.019
	2017	0.01050	0.8231	0.177	0.358	7.016
ICEA Lion General Insurance Company Limited	2013	0.04490	0.8381	0.300	0.326	8.291
	2014	0.04460	0.7967	0.236	0.338	8.343
	2015	0.04710	0.6692	0.173	0.376	8.347
	2016	0.02780	0.6576	0.162	0.337	8.369
	2017	0.03740	0.5920	0.155	0.460	8.399
ICEA LION Life Assurance Company Limited	2013	0.04170	0.9118	0.238	0.679	8.035
	2014	0.04140	0.9922	0.211	0.414	8.083
	2015	0.04270	0.9993	0.216	0.737	8.164
	2016	0.03860	1.0236	0.213	0.546	8.219
	2017	0.03640	0.8621	0.228	0.390	8.229
Intra Africa Assurance Company Limited	2013	0.01100	0.5073	0.255	0.340	7.827
	2014	0.01400	0.6267	0.205	0.440	7.966
	2015	0.00740	0.6129	0.211	0.420	8.089
	2016	-0.00960	0.5861	0.187	0.380	8.096
	2017	0.00120	0.5554	0.181	0.230	8.061
Invesco Assurance Company Limited	2013	0.03780	0.7450	0.190	0.202	8.484
	2014	0.03960	0.8152	0.150	0.368	8.509
	2015	0.04540	0.8607	0.160	0.331	8.576
	2016	0.03910	0.8607	0.181	0.308	8.670
	2017	0.04070	0.8461	0.190	0.280	8.703
The Jubilee Insurance	2013	0.04000	0.9458	0.220	0.211	7.290

Company of Kenya Limited						
	2014	0.04200	0.9487	0.214	0.460	8.043
	2015	0.02300	0.9812	0.206	0.340	8.138
	2016	0.04100	0.9310	0.247	0.304	8.170
	2017	0.04100	0.9154	0.232	0.291	8.215
Kenindia Assurance Company Limited	2013	0.04490	1.0788	0.214	0.477	8.291
	2014	0.04460	0.7295	0.206	0.358	8.343
	2015	0.04710	0.9278	0.409	0.326	8.347
	2016	0.02780	1.1594	0.410	0.338	8.369
	2017	0.03740	1.5554	0.214	0.376	8.399
Kenya Orient Insurance Limited	2013	0.01890	1.3285	0.300	0.337	7.609
	2014	0.01850	1.2726	0.310	0.376	7.670
	2015	0.01620	1.2531	0.290	0.679	7.782
	2016	0.02120	1.4072	0.339	0.414	7.001
	2017	0.01130	1.3509	0.402	0.737	7.000
Kenya Orient Life Assurance Limited	2013	0.05600	0.8805	0.480	0.546	8.334
	2014	0.05600	0.8728	0.420	0.390	8.377
	2015	0.06700	0.8932	0.350	0.340	8.441
	2016	0.05200	0.7891	0.240	0.440	8.533
	2017	0.04200	0.7479	0.270	0.604	8.579
Kenya Reinsurance Corporation Limited	2013	0.04000	0.7815	0.402	0.480	8.300
	2014	0.04200	0.8245	0.188	0.400	8.360
	2015	0.03300	0.7859	0.193	0.340	8.451
	2016	0.03400	0.8834	0.181	0.240	8.531
	2017	0.03800	0.8834	0.230	0.230	8.544

Liberty Life Assurance Kenya Limited	2013	0.02330	0.7223	0.398	0.202	7.670
	2014	0.02900	0.9124	0.312	0.368	7.782
	2015	0.03200	0.9394	0.265	0.331	8.234
	2016	0.02540	0.9475	0.216	0.308	8.298
	2017	0.02190	0.8531	0.223	0.280	8.312
Madison Insurance Company Kenya Limited	2013	0.02100	0.9486	0.210	0.211	6.980
	2014	0.03200	0.9357	0.154	0.460	7.121
	2015	0.03500	0.8664	0.199	0.340	7.199
	2016	0.02100	0.8941	0.161	0.304	7.281
	2017	0.00140	0.9917	0.190	0.368	7.320
Mayfair Insurance Company Limited	2013	0.01520	0.9486	0.189	0.390	6.861
	2014	0.01240	0.9357	0.202	0.380	6.905
	2015	0.01600	0.8664	0.182	0.460	7.017
	2016	0.01510	0.8941	0.260	0.540	7.022
	2017	0.01070	0.9917	0.260	0.570	6.974
Metropolitan Cannon Life Assurance Limited	2013	0.01680	0.7504	0.270	0.353	6.794
	2014	0.02120	0.7426	0.163	0.285	6.846
	2015	0.00968	0.8478	0.201	0.331	6.895
	2016	0.00525	0.9598	0.295	0.298	6.929
	2017	0.00366	0.9740	0.238	0.385	6.997
Occidental Insurance Company Limited	2013	0.01520	0.4957	0.151	0.300	6.861
	2014	0.01240	0.5526	0.181	0.420	6.905
	2015	0.01600	0.7279	0.177	0.320	7.017

	2016	0.01510	0.7565	0.300	0.310	7.022
	2017	0.01070	0.7639	0.236	0.300	6.974
Old Mutual Assurance Company Limited	2013	0.02120	0.6597	0.173	0.355	6.846
	2014	0.00968	0.6785	0.162	0.333	6.895
	2015	0.03300	0.8058	0.155	0.313	7.740
	2016	0.03400	0.7981	0.238	0.300	7.813
	2017	0.02900	0.6744	0.211	0.303	7.815
Pacis Insurance Company Limited	2013	0.02650	0.7377	0.216	0.355	6.945
	2014	0.01710	0.8039	0.213	0.340	6.985
	2015	0.01260	0.8962	0.228	0.305	7.010
	2016	0.01620	0.8089	0.255	0.340	7.019
	2017	0.01050	0.8428	0.205	0.370	7.016
Phoenix of East Africa Assurance Co. Limited	2013	0.04000	0.3181	0.211	0.420	7.290
	2014	0.04200	0.1772	0.187	0.380	8.043
	2015	0.02300	0.2053	0.181	0.230	8.138
	2016	0.04100	0.9197	0.190	0.202	8.170
	2017	0.04100	0.7798	0.150	0.368	8.215
Pioneer General Insurance Company Limited	2013	0.05460	0.9248	0.160	0.331	7.014
	2014	0.04890	0.8934	0.181	0.308	7.135
	2015	0.04110	0.9358	0.190	0.280	7.237
	2016	0.04930	0.9743	0.220	0.211	7.301
	2017	0.03750	1.0103	0.214	0.202	7.350
Prudential Life Assurance Company Limited	2013	0.02690	0.6973	0.144	0.425	7.280

	2014	0.02190	0.8346	0.151	0.380	7.293
	2015	0.01260	0.9381	0.172	0.306	7.331
	2016	0.01230	0.7801	0.165	0.214	7.344
	2017	0.00707	0.8835	0.160	0.271	7.351
Resolution Insurance Company Limited	2013	0.03300	0.5630	0.235	0.558	7.664
	2014	0.04100	0.5831	0.216	0.606	7.716
	2015	0.03900	0.5860	0.242	0.605	7.792
	2016	0.03100	0.5611	0.271	0.615	7.834
	2017	0.03900	0.5781	0.305	0.652	7.919
Saham Assurance Company Kenya Limited	2013	0.04980	0.7832	0.250	0.468	8.267
	2014	0.03890	0.7612	0.162	0.450	8.316
	2015	0.03870	0.8806	0.160	0.442	8.354
	2016	0.03600	0.9457	0.184	0.341	8.382
	2017	0.02840	0.9055	0.179	0.283	8.414
Sanlam General Insurance Company Limited	2013	0.01100	0.8101	0.129	0.256	7.690
	2014	0.01500	0.9230	0.127	0.345	7.722
	2015	0.00250	0.7960	0.159	0.283	7.794
	2016	-0.01600	0.9152	0.164	0.415	7.841
	2017	0.00017	0.8675	0.162	0.422	7.748
Sanlam Life Assurance Company Limited	2013	0.03300	0.8552	0.325	0.357	7.664
	2014	0.04100	0.9149	0.306	0.346	7.716
	2015	0.03900	0.7824	0.325	0.286	7.792
	2016	0.03100	0.8754	0.250	0.275	7.834
	2017	0.03900	0.2460	0.197	0.227	7.919

Takaful Insurance of Africa Limited	2013	-0.03580	0.6516	0.089	0.390	7.502
	2014	-0.02570	0.8019	0.123	0.370	7.567
	2015	-0.00773	0.7038	0.107	0.410	7.662
	2016	0.00184	0.7686	0.175	0.310	7.720
	2017	-0.04070	0.8702	0.163	0.140	7.673
Tausi Assurance Company Limited	2013	-0.03570	0.6516	0.226	0.401	7.149
	2014	0.00375	0.8019	0.191	0.287	7.192
	2015	-0.02030	0.7038	0.203	0.296	7.220
	2016	-0.03130	0.7686	0.188	0.224	7.160
	2017	-0.05320	0.8702	0.208	0.390	7.140
The Kenyan Alliance Insurance Company Limited	2013	0.01900	0.8080	0.158	0.380	7.491
	2014	0.03300	0.8046	0.148	0.460	7.638
	2015	0.03400	0.8907	0.112	0.540	7.791
	2016	0.02700	1.2118	0.153	0.570	7.910
	2017	0.00440	0.9179	0.140	0.353	7.842
The Monarch Insurance Company Limited	2013	0.01800	0.8080	0.180	0.285	7.234
	2014	0.01500	0.8046	0.210	0.331	7.409
	2015	0.01800	0.8907	0.200	0.298	7.518
	2016	0.01500	1.1511	0.212	0.385	7.468
	2017	0.01500	0.6859	0.209	0.300	7.472
Trident Insurance Company Limited	2013	0.02400	0.7261	0.164	0.420	6.998
	2014	0.01200	0.7321	0.156	0.320	7.053
	2015	0.00380	0.8858	0.209	0.310	7.184
	2016	-0.00081	0.8644	0.205	0.300	7.163
	2017	-0.00380	0.6584	0.216	0.355	7.175

UAP Insurance Company Limited	2013	0.04000	0.7261	0.284	0.333	7.290
	2014	0.04200	0.7321	0.182	0.313	8.043
	2015	0.02300	0.7286	0.139	0.300	8.138
	2016	0.04100	0.7104	0.140	0.303	8.170
	2017	0.04100	0.7234	0.119	0.355	8.215
UAP Life Assurance Company Limited	2013	0.01520	0.9486	0.189	0.390	6.861
	2014	0.01240	0.9357	0.202	0.380	6.905
	2015	0.01600	0.8664	0.182	0.460	7.017
	2016	0.01510	0.8941	0.260	0.540	7.022
	2017	0.01070	0.9917	0.260	0.570	6.974