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An Investigation of the factors influencing the financial performance of non-life insurance business in Kenya

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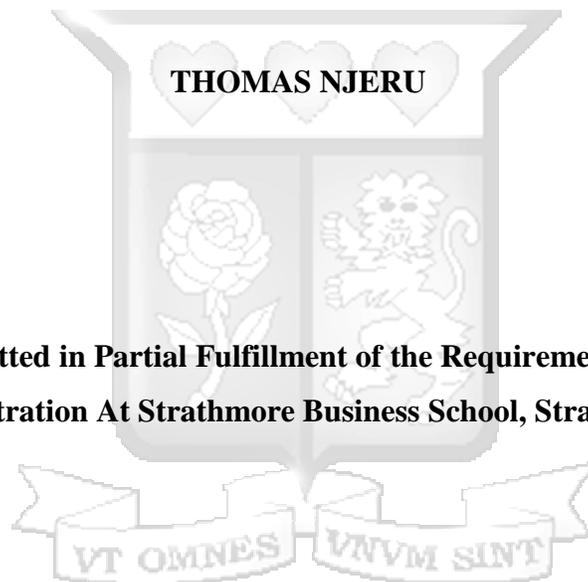
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**AN INVESTIGATION OF THE FACTORS INFLUENCING THE FINANCIAL
PERFORMANCE OF NON-LIFE INSURANCE BUSINESS IN KENYA**



**A Dissertation Submitted in Partial Fulfillment of the Requirements For The Master of
Business Administration At Strathmore Business School, Strathmore University**

June 2018

DECLARATION

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

THOMAS NJERU

.....

Approval

This dissertation of Thomas Njeru was reviewed and approved by the supervisor



SignatureDate.....

ABSTRACT

The study aimed at establishing the extent to which different factors affect the financial performance of non-life insurers in Kenya. The study used return on equity as the measure for financial performance since from a shareholder theory perspective, a firm should aim at maximizing its return to shareholders. From the resource based theory, an insurance firm should aim at owning strategic resources and capabilities in order to improve its competitive advantage and consequently increase its return on equity. To do so, an insurer would need to understand to what extent different factors influence the return on equity of a non-life insurance company in the Kenyan context. The objective of the study was to establish the extent to which different factors influence the financial performance of a non-life insurer. Using publicly available historical financial and economic data for the years 2006 to 2016, the researcher used regression analysis to explore the extent to which firm specific, industry specific, macro-economic factors affect the insurers' return on equity. All the 34 Kenyan non-life insurers registered as at 2016 were used in the study. The study established that firm specific factors had a significant influence on the variation in the insurers' return on equity whereas macro-economic and industry specific factors did not have a significant influence on the variation in insurers' return on equity. The study also found out that expense ratio, claims ratio, underwriting margin and investment yield had a significant influence on the financial performance of insurers. The claims ratio explained return on equity variation better than expense ratio but both factors had a negative impact on the return on equity of the insurers. From the study, market share didn't have a significant influence on the insurers' return on equity. As such insurers should focus their resources on optimizing their investment capabilities, underwriting capabilities as well as drive operational efficiencies to reduce expense ratio. Kenyan non-life insurers should also prioritize careful selection of risks over capturing markets share as the latter has no significant influence on insurers' financial performance.

Key words: *Insurance, performance, Return on Equity, Kenya, macro-economic*

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DEFINITION OF TERMS

Indemnity: it refers to an action done to compensate for injury or loss resulting from a contingent liability (Noussia, 2007).

Performance: Performance is the accomplishment of an activity of a business based on some set standards that show its completeness, cost as well as the accuracy achieved (Zairi, 2012).

Reinsurance: it is insurance for insurance firms. It's an exercise that insurance firms are transferring a portion of their risk portfolio to other institutions through a form of agreement so as to reduce the chances of paying a huge amount as a result of an insurance claim (Gurenko, 2004).



CHAPTER ONE: INTRODUCTION TO THE STUDY

1.1. Background information

The financial performance of an organization is a key determinant of its market value and the sustainability of its operations (Capon et al., 2012). One of the key financial measures of performance is Return on Equity (ROE). Mayo (2012), defines ROE as the profitability ratio that measures the capability of a firm to make profits relative to the investments in the company by the shareholders. Moreover, the return on equity ratio shows how much profit each dollar of common stockholders' equity generates (Sampson, 2010). ROE is one of the most important measures of financial performance as it assesses performance from the investors' point of view and not just the company (Mayo (2012). This study assessed the factors that influence the ROE as a measure of financial performance in a non-life insurance company in Kenya.

Insurance is usually categorized into; the life and the non-life insurance. Life insurance involves providing some form of compensation due to premature death, illness or disability of the life insured (Noussia, 2007). The named beneficiary will receive the proceeds and be safeguarded from the financial impact of the death, illness or disability of the insured. On the other hand, non-life insurance involves taking a cover against physical or economic damage to the owner or anyone with an insurable interest in a property or any asset with an economic value. It is also known as property or casualty insurance. Non-life insurance insures anything except the life of an individual (Noussia, 2007).

The study focused on non-life insurance, because the non-life insurance sector contributes to over 64% of the total insurance premiums in Kenya (AKI, 2015). This indicates the significance the non-life sector in the insurance industry. Furthermore, Butler (2012) notes that non-life insurance significantly contributes to the gross domestic product of Kenya by providing safety to business enterprises and also acting as a source of funds through the pooling system which are key ingredients to the economic development of an economy. According to Noussia (2007), non-life Insurance is an essential sector in a given country as it plays a vital role in a country's economic stability by protecting investments made by individuals as well as firms. Financial performance of

non-life Insurance companies in Kenya is varied with some insurers reporting losses across different reporting periods. This study aimed at assisting to understand the factors that influence the financial performance of Non-life insurance business in Kenya (Synge, 2000).

The performance of any organization refers to the accomplishment of a business activity based on some set standards that show its completeness, cost as well as the accuracy achieved (Zairi, 2012). Financial Performance can be expressed in form of financial measures that are usually expressed in monetary units. Usually ratios of these financial measures are used for comparison. According to Chandra (2005) ratio analysis will give a neutral picture of a firm's financial performance as the ratios will exclude the effect of size. The performance of an insurance entity can be measured in terms of the ratio of the profitability of the company to the shareholder funds otherwise called Return on Equity (ROE) (Shiu, 2004). Other ratio based measures of financial performance include Return on Assets (ratio of profitability of the business to the total assets), Asset utilization ratio (ratio of total revenue to the total assets of the business), gross margins (ratio of gross profits to total revenue), net margins (ratio of net profits to total revenue) Chandra (2005). This study used ROE as the measure of financial performance as ROE evaluates performance not just from a company's point of view but also from the shareholders perspective. It considers the amount of capital invested in the business by the shareholders (Mayo (2012).

1.1.1. Financial Performance of insurance companies in Kenya

As at 2014, the Kenyan non-life insurance industry consisted of 34 companies (AKI Report, 2015). The Kenyan insurance industry, which is regulated by the Insurance Regulatory Authority (IRA) and governed by the Insurance Act is the largest by premiums in the East Africa community and is also a major player in COMESA and SADC. However, the penetration in the insurance Kenyan market continues to be lower than global average even with increase in the growth of premiums in the insurance industry (Akotey et al., 2015). According to the IRA Report (2015), the recent economic expansion, characterized by a growing middle class, major investments in infrastructure projects, among others have continued to create immense opportunities for the insurance sector in Kenya. The report thus implies that performance of non-life insurers depends on macro-economic factors such as GDP growth. The report further alludes that these factors, coupled with increasing consumer awareness are pushing up demand not only for insurance products but also for the quality

of insurance services. This demand is pushing insurers to relook their business models in terms of innovation and strategic thrust. This further implies that performance of insurers could be dependent on firm specific factors or capabilities that non-life insurers possess internally.

According to AKI report (2015), there was an upward trend in most of the key performance measures with gross direct premiums increasing by 24.6% to Ksh160.4 billion in 2014. Additionally, the asset base of the insurance sector posted a growth of 17.6% from Ksh 366.25 billion noted as at December 2013 to KES 430.54 billion as at December 2014. Notably, despite the significant gains made by the industry during the year, insurance penetration declined from 3.4% in 2013 to 2.9% in 2014 due to the rebasing of Kenya's GDP. Despite the evident growth, the industry continues to experience challenges, including the threat of terrorism, and insufficient capacity to underwrite major infrastructure projects e.g. the construction of the standard gauge railway which is being re-insured outside the country. From a mergers & acquisitions perspective, the industry experienced increased interest from multinational investors with over six deals completed in 2014 according to IRA (2015).

Despite a sustained revenue growth that Non-life business witnessed in the last couple of years, profitability has been on the decline with the industry posting underwriting losses 2015. According to IRA (2015), the performance of individual companies was varied with some companies posting profit margins of over 5% while other companies are showing very dismal performance in the form of underwriting losses. Based on these, it would beg the question to what extent do insurance industry specific factors or performance influence the individual performance of Kenyan insurance companies.

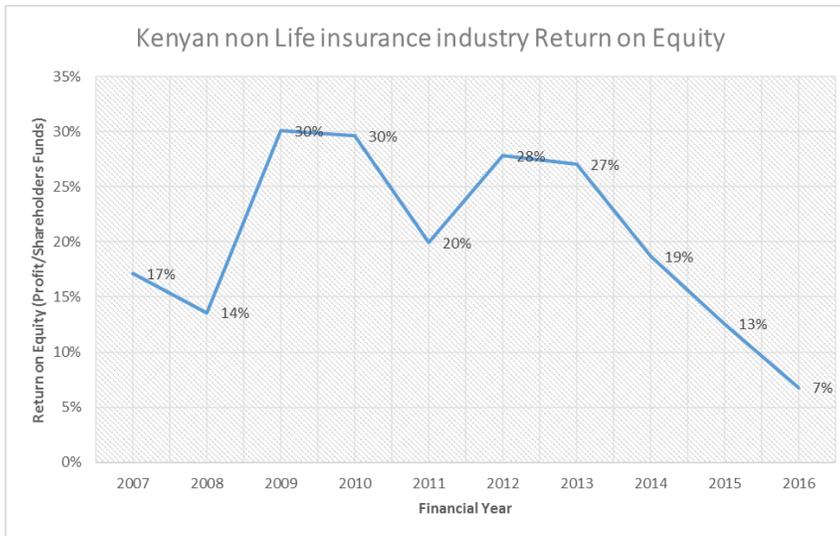


Figure 1.1: Historical financial performance for Kenyan non-life Insurance Industry

Source: IRA annual reports.

From Figure 1.1 above, historical ROE have been volatile across the years, with a declining trend from a high of 30% in 2009 to a low of 7% in 2016. In 2007 and 2008, the ROE was relatively low due to the political uncertainty arising from the 2007/2008 election and subsequent business interruptions that affected performance of the economy in general. The study focused on establishing the drivers of the historical variation of ROE for the individual non-life insurers.

From analysis of historical performance of Kenyan non-life insurers, it is clear that there was varied historical performance across different insurers as well as time periods. The key categories of factors that influence performance of non-life insurers include macro-economic factors, firm specific factors as well industry specific factors. This study aimed at establishing the factors the influence the financial performance of non-life insurers in the Kenyan context. In addition, the study aimed and determining the extent to which these factors influence the financial performance of non-life insurers.

1.2. Statement of the problem

From the aforementioned background, it is clear that there is a varied performance for Kenyan non-life insurers within the industry with some insurers making profits whereas others are making losses. This is further complicated by the fact that the return to shareholders for the whole industry

is not stable and varies across different insurance companies and time periods. It would thus be of interest to the managers, shareholders as well as regulators to understand the different drivers of financial performance in the Kenyan context to inform their strategy formulation. There is varied research on the drivers of financial performance of insurance companies including Shiu (2004), Lai and Limpaphayom (2003), Malik (2011) and Leng (2006b). However, none of these researches has focused on the Kenyan context. Whereas one would argue that there are similarities between insurance industries in different countries, research has shown that there are country specific features that impact the way and extent to which different factors affect financial performance of insurance companies. Rao (1999), demonstrated a relationship between growth, development, and structure of an insurance industry with the macroeconomic environment as well as government policies. Choi and Weiss (2005), enumerated the impact of an insurance industry's and its players' market power, the structure on conduct performance and efficiency. As a result, efficient companies could charge lower prices which lead to increase in market share thus earning more profits. Treerattanapun (2011), indicated that clients would be interested in taking insurance covers based on their cultural beliefs besides the economic rationality. Lee (2013), concluded that there existed a bidirectional connection between the economic growth and the insurance premiums. From the studies by Shiu (2004), Lai and Limpaphayom (2003), Rao (1999), Malik (2011) and Leng (2006b), there are many factors influencing the performance of an insurance company. These factors can be categorized into three; macro-economic, industry specific and firm specific factors. From above, we thus derive the objectives detailed in the next section.

1.3. Research objectives

1.3.1. General objective

The purpose of this study was to determine the influence of the macro-economic, industry specific and firm-specific factors on the financial performance of non-life insurance business in Kenya.

1.3.2. Specific objectives

- (i) To establish the macroeconomic factors influencing the financial performance of the non-life Insurance companies in Kenya.

- (ii) To determine the firm-specific factors influencing the financial performance of non-life Insurance companies in Kenya.
- (iii) To determine the industry specific factors influencing the financial performance of non-life insurance companies in Kenya.

1.4. Research questions

- (i) To what extent do the macroeconomic factors influence the financial performance of non-life Insurance companies in Kenya?
- (ii) To what extent do the firm-specific factors that influence the financial performance of non-life Insurance companies in Kenya?
- (iii) To what extent do the industry specific factors influence the financial performance of non-life insurance companies in Kenya?

1.5. Significance of the study

The results of study are essential to Insurance managers to gain more insights on the critical success factors in the management of a non-life insurance. This will be beneficial as they will be in a better position to develop more informed strategies to improve performance. Furthermore, the study will enable insurance managers to know how to prioritize different strategic initiatives by providing clarity on the extent to which different factors influence financial performance of insurers.

The study aimed at benefiting the Insurance Regulatory Authority (the Kenyan regulator) as the results of the study will assist them in monitoring the health of the insurance industry by identifying the key drivers of financial performance and consequently ensuring stability of the industry. Specifically, if an insurer's financial performance are affected by macro-economic volatilities, it will enable them to better legislate on how insurers should managing their different risks.

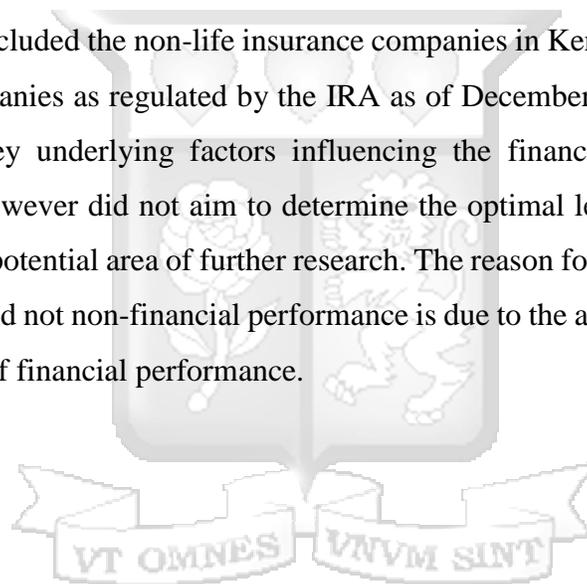
The results of the study will help investors make informed decisions while investing in a Kenyan non-life insurer by knowing the key value drivers to look out for. This is especially critical given the heightened mergers and acquisition activity as well as new entrants as demonstrated in the previous section. The study will also help investors to better understand the key factors driving

the underlying financial performance of their insurance investee companies and help make appropriate recommendations or corrective actions.

The study also aimed at assisting insurance actuaries and risk managers in understanding the key insurance risks and their contribution to the performance of an insurance company. For instance, if some of the factors that influence the financial performance of insurers are external (such as macro-economic factors) and cannot be controlled by insurers, then it is important exposures to these factors is monitored or mitigated to reduce the risks inherent in an insurance company.

1.6. Scope of the study

The scope of the study included the non-life insurance companies in Kenya. The target population is the 34 insurance companies as regulated by the IRA as of December 2016. The study focused on understanding the key underlying factors influencing the financial performance of these companies. The study however did not aim to determine the optimal level of these performance drivers. This could be a potential area of further research. The reason for focusing on the financial performance measures and not non-financial performance is due to the availability of standardized and objective measures of financial performance.



CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

This chapter explains what other scholars have said about the factors influencing the financial performance of non-life insurance companies in Kenya. It also outlines various theories related to the factors that influence the financial performance of non-life insurance companies in Kenya. The researcher reviewed articles by these scholars and other researchers that motivated him or her to investigate on this study and give the interpretation of the results.

2.2. Theoretical Review

2.2.1 Resource-based theory

This theory asserts that organizations that possess strategic resources and capabilities are able to build a competitive advantage over the organizations that do not (Barney, 1991). Barney indicates that organizations utilize these resources to maximize their strengths as well as minimize weaknesses in order to build a competitive advantage. Halawi et al., (2005), asserts that the theory assumes that businesses create value addition abilities and that it was developed to illustrate how businesses obtain sustained competitive advantage. Poppo and Weigelt (2000), confirms that the theory explains why several firms have different levels financial performance. He further alludes that those firms that have better management of their resources do spend less money and offer high-quality products and services and thus a better economic performance.

Kenyan non-life insurers have varied levels of financial performance as indicated by their historical ROEs. This study aimed to establish the extent to which different resources and capabilities impact on the resulting financial performance (ROE) across different non-life insurers. Insurers have different capabilities including growth, underwriting capabilities, investment management capabilities, operational efficiency, hedging of macro-economic risks. (Zairi, 2012). Building each of these capabilities would require insurers to dedicate scarce resources. The dilemma facing insurance stakeholders is to understand which of these capabilities should be of priority and would have the greatest impact on its financial performance. This study used different

financial variables as indicators of the capabilities possessed by different insurers. For instance investment yield (ratio of investment income to total assets) has been as a factor used to indicate an insurers' investment management capabilities. Further, the ratio of expenses to the total premiums was used a factor to indicate the operational efficiency for insurers. The study then determined the factors that have significant influence on an insurer's financial performance. This enables insurers to determine the strategic resources and capabilities that non-life insures should prioritize to acquire with an aim of building sustainable competitive advantage. Some of the capabilities required could be firm specific such as investment capabilities or capabilities related to operational efficiencies. Other capabilities could be related how a firm deals with external factors that influence its financial performance such as macro-economic factors or even underwriting cycles. These capabilities could include hedging against interest rates, inflation risk or use of re-insurance to minimize risks associated with underwriting cycles.

2.2.2 Shareholder theory

The proponents of the shareholder theory argue that the main goal of the firm should be to increase its value, stock price growth and consequently maximization of the shareholder wealth (Lasher, 2008). The specific implications of this theory is that that the returns to shareholders should outperform certain bench-marks such as the cost of capital concept. In essence, shareholders' money should be used to earn a higher return than they could earn themselves by investing in other assets having the same amount of risk. (Ross et al., 2008). It thus follows that ROE, which is a measure of the return to shareholders per unit of capital invested in the business, is a critical metric towards evaluating if a firm has achieved its ultimate objectives according to the shareholder theory. It is for this argument that this study evaluated financial performance for Kenyan non-life insurers using the ROE metric. More importantly, understanding the different factors that influence the ROE of shareholders would enable shareholders to make better capital allocation decisions. In addition, understanding drivers of ROE would enable shareholders to know the extent to which their returns are exposed to macro-economic and industry specific factors that are out of the firms control versus the factors that a firm can control (firm specific factors). This information would enable shareholders to understand the extent to which managers they have hired have influence over their returns and consequently adequately evaluate their performance.

2.3. Empirical Review of factors affecting financial performance of insurers

2.3.1. Financial Performance of insurers

Performance is simply the act of accomplishing a given task which is usually measured basing on the set standards such as accuracy, cost, speed as well as completeness (Zairi, 2012). The performance of a company can be evaluated by making a comparison of the results of initiatives to the set goals of the organization and evaluating to what extent the organization has met its targets. Financial indicators can be used to measure the performance of insurance companies and make a comparison with other companies in the same field. The internal operations, the market share, the number of customers, the quality of products, internal and financial factors are all used in evaluating the performance of a company (Zairi, 2012).

For insurance firms the creditors, shareholders, investors tax authorities, regulators and the managers are the main users of financial information and will seek to know the financial position and performance of the insurance firms at a given time. One major measure of financial performance is the Return on equity which is used by investors to assess if they are getting sufficient returns from their investment.. ROE is always compared to the historical ROE of the company as well as the average industry ROE to get more meaning as it would not mean anything if used on its own (Zairi, 2012). A company should always target to generate higher ROE than a return from a lower risk asset in order to attract potential investors. The ROE is calculated by dividing the annual net income against the shareholders' equity (Zairi, 2012).

2.3.2 Macroeconomic factors affecting financial performance of insurers

Guscina (2008) defines macroeconomic factors as the economic output, inflation, savings and investments and employment which are key indicators of economic performance and are closely monitored by the consumers, the government and the businesses. Rao (2016), confirms that some of the macroeconomic factors that influence the financial performance of a company are inflation rate, interest rates and the equity return. Rao (2016), notes that there was a significant relationship between the financial performance of firms and the macroeconomic variables.

In a study on the performance drivers of the UK Insurance industry, Shiu (2004) found out that inflation, as well as interest rates, are major determinants of performance of the UK non-life insurance. The study applied both economic and financial data from the UK insurers' returns for the period 1986 to 1999. Both regression and non-parametric models were used in the analysis. It is important to note that in the Kenyan context, the macroeconomic environment is different compared to the UK and hence yield different results based on the Rao (1999) study on how macroeconomic variables affect the performance of an insurance industry.

In a study by Dorofiti and Jakubik (2015) on the insurance sector profitability and the macroeconomic environment involving data from a range of European countries, the results suggested that low-interest rates, as well as inadequate economic growth, high inflation, and poor equity performance, had a negative effect on the insurance profitability. In a study by Ogutu (2013), examining the consequences of purchasing risk on non-life insurance companies, a specific study was done on the extent to which inflation rate affected the operations of the non-life sector in developing economies. The study noted that the movement of inflation was inversely proportional to the real underwriting and investment returns and consequently a negative correlation with the performance of an Insurer.

Willy (2012) notes that the nature and extent of the effects of macro-economic factors are unique from one industry to another. The finding of the study concluded that there was a significant variability of the effects of microeconomic factors from one industry to another. Osamwoyi and Michael (2014), asserts that there is a positive correlation between the gross domestic output and the return on equity. The interest rate and inflation rate have a negative correlation with return on equity. On the other hand, the GDP has a significant positive effect on the return on equity while interest rates have a significant negative effect on return on equity but inflation is not significant at all levels of significance. According to Illo (2012), the financial performance of commercial banks as measured by ROE was found to be positively correlated with GDP growth rate, money supply, lending interest rate of individual commercial banks and inflation, and negatively correlated with exchange rate.

2.3.1.1 Interest rates

According to Crowley (2007), the interest rate is the price that a borrower will pay for using money which they borrow from a lender or the fee paid on borrowed assets. According to Murungi (2013), the financial performance measures of Insurance companies used was the Return on Assets (ROA) which was regressed against the macroeconomic variables which include the real exchange rate (USD/Ksh), GDP growth rate, the change in money supply (M3), average annual lending interest rates as computed by CBK and inflation rate measured by annual percentage changes in the consumer price index (CPI). Murungi (2013), notes that lower interest rates will help improve the liquidity in the general sector and therefore lead to more investments and consumption. The study used Return on Assets as the measure of financial performance of the insurance company which is not a direct measure of the return accruing to shareholders and the measure ignores the financial structure of the firm as well as the cost associated with other sources of funds besides equity. In addition, the study combined life and non-life insurers which are very different firms from a structural, business model and financial perspective and hence can lead to misleading results. Furthermore, the study only considered macroeconomic factors and ignored the influence of firm specific and industry specific factors.

Figure 1 below shows the interest rates of Kenya between 2007 and 2016. The interest rate was highest in 2012 which then slowed down the economy. The interest rates started to reduce in 2013. The CBK adopted expansionary monetary policy at least four times in 2012 and part of 2013. The average commercial bank deposit rate ranged between 6.4 % and the lending rate were at 17.9% as at 2013. In 2015, a bill was presented to parliament that proposed capping of the interest rates for bank lending and also deposits. The bill was accented into law on 25th august 2016 and allowed the interest rates to be no more than four percent above the central bank rate which is currently at 10.5% (Bank Amendment Act, 2016). An increase in the interest rate helps in increasing the investment incomes to insurance companies as well as other financial institutions. This improves the financial position of the companies which then records a higher ROE (Zairi, 2012).

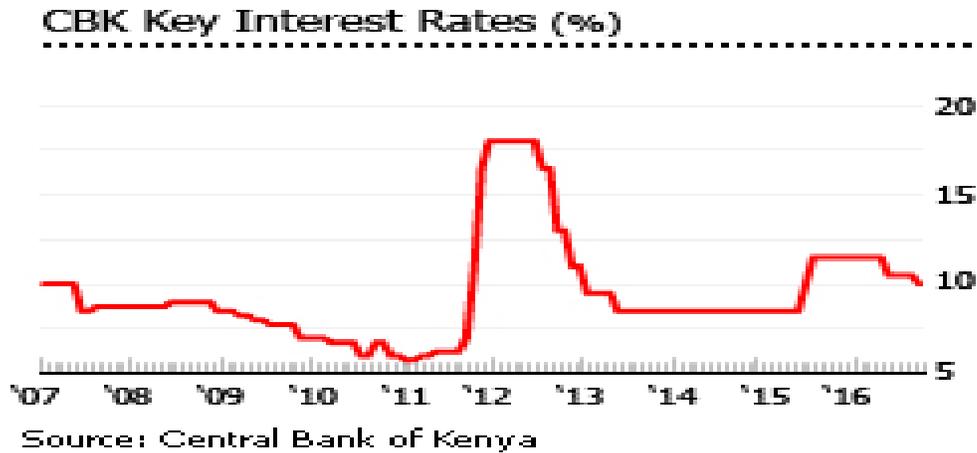


Figure 2.1: Kenyan historical interest rates

2.3.1.2 Inflation rate

Inflation refers to the persistent increase in general price levels in an economy over the time. Low or medium levels of inflation in a country can have a positive effect on the business sector, in that it can act as an incentive to investment and production (Muthama, Mbaluka & Kalunda, 2013). Inflation certainly plays a role in insurance and has adverse impact on many aspects of insurance operations, such as claims, expenses and technical provisions. In expectation of inflation, claim payments increases as well as reserves that are required in anticipation of the higher claims, consequently reducing technical result and profitability (Suheyli, 2015). A consumer price index (CPI) measures changes in the price level of a market basket of consumer goods and services purchased by households (Simiyu & Ngile, 2015). The figure below shows Kenya's anticipated inflation rate from 2010 to 2020. The highest inflation rate was experienced in 2011 and has been reducing annually. 2017 had an increase in the inflation rate due to rising political temperatures and uncertainties within the country. The inflation rate is expected to reduce in 2018 to 2020.

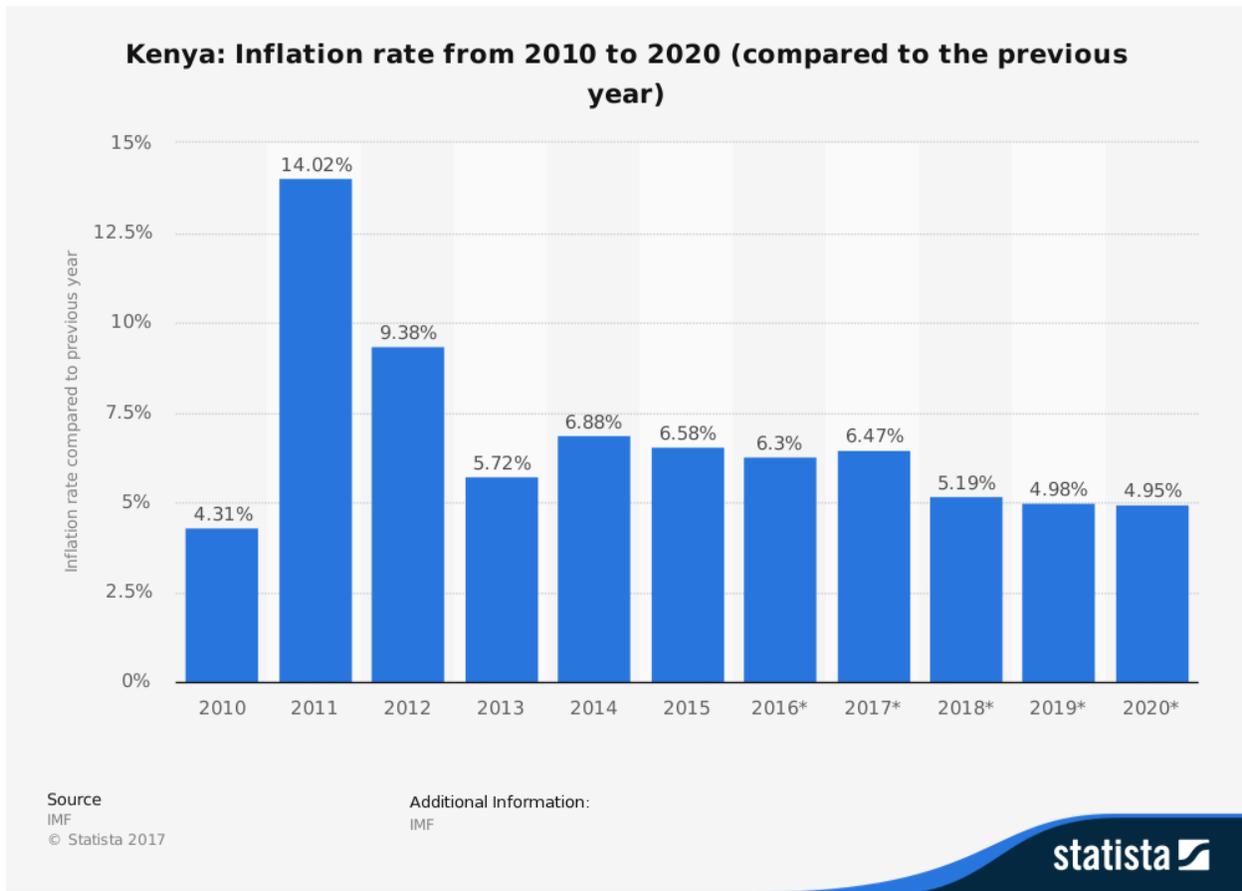


Figure 2.2: Kenyan inflation rates

**forecasted inflation rates*

2.3.2.3 Equity return

Insurance companies are major investors in the Nairobi Stock Exchange. According to IRA (2016), over 10% of insurance companies' assets were invested in equity shares listed at Nairobi Stock Exchange. According to Rao (2016), the equity returns have a significant impact on the financial performance of insurance companies as the investment income from equities is a key contributor to the ROE of an insurance. Historically, performance of Nairobi Stock Exchange equities is tracked by NSE 20 share Index. The historical performance of the NSE 20 Share index is as shown below;

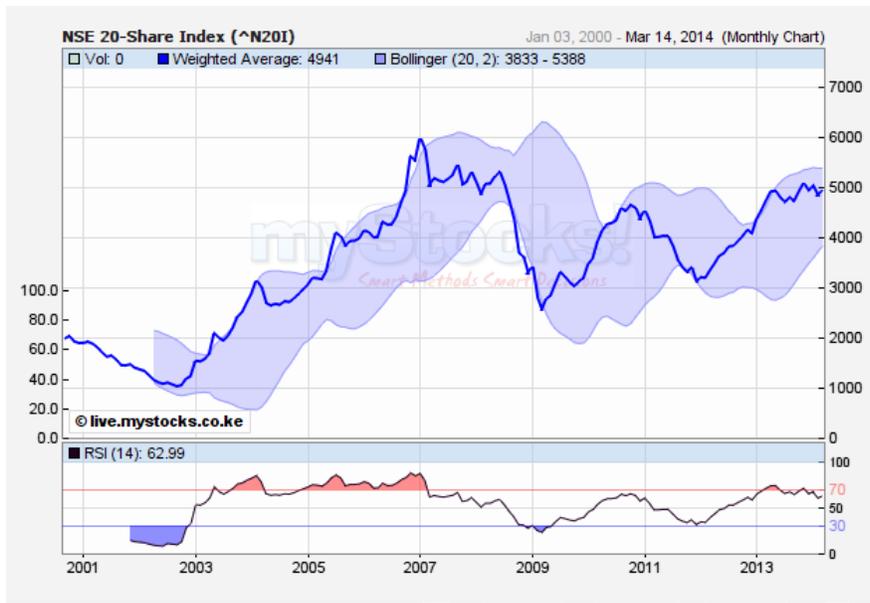


Figure 2.3: Performance of NSE 20 Share index.

Source:live.mystocks.co.ke

2.3.3 Firm-specific factors affecting financial performance of insurers

According to Verbeke & Merchant (2012), firm specific factors refers to such factors as the market share, revenue growth, management quality and investment yields that directly influence the performance of a firm. They also include retention ratio and expense ratio. Kioko (2013), found out that there is correlation between three of the studied factors of bank size which include total deposits, total loans and total assets and the ROE of the banks. Total deposits and total loans had relatively stronger effects on financial performance compared to total assets.

Organizational size effects have been the focus of many prior studies. The benefits of organizational size may accrue to the financial performance of the organization due to economies of scale. Larger organizations seem able to generate stronger competitive capability than their smaller rivals as a result of their superior access to resources, greater market power, and economies of scale and scope (Glen et al, 2003). Notably, an increase in the market share, investment yield of the firm or revenue growth can translate to an increase in ROE. Increases in expenses or the

expense ratio leads to a decline in the financial performance. According to Gled (2003) increased retention ratio also indicates an increase in the financial performance.

2.3.3.1 Liquidity

According to Shiu (2004), the study of the performance of UK insurers, liquidity, as well as underwriting profits, were found to be major firm-specific drivers of performance. Insurers are required to pay claims as they become due, the timing and amount are unexpected. As such insurers with better asset liquidity are able to pay their claims timely which will positively impact their customer experience. The result is a progressive effect of liquidity on the company performance.

2.3.3.2 Claims Ratio and underwriting profitability

According to Shiu (2004), given underwriting is the main activity of a non-life insurer, underwriting profitability is one of the outputs of an insurance firm. One of the key determinants of underwriting profitability is claims ratio and this study thus assessed the claims ratio as a firm specific factor affecting the performance of an insurance company. Shiu (2004) found out that claims ratio was a significant determinant of insurers' financial performance.

2.3.3.3 Reinsurance ratio

Iqbal and Rehman (2014), studied the association between profitability and reinsurance of non-life stock insurers in the Pakistan private sector. Notably, reinsurance acts as an imperative character when considering the risks, underwriting risk as well as management efficiency of claims. The study investigated if profitability was influenced by reinsurance or not. The outcome showed that the profitability of the business was subtle to changes in reinsurance dependence and had a progressive relationship with it. The level of reinsurance dependence is indicated by reinsurance ratio which is the ratio of premiums reinsured to the total premiums underwritten

2.3.3.3 Financial Structure

According to Lai and Limpaphayom (2003), in a study evaluating the effects of the organizational structure and related entities on the company's performance, financial decisions as well as the

incentive problems in the Japanese general insurance sector, it was noted that mutual insurers had increased free cash flows. Moreover, there were high investment incomes and low financial leverage mutual insurers versus shareholder owned insurers. The study involved stock companies which belonged to the six horizontal Kiretsu groups and were characterized by low expenses as well as low free cash flows. The others were the independent stock and the mutual insurance companies. It was further noted that the Keiretsu insurers had increased levels of profitability as well as high loss ratios compared to the independent insurers. The study thus assessed the impact of financial leverage on the financial performance of a non-life insurance company in Kenya.

2.3.3.4 Company size

According to Malik (2011), in a study aiming at investigating the determinants of profitability in Pakistan insurance companies, it was noted that there had been the integration of insurance services in Pakistan into the broader financial sector. The study examined mainly the impact of firm-specific drivers which were mainly the age, size, leverage ratio, volume of capital as well as loss ratio on the profitability that would be determined by the ROA. The study involved 35 life as well as non-life insurers during the years 2005 to 2009. The results of the study indicated that there was a positive link between the company size and profitability. An increase in revenue growth, market share, retention ratio as well as the investment yields is a clear sign of good financial performance. Additionally, companies with large size will also benefit from economies of scale.

2.3.4 Industry-specific factors affecting financial performance of insurers

Hawawini, Subramanian and Verdin (2005), defines industry specific factors as those factors that relate to the industry performance. They include industry growth rate, non-life insurance penetration level, extent of competition, regulation, and industry claims ratio which is an indication of underwriting cycle. Murerwa (2015), found out that industry factors relating to competition, product innovation and the development of mobile banking mostly affected the profitability of the banks. He noted that 58% of the individuals agree that competition has a great impact on the industry performance. 63% and 40% agreed on innovation and mobile as having a key impact on profits. This means that the ROE increases when the firm has a competitive edge against its competitors and the innovative products earn more sales for the company.

2.3.4.1 Underwriting cycle

Underwriting cycle refers to the trend through which the property and casualty insurance premiums, the profits as well as accessibility of coverage to the rise and fall of the premiums over time. It is a business cycle in the insurance sector where the insurers compete with each other to get a higher client base, which results in falling premiums and low underwriting standards. Insurers write more policies than they can reasonably risk and this results to higher underwriting standards and premiums. The insurers then write too few premiums to sustain, and the cycle begins again. (Leng, 2006b).

According to Leng (2006b), there are structural changes in underwriting profits of most business lines as well as those combined, and these changes are not stationary. In his study that assessed the existence of the underwriting cycles for non-life liability insurance for different lines of business, the combined ratio was tested for stationarity. The dummy variable methods, as well as the switching regression, were employed for testing the stability. It was noted that for the non-life insurance industry, there was an operational modification at some point. Moreover, the underwriting cycles were present even before the structural changes. The study used claims ratio (the ratio of claims incurred to premiums) as an indicator for the level of underwriting cycle with a lower than average industry claims ratio indicating a soft cycle and a higher than average claims ratio indicating a hard cycle. Underwriting cycles in an industry would potentially affect an insurers' financial performance in a particular year. Underwriting cycles are assessed using the industry claims ratios.

2.4 Summary of the literature on the financial performance of insurers

Measurement of performance of an insurance company is of interest to many stakeholders as it indicates the effectiveness a firm is in achieving its objectives. ROE is one of the most critical measures of financial performance as it indicates the existential sustainability of a firm and would thus be of interest to all the stakeholders of an insurance company. From a Resource Based Theory perspective, the key issue hence becomes how a firm can maximize its strengths and minimize its weaknesses to as to improve its competitive advantage and consequently increase its ROE. To do

so, it would be important to understand the factors that influence the ROE of a non-life insurance company.

From the discussion above, various studies have evaluated the factors that affect the financial performance of non-life insurers. These factors can be categorized into three categories. Firstly, firm specific factors which are factors that relate to a particular non-life insurer. These include reinsurance ratio, liquidity, claim ratio, underwriting profitability, financial structure and company size. The second category are industry specific factors which are related to a specific insurance industry and include the underwriting cycle. The third category includes macroeconomic factors which are related to the economic environment in which an insurance company operates and include GDP growth, currency exchange rates and equity return. The study focused on the influence of each of the above factors on the ROE of a non-life insurance company.

2.5 Research gap

The Kenyan insurance industry is unique due to the different macroeconomic conditions, regulations, the structure of the industry and hence the results from other jurisdictions cannot be used directly in the Kenyan context. Further, the financial performance of insurance companies varies significantly across different insurers and different reporting periods for the same insurer. It is thus necessary to determine the extent to which the macro-economic, industry specific and firm-specific factors influence the financial performance of non-life insurance business in Kenya. Moreover, from previous studies, ROE is a critical measure of the financial performance of a non-life insurance company. Other similar studies have focused on non-Kenyan insurance companies or have not comprehensively evaluated the different categories of factors that affect the ROE of non-life insurance companies in Kenya.

The study thus focused on the factors that influence the ROE for non-life insurers in Kenya. This would enable insurance company stakeholders to effectively determine areas of strategic focus.

2.6 Conceptual framework

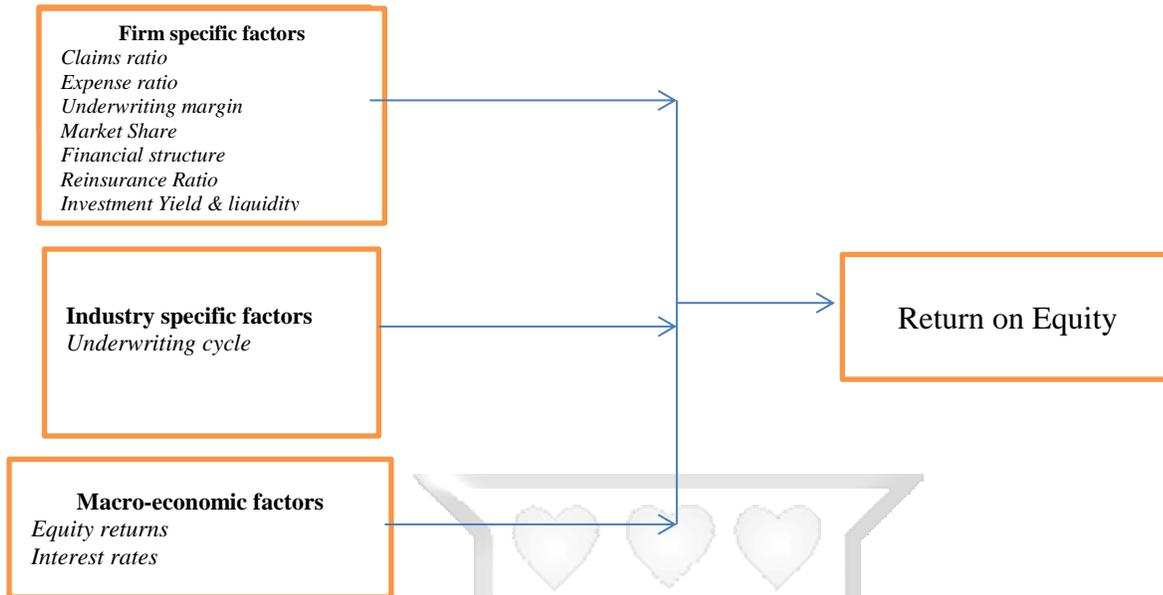
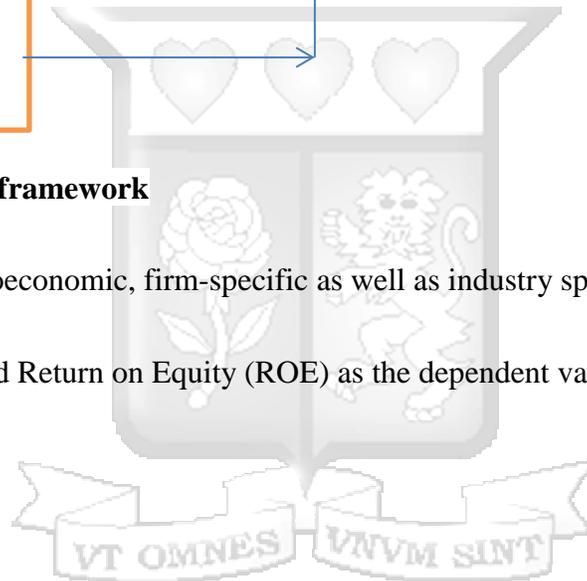


Figure 2.6: Conceptual framework

The study used the macroeconomic, firm-specific as well as industry specific factors as independent variables and Return on Equity (ROE) as the dependent variable.



Operationalization of the variables

The different factors were measured as follows;

Table 2.61: Operationalization of the variables

Variable Type	Variable	Formulae	Relevant Study/reference
Firm Specific Factors	Liquidity	Cash & Bank Balances/Current Liabilities	Shiu (2004)
	Claims Ratio	Incurred claims/Net Earned Premium	Shiu (2004), Iqbal and Rehman (2014)
	Reinsurance Ratio	Premium Ceded/GWP	Verbeke & Merchant (2012), Gled (2003), Iqbal and Rehman (2014)
	Financial Structure	Total Assets/Net assets	Lai and Limpaphayom (2003)
	Market Share	Gross Written Premiums/Total Industry Premiums	Verbeke & Merchant (2012), Glen et al (2003), Malik (2011)
	Expense Ratio	Management Expenses/Gross Written Premiums	Verbeke & Merchant (2012)
	Investment Yield	Investment Income/Total Assets	Verbeke & Merchant (2012)
	Underwriting Margin	Underwriting Profit/Gross Written Premium	Shiu (2004)
Industry Specific Factors	Underwriting Cycle	=if{Industry Claims ratio in year (t) > 10 year Average industry claims ratio then dummy variable 1, else 0}	Verdin (2005), Leng (2006b)
Macro-economic Factors	Interest Rates	annual average 91-day Central Bank Treasury bill rate as reported by the Central Bank of Kenya	Rao (2016), Shiu (2004), Dorofiti and Jakubik (2015), Asamwoyi and Michael (2014), Crowley (2007), Murungi (2013)
	Equity Returns	percentage annual change in the NSE 20 Share index as reported by Nairobi Stock Exchange	Rao (2016), Dorofiti and Jakubik (2015)
Dependent Variable	ROE	Profit After Tax/Shareholders Funds	(Zairi, 2012).

The key source of the data to measure firm specific and industry specific factors were extracted from the Annual Financial Reports from Insurance Regulatory Authority (IRA) and Association of Kenyan Insurers (AKI) for each of the historical year of study. These reports have details of the different financial metrics required to measure each of the factors for each of the insurance companies in the scope of the study.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Introduction

This chapter discusses the methods that were used to collect and analyze data for the study. It outlines several procedures that were undertaken in determining the solution to the varied financial performance of the insurance industry in Kenya. This chapter discusses the research design, target population, sampling techniques, sampling design, sampling frame, data collection and data analysis methods as well as the ethical consideration followed by the researcher during this study. The researcher aimed at having the right tools and instruments for data collection that guided him to collect information on the factors that influence financial performance of insurance companies in Kenya.

3.2. Research design

This study used a quantitative research design to explain relationship between ROE and independent variables as described in the conceptual framework. The research applied a longitudinal time horizon for a period of 10 years from 2006 to 2016. The design strategy applied was archival and documentary research using secondary data from different public sources including published reports by Governmental and Quasi-Governmental institutions such as Kenya National Bureau of Statistics, Insurance Regulatory Authority, Association of Kenyan Insurers, Nairobi Stock Exchange and Central Bank of Kenya. Many of this documentary sources may be accessed online. In addition, only numerical data from these reports were extracted and applied in the research.

3.3. Population and Population size

The target population of the study included all the 34 non-life insurance companies regulated by the Insurance Regulatory Authority as at December 2016.

3.4. Sampling design

The full population of the Kenyan non-life insurers were be used in the in the study hence no need for a sampling design.

3.5. Data collection

This is the process through which the researcher acquires subjects and gather necessary information for use in the study (Olsen, 2012). The study used the secondary data obtained from various sources. Secondary sources involve data that have already been collected containing useful details for the study. The IRA and the AKI annual reports were used to provide financial data on the insurance companies. Kenya National Bureau of Statistics and Central Bank of Kenya annual reports were used to collate data on the macroeconomic variables. Information on Interest rates was extracted from the Central Bank of Kenya annual publications and data on the equity returns data was obtained from The Nairobi Stock Exchange market reports. Information on firm specific factors and industry specific factors were extracted from the Annul Financial Reports from Insurance Regulatory Authority (IRA) and Association of Kenyan Insurers (AKI) for each of the historical year of study.

3.6. Data analysis

The process of analyzing data starts after collection of data and ends with its interpretation. Data analysis is the process of inspecting, cleaning, transforming, and modeling data with the goal of discovering useful information, suggesting conclusions, and supporting decision making (Kothari, 2008).

First a correlation analysis was carried out to test for autocorrelation in the independent variables. Summary statistics were also used to understand the characteristics of the different variables.

The study then used panel data analysis approaches to determine the relationship between the data obtained. Different models were tested included Fixed Effects, Random effects as well as pooled OLS models to assess the appropriateness of the general model. Breusch-Pagan test was applied to help decide between a random effects regression and a simple Pooled OLS regression. In addition, the Hausman test was carried out so as to decide whether to use fixed effects or random

effects method. The Durbin Watson test was also carried out to check for autocorrelation. The Pasaran CD test was also applied to test for cross sectional dependence. The panel data analysis was applied for the general model, industry specific and macro-economic variable analysis as these contain panel data. For firm specific only variable analysis, ordinary least squares regression analysis was applied with tests for autocorrelation also used.

3.7. Quality of the research

3.7.1 Validity

The term means the assessment as to whether a given research measures the needed data. It is the degree to which instruments will be used to measure the variables that they are originally designed (Kuada, 2012). It is essential as it ensures the achievement of the research objectives. In this study, the selection of the right data sources such as the AKI annual reports and the IRA annual reports across different time periods. These reports contain the financial performance of insurance companies in a standardized and comparable manner. As regulated entities, all insurers are required to report on their performance in a pre-specified format.

3.7.2 Reliability

It means the measure to which certain measuring procedure produces similar results following multiple trials. The study used stable and reliable sources of data (IRA, AKI reports, Reported National Economic Statistics) indicating that the research can be replicated and yield similar results. These data sources are available in perpetuity. The study also applied objective and statistical techniques to analyze the data. Library search and electronic search from secondary sources of data several times will ensure that the data collected are reliable (Kuada, 2012).

3.8. Ethical issues

The researcher need be careful with the information that he collects from his or her study and need be secretive without disclosing it to anyone anyhow. It is prudent that the researcher maintains some confidentiality of his research findings to avoid any chances of manipulation or intimidation. Storage and appropriate dissemination of information will be vital for the researcher to enhance

the security of information (Kuada, 2012). The study used publicly available data hence no issues relating to confidentiality breaches.



CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the findings of the study on macro-economic, firm specific and industry specific factors affecting ROE of non-life insurers in Kenya. The study assessed all the 34 non-life insurers in Kenya as at December 2016 within a 10-year period from 2006 to 2016. The data was collected on: net profit after taxes, total assets, investment income, management expenses, share capital, Current Liabilities, Cash and Bank Balances, Gross Written Premiums, Premium Ceded, Net Earned Premiums, Net Incurred Claims and Underwriting Profits, NSE Index, Interest Rates, Industry Claims, Industry Net Earned Premiums, Total Industry Gross Premiums. From these data different variables were obtained as described in the conceptual framework. To achieve the study's objective, the variables obtained were analyzed using Pearson correlations analysis and multiple linear regression analysis. The subsequent sections presents the results of the study.

4.2 Descriptive Statistics

The study analyzed the variables from the study using descriptive statistics and the results are as presented in the table below.

Table 4.2: Summary statistics of the variables

	Variable	N	Minimum	Maximum	Average	Median	Standard Deviation	Skewnes	Kurtosis
Firm Specific Variables	Liquidity	261	0.1%	258.7%	39.2%	19.3%	49.0%	2.12	4.66
	Claims Ratio	261	8.4%	165.5%	57.4%	58.4%	16.4%	1.22	8.17
	Reinsurance Ratio	261	-55.8%	67.0%	24.3%	22.9%	15.8%	(0.22)	2.15
	Financial Structure	261	115.4%	901.9%	293.1%	262.8%	120.3%	2.16	5.92
	Market Share	261	0.2%	11.8%	3.2%	1.9%	2.9%	1.40	0.92
	Expense Ratio	261	4.3%	81.2%	29.1%	27.1%	13.4%	1.25	1.98
	Investment Yield	261	0.0%	46.1%	8.2%	6.7%	7.3%	2.54	7.92
	Underwriting Margin	261	-110.6%	17.0%	0.3%	1.6%	11.7%	(5.24)	42.08
Macro-economic Factors	Interest Rate	10	2.3%	17.9%	8.3%	8.4%	2.9%	0.79	4.44
	Equity Returns	10	-35.3%	36.5%	-1.6%	-3.6%	22.9%	0.27	(1.22)
Industry Specific Variables	Underwriting Cycle	10	0.0%	100.0%	33.3%	0.0%	47.1%	0.71	(1.51)
Dependent Variable	ROE	261	-56.2%	143.0%	20.0%	15.6%	23.4%	1.62	6.53

Source: Research Findings

From above non-life insurers had on average 39% cash liquidity ratio with some insurers having as low as only 0.1% in cash liquidity ratio. The claims ratio average among the insurers was 57.4% and a maximum of 165.5%. On average reinsurers had ceded 24.3% of their premiums to reinsurers. From a financial structure perspective, the results show that non-life insurers are highly leveraged with the ratio of total assets to net assets being on average at 293.1% and a high of 901.9%. The financial structure also had a high standard deviation of 120.3%. From the population data, there was significant variation in the size of the non-life insurers with the largest insurer having a market share of 11.8% of total industry premiums and the lowest at 0.2%. The average expense ratio was 29% with a high of 89% and a minimum of 4.2. This indicates that non-life insurers have significantly varied cost structures, operational efficiencies and scale economies.

The investment yield average was 8.2% with a high of 46.1% and a low of 0%, indicating that some non-life insurers have superior investment capabilities compared to their peers. From an underwriting perspective, the non-life insurers made on average an underwriting margin of 0.3%. Similarly, the underwriting margins varied across different insurers with a maximum of 17% and a low of -110%. This indicates that some non-life insurers have superior underwriting capabilities and hence able to drive higher underwriting margins.

The average inflation rate over the study period was 7.8% with a maximum of 15.1 and a low of 4.1%. The average interest rate was 8.3% with a high of 17.9%. The NSE index returned on average -1.6 of the 10 year period with a low of -35.3% in 2008 due to economic interruptions emanating from the post-election violence. The GDP growth rate averaged 5.2%. This demonstrates the volatility of the macro-economic environment in which the Kenyan non-life insurers operate. The ability of the insurers to withstand these macro-economic volatilities is critical to not-only their financial performance but also long-term sustainability. Insurers should thus ensure that their balance sheets and investments are well diversified to better cope with downturns in the market. The ROE for the study period was on average 20%, with a high of 143% and a low of -56% which demonstrates the volatile nature of the returns for Kenyan non-insurers.

4.3 Correlation Analysis

Correlation is a measure of the strength and direction of the linear relationship between any two variables (Levine, Berenson, Stephan, & others, 1999). In this test a strong relationship is

undesired between macroeconomic variables. Any absolute value equal to or greater than 0.7 is regarded as a strong relationship and is undesired.

Table 4.3: Correlation analysis results: The table shows all correlation values were below 0.7 showing weak correlation among regressors.

	Liquidity	Claims Ratio	Reinsurance Ratio	Financial Structure	Market Share	Expense Ratio	Underwriting Cycle	Interest Rate	Equity Returns	Investment Yield	Underwriting Margin	ROE
Liquidity	1.000											
Claims Ratio	(0.158)	1.000										
Reinsurance Ratio	(0.133)	0.124	1.000									
Financial Structure	0.174	0.228	(0.042)	1.000								
Market Share	(0.055)	0.296	(0.014)	0.184	1.000							
Expense Ratio	0.139	(0.289)	(0.312)	(0.066)	(0.474)	1.000						
Underwriting Cycle	0.111	0.065	(0.009)	0.074	0.074	(0.061)	1.000					
Interest Rate	(0.068)	(0.064)	0.075	(0.053)	(0.069)	0.047	(0.317)	1.000				
Equity Returns	0.062	(0.067)	0.038	(0.118)	(0.004)	(0.070)	0.147	(0.496)	1.000			
Investment Yield	0.025	0.228	0.150	(0.060)	(0.060)	0.021	0.101	(0.097)	0.214	1.000		
Underwriting Margin	0.035	(0.519)	(0.019)	(0.132)	0.145	(0.396)	0.083	0.005	0.111	(0.196)	1.000	
ROE	(0.012)	(0.098)	0.055	(0.076)	0.108	(0.255)	0.144	(0.109)	0.263	0.563	0.342	1.000

There is a moderate positive correlation between ROE, and Equity Returns with a correlation coefficient of 0.26 which reasonable as we expect equity returns to positively affect the ROE. There is a moderate positive correlation between ROE and Investment Yield and Underwriting Margin with a correlation coefficient of 0.56 and 0.34 respectively. The results are reasonable as we expect these variables to positively affect the ROE. There is a moderate negative correlation between ROE and expense ratio with a correlation coefficient of -0.26. The results of the correlation analysis are reasonable as we expect a higher expense ratio to lead to a lower ROE.

4.4 Diagnostic Tests

4.4.1 Determination of Random Effects

To carry out panel model diagnostics, first the Breusch-Pagan test was applied to help decide between a random effects regression and a simple Pooled OLS regression. The null hypothesis of the test is that variances across entities is zero thus no significant differences across various insurance companies (Wooldridge, 2003). From the results in table 4.3 below, the probability of Chi2 is 0.86, which is more than 0.05. The test thus failed to reject the null hypothesis, concluding that random effects is not appropriate. It thus suggests use of a pooled OLS method or the fixed effects method.

4.4.2 Testing appropriateness of the Fixed Effects model

The Hausman test was carried out so as to decide whether to use fixed effects or random effects method. In carrying out the test, the null hypothesis was the random effects model was the preferred model versus the alternative hypothesis being that the fixed effects model is preferred. The test checks if the unique errors (u_i) are correlated with the regressors, the null hypothesis is that they are not (Wooldridge, 2003). From the results in table 4.3 below, the probability of Chi2 is 0.74, which is more than 0.05. The test thus failed to reject the null hypothesis, concluding that the fixed effects is not appropriate.

4.4.3 Determination of Fixed Effects versus Pooled OLS

Finally, the F-test of the joint significance of the fixed effects intercepts was carried out to decide between Pooled OLS model and Fixed Effects models. The null hypothesis is that all of the fixed effect intercepts are zero and hence the pooled OLS model is adequate. If the null is rejected, then we need to use fixed effects method. From the results in Table 4.3 below, the F-statistic is 1.12 with a p-value of 0.31, which is more than 0.05. The test thus failed to reject the null hypothesis, concluding that the pooled OLS model is adequate.

All the tests above, concluded that the pooled OLS model was adequate.

Table 4.4: Diagnostics Test results: The table below shows the results of F test of the joint significance, Hausman and Breusch-Pagan tests.

Diagnostics: using n = 29 cross-sectional units

Fixed effects estimator allows for differing intercepts by cross-sectional unit

	coefficient	std. error	t-ratio	p-value	
const	0.381173	0.172648	2.208	0.0283	**
Liquidity	-0.0360532	0.0220612	-1.634	0.1036	
ClaimsRatio	-0.232129	0.0996424	-2.330	0.0207	**
ReinsuranceRatio	-0.116274	0.0720578	-1.614	0.1080	
FinancialStructu~	0.00779016	0.00931757	0.8361	0.4040	
CompanySize	0.452235	0.423530	1.068	0.2868	
ExpenseRatio	-0.322563	0.121510	-2.655	0.0085	***
InvestmentYield	2.14263	0.155827	13.75	1.70e-031	***
UnderwritingMarg~	0.586929	0.144610	4.059	6.85e-05	***
UnderwritingCycle	0.0489694	0.0831832	0.5887	0.5567	
InterestRate	-1.78982	2.15206	-0.8317	0.4065	
EquityReturns	-0.313855	0.338292	-0.9278	0.3545	

Residual variance: $5.49008 / (261 - 40) = 0.024842$

Joint significance of differing group means:

$F(28, 221) = 1.12308$ with p-value 0.312984

(A low p-value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the fixed effects alternative.)

Variance estimators:

between = 0.000950888

within = 0.024842

theta used for quasi-demeaning = 0.137577

Random effects estimator allows for a unit-specific component to the error term

	coefficient	std. error	t-ratio	p-value	
const	0.250471	0.0948793	2.640	0.0088	***
Liquidity	-0.0317688	0.0211217	-1.504	0.1338	
ClaimsRatio	-0.242277	0.0955103	-2.537	0.0118	**
ReinsuranceRatio	-0.121707	0.0690099	-1.764	0.0790	*
FinancialStructu~	0.00693408	0.00879694	0.7882	0.4313	
Marketshare	0.442758	0.407459	1.087	0.2782	
ExpenseRatio	-0.324798	0.114567	-2.835	0.0050	***
InvestmentYield	2.12432	0.146354	14.51	5.27e-035	***
UnderwritingMarg~	0.590370	0.136839	4.314	2.31e-05	***
UnderwritingCycle	0.0227004	0.0249077	0.9114	0.3630	
InterestRate	0.0976230	0.466476	0.2093	0.8344	
EquityReturns	0.0715499	0.0583994	1.225	0.2217	

Breusch-Pagan test statistic:

$LM = 0.0272405$ with p-value = $\text{prob}(\text{chi-square}(1) > 0.0272405) = 0.868907$

(A low p-value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the random effects alternative.)

Hausman test statistic:

$H = 7.58941$ with p-value = $\text{prob}(\text{chi-square}(11) > 7.58941) = 0.749543$

(A low p-value counts against the null hypothesis that the random effects model is consistent, in favor of the fixed effects model.)

Source: Study data analysis in Gretl

4.4.4 Testing for Autocorrelation in the Pooled OLS model

Durbin Watson test was carried out to check for autocorrelation for the Pooled OLS model. The null hypothesis was that first order autocorrelation did not exist in the model. The resulting Durbin-Watson statistic was 1.76258 with a p value of 0.641. The test thus failed to reject the null hypothesis, concluding that that autocorrelation doesn't exist in the model.

4.4.5 Cross-sectional Dependence check

Cross sectional dependence is a problem in panel data whereby the performance of one company affects the performance of one of more other companies. This may lead to a bias referred to as contemporaneous correlation and is tested using the Pasaran CD test (Woodridge, 2003). The null hypothesis in the Pasaran test is that the residuals across entities are not correlated. The resulting asymptotic test statistic, Z was -0.81 with a p-value of 0.41 which is more than 0.05 hence we accept the null hypothesis meaning there is no cross-sectional dependence.

4.5 General Pooled OLS model

Pooled panel data assumes all companies are the same and there is no heterogeneity among companies under the study the General Pooled OLS regression was run with the dependent variable being the ROE and the independent variables being the macro-economic, firm specific and industry specific factors. The results of the model only show the change of financial performance within all companies under study.

Table 4.5 General Pooled OLS Model results

Model 1: Pooled OLS, using 261 observations
Dependent variable: ROE

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	0.248848	0.0935241	2.661	0.0083	***
Liquidity	-0.0297825	0.0212292	-1.403	0.1619	
ClaimsRatio	-0.239880	0.0962629	-2.492	0.0134	**
ReinsuranceRatio	-0.124536	0.0693580	-1.796	0.0738	*
FinancialStructure	0.00629865	0.00882024	0.7141	0.4758	
Marketshare	0.461626	0.410905	1.123	0.2623	
ExpenseRatio	-0.315394	0.115428	-2.732	0.0067	***
InvestmentYield	2.12559	0.146441	14.52	<0.0001	***
UnderwritingMarg in	0.599367	0.137472	4.360	<0.0001	***
UnderwritingCycle	0.0220635	0.0224834	0.9813	0.3274	
InterestRate	0.0834648	0.421934	0.1978	0.8434	
EquityReturns	0.0753034	0.0520165	1.448	0.1490	

Mean dependent var	0.200213	S.D. dependent var	0.234863
Sum squared resid	6.271267	S.E. of regression	0.158700
R-squared	0.562728	Adjusted R-squared	0.543411
F(11, 249)	29.13085	P-value(F)	8.21e-39
Log-likelihood	116.2318	Akaike criterion	-208.4635
Schwarz criterion	-165.6893	Hannan-Quinn	-191.2697
rho	0.016878	Durbin-Watson	1.762582

From the Pooled OLS model output in Table 4.4 above, the F-test probability for the entire model is 0.0000 which is less than 0.005 and approves the model as okay. It shows that jointly, all the coefficients in the model are not zero, The R-square of the model is 0.56 showing that about 56% of the variance of the company financial performance can be explained by the factors included in the model. The two-tail p-values for each coefficient tests whether the corresponding co-efficient of the independent variable is equal to zero. The hypothesis is rejected if the p-value is less than 0.05 showing whether the corresponding variable is significant. From the model only the claims ratio, expense ratio, investment yield and underwriting margin have a significant influence on the financial performance as their p-values are less than 0.05. The other variables namely market share, underwriting cycle, underwriting cycle, interest rate and equity returns have no significant influence on the financial performance of Kenyan non-life insurers.

From the results above, the factors applied in the Pooled OLS model have a significant influence in determining the financial performance of non-life insurers in Kenya. The following model was derived using the Pooled OLS method to explain the financial performance of non-life insurers.

$$\text{ROE} = 0.248 - 0.029L - 0.240\text{CR} - 0.12\text{RR} + 0.006\text{FS} + 0.461\text{MS} - 0.315\beta\text{6ER} + 2.126\text{IY} + 0.599\text{UM} + 0.083\text{INT} + 0.075\text{EQ} + 0.022\text{UC} + \varepsilon$$

Whereby ROE is the return on equity, α is the regression constant, β_i are the regression coefficients, L is Liquidity, CR is claims ratio, RR is reinsurance ratio, FS is financial structure, MS is market share, ER is expense ratio, IY is Investment yield, UM is underwriting margin, INT is interest rate, EQ is equity returns, UC is Underwriting cycle and ε is the error term.

To the research objective of determining the factors affecting financial performance of Kenyan non-life insurers, the results of the study established that claims ratio, expense ratio, expense ratio, investment yield and underwriting margin have a significant influence on the financial performance of a non-life insurance company.

4.6 Macro economic factors influencing the financial performance of Kenyan non-life insurers

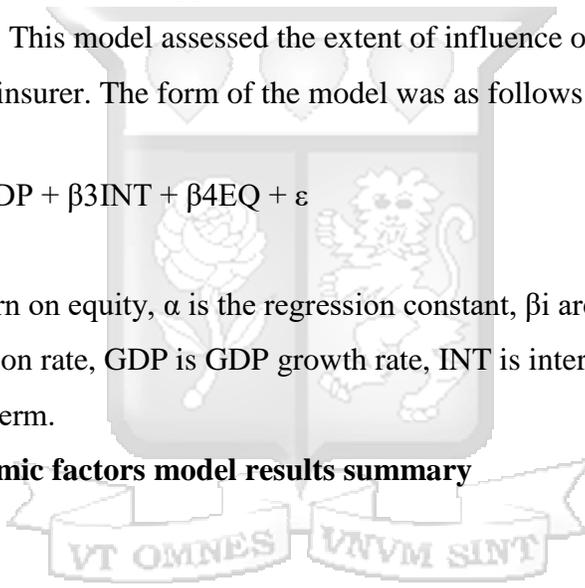
This section aims answer the research question: To what extent does macro-economic factors affect the financial performance of Kenyan non-life insurers?

In doing so, a Pooled OLS model was applied to the macro-economic factors against the dependent variable, ROE. This model assessed the extent of influence of macro-economic factors on the ROE of a non-life insurer. The form of the model was as follows;

$$ROE = \alpha + \beta_1 INF + \beta_2 GDP + \beta_3 INT + \beta_4 EQ + \varepsilon$$

Whereby ROE is the return on equity, α is the regression constant, β_i are the regression coefficients, INF is inflation rate, GDP is GDP growth rate, INT is interest rate, EQ is equity returns and ε is the error term.

Table 4.6: Macro-economic factors model results summary



Model 2: Pooled OLS, using 261 observations
 Included 29 cross-sectional units
 Time-series length = 9
 Dependent variable: ROE
 Robust (HAC) standard errors

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	0.185214	0.0573210	3.231	0.0031	***
InterestRate	0.235653	0.651864	0.3615	0.7204	
EquityReturns	0.284259	0.0769732	3.693	0.0010	***
Mean dependent var	0.200213	S.D. dependent var		0.234863	
Sum squared resid	13.33990	S.E. of regression		0.227387	
R-squared	0.069858	Adjusted R-squared		0.062647	
F(2, 28)	9.310812	P-value(F)		0.000794	
Log-likelihood	17.73279	Akaike criterion		-29.46558	

Schwarz criterion	-18.77202	Hannan-Quinn	-25.16711
rho	0.021883	Durbin-Watson	1.766786

Diagnostics: using n = 29 cross-sectional units

Fixed effects estimator
allows for differing intercepts by cross-sectional unit

Joint significance of differing group means:

$F(28, 230) = 1.3112$ with p-value 0.144037

(A low p-value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the fixed effects alternative.)

Variance estimators:

between = 0.00224862

within = 0.0500159

theta used for quasi-demeaning = 0.156238

Breusch-Pagan test statistic:

$LM = 0.890393$ with p-value = $\text{prob}(\text{chi-square}(1) > 0.890393) = 0.345371$

Hausman test statistic:

$H = 0.182665$ with p-value = $\text{prob}(\text{chi-square}(2) > 0.182665) = 0.912714$

Source: Research Findings

The results of the Breusch Pagan test statistic and Hausman test statistic confirm that a Pooled OLS model is appropriate for modelling the macro-economic variables. The R square for the Macro-economic factors Pooled OLS model was 0.0699. This shows that only 7% of the variation in ROE is explained by the macro-economic factors. As such, macro-economic factors do not have a significance influence on the financial performance of Kenyan non-life insurers.

4.7 Firm-Specific factors influencing the financial performance of Kenyan non-life insurers

This section aims answer the research question: To what extent does macro-economic factors affect the financial performance of Kenyan non-life insurers? In doing so, an ordinary linear regression model was applied to the firm specific factors against the dependent variable, ROE. In this case there was no panel data involved. This model assessed the extent of influence of firm specific factors on the ROE of a non-life insurer. The form of the model was as follows;

$$ROE = \alpha + \beta_1L + \beta_2CR + \beta_3RR + \beta_4FS + \beta_5MS + \beta_6ER + \beta_7IY + \beta_8UM + \varepsilon$$

Whereby ROE is the return on equity, α is the regression constant, β_i are the regression coefficients, L is Liquidity, CR is claims ratio, RR is reinsurance ratio, FS is financial structure, MS is market share, ER is expense ratio, IY is Investment yield, UM is underwriting margin and ε is the error term.

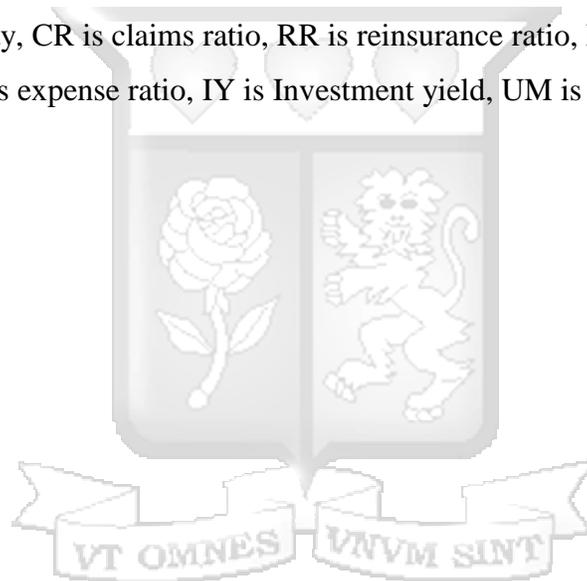


Table 4.7: Firm specific factors Model summary

SUMMARY OUTPUT					
<i>Regression Statistics</i>					
Multiple R	0.7457				
R Square	0.5560				
Adjusted R Square	0.5419				
Standard Error	0.1590				
Observations	261				
Anal					
	DF	Sum of Squares	Mean Squares	F	Significance F
Regression	8	7.97459497	0.996824371	39.45218	0.000000
Residual	252	6.367195994	0.025266651		
Total	260	14.34179096			
	Coefficients	Standard Error	t Stat	P-value	Variance Inflation Factor
Intercept	0.256858	0.086132	2.982161	0.003143	
Liquidity	(0.025327)	0.021108	(1.199857)	0.231322	0.357720
Claims Ratio	(0.237537)	0.095536	(2.486367)	0.013554	2.458393
Reinsurance Ratio	(0.124101)	0.069041	(1.797491)	0.073455	1.234401
Financial Structure	0.005312	0.008759	0.606491	0.544735	0.151301
Market Share	0.471298	0.411301	1.145870	0.252936	7.945428
Expense Ratio	(0.319657)	0.115131	(2.776457)	0.005908	2.919980
Investment Yield	2.193776	0.142204	15.426921	0.000000	2.427013
Underwriting Margin	0.629061	0.135938	4.627570	0.000006	3.528119

The model had a strong correlation value of 0.746 showing a strong linear relationship between the firm specific factors and ROE. The R square for the model was 0.556 and after adjusting for errors it was 0.542. This shows that 54% of the variation in ROE is explained by the firm specific factors. As such, firm specific factors have a strong influence on the financial performance of Kenyan non-life insurers.

Variance Inflation Factors (VIF) show that there is lack of collinearity amongst the independent variables as the VIF values were below the critical value of 10: According to Studenmund (2006), the variance of an estimated regression coefficient is increased because of collinearity. This depicts lack of collinearity in the model.

4.8 Industry Specific factors influencing the financial performance of Kenyan non-life insurers

This section aims answer the research question: To what extent does macro-economic factors affect the financial performance of Kenyan non-life insurers? In doing so, a Pooled OLS model was applied to the firm specific factors against the dependent variable, ROE. This model assessed the extent of influence of macro-economic factors on the ROE of a non-life insurer. The form of the model was as follows;

$$ROE = \alpha + \beta_1 UC + \varepsilon$$

Whereby ROE is the return on equity, α is the regression constant, β_i are the regression coefficients, UC is the underwriting cycle and ε is the error term.

Table 4.8: Industry specific factors Model summary

Diagnostics: using n = 29 cross-sectional units

Fixed effects estimator allows for differing intercepts by cross-sectional unit

	coefficient	std. error	t-ratio	p-value
const	0.201819	0.0357813	5.640	4.94e-08 ***
UnderwritingCycle	-0.00481953	0.0989756	-0.04869	0.9612

Residual variance: $11.566 / (261 - 30) = 0.0500693$

Joint significance of differing group means:

$F(28, 231) = 1.76846$ with p-value 0.0126642

Variance estimators:

between = 0.00450517, within = 0.0500693, theta used for quasi-demeaning = 0.256666

Random effects estimator allows for a unit-specific component to the error term

	coefficient	std. error	t-ratio	p-value
const	0.178074	0.0225488	7.897	8.13e-014 ***
UnderwritingCycle	0.0664157	0.0381585	1.741	0.0830 *

Breusch-Pagan test statistic:

LM = 5.29257 with p-value = $\text{prob}(\text{chi-square}(1) > 5.29257) = 0.0214166$

Hausman test statistic:

H = 0.615678 with p-value = $\text{prob}(\text{chi-square}(1) > 0.615678) = 0.432658$

Model 2: Fixed-effects, using 261 observations
 Included 29 cross-sectional units
 Time-series length = 9
 Dependent variable: ROE

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>
const	0.201819	0.0357813	5.640	<0.0001 ***
UnderwritingCycle	-0.00481953	0.0989756	-0.04869	0.9612

Mean dependent var	0.200213	S.D. dependent var	0.234863
Sum squared resid	11.56601	S.E. of regression	0.223762
LSDV R-squared	0.193545	Within R-squared	0.000010
LSDV F(29, 231)	1.911679	P-value(F)	0.004779
Log-likelihood	36.35370	Akaike criterion	-12.70741
Schwarz criterion	94.22820	Hannan-Quinn	30.27724
rho	-0.108480	Durbin-Watson	1.997974

Source: Research Findings

The results of the Breusch Pagan test statistic and Hausman test statistic confirm that a Fixed Effects model is appropriate for modelling the industry specific variables. The R square for the Industry specific factors Pooled OLS model was 0.000. As such, industry pecific factors do not have a significance influence on the financial performance of Kenyan non-life insurers.



CHAPTER FIVE: SUMMARY, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary, discussions, conclusions as well as recommendations from the results of the study. The researcher then present the key limitations of the study as well as recommendations for further research. The study sought to explore the effect of macro-economic, firm specific and industry specific factors on the financial performance of non-life insurers in Kenya. Specifically, the study was aimed at establishing the extent of the impact of these factors on the non-life insurers in the Kenyan context.

5.2 Summary and Discussions

The study employed annual secondary data on financial reports of non-life insurers which were obtained from IRA and AKI reports. Financial ratios were then calculated from these financial reports to arrive at the predictive variables for the firm specific and industry specific factors applied in the study. In addition, the macro-economic factors were obtained from CBK and KNBS reports. ROE was taken as the proxy for the non-life insurers' financial performance with the data to compute historical ROE was obtained from IRA reports over the period of the study. The study covered a period from January 2006 to December 2016. The data was analyzed using regression and correlation analysis.

5.2.1 Effect of macro-economic factors on the financial performance

The study sought to determine the effect of macro-economic factors on the financial performance of Kenyan non-life insurers. The macro-economic factors applied in the study included: inflation rate, GDP growth rate, interest rate and equity returns. From the correlation analysis results, there was a strong moderate correlation between ROE and Equity Returns. From the macro-economic regression model, macro-economic factors did not have a significant influence on the ROE of non-life insurers with only 7.5% of the variation in ROE being explained by the macro-economic factors. From the research objective of the macro-economic factors affecting financial performance of non-life insurers in Kenya, the study determined that none of the modelled macro-

economic factors had a significant influence on the financial performance of the Kenyan non-life insurers.

These results conflicted the findings by Rao (2016) as well Dorofiti and Jakubik (2015) who found that equity returns are significant in determining the financial performance of non-life insurers. The results were also different from the findings of Shiu (2004) Asamwoyi and Michael (2014), Crowley (2007) which found out that interest rates GDP growth and inflation rates to be significant determinants of financial performance of non-life insurers.

5.2.2 Effect of firm specific factors on the financial performance

The study also sought to determine the effect of firm specific factors on the financial performance of Kenyan non-life insurers. The firm specific factors applied in the study included: liquidity, claims ratio, reinsurance ratio, financial structure, market share, expense ratio, Investment yield and underwriting margin. From the correlation analysis of the firm specific factors and ROE, there was a strong positive correlation between ROE and Investment Yield and Underwriting Margin but a moderate negative correlation between ROE and expense ratio, claims ratio and financial gearing. From the firm specific regression model, firm specific factors had a strong influence on the ROE of non-life insurers with 55% of the variation in ROE being explained by the macro-economic factors. Further, the claims ratio explained ROE variation better than expense ratio but both factors had a negative impact on the financial performance (ROE) of the insurers. From the study, market share doesn't have a statistically significant influence on the financial performance of Kenyan non-life insurers. From the research objective of the firm specific factors affecting financial performance of non-life insurers in Kenya, we determine that expense ratio, claims ratio, investment yield and underwriting margin are the firm specific factors with a significant influence on the financial performance of the Kenyan non-life insurers.

The results are similar to the findings from Shiu (2004), Iqbal and Rehman (2014) Verbeke & Merchant (2012) and Verbeke & Merchant (2012) which found out that underwriting margin, expense ratio and claims ratio to be a significant determinant of financial performance of non-life insurers.

5.2.3 Effect of industry specific factors on the financial performance

The study also sought to determine the effect of industry specific factors on the financial performance of Kenyan non-life insurers. The firm specific factors applied in the study was the underwriting cycle. From the correlation analysis, there is a weak correlation between ROE and underwriting cycle. From the research objective of the industry specific factors affecting financial performance of non-life insurers in Kenya, we determine that underwriting cycle does not have a significant influence on the financial performance of the Kenyan non-life insurers.

5.3 Conclusions

To start with, with respect to the research question to what extent the macro-economic factors influence financial performance of non-life insurers, the results of the study indicate that only 7% of the variation in financial performance (ROE) is explained by macro-economic variables. The study thus concluded that, macro-economic factors have a weak influence on the financial performance of a non-life insurer.

Secondly, in relation to the second research question to what extent the firm specific factors influence financial performance of non-life insurers, the results of the study indicate that 55% of the variation in financial performance (ROE) of non-life insurers is explained by firm specific variables. Hence firm specific factors have a strong influence on the financial performance of a non-life insurer.

Lastly, with respect to the research question to what extent the industry specific factors influence financial performance of non-life insurers, the study thus concluded that industry specific factors do not have a significant influence on the financial performance of Kenyan non-life insurers.

From a strategic perspective it is important that managers of non-life insurers understand the key levers that drive value in their businesses. This would allow them to prioritize the limited resources at their disposal. Shareholders always seek to maximize the return they get per unit capital invested

in the business. From the results of the study, for non-life insurers' to increase the ROE they should expend much of their resources into maximizing the investment yield in the business by improving their investing capabilities. Furthermore, it would also pay off to focus on better underwriting discipline via careful selection of risks to reduce claims ratios as well as drive operational efficiencies to reduce expense ratio.

5.4 Recommendations

From the significance of the study, the results of the study can be applied by different stakeholders to make more informed decisions. To start with, it is clear from the study that non-life insurers' financial performance is vulnerable to the expense ratio and claims ratios. As such, the Kenyan Insurance regulator, should consider introducing pricing and underwriting guidelines on exposures that non-life insurers take on in their balance sheet. This is mainly because price undercutting could easily affect the financial performance of the insurance industry and consequently its stability which is of interest to the insurance regulator. On the other hand insurance risk managers and actuaries, should closely monitor a non-life insurers' expense and claims ratio due to the vulnerability of the insurers' performance to these metrics.

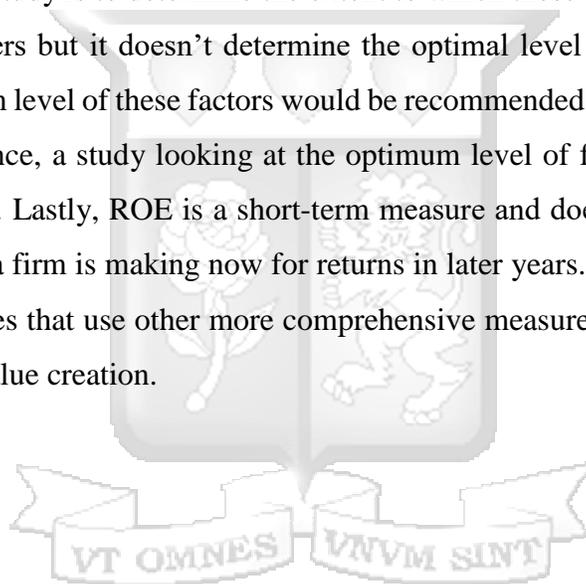
Secondly, the results of the study will assist managers to understand the key value drivers that they need to track and closely monitor as well as how to prioritize allocation of resources towards building capabilities required to increase their ROE. Specifically, claims ratio, expense ratio as well as investment yield are key value drivers or metrics that are critical to the financial performance of non-life insurers in Kenya. The fact that market share doesn't have a significant influence on ROE does dispel the myth that size matters in the Kenyan non-life insurance industry. Thus insurance managers should not just focus on growing market share at all costs. It would instead pay off better for insurance managers to focus on building capabilities on better risk selection and increasing investment yields.

Thirdly, the results of the study will help investors to make more informed decisions when making investment decisions. In carrying out investment appraisal process, the investors should specifically pay attention to the factors identified to be significant in determining the financial performance of insurers i.e. investment yield, expense ratio, claims ratio, underwriting margins. Further, during post investment portfolio management, the investors should monitor these metrics to track the financial health of the company.

5.5 Suggestions for further study

This study only focused on quantitative and financial measure of performance drivers. There are however many other non-financial and qualitative drivers of financial performance. The study hence recommends broadening study on the subject matter to other qualitative factors that affect performance of an insurance company. These could include innovation, organizational culture, management abilities, brand, organizational structure, age, quality of staff, leadership, governance structures as well as extent of technology adoption.

In addition, the scope of study is to determine the extent to which these factors affect the financial performance of an insurers but it doesn't determine the optimal level of these factors. A study investigating the optimum level of these factors would be recommended as an area of further study on the subject. For instance, a study looking at the optimum level of financial gearing level for Kenyan non-life insurers. Lastly, ROE is a short-term measure and doesn't necessarily take into account the investments a firm is making now for returns in later years. As such, the study would recommend further studies that use other more comprehensive measures of value creation taking into account long term value creation.



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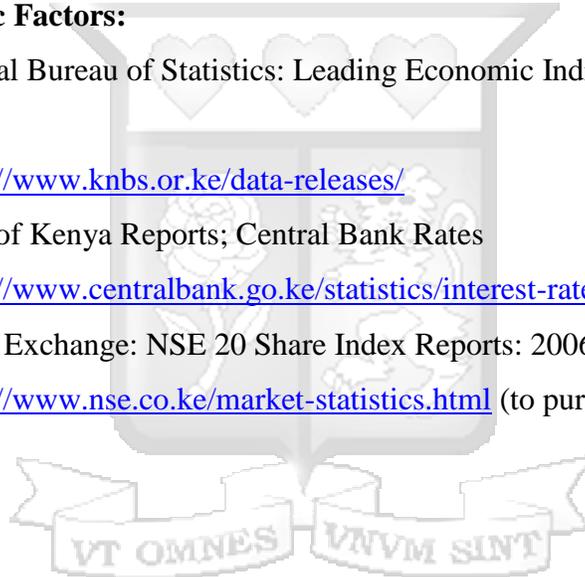
Appendix 1: Sources of data.

1. Firm Specific and Industry Specific Factors:

- IRA Reports 2006 to 2016 *Annual statistics*:
Source: <https://ira.go.ke/index.php/publications/statistical-reports/annual-reports>
- AKI Insurance Industry Reports : 2006: 2016
Source: <http://www.akinsure.com/publications/aki-journal-2>

2. Macro-Economic Factors:

- Kenya National Bureau of Statistics: Leading Economic Indicator Reports 2006 to 2017
Source: <https://www.knbs.or.ke/data-releases/>
- Central Bank of Kenya Reports; Central Bank Rates
Source: <https://www.centralbank.go.ke/statistics/interest-rates/>
- Nairobi Stock Exchange: NSE 20 Share Index Reports: 2006 to 2016.
Source: <https://www.nse.co.ke/market-statistics.html> (to purchase)



Appendix 2: List of The Non-Life Insurance Companies in Kenya – Population Size

S.no	Insurance company
1	APA Life assurance company
2	Britam General Insurance
3	Cannon Assurance Company
4	CIC General Assurance Company
5	Corporate Insurance Company
6	First Assurance Company
7	GA Insurance Company
8	Geminia Insurance Company
9	ICEA LION General Insurance
10	Jubilee Insurance Company
11	Kenindia Assurance Company
12	Kenya Orient Life Assurance
13	Fidelity Shield Insurance Company
14	Madison Insurance Company
15	Mayfair Insurance Company
16	Resolution Health Insurance
17	Pacis Insurance Company
18	Occidental Insurance Company
19	Phoenix Of East Africa
20	Saham Assurance Company
21	Takaful Insurance Of Africa
22	The Kenyan Alliance Insurance
23	The Monarch Insurance Company
24	UAP Insurance Company
25	AAR Insurance Kenya

26	African Merchant Assurance
27	AIG Insurance Company
28	Directline Assurance Company
29	Allianz Insurance Company
30	First Assurance Company
31	Intra-Africa Assurance
32	Invesco Assurance Company
33	Gateway Insurance Company
34	Heritage Insurance Company

Source: Association of Kenyan Insurers annual report , 2016

