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EFFECT OF ADOPTION OF RISK BASED SUPERVISION METHODOLOGY ON THE FINANCIAL PERFORMANCE OF INSURANCE COMPANIES IN KENYA

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Abstract: Risk based supervision (RBS) model is a structured approach that concentrates on identification of potential risks faced by firms and the assessment of the measures in place to minimize and mitigate those risks. It is designed to promote transparency, provide an early warning system and encourage the regulated entities to both self-assess and report periodically. Implementation of RBS methodology in Kenya is still in its infancy and most entities are in the process of adoption. The few local studies on the subject have therefore been inconclusive due to the relatively short period that RBS has been in force in Kenya. This study attempted to uncover the full impact on financial performance on insurance companies in Kenya, of the RBS model as implemented by the Insurance Regulatory Authority (IRA). Three variables of RBS were studied to determine their influence on financial performance. The target population for the study was 55 licensed insurance companies operating within the republic of Kenya. The study adopted a census study as it evaluated data for all the 55 licensed insurance companies. Data was drawn from financial information submitted to IRA by insurers, which form part of the quarterly and annual returns to that regulator. The study utilized industry data collected for the period between 2012 and 2018 financial years. This represents three years prior to implementation of RBS and three years' post-implementation, with 2015 being the reference year. Other data was obtained from publicly available information including the websites of CMA, NSE, RBA and AKI. Inferential statistics of correlation and regression analysis was used to establish the effect of the independent variables on the dependent variables. The study findings indicated a direct and significant relationship between capital adequacy and financial performance; An inverse and significant relationship was noted between actuarial valuation and financial performance of insurance companies; and there was a direct and significant relationship between investments and financial performance of insurance companies. The study recommends full compliance to risk based supervision guidelines by adhering to guidelines on; investments, actuarial valuation and keeping adequate capital (commensurate to risk held) to achieve success in financial performance by insurance companies in Kenya. The Insurance regulator, IRA may use the findings of this study to add value to insurance companies by exploiting the combined effect of variables in the study. They may focus their guidance towards building the capacity of firms by and enhancing policies on Risk Based Supervision, Electronic Regulatory Systems and Risk Based Capital regulations to help the industry improve.

Key Words: capital adequacy, actuarial valuations, financial performance, and investment

Introduction

Risk Based Supervision (RBS) is defined as a comprehensive, formally structured system that assesses risks within the financial system, giving priority to the resolution of those risks. The approach is gradually becoming dominant to regulatory supervision of financial institutions around the world (Gitau, 2010). RBS is often contrasted with Rules-Based Regulation, also known as Principles or Compliance-Based Supervision (CBS). This is a method of regulation, which involves checking for

and enforcing compliance with rules and is applicable to all regulated entities. Momanyi (2009) brings out the clear differences between RBS and CBS. Małgorzata and Szyma (2008), define RBS as a structured process aimed at identifying the most critical risks that face each company and through a focused review by the supervisor, assessing the management of those risks and vulnerability to potentially adverse experiences.

RBS focuses on only the critical areas – assessing the degree of risk in the company's operations and determining how to reduce the risk as required. With RBS, entities are always being monitored, both for compliance with the rules and for how they approach risk management. Failure to comply or to manage the risks well is noted, and action is taken according to the appropriate legislation. It is hoped that this will eliminate unnecessary risk-taking and foster good risk management practices. Under CBS, all insurers were expected to hold the same amount of capital regardless of their risk profile. Under RBS, the level of supervision is pegged on an insurer's risk profile. Entities that have higher risk profile will be subject to greater scrutiny by the regulator. RBS was informed by the fact that resources are finite and not all industry players will need to be supervised equally. The principle of proportionality dictates that supervisors assess compliance with a regulatory framework in a manner commensurate to the complexity, scale and nature of the risks inherent in the business of insurers.

Like typical risk management processes, the RBS approach is forward looking with a focus on evaluating both present and future risks, identifying potential problems and facilitating prompt intervention. RBS process is largely dependent on data. It is therefore expected that insurance companies will put up systems in place so as to be able to provide the regulator with data in a seamless manner and on a regular basis. For this to happen, insurance companies would need to invest in systems and processes that would provide the supervisory data in the form required by the regulator (IRA, 2016). Effects of RBS include mergers and acquisitions, as has already been witnessed in the Kenyan insurance industry. This will consolidate a fragmented industry characterized by many small players.

In Kenya, RBS has been rolled out progressively since 2013. Valuation of liabilities for Life business and establishment of corporate governance functions of audit, risk, compliance and actuarial functions were introduced in 2013. In 2014, the following measures were introduced: valuation of liabilities for non-life business, guidelines on Electronic Regulatory System (ERS) reporting tool and disclosure requirements and Treating Customers Fairly (TCF). In 2015, capital requirements aspects of minimum capital and risk based capital –standard models were introduced. Also in the same year, onsite inspection module of supervision was introduced. Modules that are yet to be rolled out include; risk based capital- internal model as well as the own risk and solvency assessment (ORSA) module. This will likely be implemented in the near future.

Statement of the Problem

Past studies on RBS, for example Njuguna (2012), Kiragu (2014) and Makau (2014) were largely focused on the performance of pension funds of pension managers. The findings showed a positive correlation between financial performance of pension funds and adoption of RBS. Similarly, Ng'ang'a (2014), investigated the effect of adoption of RBS on financial performance of insurance companies, particularly the effect on return on assets, (ROA). Ng'ang'a concluded that RBS positively affected financial performance. From the various studies, therefore, it is clear that RBS has a positive impact on

financial performance. Consequent to this, more later-day studies reported significant positive effect of RBS on the financial performance of pension funds.

However, industry statistics from AKI (2017), on the actual performance paint a conflicting picture. Statistics for the past five years for instance, have shown that return on capital employed (ROCE) has declined steadily from 23% in 2013 (pre-RBS) to 10.4% in 2017. This is a 54% decline from 2013. Profits before tax showed a steady decline in the three years from 2013 to 2015, rallying in 2016 before again declining by 18.6% in 2017 (*see appendix 1, table II*). It is therefore important to understand why these actual results differ from what most studies predicted. This study will attempt to uncover this discrepancy and reveal the real impact of RBS on financial performance of insurance companies.

It can also be argued that by the time these studies were completed, full effects of RBS were yet to be realized, owing to the fact that some features were yet to be rolled out (*refer to table I in the appendix*), hence the conclusions reached by most researchers could have been premature, and further research is therefore justified.

As has been noted earlier, other EAC states apart from Kenya were still lagging in terms of implementation of RBS (AKI, 2015). It is therefore important for more studies from early adopters like Kenya to help the other countries on the path of implementation. Globally, and especially in the OECD countries, full implementation was realized long time ago, as was noted by Gitau (2010). Therefore, for the country and region to keep up, further studies are necessary in this area.

Finally, most extant local studies have focused on the supervision methodology (qualitative) component of RBS only, without looking at the other features, i.e., determination of capital requirements, guidelines on valuations of technical provisions, guidelines on Investments of insurance funds, corporate governance guidelines, reporting requirements and disclosure requirements. It is therefore imperative to look at RBS in a more holistic manner. This study attempted to investigate the influence of three of these variables using empirical data that is more objective than surveys.

Research Objectives

General Objectives

The general objective of this study was to examine the effect of adoption of Risk Based Supervision methodology on the financial performance of insurance companies using available empirical data.

Specific Objectives

The study had the following specific objectives:

1. To examine the effect of capital adequacy on financial performance of insurance companies before and after adoption of RBS
2. To evaluate the influence of actuarial valuations on financial performance of insurance companies before and after adoption of RBS.
3. To assess the effect of investment on financial performance of insurance companies before and after adoption of RBS

Literature Review

Theoretical Review

The Buffer Theory of Capital Adequacy

The capital buffer theory corroborates the Capital Adequacy variable. The theory was postulated by Calem and Rob (1996). According to the theory, financial institutions must build up capital buffers to reduce the likelihood of failure or financial distress during economic downturns. The buildup capital buffers envisaged is during the good or bumper years. Calem and Rob (1996) define capital buffer as the capital that financial institutions hold over and above the minimum requirements. The regulations requiring creation of adequate capital buffers in banks were meant to reduce the cyclic nature of lending through promoting the creation of countercyclical buffers.

Capital requirements guidelines issued by IRA provide for the Risk Based Capital (RBC) and Minimum Capital Requirement (MCR) as part of the capital adequacy requirements for insurance companies. According to RBC guidelines, insurers should hold capital against every risk carried in their books; this is in addition to additional capital referred to as risk margins. This is the capital holding over and above the required minimum; to compensate for the risk that risk based capital will not be adequate. In line with this theory, insurers should aim to hold more capital over and above the minimum required, as a buffer against breach of the regulatory minimum capital requirement during leaner times.

The capital buffer theory implies that insurance companies with low capital buffers should attempt to build an appropriate capital buffer during good years and those with high capital buffers should maintain their capital buffers for application during leaner periods. More capital tends to absorb adverse shocks and thus reduces the likelihood of failure. Consequently, insurance risk and regulatory capital are assumed to be positively related. Financial institutions raise capital when insurance risk goes up in order to keep up their capital buffer. Criticism for this theory could include the fact that buffer capital represents an opportunity cost of holding excess capital that would otherwise have been invested elsewhere for a better return.

Theory of Economic Regulation

This theory corroborates all the RBS guidelines (on Capital Adequacy, Actuarial Valuations, and Investments) with specific reference on supervision. Postulated by Posner (1974), economic regulation refers to any form of government intervention in the market. This includes fiscal interventions e.g., taxes and subsidies, as well as legislation and other administrative controls targeting rates, entry or an economic activity. Arrow and Shubik (as cited in den Hertog, 1999), also observed that one of the methods of achieving efficiency in the allocation of resources when markets fail, is through government regulation.

Two main theories of economic regulation have been advanced through the works of Stigler (1971) and Peltzman (1976). These are the public interest theory and the capture theory. Public interest theory, a brainchild of Peltzman (1976), holds that regulation is necessary to protect the interest of the consumers, investors and other stakeholders, and is mainly driven by public demand. It is necessary to correct inefficient and inequitable market practices. In relation to the guidelines issued by IRA, adopting uniform guidelines is meant to ensure equity and comparability of financial statements across all insurance companies. Such guidelines will ensure adequate capital is held, correct valuation

methods are used, good corporate governance practices adopted and prescribed investment limits are adopted. All these measures will ensure the policyholder and shareholder interests are well protected.

The capture theory is the process by which the regulator eventually comes to be dominated by the industry it was meant to oversee. The theory was advanced by George Stigler in 1971. According to Stigler, this happens when the regulator begins to act in ways that benefit the industry players rather than the public. With time, the regulator acts in the best interest of the industry to the detriment of the public. The issuance of guidelines by IRA that are policyholder-centric are seen as curtailing any possibility of this happening. Guidelines on corporate governance seek to ensure that regulated entities entrench good corporate governance practices. Investment guidelines seek to ensure that decent return on investment is achieved as capital is preserved. This way, the insurers will not engage in overly aggressive and dangerous investment practices. Guidelines on actuarial valuations will ensure liabilities are objectively and fairly valued. Critics of this theory have argued that if the theory were correct, regulation would be imposed in highly concentrated industries and those that generate large external costs. However, this is not always the case.

Private Empowerment Theory

The private empowerment theory was postulated by Hay and Shleifer (1998). The theory states that supervisory policies should aim to enhance the incentives and ability of private parties to overcome transactional and information related costs, so that private investors can realize effective governance. It proposes that private entities operating on the markets have means to evaluate the risks and this ability should be fostered by disclosure of accurate and up-to-date information. Further work by Barth et al., (2002; 2006), concluded that supervisory strategies should include enhancing the ability of private parties to surmount challenges caused by barriers to information. Private empowerment theory also seeks to empower supervisors to ensure accurate information disclosure to enable easy monitoring (Beck et al., 2005).

This theory corroborates the Capital Adequacy variables. Under the new RBS guidelines issued by IRA, insurance companies have been handed the discretion to determine their own capital, through managing the risks they are willing to take in. The companies have also been greatly empowered by availability of copious amounts of information on the industry. The IRA has also introduced a requirement that all industry players must disclose certain information to the regulator. This information will then be processed and disseminated back to the market. Insurance companies can therefore decide the level of interaction they want to have with the regulator. RBS bestows upon regulated entities, the power to determine how they want be monitored based on the quality of their risk management practices. An institution that wants to enjoy relative autonomy from the regulator will be the one that puts in place adequate capital (more than that prescribed by the regulator) and puts in place sufficient risk management practices to cover the inherent risks in its gamut. This way, the regulator will have very little interest on that firm.

Criticism of this theory include the fact that the theory presumes that there are market failures and that market failures can be ameliorated though information disclosure that facilitates private sector monitoring, not by direct official monitoring of institutions.

Valuation Theory

The pioneer valuation theories were postulated by Modigliani and Miller in 1958 and by Black and Scholes in 1973. They were based on the equilibrium condition that there exist no arbitrage

opportunities. Black and Scholes (1973) formulated the option pricing theory. At its inception, it was intended to help solve the problem of valuing corporate liabilities. These were essentially the preference-free theories. Other later theories made assumptions on preference and derived more specific pricing restrictions. Grissom and Pearson (as cited in Lawson, 2008), distinguished between value theory, valuation theory and appraisal theory. They argue that value theory is engaged in the need to establish why an asset has worth. Valuation theory is concerned with the economic theory that underpins the processes and techniques used in the procedure employed to measure worth. Appraisal theory on the other hand is designed to meet legislative requirements.

The valuation theory corroborates the Actuarial Valuations variable. The guidelines issued by IRA sets out the assumptions that actuaries should adopt in the determination of value of actuarial liabilities. The Black and Scholes model has been criticized for its assumptions of absence of transaction costs or taxes and that there are no arbitrage opportunities. The model also assumes volatility remains constant over the option's life span. In truth, volatility fluctuates with demand and supply. In addition, the model does not take into account the execution of options before the expiration date.

Modern Portfolio Theory (MPT)

MPT was postulated by Harry Markowitz in 1952, in his paper on portfolio selection. According to the theory, investors should focus on selecting portfolios based on the overall risk-reward attributes rather than on the attractiveness of individual securities. Tobin (as cited in Jobson and Korkie, 1982), also did some work by introducing the concept of risk-free assets. This introduced the modern investment concepts of superefficient portfolios and the Capital Market Line. It has been noted that portfolios on the capital market line generally outperform those on the efficient frontier. Under MPT, an asset's return is modelled as a normally distributed function. The theory defines risk as the standard deviation of return, and models the weighted combination of asset's returns as the portfolio. The total variance (risk) can then be reduced by combining different assets whose returns are not perfectly correlated.

This theory corroborates the Investments variable. Through a careful mix of various assets, MPT tries to maximize the expected return for a given amount of portfolio risk, or alternately, minimize risk for a given level of expected return. The MPT theory promotes diversification in investment, through selecting a group of assets that collectively lower risk than any individual asset. The investment guidelines issued by IRA, the regulator has given a schedule of diverse investment vehicles in which insurance funds can be applied as well as their limits. This was intended to manage investment risks and give a decent return to the policyholders.

Modern Portfolio Theory has been widely criticized, primarily due to the many underlying assumptions. Markowitz's assumption on investors acting rationally has been proven incorrect by many behavioral finance scholars. Similarly, the idea that all investors have knowledge of potential returns has been roundly challenged. The expectations of many investors are usually biased. In addition, the assumption of absence of taxes is simply not true in real world. The assumption that securities of any sizes can be bought is also impractical, as some securities have minimum order sizes. Critics have also challenged the idea that investors' actions do not have an influence on the market. Further, MPT relies on past performances to measure the risk-return correlation. However, past performance does not guarantee future performance.

Conceptual Framework

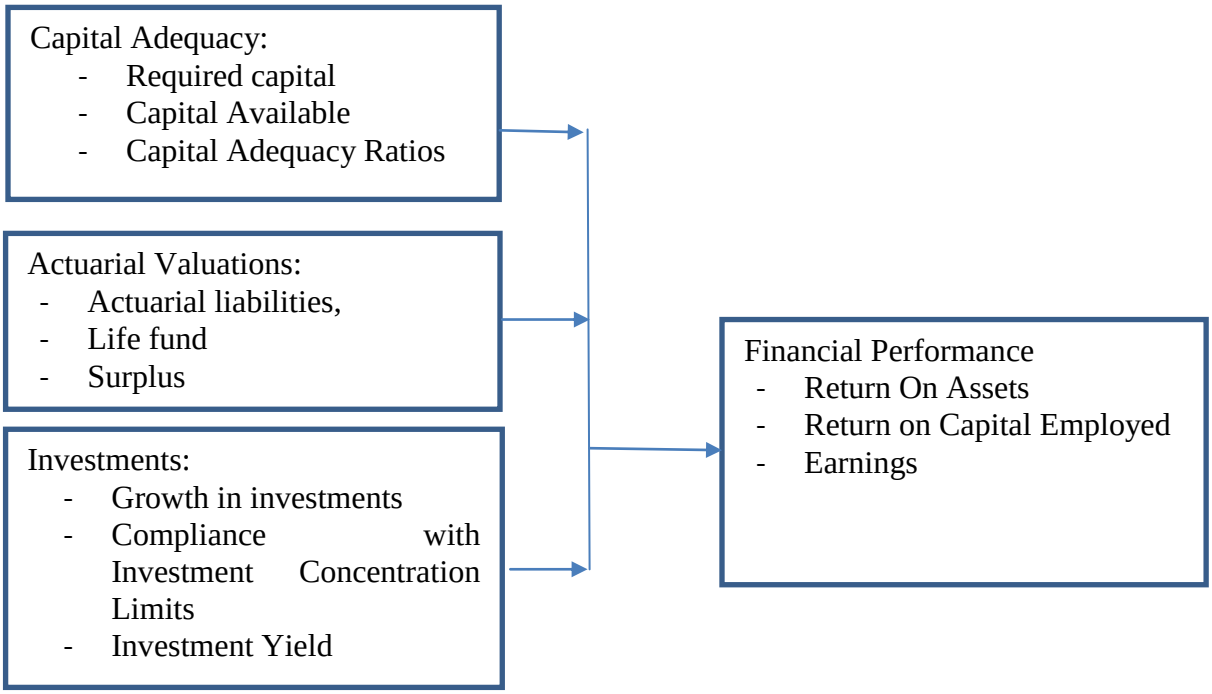

Figure 1: Conceptual Framework

Research Gap

Most local studies have concluded that adoption of RBS has had a positive impact financially. However, these studies were only focused on the qualitative variables mostly on the supervision methodologies and not the quantitative aspect of RBS. None of the studies reviewed have investigated the impact of all the variables associated with RBS. There is therefore need to factor in the overall effect that both quantitative and quantitative aspects of RBS might have on financial performance metrics. This research attempted to address the hitherto un-investigated variables, namely: Capital Adequacy, Actuarial Valuations and Investments. In addition, no scholar has attempted to use available empirical data in their studies. Most researchers have relied on qualitative data gathered through surveys. Reliability of survey data is not guaranteed as some respondents can give erroneous and misleading responses.

Moreover, AKI (2017) statistics for the past five years show that return on capital employed has been steadily declining from a high of 23 in 2013 to a low of 10.4 in 2017. This is an exponential decline by 54.6% from 2013. Similarly, profits before tax showed a steady decline in the three years from 2013 to 2015, rallying in 2016 before again declining by 18.6% in 2017. This study sought to address this apparent conflict in the actual versus expected results.

Research Methodology

A research design may also specify the type of research, purpose, period, scope and environment. This study adopted a longitudinal census research design. The target population for this study was 55 licensed insurance companies that were operating in Kenya between 2012 and 2018. The sampling

frame in this study consisted of all 55 insurance companies licensed and operating in Kenya. This list was derived from IRA, which regulates all insurance market players. The sampling frame has changed progressively from 2012 to 2018. The number of licensed insurers has moved from 47 to 55 in the seven years between 2012 and 2018. As this was a census study, all the 55 licensed insurance companies were considered.

For this study, secondary data was used as collected by the data collection sheet. Data for the selected years of study consisted of annual audited returns for the years 2012, 2013, 2014, 2015, 2016, 2017 and 2018. The data was downloaded directly from the website of IRA and corroborated with those of AKI, KNBS and RBA. Diagnostic tests were done to detect any potential problems with the regression model adopted, and to generally test if the data was fit for the proposed parametric tests. The diagnostic tests included normality, multi-collinearity, heteroscedasticity and auto-correlation. To test normality, Kolmogorov-Smirnov and Shapiro-Wilk tests were used. Multi-collinearity tests were done on the regression model to avoid incorrect conclusions about the relationship between dependent variable and predictor variables. Variance Inflation Factor (VIF) and Tolerance Degree was used to check for multi-collinearity. Multi collinearity typically occurs when independent variables are strongly correlated with each other and hence results of regression analysis will be as a result of the correlation of the independent variables rather than between dependent and independent variables. VIF was checked in all the analyses. Heteroscedasticity entails a situation where the variance of the dependent variable (Y) varies across data rather than being constant, (the assumption by ordinary least squares model is that variance of the error term is constant). Heteroscedasticity was tested through Breusch-Pagan test. Auto-correlation on the other hand was tested using the Durbin-Watson test. Auto-correlation occurs when the residuals are purely random such as not to correlate with anything else, including with each other.

Data analysis is a detailed process that involves clean-up of the collected data before undertaking to deduce it to give meaningful interpretations and explanations (Kothari, 2004). In this study, data was analyzed using inferential statistics, i.e. multiple regression analysis and correlation analysis. The data obtained was processed, scrutinized, interpreted and presented in such a way that it is clear, specific and unambiguous. The data was analyzed using the Statistical Package for Social Sciences (SPSS) and Microsoft Excel. Multiple regression analysis measured the nature of relationships between various determinants and financial performance. This is justified due to the multiple variables under study. Simple regression analysis was used to examine the influence of each of the independent variables (capital adequacy, actuarial valuations, and investments) and the dependent variable (financial performance)

Having satisfied the requirements for parametric tests, the following general multiple linear regression model was adopted: $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$

Where: Y = Financial Performance; α = Value of Y (Financial Performance) when all of the independent variables (X_1, X_2, X_3) are equal to zero; X_1 = Capital Adequacy; X_2 = Actuarial Valuations; X_3 = Investments; ε = Error term - it defines the variation in dependent variable Y, which cannot be explained by the predictor variables; β = Constant term, β_1, β_2, β_3 = Regression Coefficients - they define the amount by which Y (dependent variable) is changed for every unit change of the predictor variable.

Research Findings and Discussion

Trend Analysis

Trend analysis refers to the direction taken by the market during specific time. There is no specified period of time that is considered minimum for a trend to be considered but longer periods are preferred because they are considered more notable. Trend Analysis helps identify trends in the input dataset. This section shows patterns of change in an indicator over time. This section presents the trend analysis for the three independent variables and one dependent variable.

Capital Adequacy

Capital adequacy was measured using Capital Required, Capital Available and Capital Adequacy Ratio. Figure 2 below shows the trend of Capital adequacy growth (KES Billion) for the period ranging from 2012 to 2018.

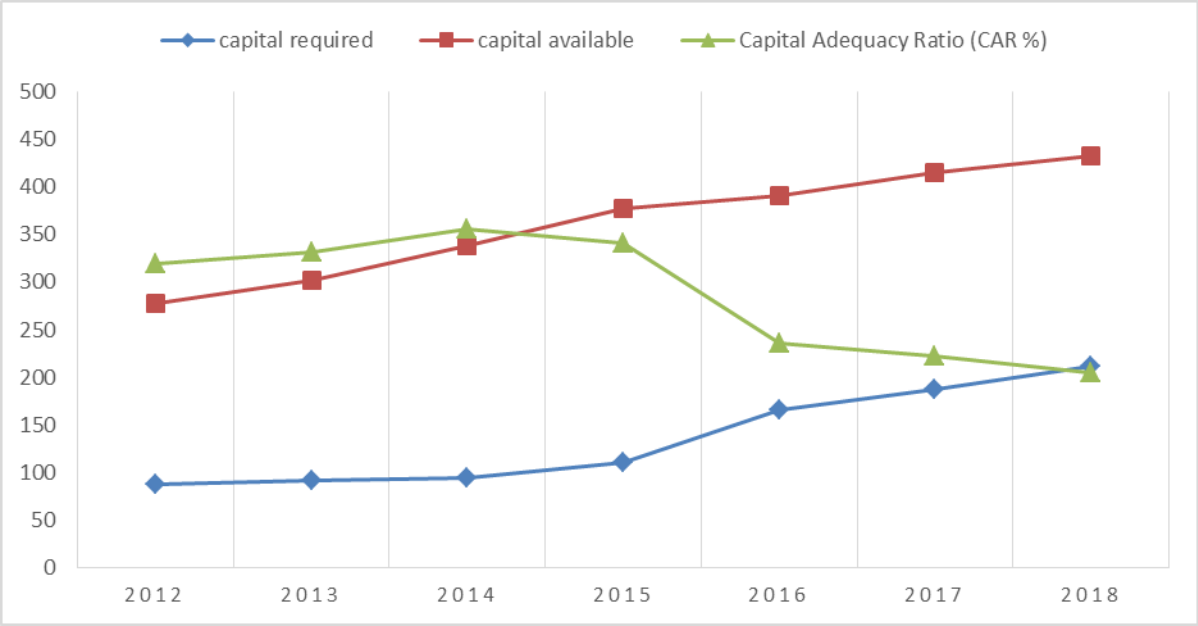

Figure 2: Growth in Financial Performance

From the results, there has been steady growth in capital adequacy measured using both capital acquired and total available capital from the year 2012 to 2018. Capital required is the Risk Based Capital that reflects how much capital an insurance firm should hold to match its risk profile. Capital adequacy on the other hand reflects the extent to which the required capital is covered by available capital. It is a ratio of available capital to the required capital. From the results, capital adequacy ratio changed by 3.86%, 7.21%, -4.29%, -30.83%, -5.78% and -7.53% in the years 2013, 2014, 2015, 2016, 2017 and 2018 respectively. Between the year 2015 and 2018 the capital adequacy ratio has been declining. Adequacy in capital reflects the safety and soundness of an institution's finances, low capital on the other hand raises the prospects of failure, while holding adequate capital inspires trust. When an institution holds excess capital, it has the freedom to venture into variety of undertakings and highly risky ventures, which can be very profitable, hence ultimately increasing its financial performance.

From the findings, presented in figure 4.1, there has been a steady growth in capital available since 2012 through to 2018. This is an indication that over the 7-year period considered by the study, the insurance companies have experienced a steady growth in their available capital. Regarding capital required, the insurance companies experienced slow but steady growth between 2012 and 2015; between 2015 and 2018 there was a huge increase in capital required within the insurance companies. It is important to note that capital available has always exceeded the required capital for the industry.

Actuarial Valuations

Actuarial valuation refers to the valuation of insurance or pension liabilities. Actuarial valuation was measured using Valuation of technical provisions for Life (Risk margins+ Best estimate liabilities), Life fund, Surplus and Valuation of technical provisions for Non-Life (Premium Reserves, Claims). Figure 3shows the trend of Actuarial valuation growth for the period ranging from 2012 to 2018.

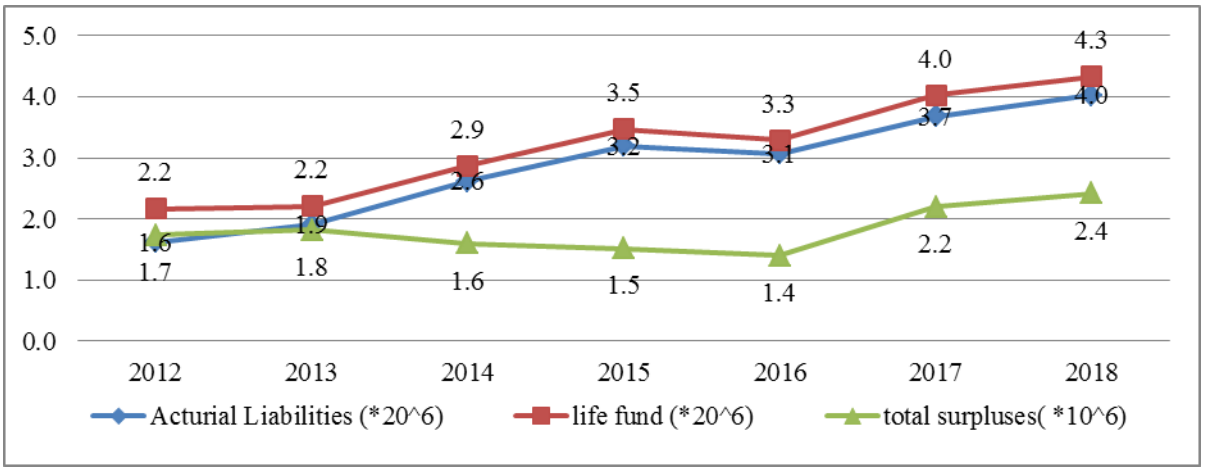

Figure 3: Growth in Actuarial Valuations

From the results presented in Figure 3, there has been a steady growth in Actuarial Valuations from the year 2012 to 2016. From the figure above, the growth rate slightly declined in the year 2016 and 2017 and then leveled up between 2017 and 2018. Valuation of assets and liabilities is key for monitoring and steering business performance. Therefore, an increase in Actuarial Valuations will help an organization to improve their performance. The purpose of valuation is to provide a fair (market or realizable) value for liabilities and assets for financial reporting and to support management decisions.

From the results presented in Figure 3, there has been a steady growth in Actuarial liabilities from the year 2012 to 2015, which is an indication that actuarial valuation during that period positively increased. Afterwards in 2016 there was a slight decrease in actuarial liabilities indicating a negative growth in actuarial valuations. In 2017 and 2018 there was a positive increase in actuarial valuation meaning there was growth in actuarial valuation. The growth rates for actuarial liabilities in 2013, 2014, 2015, 2016, 2017 and 2018 were 17.0%, 37.8%, 21.9%, -3.8%, 19.9%, and 9.3% respectively.

Growth of actuarial valuations was also measured using life fund. From the findings, there was stagnant growth in 2013 but for the years, 2014 and 2015 there was increase in values of life fund indicating that there was growth in actuarial valuations. In 2016, it is seen that the value of life fund decreased but later in 2017 and 2018 there was growth. This shows that the growth of actuarial valuation decreased in 2016 but in 2017 and 2018 there was an increase in growth. The rate of growth

of actuarial valuation measured using life funds were 2.0%, 30.2%, 20.9%, -5.2%, 22.3%, and 7.6% in 2013, 2014, 2015, 2016, 2017 and 2018 respectively.

The study also measured growth of actuarial valuations using values of total surpluses. From the findings presented in figure 3, there was growth in values of total surpluses in 2013 indicating that actuarial valuations grew. Afterwards from 2014 to 2016 there was a decline in values of total surpluses, which suggests that actuarial valuations declined. The findings further showed that in 2017 and 2018 there was an increase observed in the values of total surpluses registered by the insurance companies an indication that actuarial valuation grew. The growth rate for total surpluses for the years 2013, 2014, 2015, 2016, 2017 and 2018 were 4.3%, -12.1%, -4.8%, -7.8%, 57.1% and 9.7% respectively.

Investments

Organizations invest their resources in order to earn returns that will enable them enhance their financial performance. Investment in the organizations was measured using the monetary value of assets invested and income from those invested assets. Investment yield was measured by the ratio of investment income to total investments. Figure 4.3 shows the trend of investments growth for the period ranging from 2012 to 2018.

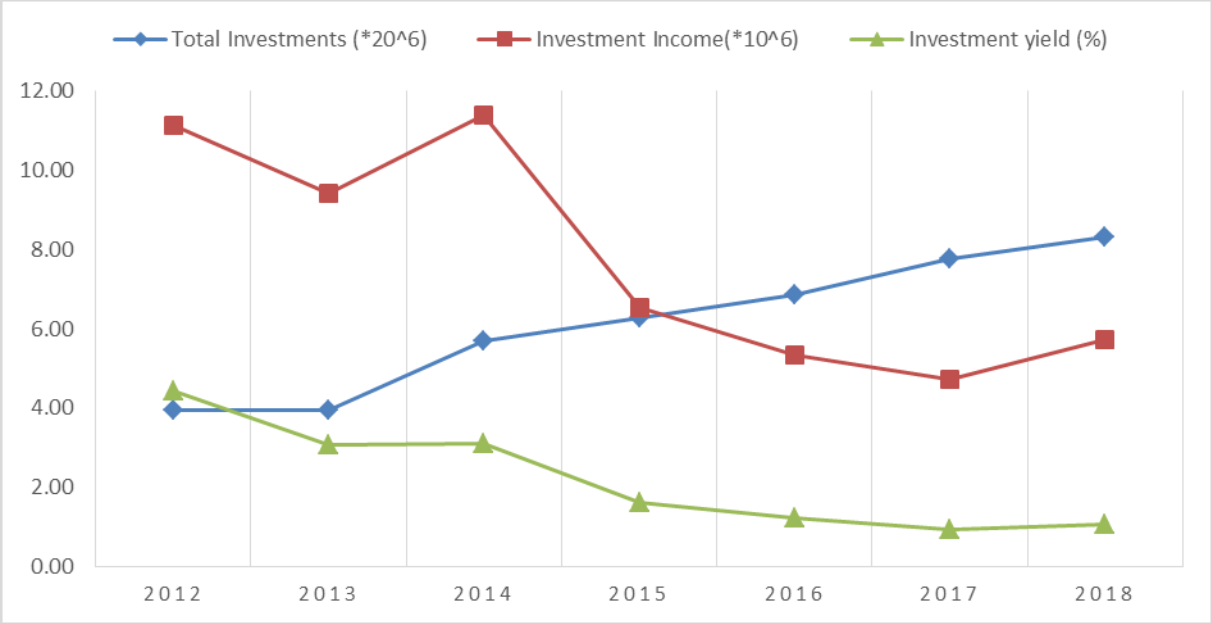

Figure 4: Growth of Investments

From the results presented in Figure 4, depicts a gradual but steady growth of investment from 2013 to 2018. However, the investment income has generally declined in the years between 2012 and 2018 with the only exceptions being 2014 when the was a spike in investment income and slight growth recorded in 2018 from 2017. Investments measured as percentage of investment yield declined through the years, from 2012 to 2018. Investments form an important part of any insurer's assets and failure of proper management results in losses from investments, which could affect the financial soundness of an insurer, affecting its liquidity. Usually, investment positively relates with financial performance of insurance companies, therefore an increase in investment implies that the organization will have improved financial performance.

Compliance with Investment Guidelines

The investments before adoption of RBS (2012 to 2015) were as follows:

Table 1: Average Investment distribution before adoption of RBS (figures in KES '000)

Investment Category	Amount (KES '000)	Proportion (%)
Land & Buildings	6,884,388	2.24
Investment property	52,041,418	16.92
Other Fixed Assets	3,409,516	1.11
Government Securities	116,593,227	37.92
Other Securities	2,042,681	0.66
Debentures (Quoted & Unquoted)	63,598	0.02
Preference Shares (Quoted & Unquoted)	1,946	0.00
Investment in subsidiary	7,694,083	2.50
Ordinary Shares unquoted	6,811,781	2.22
Ordinary shares quoted	43,575,738	14.17
Loans (Secured & Unsecured)	8,207,675	2.67
Deposits	47,757,783	15.53
Other investments	12,409,431	4.04
Total	**307,493,263**	**100.00**

Results above show that the industry had not fully complied with RBS guidelines as per IRA. The table below depicts investments between the period 2016 and 2018 (after adoption of RBS) and an analysis on their general compliance with RBS investment guidelines from IRA.

Table 2: Average Investment distribution after RBS (figures in KES '000)

Investment Category	Amount (KES '000)	Proportion (%)	Complied with Investment Guideline?
Land & Buildings	8,951,074	1.83	Y
Investment property	78,718,129	16.11	Y
Other Fixed Assets	3,667,712	0.75	N
Government Securities	256,359,435	52.46	Y
Other Securities	7,441,154	1.52	N
Debentures (Quoted & Unquoted)	5,350	0.00	N
Preference Shares (Quoted & Unquoted)	935	0.00	Y
Investment in subsidiary	15,044,201	3.08	Y
Ordinary Shares unquoted	9,245,585	1.89	Y
Ordinary shares quoted	40,307,990	8.25	Y
Loans (Secured & Unsecured)	9,460,767	1.94	Y
Deposits	44,893,246	9.19	Y
Other investments	14,580,652	2.98	N
Total	**488,676,228**	**100.00**	

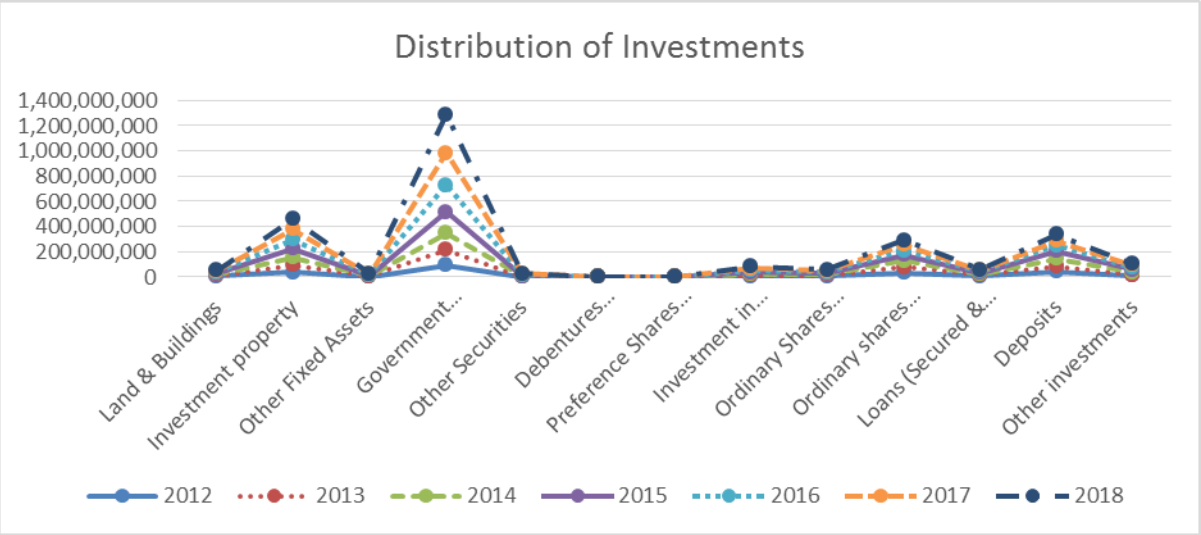

Figure 5: Distribution of Investments

Results from figure 5 showed that the insurance industry had not complied fully with the investment guidelines as provided by IRA. This could explain the reason why investment income has been declining despite increase in general investment.

Financial Performance

Financial performance measures a firm's income, profits and rise in value. This study measured performance of the insurance companies using Return on Assets (ROA), Return on Capital Employed (ROCE) and Earnings. Figure 4.4 shows the trend of financial performance of the insurance companies for the period ranging from 2012 to 2018.

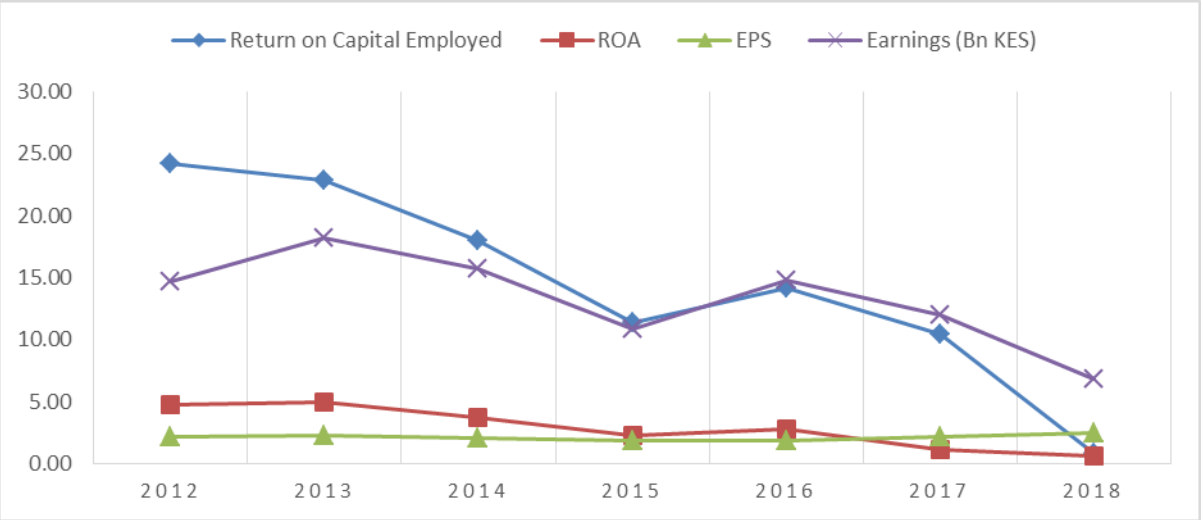

Figure 6: Growth in Financial Performance

From the results presented in Figure 6, ROA has been declining steadily since 2012 with the exception of 2016 when a slight improvement was registered. This is an indication of decreased financial performance by insurance companies. The growth rates were 5.52%, -26.29%, -37.96%, 23%, -60.4%, and -47.01% in 2013, 2014, 2015, 2016, 2017, and 2018 respectively. The growth in earnings was as

follows: 24.27%, -13.42%, -31.00%, 35.82%, -18.58%, -43.38% for; 2013, 2014, 2015, 2016, 2017 and 2018 respectively. ROA is measured as follows:

ROA = Profit Before Interest & Tax or Operating Profit ÷ Total Assets*100.

ROA measures the return generated for each asset owned or controlled by a firm. It shows how profitable a company's assets are in generating revenue. Regarding the financial performance of the insurance companies measured using EPS, it is seen that the EPS of the companies was 2.19 in 2012 which increased to 2.28 in 2013 which is an indication of positive growth. Afterwards from 2014 to 2016, there was a negative growth trend in EPS, which later in 2017 and 2018 showed a positive trend in EPS growth. These growth rates were 4.1%, -8.3%, -10.0%, -4.3%, 18.3% and 15.0% 4 in 2013, 2014, 2015, 2016, 2017 and 2018 respectively. EPS is given by:

EPS = Earnings attributable to equity shareholders ÷ Number of ordinary shares

This measure indicates the amount shareholders expect to generate in form of earnings for every share invested. It shows profitability of a company on a per share basis. Regarding performance measured using ROCE; there was a steady decline in ROCE from 2013 to 2015, which is an indication that there was a decline in financial performance of the insurance companies. In 2016, there was a positive growth indicating that financial performance of the insurance companies during that period increased. The findings further the negative growth trend in ROCE continued in 2017 to 2018 indicating that the companies witnessed decreased financial performance. The growth rates for the periods 2013 to 2018 were -5.58%, -21.09%, -36.89%, 24.97%, -26.50% and -92.38%. ROCE was measured as follows:

ROCE = Profit Before Interest and Tax or Operating Profit ÷ Total Capital Employed*100.

ROCE measures the efficiency with which a company uses long term funds or permanent assets to generate returns to shareholders. Profitability of a firm is influenced by both internal and external factors. Whereas internal factors focus on an insurer's specific attributes, the external factors are mainly focused on industry dynamics and macroeconomic environment. These results show that financial performance as measured by earnings has generally decreased in the period after implementation of RBS (2015 to 2018). The Earnings post-RBS were as follows: KES 14.75 Bn, KES 12.01 Bn and KES 6.8 Bn in 2016, 2017 and 2018 respectively. The earnings pre-RBS were KES 14.63 Bn, KES 18.18 Bn and KES 15.74 Bn in 2012, 2013 and 2014. The same is true of other measures of financial performance.

Descriptive Statistics

The study computed descriptive statistics to describe the features and characteristics of the data set. The descriptive statistics summarized the population and the measures that were used. Descriptive statistics used include measures of spread as well as measures of central tendency. In this study, measures of spread used included minimum values, standard deviation and maximum values. The measure of central tendency was the mean. Descriptive statistics also entailed calculation of standard deviation, mean, maximum and minimum of all the variables, both dependent (financial performance) and the independent (Capital Adequacy, Actuarial Valuation and Investment).

Table 3: Descriptive Statistics

	N	Maximum	Minimum	Mean	Standard Deviation
Financial performance (Return On Assets)	55	4.96	0.59	2.87	1.56
Capital Adequacy (Capital Adequacy Ratio %)	55	355.79	205.21	287.20	58.85
Actuarial Valuation (Actuarial Liabilities - Bn KES)	55	321.54	104.03	193.15	67.76
Investments (Investment Yield %)	55	4.42	0.95	2.21	1.23
	N	**Maximum**	**Minimum**	**Mean**	**Standard Deviation**
Capital Available (Bn KES)	55	433	278	362.14	53.69
Life Fund (Bn KES)	55	333.26	137.23	228.23	69.33
Total Investments (KES *20^6)	55	8.31	3.93	6.11	1.59
	N	**Maximum**	**Minimum**	**Mean**	**Standard Deviation**
Capital Required (Bn KES)	55	211.00	87.00	45.06	47.59
Surplus (Bn KES)	55	30.05	11.83	4.55	5.85
Investment Income(KES *10^6)	55	11.39	4.72	2.49	2.62
	N	**Maximum**	**Minimum**	**Mean**	**Standard Deviation**
Return on Capital Employed	55	24.17	0.79	14.54	7.46
ROA	55	4.96	0.59	2.87	1.56
Earnings (Bn KES)	55	18.18	6.80	13.28	3.45

From the findings presented in Table 3, the average earnings of insurance companies for the period between 2012 and 2018 was KES 13.28 Bn and standard deviation was 3.45. The minimum earnings for the same period was KES 6.8 Bn while the maximum value was KES 18.18 Bn. The average ROCE for insurance companies was 15.54, with a minimum of 0.79 and a maximum of 24.17. The average ROA for insurance companies was 2.87 with a minimum of 0.59 and a maximum of 4.96, and standard deviation of 1.56. The average Capital Adequacy (as measured by Capital Adequacy Ratio) for the period between 2012 and 2018 was 287.2% while standard deviation was 58.85, during the same period the minimum value was 205.21% while the maximum value was 355.79. In addition, the average Actuarial Valuation (as measured by Actuarial Liabilities) for the period between 2012 and 2018 was KES 193.15 Bn while its standard deviation was 67.76. During the same period under investigation, minimum Actuarial Valuation was KES 104.03 Bn while the maximum value was KES 321.54 Bn. Furthermore, during the study period, between 2012 and 2018 the average investment (as measured by investment yield) was 2.21% and the standard deviation was 1.23. During the same study period, maximum Investment was 4.42% while the minimum was 0.95%.

Correlation Analysis

The study conducted Pearson moment correlation analysis. Using the correlation coefficient, the study tested whether interdependency existed between the predictor variables and whether there was any

relationship between the response variable (financial performance – measured by ROA) and predictor variables (Capital Adequacy-measured by capital adequacy ratio, Actuarial Valuations- measured by actuarial liabilities, Investments – measured by investment yield).

Table 4: Correlations

		Financial performance (ROA)	Capital Adequacy (CAR)	Actuarial Valuations (Liabilities)	Investments (Investment Yield)
Financial performance (ROA)	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	55			
Capital Adequacy (CAR)	Pearson Correlation	.933**	1		
	Sig. (2-tailed)	.002			
	N	55	55		
Actuarial Valuations (Liabilities)	Pearson Correlation	-.830**	.433	1	
	Sig. (2-tailed)	.001	.002		
	N	55	55	55	
Investments (Investment Yield)	Pearson Correlation	.841**	.247	.341	1
	Sig. (2-tailed)	.000	.002	.018	
	N	55	55	55	55

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

From the findings, capital adequacy and financial performance were positively and significantly related (r=0.933, p-value=0.002<0.01). These findings were consistent with those of Ikonić et al. (2011), who analyzed the profitability of the Serbian insurance and found that capital adequacy is vital for a company, as it may generate a good level of profitability; the insurance market was categorized under developed markets and that there are good prospects for further development. Actuarial valuation and financial performance of the insurance companies were found to be negatively and significantly related (r= -0.830, p-value=0.001<0.05). Further, the study established that investment and financial performance were positively and significantly correlated (r= 0.841, p-value= 0.000<0.05). This was in agreement with Loof and Heshmat (2008) who held that a positive relationship exists between investment and the level of financial performance. They argued, however, that the effect of investment on financial performance of a firm may be just a temporary short-lived position.

Simple Regression

Capital Adequacy and Financial Performance

The study sought to examine the effect of capital adequacy on financial performance of insurance companies. The research question was:

What effect does capital adequacy have on financial performance?

Table 5: Regression Coefficients for Capital Adequacy and Financial Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.933[a]	.871	.845	1.14213

a. Predictors: (Constant), Capital Adequacy

ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4986.87	1	4986.870	33.825	.002[b]
	Residual	7961.274	53	147.431		
	Total	**12948.144**	**54**			

a. Dependent Variable: Financial performance

b. Predictors: (Constant), Capital Adequacy

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.393	0.414		5.780	0
	Capital Adequacy Ratio	0.405	0.065	0.133	6.231	0.002
	Capital Required	0.354	0.054	0.331	6.556	0.007
	Capital Available	0.245	0.035	0.234	7.000	0.013

a. Dependent Variable: Financial performance

The R-squared for the relationship between capital adequacy and financial performance of insurance companies in this study was 0.871, which implies that capital adequacy (Capital Adequacy Ratio, Capital Required, Capital Available) can explain 87.1% of financial performance of insurance companies in Kenya. In addition, the p-value for the F-statistic was 0.002, which implies that the model can be used in predicting financial performance of insurance companies in Kenya.

From the coefficients, the optimal regression model obtained was Y= 2.393 + 0.309 actuarial valuation + ε. The results show that capital adequacy ratio has a positive and significant influence on financial performance of insurance companies in Kenya as shown by a regression coefficient of 0.405. The p-value (0.002) was less than the significance level (0.05) and hence we conclude that capital adequacy has positive influence on financial performance of insurance companies. Capital required was also found to have a positive influence on financial performance. A unit increase in capital required results to an increase in financial performance by 0.354. Capital available was also found to have positive influence on financial performance. It was found that an increase in capital available results to an increase in financial performance by 0.245 units. Therefore, capital adequacy determined by Capital Adequacy Ratio, Capital Required and Capital Available have positive influence on financial performance. These findings agree with Mirie and Murigu (2015), that more capital injection will finance expansion and opening up of new branches, which in turn will lead to growth, accompanied by economies of scale and ultimately an improvement in the financial performance in the long term.

Actuarial Valuations and Financial Performance

The study sought to evaluate the influence of Actuarial Valuations on financial performance of insurance companies. The study research question was:

In what ways do actuarial valuations affect financial performance?

Table 6: Regression Coefficients for Actuarial Valuations and Financial Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	-.830[a]	.689	.627	1.87473

a. Predictors: (Constant), Valuation of Actuarial liabilities, Valuation of Life fund, Valuation of Surplus

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3942.750	1	3942.750	11.067	.021[b]
	Residual	19237.77	53	356.255		
	Total	**5724.027**	**54**			

a. Dependent Variable: Financial performance

b. Predictors: (Constant), Valuation of Actuarial liabilities, Valuation of Life fund, Valuation of Surplus

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.034	0.104		9.942	0.002
	Valuation of Actuarial liabilities	-0.309	0.057	-0.283	5.421	0.021
	Valuation of Life fund	-0.254	0.025		10.160	0.3
	Valuation of Surplus	-0.267	0.038		7.026	0.27

a. Dependent Variable: Financial performance

From the regression results of actuarial valuation and financial performance, R^2 was found to be 0.689. This suggests that there was 68.9% change in financial performance of insurance companies, can be explained by changes in actuarial valuation. The remaining 31.1% suggests that there were other factors other than actuarial valuation that influences financial performance of insurance companies that were not discussed in this model. From the ANOVA table the p-value was 0.021, which was less than selected significance level (0.05). In addition, the F value (11.067) was significant as shown by p-value of 0.021. This implies that the model was reliable in predicting the financial performance of insurance companies. This is in agreement with Albrecher et al (2017) who noted that the purpose of valuation is to provide a fair (market or realizable) value for liabilities and assets for financial reporting and to support management decisions.

From the coefficients, the optimal regression model obtained was Y= 1.034 - 0.309 actuarial valuation + ε. This is an indication that a unit increase in actuarial valuation results to a decrease in financial performance of insurance companies by 0.309 units. An increase in life funds results in a decrease in financial performance by 0.254. Lastly, increasing surplus by single unit results in a decrease in financial performance by 0.267. Therefore, we conclude that actuarial valuations measured using Actuarial liabilities, Life fund, and Surplus affects financial performance of insurance companies negatively.

Investments and Financial Performance

The study sought to assess the effect of investment on financial performance of insurance companies. The research question was:

Do investments have an effect on financial performance?

Table 7: Regression Coefficients for Investment and Financial Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.899[a]	.808	.797	1.73348

a. Predictors: (Constant), Investment Yield, Total Investment, Investment Income

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	59.002	1	59.002	19.635	.000[b]
	Residual	162.27	53	3.005		
	Total	**221.272**	**54**			

a. Dependent Variable: Financial performance

b. Predictors: (Constant), Investment Yield, Total Investment, Investment Income

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.154	0.248		8.685	0.006
	Investment Yield	0.712	0.099	0.999	7.192	0
	Total Investment	0.546	0.054	0.521	10.111	0.005
	Investment Income	0.425	0.065	0.411	6.538	0.003

a. Dependent Variable: Financial performance

From the regression results, R^2 was found to be 0.808. This suggests that 80.8% change in financial performance of insurance companies, can be explained by changes in investment. The remaining 19.2% suggest that there were other factors other than investment that influences financial performance of insurance companies that were not discussed in this model. From the ANOVA table the p-value was 0.000, which was less than selected significance level (0.05), implying significance of the model.

In addition, the F value (19.635) was significant as shown by p-value of 0.000. This implies that the model was reliable in predicting the financial performance of insurance companies. The findings concur with those of Njiiri (2015) who studied the relationship between investment and financial

performance of insurance companies and observed that income from investments account for nearly half of insurance industry profits. Therefore, a decrease in the income from investment would lead to decreased profits.

From the coefficients, the optimal regression model obtained was Y= 2.154 + 0.712 investment + ε. This is an indication that a unit increase in investment yield results to an increase in financial performance of insurance companies by 0.712 units. Similarly, a unit increase in total investment would cause financial performance to increase by 0.546 units. Lastly, a unit increase in investment income would lead to increase in financial performance by 0.425 units. Therefore, we conclude that investments determined by Investment Yield, Total Investment, and Investment Income affects financial performance of insurance companies. Lantz and Sahut (2005) advised that investments should also be viewed from a research and development perspective. Their argument is that firms that spend significantly on research and development have the potential to improve their investments and financial performance. Their reasoning being that expenditure on research and development should increase the future earnings of a firm in the long run. However, short term results might be unfavorable.

Multiple Regression Analysis

The study sought to establish the influence of Capital Adequacy, Actuarial Valuations, and Investments on financial performance of insurance companies. For the multiple regression analysis, financial performance was measured by ROA. This was deemed the most optimal measured because it had the lowest standard deviation among all the other measures of financial performance (Earnings, ROA, EPS). This means it could give more reliable results. Actuarial Liabilities was used to represent Actuarial Valuations because this is a measure that cuts across both long term and short term insurance, hence representative. The other measures (Life Fund and Surplus) mostly relate to long term insurance and therefore would not be representative of the overall insurance. The simple regression results also showed actuarial liabilities as the most optimal measure. Capital adequacy was picked for the multiple regression because it's result was the most optimal from the simple regression analysis. Similarly, Investment Yield gave the most optimal result of the other variables and hence was selected for the regression model.

The regression model was of the form: $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$. Where; Y = Financial Performance, α = Value of Y (Financial Performance) when all of the independent variables (X_1, X_2, X_3) are equal to zero, X_1 = Capital Adequacy, X_2 = Actuarial Valuations and X_3 = Investments. ε = Error term, β = Constant term, and β_1, β_2, β_3 = Regression Coefficients.

Table 8: Multivariate Regression Coefficients

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.901[a]	.812	.803	0.04391

a. Predictors: (Constant), Capital Adequacy, Actuarial Valuations, Investments.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	111.494	3	37.165	26.644	.000[b]
	Residual	72.533	51	1.395		
	Total	**184.027**	**54**			

a. Dependent Variable: Financial performance

b. Predictors: (Constant), Capital Adequacy, Actuarial Valuations, Investments

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.502	0.173		8.682	0.000
	Capital Adequacy	0.604	0.084	0.457	7.190	0.007
	Actuarial Valuation	-0.525	0.071	0.415	7.394	0.015
	Investment	0.853	0.086	0.745	9.919	0.001

a. Dependent Variable: Financial performance

The r-squared for the relationship between the three independent variables (investment, actuarial valuation, and capital adequacy) and the dependent variable (financial performance) was 0.812. This implies that the three independent variables (investment, actuarial valuation, and capital adequacy) can explain 81.2% of financial performance of insurance companies in Kenya. In addition, the p-value for the F-statistic was 0.000, which implies that the model can be used in predicting the influence of investment, actuarial valuation, and capital adequacy on financial performance of insurance companies in Kenya. From the coefficients table, the regression model became;

$$\mathbf{Y= 1.502 + 0.604\ X_1 - 0.525\ X_2 + 0.853\ X_3 + \varepsilon}$$

The equation above reveals that holding investment, actuarial valuation, and capital adequacy variables to a constant zero, the variables will significantly influence financial performance of insurance companies in Kenya by a constant of 1.502.

The error term ε is non constant. It represents the deviation of each point from the regression line. From the ANNOVA, the residuals were estimated at 72.533. This figure represents the margin of deviation within the regression line and can be taken as an accurate estimate of the error term. β_1, β_2, β_3 are given by 0.604, -0.525 and 0.853 respectively. From the regression analysis, the P values were found to be <0.05, meaning the influence of the variables was significant.

The results show that capital adequacy has a positive and significant influence on financial performance of insurance companies in Kenya as shown by a regression coefficient of 0.604. The p-value (0.007) was less than the significance level (0.05) and hence the influence was significant. These findings agree with Kigen (2014) who notes that adequate capital enables diversification to mitigate risks and ensure stability. It reduces possibility of penalties, which would otherwise negatively affect financial performance.

The results also show that actuarial valuations have a negative and significant influence on financial performance of insurance companies in Kenya as shown by a regression coefficient of -0.525. The p-value (0.015) was less than the significance level (0.05) and hence the influence was significant. These findings did not agree with those of Njuguna (2012) who sought to establish the impact of valuation on financial performance of pension funds and the effectiveness of its implementation and found that adoption of valuation strategies had led to a significant positive impact on the financial performance of pension funds.

Finally, the results show that investments have a positive and significant influence on financial performance of insurance companies in Kenya as shown by a regression coefficient of 0.853. The p-value (0.001) was less than the significance level (0.05) and hence the influence was significant. These findings were consistent with those of Loof and Heshmat (2008) who found that a positive relationship exists between investment and the level of financial performance.

Conclusions

Overall, the study concludes that risk based supervision has not had a positive impact on financial performance in the short to medium term, contrary to most studies on the subject. Results show that financial performance (measured by ROA) has actually declined in the period since implementation of RBS. Other financial performance measures (Earnings, and ROCE) have also shown a downward trend for the period since RBS regime was adopted. The analyses have shown that the relationship between the predictor variables (Capital Adequacy, Actuarial Valuations and Investments) and the dependent variable (Financial Performance) were statistically significant, and therefore can be used to predict financial performance. As a result, it can be concluded that RBS has negatively influenced financial performance of insurance companies in Kenya in the short term.

The study concludes that in the short to medium term, capital adequacy has shown a positive and significant influence on financial performance of insurance companies in Kenya. This implies that a unit increase in capital adequacy ratio will result to an increase in financial performance of the insurance company. The study also concludes that in the short to medium term, actuarial valuation has a negative and significant influence on financial performance of insurance companies in Kenya. This simply means that a unit increase in actuarial valuation (measured by actuarial liabilities and holding all other qualitative factors constant) will result into a decrease in financial performance of the insurance company in the short to medium term. The study further concludes that short to medium term, investment has a positive and significant influence on financial performance of insurance companies in Kenya. This implies that an increase in company's investment will result to an increase in their financial performance. Organizations invest their resources in order to earn returns that will enable them enhance their financial performance in future. Income from investments account for nearly half of insurance industry profits (Njiiri, 2015).

A study by Superintendecia De Valores y Seguros de Chile (2006) in Chile agrees with this conclusion. In a survey to determine the benefits and the challenges of RBS and whether it had achieved the intended objectives, the survey noted a rise in costs for the first two years. These were attributed to training of supervision teams and consultancy fees, as well as acquisition of IT infrastructure to enable the regulator to collate and analyze filed bank returns in a timely fashion. Challenges noted ranged from resistance to adoption of the methodology by long serving staff to changes in financial innovation.

Ng'ang'a (2014), also conducted a study on effects of adopting RBS on financial performance of insurance companies. He sought to trace the effect of the adoption of RBS on financial performance of 47 insurance companies. Results showed that there was increased premium collection, attributable to RBS. Effect on claims experience was also reported as was growth of policyholders. The inference was that adoption of RBS enabled timely detection of risks and the focus to be on high-risk areas. This led to increased accountability and transparency. This in turn translated to better financial performance. Similar conclusions were arrived at by Njuguna (2012), who had sought to establish the impact of RBS on financial performance of pension funds and the effectiveness of its implementation. Using a sample of 50 pension schemes from a population of 500 schemes, the results showed that adoption of RBS had led to a significant positive impact on the financial performance of pension funds. One common weakness noted in these two studies, however, was that there was no time horizon to their studies. There was no telling whether improved financial performance was to be realized immediately or after a long period of time.

This study concludes that in the short term, RBS had actually led to decreased financial performance. As was the case in Superintendecia De Valores y Seguros de Chile (2006), various justifications can be attributed to this observation. On capital adequacy, the IRA came up with capital risk charges for market, insurance, credit, operational and diversification risks. These risk charges are a direct deduction on the capital and therefore affects the financial position of the company. Credit risk charges in particular involves writing off premium debtors that are older than ninety days. This action is a direct hit on the income statement and financial position of the affected company. Holding additional reserves to cater for operational risks also has a similar effect on the company financials.

The change in valuation methodology for liabilities brought about by adoption of RBS also negatively affected financial performance of most insurance companies. This is because of the additional provisions and risk margins that are required to be held under RBS. The change in valuation methodology for instance use of Gross Premiums as opposed to Net Premium in long term insurance effectively leads to increase in provisions.

On investments, a general rise in the monetary value of investments has been witnessed between 2012 and 2018. However, investment income has declined over the same period. Increase in investment without considering the quality of those investments can actually result in losses and decreased financial performance. The findings indicate that most insurance companies had not complied with the general investment guideline from IRA (which was meant to guarantee asset quality). This could explain the declining returns from investment despite increase in absolute value of investment.

In conclusion, although RBS has not improved financial performance in the short term, it is expected to lead to increased risk-based analysis on investments, improved supervision on internal practices and a more regulated insurance sector, thereby improving investor sentiment. This will likely lead to better financial performance in the long run.

Recommendations

Capital Adequacy

Insurance companies should maintain adequate capital that not only matches their risk profile, but also exceed it. Further, it is suggested that insurance companies formulate capital structure and underwriting decisions that shall enhance capital adequacy and solvency ratios of the company. This might involve reorganizing (and disposing of) certain assets that do not contribute to the Capital Adequacy Ratio or that attract capital charges.

Actuarial Valuations

Actuarial capacity should be enhanced to assist in coming up with accurate estimates. According to Albretcher et al (2017), the regulator should consider liberalizing the valuation methodologies so that each firm can use a valuation methodology that best suits its business model, products and policyholder profile. He further advises that for comparability of results of different companies, more transparency on the models and assumptions, and more consistency on the assumptions of the capital market valuation model would be helpful. The regulator should continue investing in research on improving valuation methodologies.

Investments

Insurance companies should adhere to the IRA guidelines on investment as this will guarantee quality assets and good return.

Risk Based Supervision

There is need to enhance risk based supervision compliance by adopting better risk management, supervision standards and enhancement of actuarial valuation so as to achieve success in financial performance in insurance companies in Kenya. The management of insurance companies should make sure that individual companies and their employees understand risk based supervision, and ways of assessing risks in various areas of the company, involvement of management in risk evaluation and change identification with the aim of effectively controlling and improving operations of the company and its financial performance. Insurance companies should also put in place sound claims procedures to ensure claims recorded are complete and accurate. This will ensure accurate valuations. In addition, adequate controls should be put in place to ensure only genuine claims are settled. Further, measures should be put in place to reign in fraud.

Areas for Further Research

The focus of this study was the effect of adoption of Risk Based Supervision methodology on the financial performance of insurance companies. The study utilized quantitative aspects of the RBS variables; capital adequacy, investments and actuarial valuations. The study therefore recommends replication of the same study using the remaining variables of RBS that is; corporate governance, disclosure requirements and Treating Customers Fairly (TCF). The data used in the study was collected over a period of 7 years from 2012 to 2018; the study therefore recommends using a longer period; preferably after full implementation of RBS, as this will provide a clearer picture on the trend

of company performance. The inverse relationships seen in actuarial valuation and financial performance is expected to reverse in the long run.

The study variables focused on long term insurance companies; a study focusing on general insurance is therefore recommended. A study is also recommended on the effect of asset quality supervision on financial performance.

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