Acta Universitatis Danubius
ŒCONOMICA

Assessing the Solvency, Underwriting Risk and Profitability of the Kenyan Insurance Sector

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Abstract: The aim of this study was to assess the solvency, underwriting risk and financial performance of the Kenyan insurance industry. The insurance industry is a key player that drives economic growth in Kenya. Notwithstanding there has been a dearth of studies that have investigated the factors that have a bearing on the financial performance and by extension the financial stability of the Kenyan insurance sector. In this article, we explored how solvency and underwriting risk impacted on the financial performance of insurance firms in Kenya for the period 2009 to 2018. We employed descriptive statistics and correlational analysis to analyse the data. The sourced secondary data from the Insurance Regulatory Authority Annual Reports. There were two main findings from this study. Firstly, it was established that solvency position of Kenyan insurance companies has been increasing steadily over the years. Solvency was also found to be positively correlated to financial performance. Secondly, it was found that underwriting risk was on an upward trend. Further it was established that underwriting risk proxied by the combined ratio was positively associated with the financial performance variable. This study therefore makes a contribution to the sparse literature on the financial performance of the insurance sector in Kenya. Furthermore, it provides pointers to the management insurance companies on the aspects of their business that would need greater attention to drive and sustain superior financial performance.

Keywords: Insurance; Financial Performance; Solvency; Underwriting Risk; Kenya

JEL Classification: G22; G32

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1. Introduction

The importance of the insurance firms to economic activity is indisputable, as such it is imperative to safeguard this sector (Sibindi, 2014). Despite the importance of this sector, insurance inclusion in Kenya is very low. Insurance penetration is relatively low in Kenya at measly 3% compared to over 13% for South Africa (Swiss Re Institute, 2018, p. 46). As such it is imperative to nature this sector which is not well developed.

In addition, there have been notable failures of insurance companies in Kenya; since 2005, four insurance companies have collapsed. The organisations that have been declared financially insolvent include among others: United Insurance Limited, Blue Shield Assurance, Concord Insurance, Standard Assurance, and Invesco Assurance. A bit of a bright spot is that Invesco Assurance is back in operation. The demise of these firms was attributable to that they could not handle the obligations due from them as insurance firms, including the payment of key debtors and creditors (Waitathu, 2013). We hypothesise that if the management of these companies had been well versed in the factors that drive superior financial performance, there is a possibility that they may have kept their companies afloat. Financial viability depends on the going concern aspects of the insurance industry. As such solvency and underwriting risk both have a bearing on overall performance. As such, there is a need to assess these elements and their contribution to the insurers top-line.

There has been growing strand of studies that explore the elements that impact on the financial performance of insurance firms. Notwithstanding, there has been relatively few studies on this topic especially with a focus on solvency and underwriting risk. Moreover, those few studies do not cover the insurance sector in Kenya. Amongst others, Maina (2016, pp. 25-31) found a strong correlation between annual liquidity ratios and insurance company profitability. However, the study does not outline the solvency aspect of the insurance sector. Further, Odira (2016, pp. 39-44) investigated the influence of liquidity, solvency, and leverage on the performance drivers of general insurance firms and found that liquidity had a significant and positive correlation with financial performance. Leverage was found to have a negative sway on the performance of insurance firms, while the effect of solvency on the financial performance of similar insurers was found to be positive but statistically insignificant. As such, this research effort will illuminate light on the relevance and impact of solvency margins and underwriting risk on the financial performance of the Kenyan insurance sector.

Principally, there were two objectives that underpinned this study: Firstly, the study sought to establish whether there was a link between the solvency of Kenyan insurance companies and their financial performance. Secondly, the study sought to determine if there was a connection between the level of underwriting risk and the financial performance of insurance firms in Kenya.

The remainder of articles is arranged as follows: Section 2 reviews the theoretical literature. Section 3 reviews the empirical literature about the solvency and underwriting risk in the insurance sector. Section 4 describes the research methodology employed for the study. Section 5 presents the and discusses the empirical results of the study. Finally, section 6 gives a concludes the article.

2. Review of Related Literature

2.1. Solvency Theory and Underwriting Risk

In general, terms, solvency is a yardstick that measures the long-term financial strength of a company. It refers to the ability of the company to satisfy its long-term financial commitments promptly. While solvency is of interest to various organisation stakeholders it is of paramount importance to both investors and creditors. Investors are keen on the company's continued financial standing so that it can continue to grow, generate profits, and earn them dividends. Investors are concerned with protecting and growing their investment, and if a company becomes insolvent not only do they lose income and capital gains; their entire investment risks being written off (Cummins & Derrig, 1988). Lenders and creditors are keen on being repaid and will be interested in whether the company that is borrowing from them has the resources to meet its commitments. The interest coverage ratio and debt to equity ratio are among the most applied metrics to assess the solvency of a company. Savvy potential creditors take those ratios into account prior to advancing funds (Bragg, 2018).

A company that is creditworthy and solvent is in a position to pay present and subsequent claims as they fall due (a going concern situation). A solvency margin is a shield in a company's assets that cushions one or more of the theoretical solvency levels mandated from the supervisory institutions. (Sandstrom, 2010, p. 3). The greater the solvency margin the greater the level of comfort will be for creditors, investors, current clients, potential clients, and regulators.

2.2. Underwriting Risk

Underwriting involves assessing the level of risk attributable to a proposer of insurance. The process assists in establishing the appropriate premiums to satisfactorily counterbalance the potential cost of insuring policyholders. Underwriting risk is the possibility of loss on business taken up by an underwriter. In insurance, this risk may come about from a poor evaluation of the risk being covered or from an unexpected catastrophe. The impact of this erroneous assessment is that the losses incurred following writing of the cover may significantly exceed the premiums collected (Zhangjiwu, et al., 2011).

An insurer's financial soundness is dependent on how well it prices the risks that it takes on as well its management of claims related costs. It is noteworthy that underwriting risk may also be referred to as the risk of collecting low levels of insurance premiums, the implication being that loss occurrence has exceeded the predictions that were made in estimating the level of premiums (Fields, et al., 2012). The premium charged to a pool of clients should be enough to cover forecasted claims. If an insurer underestimates the risk associated with providing insurance coverage, it could end up paying much more than it receives in premiums.

2.3. Financial Performance Theory

Financial performance can be stipulated as a subjective estimate of how effectively an organisation uses assets to earn and accumulate revenues (Nandan, 2010, p. 66-74). If a company is utilising its assets in a better way than its peers or competitors, it can be deemed to be doing well from a financial performance perspective.In their review of company performance (Brealey, et al., 2001, p. 150-151) established that an investment that earns more than the cost of capital makes investors better off, as it is earning them a higher return than what they can obtain for themselves. Naturally, managers of an enterprise are primarily interested with whether the firm's returns on its assets outweighs or falls short of the cost of capital (Jacobs & Anil, 2012). A firm would be deemed to be performing well if the return it is achieving on the assets it is employing is superior to that which would be achievable by investment in a relatively safe fixed income security.

There are several basic measures of financial performance. These can be expressed as financial ratios and are generated from a company's financial statement; the balance sheet, income statement, and cash flow statements (Engle, 2011). The estimates of Return on Equity (ROE) and Return on Assets (ROA) are the key metrics employed in this study.

Return on Equity, which assesses profitability for the providers of a company's equity capital is defined by after-tax profits divided by shareholder's equity and is expressed as a percentage. *Return on Assets* on the other hand measures profitability for all providers for capital. ROA can be outlined as the takings before interest and taxes divided by total assets, the total assets being the sum of shareholder's equity and all liabilities (Bodie, et al., 2008, pp. 654-655).

There are several financial performance measures particular to the insurance industry. The basis for computing performance metrics for insurance companies is the *Net Earned Premium*. When an individual pays annual insurance premium, they are counted as part of the *Gross Written Premium* for an insurance company. To arrive at the *Net Earned Premium*, the cost of reinsurance is deducted from the *Grosss Premium* (Mohamed & Florentin, 2018).

The *expense ratio* refers to the percentage of the *net premium* that insurance firms spend on obtaining, writing, and servicing insurance, and reinsurance, which is more simply referred to as *"underwriting expense"* (Atkinson & Hedges, 2020). Business expenses such as marketing, software maintenance, professional fees, and commissions paid are examples of *expense ratio* costs. A lower *expense ratio* is better because it implies that the insurance company is more profitable (Atkinson and Hedges, 2020). A lower *expense ratio* also means that an insurance company has a greater scope to attract clients with lower prices compared to competitors with higher *expense ratios*.

The *combined ratio* simply sums up the expense ratio and the loss ratio (Nickolas, 2018). A *combined ratio* beneath 100% implies that an insurance firm operates at an underwriting profit, which means that the company is profitable before adding returns from investment of premiums. By the same token, an *underwriting ratio* that is higher than 100% signifies that claims and expenses have outweighed income from premiums (Calandro & Lane, 2002).

3. Review of Empirical Literature

3.1. Solvency

As appertains the insurance industry, solvency forms a fundamental measure of the financial strength of an insurer and its capability to pay expected claim amounts. Insurance industry regulators whose key objective is to protect policyholders and the financial system set solvency ratios (Dembla, 2014).

Caporale, Cerrato and Mario (2017) in an examination of the triggers of insolvency concerning insurance firms in the United Kingdom found that insurance industry risk factors include: profitability, interest rates, liquidity and leverage. They also found out that different business lines present different credit risks. Primary insurers can reduce their insolvency risk by taking out reinsurance contracts (Caporale, et al., 2017).

Managing capital and solvency requires the management of insurance companies to ensure regulatory solvency limits are adhered to, liquidity is maintained and that actions are taken to sustain the growth of net income (Rousseau, 2017, pp. 1-3). In an analysis of 3178 life insurers and 7322 non-life insurers from over 95 countries (Irresberr, et al., 2017, pp. 2-4) found strong empirical evidence that boosting capital reserves enhances the performance of both life and general insurers as measured by their returns on shareholder funds and returns on total assets. Their tests confirmed a strong link between profitability and capital levels.

Mazviona, Dube, and Tendai, (2017, pp. 15-27) in a study of the drivers of financial performance of non-life insurance houses in Zimbabwe over a five-year stretch from

2010 to 2014 found that expense ratio, claims ratio, leverage, and liquidity significantly affect performance as measured by return on assets.

Kiio (2014, pp. 34-39) assessed four variables that impact insurance company liquidity: quick ratio, leverage ratio, the log of net premiums and loss ratio for the 41 insurance companies in operation in Kenya from 2009 to 2013 and settled that there is a valid and positive association between profitability, measured in terms of return on assets with the quick ratio and the log of net premiums. Higher leverage was associated with poor financial performance.

High levels of liquidity put Kenyan insurance companies in a position to quickly settle obligations as they come through. Kenya insurance companies should strive to avoid being over-leveraged as weaker levels of performance are evident as leverage levels are cranked up (Kiio, 2014). The importance of liquidity to the performance of insurance firms in Kenya was further reinforced by a study of 47 insurance firms from 2011 to 2015 by (Maina, 2016) which showed a strong correlation between annual liquidity ratios and insurance company profitability.

Fraud prevention has a direct link with strong financial performance; since excessive fraud harmed both the liquidity and solvency of insurance firms (Maina, 2016). Odira (2016, p. 39-44) investigated the impact of liquidity *(current assets divided by short term liabilities),* solvency *(total assets divided by total liabilities)* and, leverage *(total debt divided by total equity)* on the financial effectiveness of general insurance companies from 2011 and found that liquidity had a significant and positive correlation with financial effectiveness. Leverage was found to have a negative influence on performance while the effect of solvency on the financial performance of insurance companies was found to be positive but statistically trivial. High leverage is linked to a high percentage of unpaid claims relative to shareholders' funds in Kenya (Odira, 2016). Further, it was found that information about high claims outstanding amounts diffused into the market with the negative association on the involved insurance firms. Further, Odira (2016, pp. 42-44) recommended that Kenyan insurance firms should also take steps to settle claims promptly so as to maintain a good reputation and standing in the market.

3.2. Underwriting Risk

In relation to underwriting risk, Scordis (2019) found that there was a positive interconnection between underwriting performance and financial performance. Scordis (2019) reasoned that the positive relationship between underwriting and performance could be explained by insurers possessing a comparative informational advantage in underwriting. Further, a positive association between revenues and performance was documented. Since as revenues increase it intensifies the positive impact of underwriting performance on financial strength (Scordis, 2019, pp. 36-38).

The challenge for insurers in the future is the reducing cost of data and information mining which enables rivals to segment and locate lower risk clients whom they can then entice away with cheaper premiums (Scordis, 2019, pp. 36-38).

Adams and Buckle (2003, pp. 137-142) evaluated insurers' financial performance in Bermuda, an international financial centre. They employed panel data techniques covering 47 insurers with data ranging from 1993 to 1997 with company size, underwriting risk, leverage, liquidity, and size of operations as independent elements. Results from their investigation maintain that insurers with high leverage and low liquidity report better financial outcomes. Contrary to their expectations they find the existence of a definite and positive correlation between performance and underwriting risk.

Burca and Batrinca (2014, pp. 307-308) in a study of the Romanian insurance market from 2008 to 2012 found that the key elements of the financial performance in the Romanian insurance market are leverage, company size, growth of gross written premiums, underwriting risk, risk retention ratio, and solvency margin. In a study on the various components of underwriting risk: pricing risk, reserve risk, and reinsurance risk on the underwriting cycles on insurance houses in the state of Croatia (Jakovcevic & Mihekja, 2014, pp. 1256-1257) find that underwriting risk has a valid contribution to insurance pricing. On the various components, pricing risk is found to have the highest impact on the underwriting cycle.

Boyjoo, Ramesh and Jaunky (2017) in a review of the relatively well-developed Mauritius insurance sector over the 5-year period from 2011 to 2015 find that judicious management of underwriting risk (gauged as a ratio of benefits paid to net premium) translates into better financial performance for insurance companies. Since the main activity for an insurance company is risk underwriting and spreading the risk exposure across different clients, insurers should ensure good underwriting to mitigate on the exposure losses (Boyjoo, et al., 2017, pp. 132-133).

In Kenya, insurers are mandated to hold a minimum solvency margin (Gitau & Oraro, 2018). The Kenyan Insurance Act outlines the margin of solvency requirements. The act states that an insurer shall always hold total admitted assets of not less than its total admitted liabilities. The law further states that an insurer that undertakes both long term and general insurance business shall always maintain discrete margins of solvency for each of the classes of business. Third-party motor covers have been fixed at a maximum of KES 7,500 over the 8-year period. Further, Kenyan underwriters rely on fixed-rate tables instead of developing appropriate quantitative risk models (Ndeda, 2014, p. 43-44). Risk modelling will generate premiums that would be closer to the figure needed to ensure premiums levels cover the level of incurred claims with a good degree of sufficiency.

4. Data and Methodology

4.1. Sample Description and Data Sources

This article mainly uses quantitative research approach to adequately explore solvency and underwriting risk in the insurance industry. The quantitative approach was chosen on account of the following: Firstly, it encompasses the conversion of a wide of range data into a usable statistical form from which conclusions can be drawn (Syed, 2016). Secondly, it enhances depth and details in term of the metrics under study. Lastly, the quantitative approach gives room for flexibility thus the study can be adjusted according to fresh information and data. More specifically, the study employed trend analysis to investigate how the variables of interests evolved over time. Further, the study also employed correlational analysis in-order to assess the association between the financial performance, underwriting risk and solvency measures.

The population of this study consisted of all the insurance companies operating in Kenya. 52 insurance firms are operating in Kenya. Out of the 52, sixteen write long term business (life) only, nine are composite insurers (writing both life and general business), while the rest are general insurance only businesses (Insurance Regulatory Authority, 2018, pp. 154-158). The full composition of all the registered insurance firms in Kenya as reported in Table 1. The type of data collected was secondary as we relied on reports and publications, research papers, specific company websites for analysis. Analysts consider secondary data to be of higher quality and more accurate than that of an individual researcher (Mugenda & Mugenda, 2003, p. 112). In this study, different firms were observed over a 10-year period.

Table 1. Composition of the Kenyan Insurance Sector

Insurance Companies in Kenya	
Life insurance	16
General Insurance	27
Composite (Both life and General)	9
Total	**52**

Source: Authors' own compilation from data sourced Insurance Regulatory Authority (2018)

The main origin of the data used in the analysis was the Insurance Regulatory Authority Annual Reports from 2009 to 2018 (Insurance Regulatory Authority, 2018). This information is considered credible as the regulator enforces strict rules ensuring authenticity. The second source used in the research is the annual financial reports from the individual company audited financial statements. Companies are bound to file reliable information due to the high penalties inflicted on those that post erroneous figures. Industry annual reports from the Association of Kenyan Insurers, an industry lobby group, for the ten-year period from 2009 to 2018 were also relied on to fill in gaps from the other primary data sources.

4.2. Variable Definition

This paper utilised both the ROA and ROE variables to proxy financial performance. The determinants assessed included underwriting risk and solvency. We took cue from empirical studies on what variables to employ to proxy solvency margin and underwriting risk. Table 2 describes the summary of variables employed in this study.

Table 2. Summary of Variables under Study

Variables	Definition /Formula	Expected Sign
ROA	$ROA = \frac{Net\ Income}{Total\ Assets}$	-
ROE	$ROA = \frac{Net\ Income}{Total\ Equity}$	-
Solvency Ratio (SOL)	SOL=$\frac{Net\ Income}{Total\ Liabilities}$	**Positive**
Combined Ratio (COM)	COM=$\frac{Incurred\ Losses+Expenses}{Gross\ Earned\ Premiums}$	**Positive/ Negative**

Data analysis procedure encompassed some stages. Firstly, descriptive statistics was presented and analysed. Secondly, correlation analysis was performed. The direction and slope of the correlation was important when discussing the findings from the study as the type of correlation helped dictate the type of influence, whether positive or negative (Berg, 2004).

5. Empirical Results

5.1. Descriptive Statistics

In this section, focus is mainly geared towards trend analysis and correlation study between the elements employed in this study. The results in Figure 1 and Figure 2 elucidate the trend for various variables under review. The results for correlation analysis are summarised and presented in Table 3.

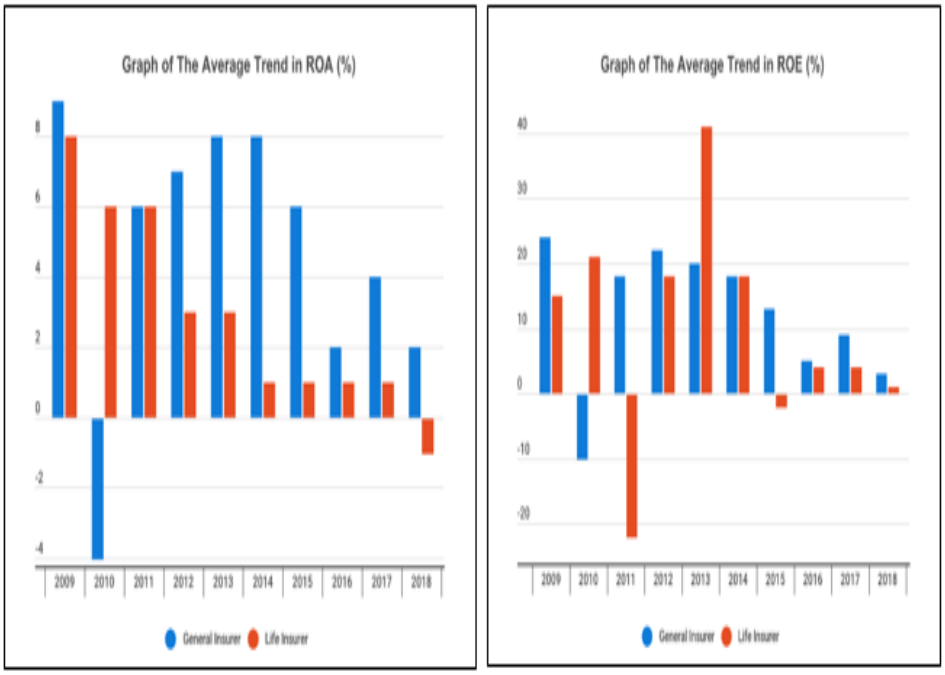

Figure 1. Graphs of Average Trend in ROA and ROE of Kenyan Insurance Companies

The trends in the insurance industry performance with Return on Assets and Return on Equity (ROE) displayed for the period under study is as shown in Figure 1. ROA showed steady decrease within a range of 1% to 9% in average values. Further, as depicted in Figure 1, general insurance underwriters realise higher ROA figures in comparison to life insurance underwriters. Equally important, general insurers in Kenya generated more return on the equity value to shareholders from 2009. It must be noted however that the returns depicted minor fluctuations in the rates realised. In 2013, the returns generated by life insurers was twice as much as that of general insurers. The potential in life insurance business seemed to have taken over during that year. Subsequently, there was a decline documented from 2013 at 42% down to 10% on average over the period ending 2018. It can also be noted that in 2010 and 2011, a significant decline in equity return were recorder by both life and general insurers in consecutive years.

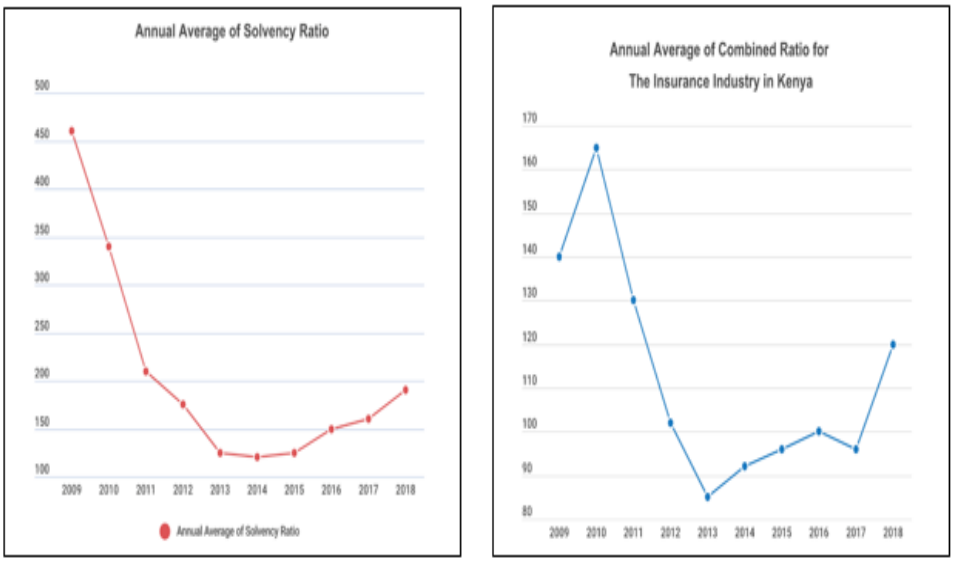

Figure 2. Trends of Solvency Ratio and Combined ratio for the Kenyan Insurance Companies

A comparison of the annual averages for solvency ratio for insurers from 2009 to 2018 is documented in Figure 2. Solvency ratio has total equity and assets as the main constituents in its computation. It can be noted that there has been a gradual decline in the factor from 2009 to 2014. However, the measure took a different turn at the end of 2014. The analysis proved that solvency ratio of Kenyan insurance companies has been increasing steadily from 2014. However, the peak realised during 2009 has not yet been attained. It can be inferred that the ability of Kenyan insurers to meet long-term liabilities is growing, albeit at a slower pace than realised in 2009-2011. Subsequently, most companies have realised the importance of setting aside resources to curb long-term liabilities: as such, the ratio has depicted a gradual rise in the previous years from 2014.

Furthermore, trends in the annual averages of the combined ratio for Kenyan insurers from 2009 to 2018 is documented in Figure 2. The main element outstanding in its computation is the net earned premiums. The trend in combined ratio can be inferred above as ranging from 120% to 160%. There has been a decline in the measure over the years from 2010 to 2017 albeit a slight increase was realised in 2018.

5.2. Discussion of Findings

In this section we discuss the empirical findings in relation to the twin objectives that anchored this research effort next in turn. Primarily the analysis and discussion is based on the results of the correlation analysis presented in Table 3.

Table 3. Correlation Matrix

	ROA	ROE	Combined Ratio	Solvency
ROA	1			
ROE	0.44***	1		
Combined Ratio	0.10**	0.05***	1	
Solvency	0.43	0.11***	0.56	1

(*) / (**) and (***) highlights 10%, 5% and 1% level of significance respectively

Objective 1: To establish whether there exists a link between the solvency of Kenyan insurance firm and their financial performance

The solvency ratio was employed as a proxy to help investigate the interconnection that exists between solvency and financial performance. The findings of this evaluation established that solvency was positively correlated to ROE. The association was valid at a 1% level of significance. Thus, the results of the study documented that the solvency ratio had a 11.37% explanatory power on the financial performance measure (ROE). The results of the study finding were inconclusive when ROA was employed as the proxy for financial performance as the association was found to be statistically insignificant.

Objective 2: To determine if there was a relationship between underwriting risk and the financial performance of insurance firms in Kenya.

Underwriting risk was measured using the combined ratio variable. Results from correlation analysis revealed a positive association between the combined ratio and the financial performance variables (both ROA and ROE). The results document that the combined ratio had a 10% explanatory power on the ROA of the Kenyan insurance companies and the result was statistically significant at the 5% level of significance. Similarly, the combined ratio was positively associated with the ROE variable and the result was statistically significant at the 1% level. Therefore, this demonstrates that underwriting risk is has a significant impact on the financial performance of insurance company. However, there is a need to explore the specific factors leading to the positive contribution; loss and expense ratios were used in the calculation of combined ratios. This is in line with the aprior expectations.

6. Conclusion

The purpose of this study was to examine the influence of solvency and underwriting risk on the financial performance of insurance companies in Kenya. Firstly, the results of the study documented that solvency was positively correlated with the financial performance of insurance companies in Kenya. The implication of this is that firms operating in the country and in the region as a whole should take steps to beef up and maintain their capital levels to gain a competitive edge.

Secondly, we found that the impact of underwriting risk on the overall insurance industry was substantive. Underwriting risk proxied by the combined ratio was also positively correlated with the financial performance measures (both ROA and ROE). A good number of insurance companies in Kenya reported underwriting profits in the period under the study, which evidences that they had largely taken steps to mitigate against underwriting risk.

Drawing from the findings we wish to make the following recommendations. Firstly, we recommend that Kenyan insurance companies give more recognition to solvency because of the higher direct influence on returns achieved. Maintenance of sufficient solvency margins and careful management of underwriting risk are critical to the long-term viability of insurance firms.

Secondly, it will be prudent that all Kenyan insurance companies build up sufficient assets to settle claims as and when they arise. General insurance companies in particular, should ensure that a sizeable portion of their asset base is held in liquid investments so that they are in a position to tackle claims at short notice.

Thirdly, the industry regulator would be well advised to take into account the link between financial performance and solvency in formulating solvency margin caps and limits. The regulator should also keep close tabs on the underwriting ratios for the various industry players as an indicator of potential looming problems and guide on mitigation measures as necessary.

The study also makes a contribution in a number of ways. Potential equity and fixed income investors could use the empirical findings herein in making investment decisions regarding the securities offered by insurance companies. Future and current policyholders may use the information as a guide when selecting which companies to place their business. Other stakeholders and the government will be interested in a vibrant insurance sector given the vital role it plays in the economy and may therefore use aspects of this study to advocate for measures to ensure that insurance companies manage their underwriting risk well and that they maintain the necessary capital buffers to ensure their solvency and consequently their long-term viability.

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