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The Impact of Loss Ratio on the Financial Stability of Insurance Firms in Kenya

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Abstract

The insurance sector is an essential component for the continued expansion and prosperity of the economy. It is the responsibility of the insurance industry to secure the continued existence of enterprises, to disperse the risk that is caused by financial losses, and to work toward eradicating uncertainty in the minds of investors. Despite the important role of the insurance sector in the economy, firms operating in this sector have been having trouble maintaining their financial stability. The insurance sector has faced considerable volatility in profitability, resulting in some firms being placed under receivership or even going out of firm. The purpose of this study was to analyse the effect of loss ratio on financial stability of insurance firms in Kenya. The study was anchored on the Theory of Distress by Wreckers. The research was conducted using an explanatory research design, and the positivist philosophical approach was utilized. The target population for this study consisted of the 46 insurance firms that held IRA licenses and were operating during the time period under consideration (2014-2021). The census method was utilized for the research thesis, which focused on all 46 insurance firms in Kenya. The study used secondary data obtained from audited financial statements, which were publicly available on the websites of individual insurance firms. To gather panel data for the study, a secondary data collection template was employed. In order to draw conclusions from the data that was gathered, this study employed both descriptive and inferential statistical methods. The study employed a generalized method of moments modelling guided by static panel regression. The data processing was done using the Stata software. The research findings were presented through the use of tables and trend line graphs. The study adhered to research ethics guidelines. The findings of this study showed that loss ratio had a significant negative influence on the financial stability of Kenyan insurance companies (β = -0.5795373, p = 0.002

< .05).The study concludes that loss ratios and capital adequacy plays a significant role in the financial stability of insurance firms. A lower loss ratio indicates a more efficient underwriting process and risk management, contributing to better financial performance and stability. As a result, the study recommends that to enhance their financial stability, general insurers in Kenya should manage their loss ratio. It's also recommended that Kenya should adhere to the principles of the Solvency II framework.

Keywords: *Loss Ratio, Insurance Firms, Claims Management, Financial Stability, Kenya*

1.0 Introduction

An economic downturn can substantially affect the value of trade receivables and payables; Trade receivables represent the money a firm is expecting from its customers, while trade payables represent the money a firm owes to its suppliers, as demonstrated by Puawska (2021). Insurance firms, which are considered credit-bearing corporations, could potentially have problems paying out claims if receivables are not managed correctly. According to Stojkoski, Jolakoski and Ivanovski (2021), this indicates that the management of insurance firms ought to place a primary emphasis on the processes involved in the collection of outstanding debts. Insurance firms are a vital component of the broader financial system in practically every nation because they offer specialized financial services that are essential to the nation's economic development and expansion.

According to Nwosa and Mustapha (2017), these extremely specialized financial services include risk underwriting for the threats posed by economic organizations and premium accumulation for long-term investments. The risk-absorbing capabilities of insurance contribute to the maintenance of a stable financial market and instil a sense of confidence in commercial enterprises. Due to the fact that the global economy is in a state of perpetual flux and unpredictability, hazardous firms may not be able to absorb all types of risks, which renders the absence of insurance in the firm environment unacceptable (Ehiogu & Eze, 2018).

It's no secret that the insurance industry in Kenya and other nations have had their fair share of problems in recent years, and that the public's perception of them has taken a hit as a result (Mumo, 2017; Herciu & Erban, 2016). This is despite the fact that the industry makes crucial contributions. Over the course of the previous decade, a great number of insurance firms were forced to discontinue their firm and ultimately went out of firm as a result. According to Wahome (2018), the majority of these firms went bankrupt while holding tens of cash worth billions of shillings that belongs to investors in life funds, pension plans, and other types of insurance policies. This raises the question of whether or not insurance firms are financially stable and whether or not they provide investors with sufficient information to enable educated judgements. Additionally, this raises the question of whether or not insurance firms provide adequate information to investors.

According to Murigu (2014), factors both internal and external to an insurance firm have the potential to have an effect on the firm's overall financial health. Internal factors, on the other hand, put more of an emphasis on an insurer's distinguishing characteristics as opposed to external variables, which can be either industry-specific or related to general economic indicators. These aspects are discussed in more detail in the following paragraphs. Sufficient liquidity refers to the ability to repay debts due within the next year using cash or assets that can be readily converted to cash. Prior to increasing income from underwriting and investment operations or liquidating capital assets, Zawawi *et al.* (2019) stress the importance of an insurer's ability to meet its short-term obligations to policyholders.

The amount to which an insurance firm capitalizes on its assets to produce revenue is one of the factors that determines its financial efficiency. The accomplishment of an organization's goals while consuming the fewest possible resources is the definition of efficiency. An output distance function is used to quantify revenue efficiency, which is one of the many facets of financial efficiency (Popovic & Martia, 2005). Revenue efficiency refers to how efficiently a firm uses its resources to increase earnings, and it is characterized by how well the firm uses its resources (Alhassan, Addisson & Asamoah, 2015). One of the objectives of this structure is to establish a reserve that will enable the firms to meet all of their possible financial commitments and settle any claims while still bringing in some revenue (Banafa, 2015). The loss ratio is an indicator of how effectively the underwriting processes of insurance firms are operating. The loss ratio has been determined during the length of this study by dividing the total number of claims that have been paid out by the total number of premiums that have been collected. In most cases, the objective of insurance firms is to raise the amount of money they collect in premiums while at the same time lowering the number of claims for which they are responsible (Kaya, 2015).

Insurance firms play substantial economic functions in general and are, as a result, crucial contributors to the nation's monetary system (Liedtke, 2011). These activities enable other market participants to disperse unsystematic risk, which is one of the reasons why insurance firms are so important. As a consequence of this, they serve as the foundation for a variety of different firm procedures. Insurance firms play a crucial role in providing long-term risk capital to the real economy, as they hold a substantial portion of the world's financial assets, accounting for more than 12 percent. This considerable contribution highlights the importance of insurers in supporting economic growth and stability, making their role in the global financial system even more significant. Their emphasis on long-term investment strategies allows them to serve as stabilizing forces in financial markets (Pfeifer & Langen, 2021). However, the near-collapse of insurance firms like AIG during the global financial crisis prompted a re-evaluation of the sector's contribution to systemic risk (Valckx *et al.*, 2016). The close call with the insurer AIG, among others, served as the catalyst for this re-examination.

Because the insurance sector in China exhibited volatility as well, the Chinese regulator was forced to streamline the policy framework in order to improve the country's overall financial stability (Yan & Faure, 2021). Valckx *et al.* (2016) placed particular emphasis on the ever-changing nature of insurance operations as well as the impacts those operations have on systemic risk. The development of new product lines and chances for investment can put insurers in a position where they face a higher overall risk. The closer relationships that insurers have with banks have become yet another key risk factor as a result of the growing participation that insurers have had in the capital markets.

According to Boloupremo and Ogege (2021), the insurance industry in Nigeria has likewise faced difficulties in maintaining its financial stability (Hartwig, Niehaus, & Qiu, 2020). Following a thorough risk analysis of the world's most significant systemically important insurers, the Insurance Analysis and Information Services Institute (IAIS) has given macro-prudential recommendations. This extensive study emphasizes the critical role that insurance operations play in assessments of financial stability. By examining the potential risks and offering recommendations, IAIS contributes to a deeper understanding of the insurance industry's influence on the broader financial system, helping regulators and policymakers make informed decisions to maintain and enhance overall economic stability. Despite this, insurance firms all over the world continue to have the same difficulties maintaining financial stability as the majority of the other actors in the financial system.

According to Agung, Atiti and Kimani's research from 2019, the insurance subsector's assets saw a growth of 18.2 percent in 2019, but a decrease of 1.8 percent. A decrease in profitability was also observed in the subsector, which was attributed to the fact that firms in the private sector are currently experiencing difficulties. According to the findings of the Financial Sector Stability Report 2020, in general. In terms of gross premium revenue, the insurance industry performed better in quarter one of 2019 (Agung et al, 2019). However, as a direct result of increased expenditures, the insurance firms had a loss of KSh 1.1 billion during the first three months of 2020. In addition to this, the volatility of the NSE led to a significant drop in the amount of money made through investments (NSE financial report, 2020).

During the period between 2018 and 2020, the financial stability of insurance firms faced significant challenges, particularly due to low interest rates and market volatility. One notable study by the International Monetary Fund (IMF) (2018) highlighted that low interest rates negatively impacted the profitability of life insurance firms, thereby posing risks to their financial stability. The IMF further noted that non-life insurance firms experienced challenges due to increased catastrophic events, which resulted in higher claims pay-outs and reduced underwriting profits (IMF, 2018).The financial stability of insurance firms between 2018 and 2020 was influenced by several factors, including low interest rates, market volatility, and catastrophic events. Research during this period emphasized the importance of capital adequacy, underwriting performance, investment performance, risk management practices, and operational efficiency in maintaining the financial stability of insurance firms (IMF, 2018; Kozak & Świtała, 2019; NAIC, 2020). Despite these challenges, the insurance industry demonstrated resilience, attributed to strict solvency regulation and effective diversification strategies.

According to a report by Cytonn (2022), the core insurance business performance in Kenya has been dwindling, mainly attributable to the high loss ratios, which have deteriorated further, following the increase in claims outpacing increase in premiums. According to the report, in H1'2022, general insurance claims increased by 14.5% to Kshs 37.1 bn from Kshs 32.4 bn in H1'2021. On the other hand, premiums for general insurance business grew by a slower 8.2% to Kshs 92.4 bn in H1'2022, from Kshs 85.4 bn in H1'2021. As a result, loss ratio for general insurers increased by 1.3% points to 68.1% in H1'2022, from 66.8% in H1'2021. Motor classes of insurance business incurred claims contributed 48.3% of total claims incurred compared to their business contribution of 28.1% of the total premium under general insurance business. However, the loss ratios under the long term business eased, to 64.2% from 72.2% in H1'2021, attributable to the 17.8% increase in premiums to Kshs 64.3 bn from Kshs 54.6 bn in H1'2021 that outpaced the 4.7% growth in net claims and policyholder's benefits to Kshs 41.3 bn from Kshs 39.4 bn in H1'2021. This is depicted by Figure 1.

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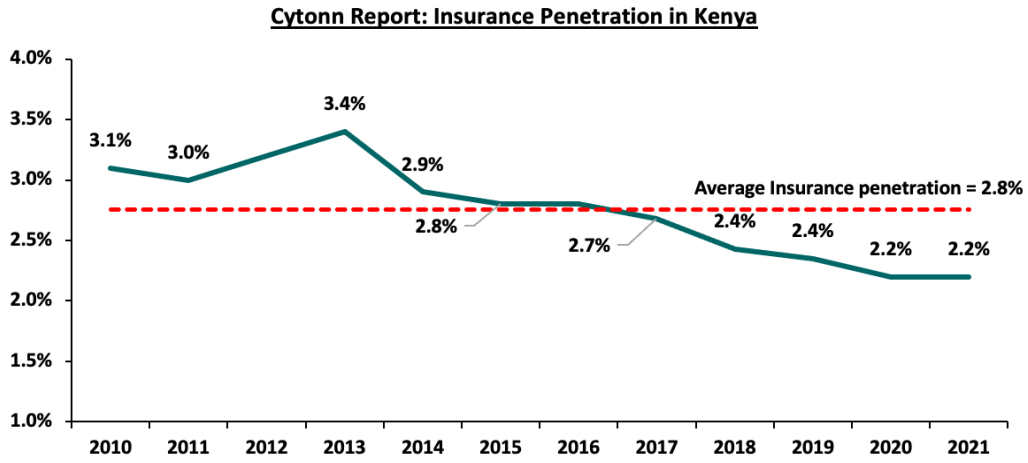

Figure 1: Trend Line of Insurance Penetration in Kenya

Source: Cytonn (2022)

1.1 Statement of the Problem

According to Macharia (2019) and Muduli and Raval (2018), the insurance sector is an essential component of a thriving and expanding economy. The purpose of the insurance industry is to alleviate the concerns of investors by distributing the risk that is associated with incurring monetary losses and guaranteeing that firms are able to continue operating (Bushman, 2014). Because of the impact it has on the success of both individual investment activities and the performance of other sectors, the sector is essential for the economic stability of a nation. The insurance industry plays a crucial role in the economy by providing financial protection against risks and uncertainties. However, in recent years, many insurance firms have been facing challenges in maintaining their financial stability (Kiragu, 2014).

Kenyan insurance firms have been facing issues with regard to their stability in recent times and this has been attributed to a number of factors including high expense ratios (Muduli & Raval, 2018). Many Kenyan insurance firms have high operating costs due to inefficiencies in their processes, such as overstaffing and outdated systems. This leads to high expense ratios, which negatively impact profitability and financial stability. Concerns about the firm's operations and finances led to the placement of Resolution Insurance under statutory administration (Mbuthia, 2021). Unpaid claims totalled KSh 1.2 billion when Standard Assurance declared bankruptcy in 2009. As a direct result of the failure of Concord Insurance KNAC, a number of other insurance companies, including Access, Lakestar, Stallion, United insurance (2005) Standard assurance (2009) Blueshield insurance (2011) Concord insurance (2013) Resolution insurance (2022), have also been forced to declare bankruptcy (Okoth, 2022). While some insurance companies have not yet collapsed, they are indeed grappling with serious financial distress.

According to a 2021 report by Cytonn, there was a slight increase of 1.6% in Net Premium in the insurance industry during 2020. Despite this growth, the loss ratio escalated to 88.1% during the same timeframe. Meanwhile, the industry recorded negative performances in terms of return on equity (ROE) and return on assets (ROA), posting -9.4% and -1.3% respectively. In addition, the available statistics demonstrates fluctuations in the financial stability of insurance firms in Kenya between 2014 and 2021(Figure 4.6). The scores highlight periods of stability, improvement, and decline, emphasizing the need for a comprehensive assessment of the financial health of these firms and how it is affected by loss ratio.

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Inadequacies in terms of methodology, context, and conceptual understanding that have been found in previously published research on the financial health of insurance firms are another factor that prompted the current investigation. While this study primarily centers on financial stability, study by Murigu (2014) employed a different approach, investigating the factors influencing the total financial stability of general insurance firms in Kenya. Too et al. in 2019, however, concentrated their study on the attributes of companies and the financial performance of general insurance firms within Kenya. This contrasts with the results of Mwangi's (2013) investigation into the elements affecting the financial health of Kenyan insurance firms. These results reveal a hole in our knowledge of the connection between corporate features and insurance firms' financial health.

While Kramari *et al*. (2019) looked at the health of insurance firms in a few CEE nations, Puawska (2021) limited her research to the developed world. When examining the factors affecting the financial health of Asian insurance firms, Chen and Wong (2004) used logistic regressions as opposed to the static panel data model that was used in this study. Similar to this, Murigu (2014) used multiple linear regression as opposed to a fixed model for panel data analysis. Considering the examples provided in the literature, this study was inspired by the ongoing challenges faced by Kenyan insurance firms regarding financial stability, such as decreasing insurance penetration and diminishing profitability, despite their essential role in risk distribution and uncertainty removal. Moreover, the existing literature for this research presents conceptual, contextual, and methodological shortcomings that underscore the need for this investigation. Hence, the extent to which loss ratio influences the financial stability of insurance companies in Kenya continues to be a matter of empirical investigation: This helped to motivate this study.

1.2 Research Objective

To analyse the effect of loss ratio on financial stability of insurance firms in Kenya.

1.3 Research Hypothesis

H_0: Loss ratio does not significantly affect financial stability of insurance firms in Kenya.

2.1 Theoretical Framework

Wreckers Theory of Distress

The Theory, which serves as the basis for this analysis and was independently explored by Daniel, Hirshleifer, and Subrahmanyam (1998) and Fama, can be summarized as follows. Fama also contributed to this investigation (1998). These researchers investigated the hypothesis that stocks of firms that are experiencing financial difficulties regularly perform worse than those of firms that are in good financial shape. The fear that investors would lose their money is the key factor that contributes to this behaviour, as it is common practice for them to try to get out of their investments before the real failure of the firm. According to Von Kalckreuth (2005), the act of "wrecking" refers to the practice of taking money from firms who are already experiencing financial difficulties yet legitimately require the money. Alternately, the behavior can be understood as the process of killing a firm in advance of its value reaching a point where it can no longer be rescued. This is another way of referring to the activity. In exchange for personal benefits that are not in the form of dividends, investors withhold funds from the firm (Wangige, 2016).

If a firm in financial trouble is able to turn things around, investors will just have to cover opportunity costs; if the firm goes bankrupt, the investors' money is considered a free resource that may be put to better use elsewhere (Walela, Omagwa & Muathe, 2022). This is in contrast to the common practice of scrapping an old ship that can't be fixed or would cost too much to

fix so that its pieces may be reused to construct a new ship in its place, which isn't cost-effective (Kalckreuth, 2005). An old ship that is either beyond economical repair or hopelessly obsolete will be sunk. This course of action entails the destruction of an old ship that is either incapable of being repaired or would have an extremely high cost to do so.

According to Maina *et al.* (2016), the wreckers' idea is an attempt to explain to interest parties the potential benefits that could come from financial instability. According to Von Kalckreuth (2005), it is not always necessary to attribute the poor financial performance of troubled firms solely to inefficient or irrational market conditions. Rather, it has been established that such negative excess returns can be a result of market efficiency when a small group of investors possesses the ability to reap returns from struggling enterprises (Baimwera & Muriuki, 2014). This concept is particularly relevant to this research as it highlights the potential consequences of removing funds from already struggling firms, as this can exacerbate their operational inefficiencies and further contribute to their decline.

2.2 Empirical Review

The insurance industry in several countries in Central and Eastern Europe was studied by Kramari *et al.* (2019). The study indicated that the amount of an organization's total assets can be affected by a number of variables, including the premium surplus ratio, the gross written premium to GDP ratio, the market share of the top five insurers, the growth rate of GDP per capita, and the premium yielded to claims. The study indicated that insurers' financial security improved as the claim ratio decreased. Because of the discriminatory character of the system, insurance firms in developed Central and Eastern European countries are given an unfair edge over their counterparts in developing economies like Kenya. In contrast to the preceding study, which placed equal emphasis on industry- and insurance-firm-specific variables, in this current study, macroeconomic factors such as inflation and interest rates were utilized as moderating variables to investigate the influence of insurance loss ratio on their financial stability.

Loss ratio mechanisms were studied by Soye, Adeyemo and Ayo (2017), who determined how they impacted the sustainability of insurance firms in Nigeria. This research looked into how several aspects of firms correlated with their return on investment (ROI). Secondary information gleaned from insurance firms' financial filings between 2009 and 2015 was analysed. Linear regression analysis could be used to figure out which of the four ratios ceded loss ratio, retained earnings ratio, retained risk ratio, and net claim ratio is most profitable. The importance of the connection between the variables has been evaluated using correlations. The results of the study indicated that there was a link between the percentage of ceded losses and insurance profits. In contrast to Soye, Adeyemo *et al.* (2017), who looked at insurance firms' profitability as evaluated by ROA, the focus of this study was on the insurance industry's financial stability, as measured by the Altman z-score.

According to the findings of a study that was conducted by Al-Fayoumi and Al-Smadi (2019), there is a favourable correlation between the loss ratio of insurance companies in Jordan and their financial stability. Panel data analysis was utilized in the research to investigate the relationship between the loss ratio and the level of financial stability, and the results showed that a larger loss ratio was related with a lower level of financial stability. The authors recommended that insurance firms in Jordan should monitor their loss ratios and take steps to reduce losses, such as improving risk management and underwriting practices. Elsewhere, a study by Chen and Zhai (2018) investigated the impact of loss ratio on the financial stability of Chinese property and casualty insurance firms. The study found that higher loss ratios were associated with lower financial stability, and that the effect was more pronounced for smaller insurers. The authors recommended that insurers should improve their risk management and underwriting practices to reduce their loss ratios and enhance their financial stability.

In their study, Ridwan, Ulupui and Ahmad (2022) examined the impact of total equity, risk-based capital ratio, adequacy investment ratio, direct premium receivable ratio, liquidity ratio, and loss ratio toward the early warning system of general insurance in Indonesia. The Results of the analysis showed that EWS was simultaneously influenced by the variables of Equity, Risk-Based Capital (RBC), Investment Adequacy Ratio (RKI), Direct Premium Receivable Ratio, Liquidity Ratio, and Loss Ratio. While partially EWS was not influenced by the Liquidity Ratio and Loss Ratio variables, but EWS was partially influenced by the variables of Equity, Risk-Based Capital (RBC), Investment Adequacy Ratio (RKI), and the Direct Premium Receivable Ratio. The regression coefficient that connects the variables of Equity, Risk-Based Capital (RBC), Investment Adequacy Ratio (RKI), and the Direct Premium Receivable Ratio with the EWS variable in general insurance firms in Indonesia had a significant positive value.

Wathudura and Weerasinghe (2021) evaluated impact of claim management on profitability of listed insurance firms in Sri Lanka. The study was based on a quantitative approach used secondary data for the descriptive statistics and the multiple regression techniques. Entire all insurance firms are considered for the population, where listed insurance firms were used as sample of the study. The appropriate model selected for the study was the random effect model. The findings in this study revealed that ROA, which was a measure of profitability, had a direct relationship with expense ratio, but an indirect relationship with net claim. And also, liquid asset technical reserve and combined ratio had no relationship with ROA. The study also found that net premium had an indirect relationship with a loss ratio. The study concluded that there was a significant relationship between expense ratio and ROA, and NII ratio and ROA, and NC and ROA in the listed insurance firms in Sri Lanka. It was thus recommended that claims managers in the Sri Lankan insurance industry must effectively manage their claim process. In addition to that, carefully attention must also be given to administrative cost, underwriting cost, which is capable of reducing firm's profit margin.

Thompson and Kim (2022) conducted an investigation of the Korean general insurance industry evidence of structural changes and impact of macro-economic factors on loss ratios. The study first presented a brief overview of the Korean general insurance market the explored the characteristics of the loss ratios of the Korean general insurance industry and apply Markov regime-switching methodology to model the loss ratios of these insurance firms by line of firm based on changes in economic regimes. The study applied a number of confirmatory tests such as Zivot-Andrews test (2002), the Chow (1960) test and the Bai and Perron (1998) to confirm the presence of structural breaks in the time series of the loss ratios by line of firm. Then, employed Markov regime-switching methodology to model these loss ratios. The study found empirical evidence that the loss ratios reported by insurance firms in Korea was characterized by two distinct regimes; a regime with high volatility and a regime with low volatility, except for vehicle insurance. The analyses suggested that macro-economic conditions had significant explanatory effect on loss ratios but the direction of effect differs based on the line of firm and the regime.

2.3 Conceptual Framework

Figure 1:Conceptual Framework

Source : Author(2023)

3.0 Research Methodology

Positivist philosophy is an epistemological perspective that emphasizes the importance of empirical observation, quantifiable data, and objective analysis in the pursuit of knowledge (Crotty, 1998). This philosophy underlies many scientific disciplines, including panel regression analysis. Positivism assumes that objective, unbiased truths about the world can be discovered through systematic observation and analysis of phenomena (Bryman, 2012). In panel regression analysis, the positivist approach involves using quantitative data collected over time on the same subjects to identify patterns, relationships, or causal effects between variables (Hsiao, 2003). This research was grounded in the positivist worldview as its primary theoretical framework. The methodology is supported by scientific procedures that can be used to evaluate the links found in studies, hence it is regarded as being more objective. The idea's structure is completely transparent, guaranteeing that the investigation's results will be reliable and impartial.

This study used an explanatory research approach to determine the relationship between loss ratio and the financial stability of insurance firms in Kenya. Because they have already materialized, the independent factors cannot be altered. An explanatory design allows a study to determine how explanatory factors affect the outcome variable in the absence of intervention (Ginsburg, 2011). According to Saunders *et al.* (2007), explanations establish causal relationships between dependent and independent variables.

Empirical Model

This research adopted the static panel data model developed by Arellano and Bover (1995) to analyze the relationship between firm-specific attributes and the financial stability of insurance companies. The static panel model was chosen for the study because this estimation approach first differentiates the data to prevent persistent effects. The static panel model is particularly useful when the dependent variable is affected by unobserved individual-specific characteristics that are constant over time, and when the explanatory variables are time-invariant (Pesaran & Zhou, 2018). It can also control for endogeneity, as the individual-specific fixed effects eliminate the potential correlation between the dependent variable and the explanatory variables. The static panel model used is presented below.

$$\mathbf{Z_{it} = \beta_0 + \beta LR_{it} + \varepsilon_{it}}$$

Where:

Z_{it} = Altman z-score of insurance firm *i* at time *t;*

β_0= Constant Term;

LR_{it} = Loss ratio of insurance firm *i* at time *t;*

$\beta_1 =$ Coefficent of predictor variable
$\mu_i =$ Unobserved time invariant
$\varepsilon_{it} =$ Disturbance term
Subscript $i =$ Insurance firm(Cross $-$ section dimension)raging from $1 - 46$
Subscript $t =$ Years(time $-$ series dimension)raging from $2014 - 2021$.

The following emerging market model is generated using the four ratios for the revised Altman model in emerging markets, as recommended by Manaseer and Al-Oshaibat (2018).

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$$Z'' = 3.25 + 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4 + \cdots \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.4)$$

Where:

Z'' = Financial Stability as measured by Altman z-score

X_1 = working capital divided by total assets

X_2 = Retained earning divided by total assets

X_3 = EBIT divided by total assets

X_4 = Book Value of Equity/ total debt

Z-score used in this study is a composite variable that determines whether or not an insurance firm is in financial distress or not. It's a binary criterion used to group things that can't happen together. The following are the zones of discrimination based on the Altman Z-score:

Z > 2.99, "Safe" zone,

1.23<Z < 2. 99 "Grey" zone,

Z < 1.23 "Distress" zone

Accordingly, If the firm's z score is greater than 2.9, then it is regarded to be in a safe zone; if it is between 1.23 and 2.9, then it is considered to be in a grey zone; and if it is less than 1.23, then it is considered to be in a distress zone (Altman, 2000). A total of 56 insurance companies were active in Kenya's market as of 2020. For the years 2014–2020, however, only 46 of these have reached full functioning (IRA, 2020). Participating insurance companies were required to have been inoperationsfor a period of between 2014 and 2021 (IRA, 2021). As a result, the study did not include any regulated insurance firms that did not belong to this group. As a result, the 46 insurance firms that were both licensed by IRA and in firm during the study's investigation period (2014–2021) made up the population of interest for this study. Since licensed insurance firms are required to submit their annual financial statements to the Insurance Research Authority (IRA), making the pertinent data more accessible, the research focused on these firms. The research took a census-like approach by concentrating on all 46 insurance firms that were both registered with the IRA and in firm during the time period under investigation (2014-2021). According to Hair (2007), a census may be utilized in situations in which the population is relatively small or in circumstances in which it is reasonable to include the complete study population.

This research used secondary panel data for the years 2014 through 2021 from public, audited financial statements of the firms and annual reports of IRA by using a secondary data collecting sheet. Secondary data analysis not only reduces the amount of time that would have been spent independently gathering information, but it also produces databases that are larger and of a higher quality than would be possible for a single investigator to acquire on their own. This is especially important to keep in mind while working with quantitative data. In order to collect the data, we relied on the income statement, the notes to the accounts, and the statements of financial condition included in the financial statements. Annual reports of the IRA, public disclosures, CBK and KNBS publications all provided additional sources of secondary data. As a result, the sample data began in the year 2014 and continued until the year 2021.

In the realm of descriptive statistics, some examples of helpful statistics include the mean, the standard deviation, the highest and lowest values, and trend analysis. (Murtagh & Heck, 2012) carried out an investigation by utilizing inferential statistics, such as Pearson correlation and Panel regression analysis, in order to discover the nature of the connection that exists between the characteristics of the firm and its degree of financial security. This was done in order to

determine the nature of the connection that exists between the qualities of the firm and its level of financial security. The data were initially seen on an Excel work sheet prior to being imported into the STATA tool for further analysis. Viewing the data served as a prerequisite. The information was gleaned from the respective financial statements of the several insurance companies.

Using Pearson's correlation coefficient was the method that Emerson (2015) suggested for determining the degree of correlation existing between the various independent factors and the dependent variables. The direction and magnitude of the linear link can be determined by looking at the correlation coefficient, which has a negative value. A negative correlation suggests that a rise in one variable produces a drop in the other variable, whilst a positive correlation says that the converse is true. When one variable increases and the other variable does so as well, this indicates a direct relationship between the two (Gujarati, 2021).

The static panel model that Arellano and Bover (1995) created was used in this study to evaluate the relationship between loss ratio and the financial stability of insurance companies. This study was conducted in the United Kingdom. Because using it requires varying the data in order to exclude fixed influences, using a static panel model was the method of choice. In contrast to this, Probit, Tobit, and logistic models all necessitate that the criterion on the left-hand side be either binary or multinomial. The fact that static panel data is single is one of the advantages of adopting it (Roodman, 2009).

Regression analysis using panel data estimate methods was utilized to evaluate the impact of loss ratio on the financial stability of insurance firms in Kenya between 2014 and 2021 (Pindado & Requejo, 2015). This approach is more insightful as it can distinguish between the theoretical effects of different factors and actions compared to time series and cross-sectional data (Hsiao, 2007). The analysis aimed to understand how firm variables affected the financial stability of insurance firms in Kenya, taking into account the time series and cross-sectional aspects. The results were presented in tables and trend line graphs.

4.0 Findings and Discussion

4.1 Descriptive Statistics

The analysis of data and the methods utilized to examine such data have a significant influence on the outcomes of a study. In describing the characteristics of the data used in a study, measures of central tendency such as mean, maximum, minimum, and standard deviation are frequently used. The descriptive statistics results are presented in table 1.

Table 1: Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Financial Stability	368	3.8995650	1.247763	1.2620	7.012400
Loss Ratio	368	0.6144178	0.1408072	0.3937	0.882000

Descriptive results in Table 1 show that financial stability measured using Altman's Z-Score had a mean value of 3.8995650 with a standard deviation of 1.247763 indicating slight degree of variations evidenced by a maximum Altman's Z-Score value of 7.012400 and a minimum of 1.2620. This implies that there was slight fluctuation in financial stability among insurance firms in Kenya in the study period of between the year 2014 and 2021 as depicted by the standard deviation of 1.247763. The results also indicate that, on average, the insurance firms in Kenya fall into the "safe" zone. This implies that they generally have a low risk of bankruptcy and display solid financial stability. However, it is important to consider the individual Z-

Scores for each firm in the sample, as the mean value may not accurately represent the risk profile for all firms. Additionally, it is crucial to remember that Altman's Z-Score is just one of many tools that can be used to assess the financial health of a firm, and other factors should be considered when conducting a comprehensive analysis.

Moreover, the results show that the loss ratio had a mean value of 0.6144178 and standard deviation of 0.1408072 implying that there existed slight variation in loss ratio among insurance firms in Kenya for the study period under consideration (2014-2021) as is evidenced by a maximum loss ratio of 0.882000 and minimum of 0.3937. This implies that all the issuance firms under consideration were profitable since none registered a loss ratio of more than 100%. The insurance firm with the highest loss ratio paid at least 80% in claims than it received premium. If an insurance firm has loss ratio more than 1, it indicates that the insurance firm is not profitable and may be in poor financial health as a result of the fact that it is spending more money on claims than it is collecting in premiums from its customers.

4.2 Trend Analysis

The research conducted an analysis of the trends present in all the variables of the study: loss ratio and financial stability. The results derived from this analysis are presented and discussed in the sections below.

Trend line Analysis on Loss Ratio

Figure 2 shows trend analysis on loss ratio.

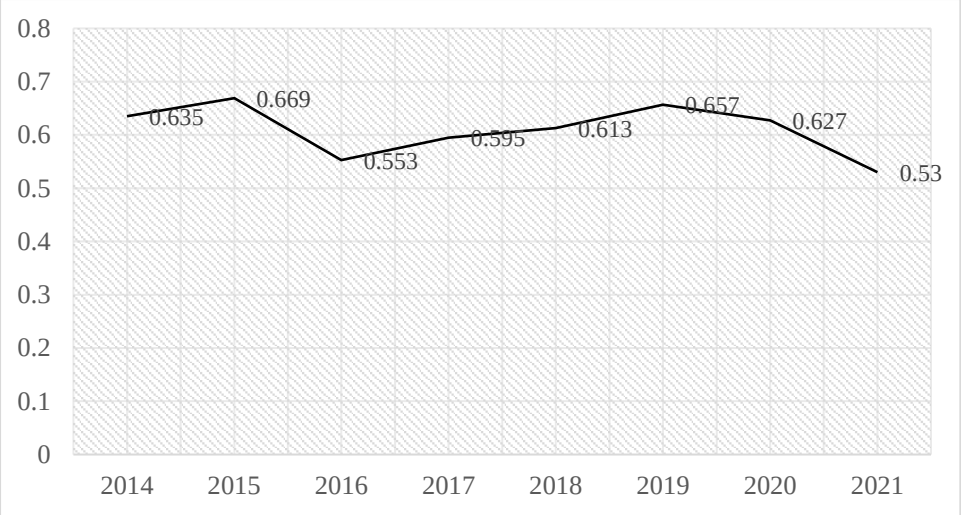

Figure 2: Trend line on Loss Ratio

The trend results for the loss ratio of insurance firms in Kenya between 2014 and 2020 as presented in Figure 2 indicate some fluctuations over the years. In 2014, the loss ratio stood at 0.635, suggesting that for every unit of premium earned, approximately 63.5% was paid out as claims. The following year, in 2015, the loss ratio increased to 0.669, indicating a slight deterioration in the profitability of insurance companies. This means that the claims paid out amounted to around 66.9% of the premiums collected. However, in 2016, there was a noticeable improvement as the loss ratio dropped to 0.553, signaling a more favorable position for the insurance firms. This lower ratio implies that the claims paid out were around 55.3% of the premiums received, indicating better risk management and profitability.

The trend continued to fluctuate in the subsequent years. In 2017, the loss ratio increased to 0.595, but it decreased again in 2018 to 0.613. These ratios suggest that the claims paid out accounted for 59.5% and 61.3% of the premiums collected in those years, respectively. In 2019,

the loss ratio rose to 0.657, indicating a decline in profitability compared to the previous year. This means that the claims paid out represented approximately 65.7% of the premiums earned. However, there was a slight improvement in 2020, with a loss ratio of 0.627. This implies that the claims paid out accounted for around 62.7% of the premiums collected. Finally, in 2021, there was a significant drop in the loss ratio to 0.53, suggesting a notable improvement in the profitability of insurance companies. This lower ratio indicates that the claims paid out were approximately 53% of the premiums received. Overall, the trend results show some fluctuations in the loss ratio of insurance firms in Kenya during the specified period. While there were some years with higher ratios indicating increased claims, there were also years with lower ratios indicating better risk management and improved profitability.

Trend line Analysis on Financial Stability

Figure 3 shows trend analysis on financial stability.

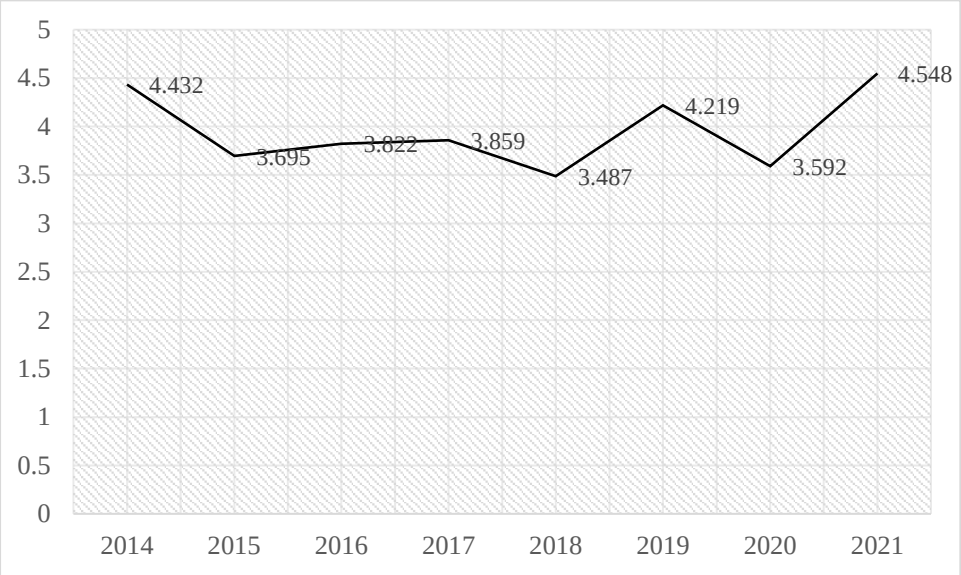

Figure 3: Trend line on Financial Stability

Figure 3 provides data representing the trend analysis results of the financial stability of insurance firms in Kenya between the years 2014 and 2021, measured using the Altman Z-score. The Altman Z-score is a formula that assesses the financial health and stability of a company, specifically predicting the likelihood of bankruptcy. In 2014, the insurance firms exhibited a relatively stable financial position with a score of 4.432. However, the following year, there was a decline in financial stability, as indicated by the score dropping to 3.695. This decline might have raised concerns about potential financial stress among the insurance firms. The year 2016 showed a slight improvement in financial stability, with the score increasing to 3.822. While this signaled a modest recovery, it was still lower than the initial score in 2014. In 2017, the score continued to increase marginally to 3.859, suggesting a further but minimal improvement in the financial stability of the insurance firms.

However, 2018 brought a significant decrease in financial stability, with the score dropping to 3.487. This decline raised concerns about the financial health of the insurance firms, indicating a potentially challenging period. The subsequent year, 2019, saw a recovery in financial stability as the score increased to 4.219. Although this indicated an improvement compared to the previous year, it still fell short of the scores observed in 2014 and 2017. In 2020, there was another decline in financial stability, as evidenced by the score decreasing to 3.592. This drop suggested an increase in financial stress for the insurance firms, posing potential challenges.

However, the year 2021 brought positive news, as the financial stability score experienced a substantial increase to 4.548. This surge indicated a significant improvement in the financial health of the insurance firms and marked the highest score observed throughout the study period (2014-2021). Overall, the trend analysis demonstrates fluctuations in the financial stability of insurance firms in Kenya between 2014 and 2021.

4.3 Inferential Statistics: Correlation and Panel Regression

Correlation Analysis

The statistical method known as correlation analysis is employed to investigate the nature, magnitude, and direction of the association between two or more variables. The use of correlation analysis in the context of determining the extent to which loss ratio and financial stability are associated with one another in insurance firms in Kenya can provide significant insights into the ways in which these elements are related to one another. Correlation matrix was used to assess the level of association between loss ratio and financial stability of insurance firms in Kenya at 5 percent significance level on STATA. The correlation coefficient is indicated with an asterisk (*) while the respective P Values were compared to the 0.05 significance level. Table 2 shows the correlation matrix.

Table 2: Correlation Matrix

	Financial Stability	**Loss Ratio**
Financial Stability	1.0000	
Loss Ratio	-0.4972*	1.000

Table 2 shows a moderate negative and significant association between loss ratio and financial stability of insurance firma in Kenya (r=-0.4972*). The implication of this is that the higher the loss ratio recorded by an insurance firm, the less its financial stability becomes. This is because, when claims payments are less than premiums collected, insurance firms are making profits and vice versa. When the loss ration exceeds 100%, in this situation the insurance firm is in an unfavourable position and it means that the insurance firm is losing money on its policies. A loss ratio is a quick way to evaluate the financial health and profitability of an insurance firm. The findings of Kramari*et al.* (2019), who investigated the financial stability of insurance firms in a number of nations across Central and Eastern Europe, are consistent with this observation. And came to the conclusion that the claim ratio had a detrimental and noticeable effect on the overall financial health of insurers.

Panel Regression Analysis Results

The objective of the study was to examine whether there is a statistically significant relationship between loss ratio and the financial stability of insurance firms in Kenya. To accomplish this, a panel regression analysis was conducted. The panel regression results revealed a statistically significant negative relationship between the loss ratio and financial stability of insurance firms in Kenya (β = -0.5795373, p = 0.002<.05). This suggests that with every unit increase in the loss ratio, there's a decrease of 0.5795373 units in the financial stability of these firms, assuming other factors remain unchanged. The loss ratio serves as a measure to gauge the effectiveness of an insurance firm's claims management on a comparative scale. A low loss ratio indicates robust financial health for the firm, and the opposite is true for a high ratio. This is consistent with the claims made by Iqbal and Rehman (2014), who emphasized the significance of the loss ratio in risk assessment, underwriting risk, and the efficiency of claim administration. Furthermore, Kramariet al. (2019) provided empirical

evidence that the claim ratio positively affects the overall financial wellbeing of insurance companies.

Hypothesis Testing

H_0: Loss ratio does not considerably affect financial stability of insurance firms in Kenya

Panel regression results demonstrated that the loss ratio had a P-value less than 0.05 and a coefficient of -0.5795373. The 5% significance threshold required to reject the null hypothesis that the loss ratio has no bearing on the financial viability of insurance firms in Kenya was met. This suggests that an increase in the loss ratio significantly leads to a decrease in the financial stability of insurance firms in Kenya. The results support arguments made by Obonyo (2016) that the firm quality of reinsurance or reinsurance results is assessed by comparing the total claims paid out to the premiums collected, and that a lower loss ratio denotes better financial success for insurance firms. The assertion by Obonyo (2016) is relevant to the Kenyan insurance industry, as it suggests that insurers in Kenya should focus on maintaining a lower loss ratio to achieve financial success. This can be achieved through efficient underwriting practices, effective risk management, and accurate pricing of insurance products. By maintaining a lower loss ratio, Kenyan insurance firms can ensure better financial performance, stability, and competitiveness in the market.

5.0 Conclusions

The study concludes that loss ratios and capital adequacy plays a significant role in the financial stability of insurance firms. A lower loss ratio indicates a more efficient underwriting process and risk management, contributing to better financial performance and stability. On the other hand, capital adequacy ensures that insurance firms maintain sufficient capital to absorb losses and honour their obligations to policyholders, which is crucial for maintaining public confidence in the industry. The findings from the panel regression analysis present insightful evidence for understanding the financial dynamics of insurance firms in Kenya. The statistically significant negative relationship between the loss ratio and the financial stability of these firms illuminates a critical link. The statistical strength of this relationship, confidently implies that as the loss ratio increases, the financial stability of these firms proportionately decreases. The study concludes that a low loss ratio signifies superior financial health, indicating that the firm is managing its claims effectively, while a high ratio signals potential financial instability. This evidence substantiates the necessity for insurance firms to continually optimize their claims management processes and strategies. The ability to maintain a favourable loss ratio could lead to enhanced financial stability, bolstering the robustness and resilience of insurance firms in Kenya amidst ever-evolving economic challenges. This analysis could further be used as a basis for policy decisions aimed at fortifying the insurance sector's financial stability.

6.0 Recommendations

In order to improve financial performance, the primary focus should be placed on decreasing the proportion of equity capital that is held in the form of debt. Aside from that, in order for insurance firms to improve their overall financial performance, they need to have adequate methods for the management of their debt in place. In conclusion, the research has shown that there is an unfavourable connection between the liquidity of insurance firms and their financial success. As a consequence of this, it is absolutely necessary for insurance firms to engage in effective management of their liquidity in order to optimize both the worth of the firm and its financial success. Additionally, insurance firms should focus on improving their revenue efficiency, capital adequacy, and loss ratio to enhance their financial stability. Insurance firms should closely monitor the external operating environment, including regulatory changes and

market conditions, and adjust their loss ratio accordingly to mitigate potential risks and maintain financial stability.

Researchers suggests that because of the impact that liquidity has on insurance companies' financial stability in Kenya, it is crucial for the management of insurance firms there to ensure that liquidity levels are always at their maximum. Insurance companies in Kenya are encouraged to hold on to debts they can comfortably repay because of the positive effect solvency has been found to have on a firm's financial security. In general, applying the postulates of current portfolio theory will help you keep a mix of assets that provides the best possible risk-return profile. Moreover, the study suggests that Kenyan insurance companies pay close attention to the estimation and supervision of their loan portfolio as a means of bolstering their financial stability, as the results show that firm size has a positive impact on financial stability.

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