

**INSURANCE RISKS AND FINANCIAL PERFORMANCE OF INSURANCE
COMPANIES IN KENYA**

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UNIVERSITY**

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

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DEDICATION

This thesis is dedicated to my late mother Regina Kathini for instilling importance of pursuing knowledge and my son Darren Mandela for inspiration and encouragement during my time of study.

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I start by thanking God for good health when doing this research. I thank Dr. Lucy Wamugo and Mr. Joseph Theuri for their dedication and supervision. My supervisor's patience and tolerance contributed to successful completion of this thesis. I also extend heartfelt appreciation to my son Darren Mandela who missed my attention during the time of writing this thesis.

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OPERATIONAL DEFINITION OF TERMS

- Credit Risk:** The risk of insurance companies not receiving premiums due and reinsurance companies not paying. Credit risk will be proxied by the ratio of outstanding premiums and the amount due from the reinsurer to net assets.
- Financial Performance:** A parameter used to determine an organization's effectiveness in using its assets to make revenue. It will be proxied by the ROA of the insurance companies.
- Gross Domestic Product (GDP):** The monetary worth of goods and services made in a country within a year. It will be proxied by the GDP growth rate.
- Insurance Company:** An insurer registered under Insurance Act, Cap 487, who carries on insurance business and includes a reinsurer.
- Insurance Risks:** These are risks affecting the insurance industry. Insurance risks will be analysed by credit risk, liquidity risk, reinsurance risk, solvency risk and underwriting risk.
- Liquidity Risk:** The risk of being unable to cover current liabilities as they become due. This will be proxied by the current ratio.
- Reinsurance Risk:** The failure of an insurance company to get the insurance amount from a reinsurance company timely and at the right cost. Reinsurance risk will be proxied by the ratio of premium ceded to total assets.
- Return on Assets (ROA):** A parameter of determining the efficiency a firm uses its assets in the generation of income. ROA is determined by net income to total assets.

Return on Equity (ROE): A parameter of determining a firm's profitability in relation to shareholders equity. ROE is determined by net income to equity.

Solvency Risk: The risk of a firm not having enough assets to settle all the liabilities. The solvency risk will be determined by the ratio of total liabilities to total assets.

Underwriting Risk: The risk to an underwriter due to premiums collected being insufficient to cover the cost of coverage. Underwriting risk will be proxied by the ratio of claims incurred to premium earned.

ABBREVIATION AND ACRONYMS

| | |
|-----------------|-------------------------------------|
| AKI | Association of Kenya insurers |
| CBK | Central Bank of Kenya |
| COVID-19 | Coronavirus Disease 2019 |
| GDP | Gross Domestic Product |
| GLS | Generalized Least Squares |
| IRA | Insurance Regulatory Authority |
| KNBS | Kenya National Bureau of Statistics |
| NSE | Nairobi Securities Exchange |
| ROA | Return on Assets |
| ROE | Return on Equity |
| UK | United Kingdom |

ABSTRACT

The insurance industry is instrumental in economic growth by enabling protection, capital creation and promoting commerce. A stable insurance industry capable of mitigating risks ensures sustainable economic growth. There has been a decline in the insurance industry's profitability in Kenya; this has raised questions about whether the risks affecting the industry have contributed to the declining trend. Risks and uncertainties would lead to an organization's failure to achieve its objectives. Hence, the study assessed the effect of insurance risks on the financial performance of insurance companies in Kenya. Specifically, the study examined the effects of credit risk, liquidity risk, solvency risk, reinsurance risk and underwriting risk on the financial performance of insurance companies in Kenya. GDP was used as a moderating variable on the relationship between insurance risks and financial performance. The study was anchored on agency theory, credit risk theory, liquidity preference theory and collective risk theory. The target population of the study was all 53 licensed insurance companies operating in Kenya between 2015 and 2020. A census approach was used. Explanatory research design and positivism research philosophy were utilized in the study. Secondary data was gathered from audited financial statements submitted to Insurance Regulatory Authority for the period between 2015 and 2020. With the aid of STATA software, panel data was analysed through descriptive statistics, correlation analysis and multiple linear regression model. Study findings were presented in tables and figures. The following diagnostics tests were conducted; normality, multicollinearity, heteroscedasticity, autocorrelation, stationarity and hausman tests. The panel data regression results revealed that credit risk had a negative significant effect on financial performance, liquidity risk had a negative significant effect on financial performance, solvency risk had a negative significant effect on financial performance and underwriting risk had a negative significant effect on financial performance. But reinsurance risk had a positive insignificant effect on financial performance. The study also found that GDP significantly moderates the relationship between insurance risks and financial performance of insurance companies in Kenya. The study recommended that insurance companies; should have good credit risk management frameworks to minimize credit risks, implement proper investment portfolio management to guard against liquidity risks, in cases of negative asset base increase share capital, cover most of their claims themselves but ensure they have adequate reinsurance where high-risk investments are involved and put in place proper policy estimation and valuation techniques. Additionally, Insurance regulatory Authority should ensure strict adherence to the capital adequacy requirements for insurance companies. Finally, the government should implement proper fiscal and monetary policies to ensure a stable economy. The study recommends further study on other insurance risks such as strategic risk, operational risk and investment risk that may affect financial performance. A follow-up study focusing on the period from year 2021 when COVID-19 restrictive measures were relaxed is also recommended.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

As financial intermediaries, insurance companies are instrumental in economic development. Insurance firms differ from other financial intermediaries in their functions (Saunders & Cornett, 2008). Insurance can promote growth by effectively managing risks and mobilizing savings in investments through its risk indemnification and financial intermediary functions (Ward, 2000). Insurance also promotes economic growth by utilizing different channels, like creating certainty to improve investment, helping with access to capital, ensuring liquidity, and mobilizing savings thus contributing to sustainable and responsible development (Feyen, Lester, & Rocha, 2011).

Insurance industry is a key component of the global financial system. The global insurance premium accounted for 7.4% of the world GDP in 2020 underlining the critical role insurance plays in ensuring global sustainable development. In terms of financial performance the total global direct premiums decreased by 1.3% to USD 6,287 billion in 2020 based on Swiss Re Sigma No. 3/2021 records due to COVID-19 pandemic. Further, insurance premiums from Africa declined by 2.9% to USD 60.2 billion in 2020. The pandemic affected financial performance of insurance companies in Kenya, especially in premiums and financial investment. In 2020, the performance of gross premiums was KES 234.78 billion compared to KES 229.50 billion in 2019, translating to a slight growth of 2.3%, which was a decline of 2.9% in real terms. In terms of gross premium revenue, Kenya was rated fourth in Africa after South Africa, Morocco, and Egypt (IRA Annual Report, 2020).

According to the Economic Survey of Kenya (2019), the finance and insurance sector contributed 6.6% to Kenya's GDP. Despite the critical contribution to the GDP of the finance and insurance industry as a whole, the insurance industry's contribution on its own has been declining. The insurance spending ratio, which measures the insurance industry's input to the

country's economy, declined for the period 2015 to 2020, it declined by 18% from 2.79% in 2015 to 2.30% in 2020 (AKI Annual Report, 2020).

The maximization of the financial performance to attain the highest level of owner's net worth and manage risk exposure level is one of the organization's goals (Pandey, 2015). Improved financial performance of an organization may translate to a positive effect on a shareholder's wealth; therefore, financial efforts should be directed towards improving the shareholder's wealth. However, as Schmid and Walter (2009) argue, a firm's financial success is not because of one activity but rather out of synergistic actions that combine to create an enhanced value to the overall performance of a firm.

As attested by Wani and Ahmad (2015), the objectives of the firm's leadership are to maximize current and future performance and operational efficiency as it directly affects the market price per share and, consequently, the wealth of shareholders. Insurance firms take risks on behalf of their customers and their own. Insurance firms struggle with various risks that significantly affect their performance (Omasete, 2014). Insurance companies' risks tend to hinder their ability to expand. The effect of risks on insurance firms' performance is more pronounced in developing countries because their regulatory framework is relatively weak compared to developed countries (Carrin, Waelkens & Crie, 2005). Indeed, Wilson (2012) highlights that the effective management of risk is an internal factor that affects the firm operational outcome and is ultimately expected to impact profitability.

The common form of risks that insurance companies may face in their day-to-day activities which affect their financial performance includes credit, underwriting, solvency, liquidity and reinsurance risks (Baluch, Mutenga & Parsons, 2011). These risks were the independent variables in this study. Other risks which may affect insurance companies include operational, currency, interest rate and price risks. Insurance firms lacking risk control will aggregate claims from clients, bringing about more harm and poor performance (Magezi, 2003). Rejda (2008)

indicated that risk management incorporates identifying risk exposures and choosing effective procedures to manage them.

1.1.1 Insurance Risks

The concept of risk has received different definitions that are attributed to the diverse nature of business units that face the risks (Holton, 2004). Due to the same, scholars have tended to define risks guided by the nature of the industry; insurance businesses fall under the financial services industry. Therefore, insurance risks will arise from the financial operations of the insurance business. Risks in insurance represent the possibility of investors losing investments if they are putting resources in a company with insufficient cash flows to satisfy commitments (Selvaraj & Karan, 2012). Wani and Ahmad (2015) defined insurance risks as an umbrella for various risks connected to transactions of financial nature. Adegoke and Olatunji (2018) defined these risks as the increased uncertainty in the net cash flows of equity owners due to fixed financial obligations.

The credit crisis has affected the insurance industry due to its many risks, which has uncovered an opportunity to improve its risk management (Eling and Schmeiser, 2010). Wang and Faber (2012) described the insurance business as a “huge risk warehouse”, where the risks are beyond the control of the insurance company. They further added that risks can be mitigated by adopting proper business practices or can be transferred to cushion the insurance company from high-risk exposure. Wani and Ahmad (2015) opined that in the provision of insurance services insurance companies face insurance risks related to their financial operations. Such insurance risks include credit risk, liquidity risk, solvency risk, reinsurance risk and underwriting risk which were researched in this study.

1.1.1.1 Credit Risk

Credit risk arise if a debtor does not fulfil legally binding commitments (Anthony & David, 1997). This risk normally arises when debtors don't pay for goods or services supplied to them on credit. In insurance companies, credit risk may arise when credit customers do not pay premiums on a timely basis (Sisay, 2017). Brown and Moles (2014) proposed that in advancing a credit, a firm should compare the gain to be realized if there is no default against the potential loss of extending the credit on the basis that a default might take place and at the same time the amount to be lost if the default takes place.

Further, credit risk is affected by exposure to parties that share the same characteristic, for example, insuring in one segment of the market with similar risk exposure and settlement risk that arises from processing transactions for other parties. As business transactions increase, credit risk also changes because of the increased exposure to country risks as manifested by political, economic, currency and enforcement risks. The country risk comes about when a business firm diversifies to institutions and individuals in countries with different business codes, standards and legal systems (He & Xiong, 2012). The trend of credit risk in the Kenyan insurance industry is shown in figure 1.1 below:

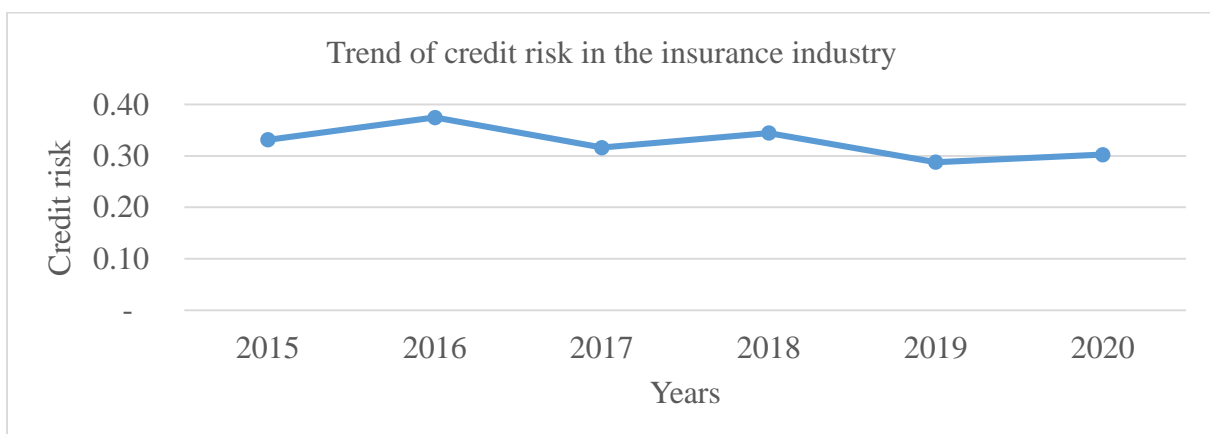


Figure 1.1: Trend of credit risk in the insurance industry

Source: IRA Annual Reports, (2015-2020)

As illustrated in Figure 1.1, the industry's credit risk determined by the ratio of outstanding premiums and amount due from reinsurer to net assets shows a random trend. This study adopted a similar ratio to measure credit risk. The industry shows an increase of 13% in credit risk from the year 2015 to 2016, a decrease of 16% from the year 2016 to 2017, an increase of 9% from the year 2017 to 2018, a decrease of 17% from the year 2018 to 2019 and an increase of 5% from the year 2019 to 2020.

1.1.1.2 Liquidity Risk

Liargovas (2008) opined that liquidity risk measures the level to which liabilities due in the following year are financed by liquid assets or assets easily turned into cash. Hong (2014) emphasized that an expansion in the liquidity risk in the insurance industry is because of changes in the monetary policy due to the volatility of interest rates. Similarly, Imbierowicz and Rauch (2014) assert that insurance firms take more risk when risk-free government securities increase, thus drawing more investors to the security market, which increases liquidity supply in inter-bank lending. The liquidity risk trend in the Kenyan insurance industry is shown in figure 1.2 below:

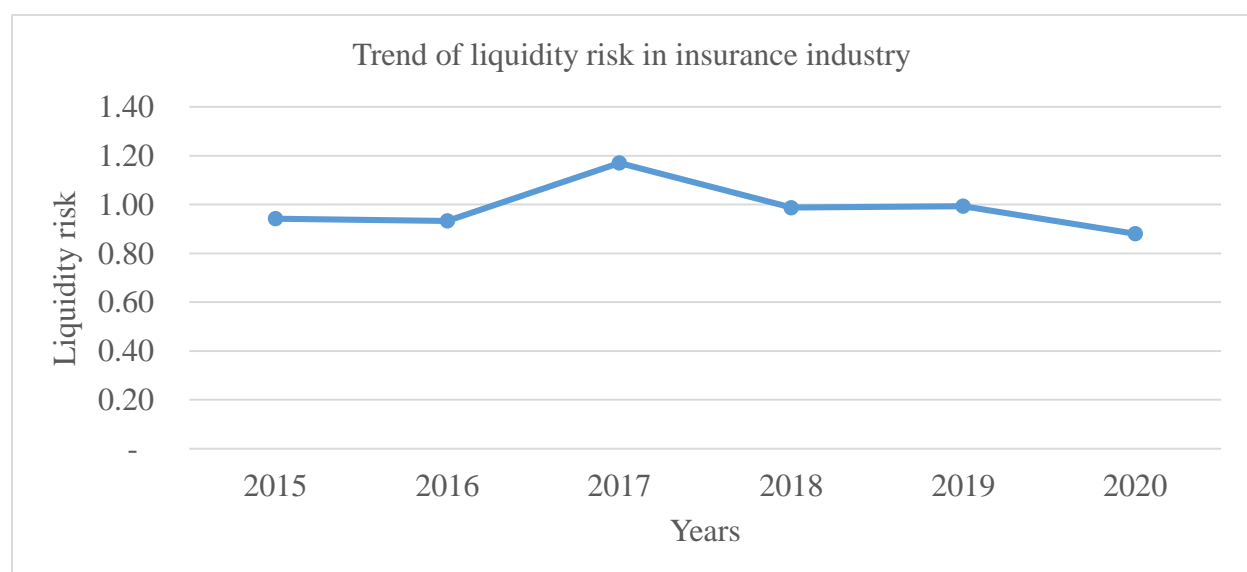


Figure 1.2: Trend of liquidity risk in the insurance industry

Source: IRA Annual Reports, (2015-2020)

Figure 1.2 above illustrates the trend of liquidity risk in the insurance industry as determined by the current ratio which shows a fluctuating trend. The current ratio was used in this study to determine the liquidity risk. The industry shows stability in liquidity risk from the year 2015 to 2016, an increase of 25.4% from the year 2016 to 2017, a decrease of 15.6% from the year 2017 to 2018, a stabilization from the year 2018 to 2019 and a decrease of 11% from the year 2019 to 2020. The trend shows inconsistent increases, decreases and stability over the study period.

1.1.1.3 Solvency Risk

Stulz (2010) stated that solvency is having enough value in assets to cover all the business liabilities. Solvency affects a firm's ability to acquire capital. The relationship between balance sheet items defines the extent of solvency in a business. Most firms have positive equity and when a firm has negative equity, it becomes bankrupt. If a business becomes insolvent, liquidation follows as it cannot make enough cash flows to meet its debt obligations appropriately (Okoth, 2003). The trend of solvency risk in the Kenyan insurance industry is shown in figure 1.3 below:

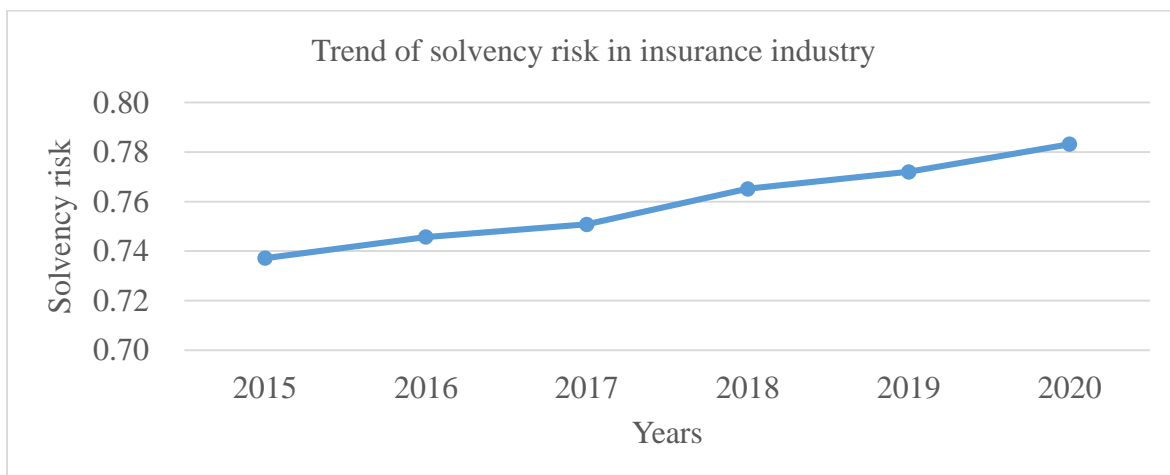


Figure 1.3: Trend of solvency risk in the insurance industry

Source: IRA Annual Reports, (2015-2020)

Figure 1.3 above illustrates the trend of solvency risk in the insurance industry as determined by the ratio of total liabilities to total assets. This ratio was used in this study to measure solvency risk. The industry shows a consistent increase in solvency risk from 2015 to 2020, with an increase of 6.2% over the period.

1.1.1.4 Reinsurance Risk

Reinsurance risk is an insurance risk that arises when a reinsurer agrees to compensate the reinsured for the damages the reinsured suffers as a result of a policy or policies issued (Obonyo, 2016). When creating the reinsurance plans, the firm must determine its risk tolerance in its underwriting and consider which reinsurance plans are appropriate for confining risks over the risk tolerance level. Reinsurance helps secure insurers against losses by enabling them to spread their risks. Cummins et al. (2008) observed that reinsurance purchase raises the insurer's expenses significantly; however, it dramatically minimizes the loss ratio volatility. The trend of reinsurance risk in the Kenyan insurance industry is shown in figure 1.4 below:

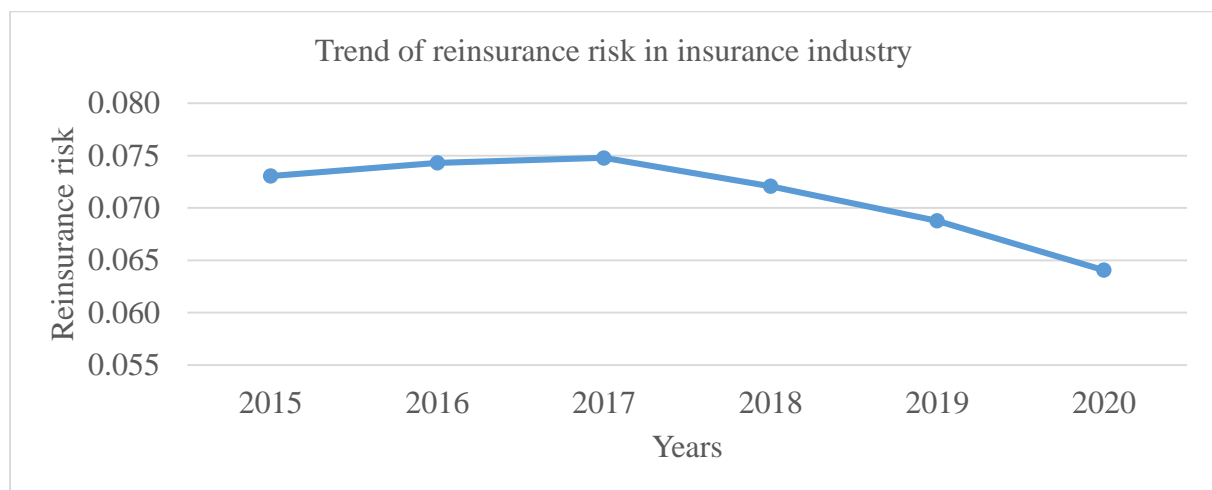


Figure 1.4: Trend of reinsurance risk in the insurance industry

Source: IRA Annual Reports, (2015-2020)

As illustrated in Figure 1.4, the industry's reinsurance risk determined by ratio of premium ceded to total assets increased by 2.4% between the years 2015 to 2017 and decreased by 14% between the years 2017 to 2020. This study adopted same ratio to measure reinsurance risk.

1.1.1.5 Underwriting Risk

Bouriaux and Scott (2004) assert underwriting risk relates to the risk that premiums received may be inadequate to meet the expense of cover because insurance rates are set as per forecasts of estimated claim expenses as well as costs of managing the policy. Underwriting entails the pricing of a policy and the probability of the event insured happening. Before the event insured happens there is pricing risk because the expenses and claims can exceed the contributed premiums. Some insurance companies in Kenya have been delaying payment of claims, leading to heavy fines from the regulator. The trend of underwriting risk in the Kenyan insurance industry is shown in figure 1.5 below:

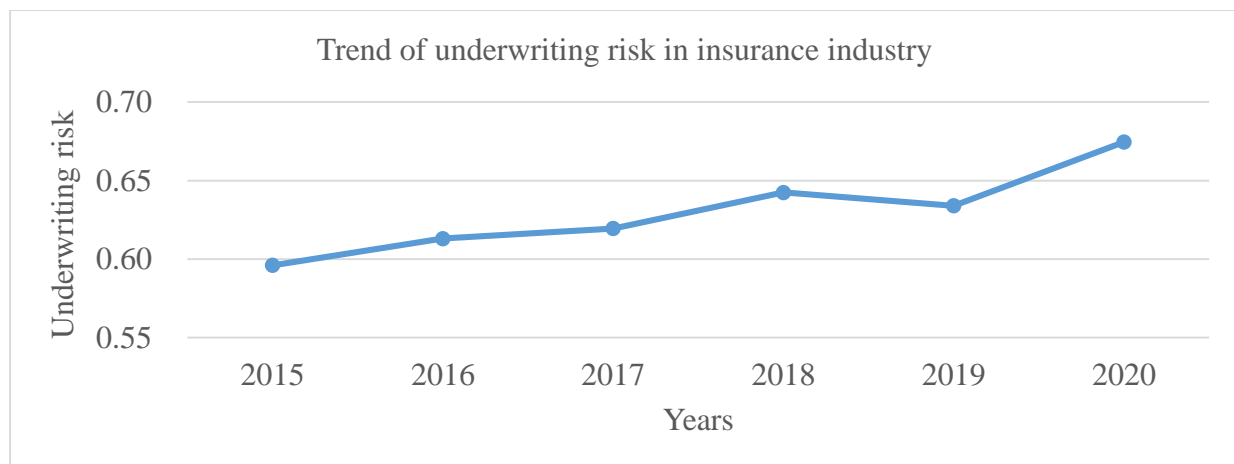


Figure 1.5: Trend of underwriting risk in the insurance industry

Source: IRA Annual Reports, (2015-2020)

Figure 1.5 above illustrates the insurance industry's underwriting risk as determined by the loss ratio, claims incurred to premiums earned consistently increased. The loss ratio was adopted

by this study to measure underwriting risk. There was an increase of 13.2% between the years 2015 to 2020.

1.1.2 Gross Domestic Product

Macroeconomic variables such as the GDP are likely to increase or decrease the financial performance of organizations (Nurlaily et al., 2013). GDP is an economic measure that shows the level of gross economic output concerning the country's population (Ndunda, 2016). The GDP growth rate reflects economic activity and development, which influences the different factors associated with the demand and supply of insurance services (Suheyli, 2015). Ogada, Achoki, and Njuguna (2016) noted that there is significant relationship between economic growth (GDP) and financial performance where growth in real GDP leads to higher profitability. GDP was used as a moderating variable in this study because GDP fluctuations can adversely affect financial performance of insurance companies.

Global GDP reduced by 3.6% in the year 2020 in comparison to an increase of 2.3% in the year 2019, while Kenya's GDP is projected to have reduced by 0.3% as compared to an increase of 5.0% in the year 2019 because of the effects of COVID19 (IRA Annual Report, 2020).

The trend of GDP growth rate is shown in figure 1.6 below:

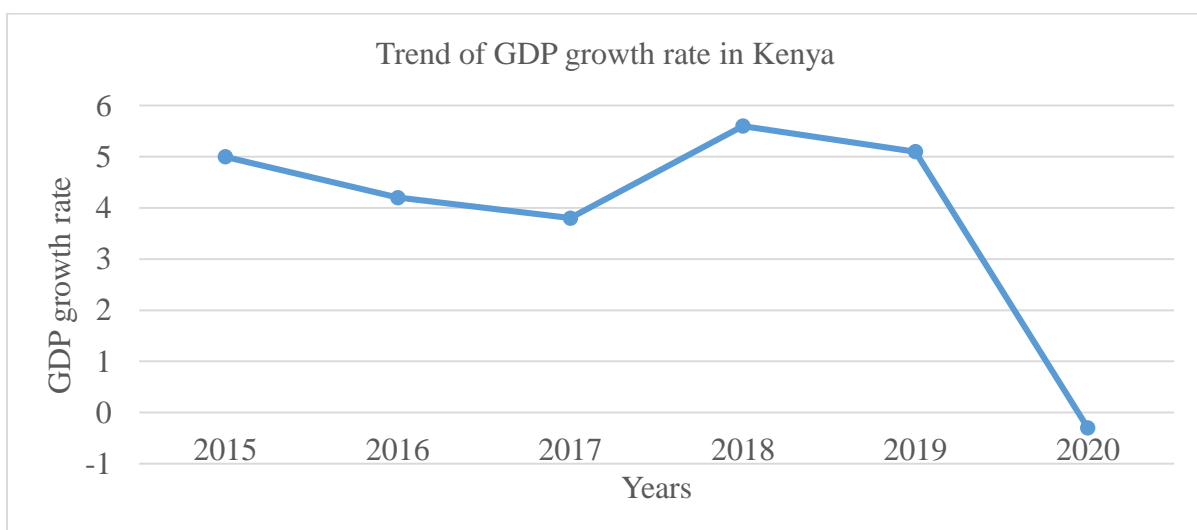


Figure 1.6: Trend of GDP growth rates

Source: CBK annual GDP growth rates

Figure 1.6 above illustrates the trend of GDP growth rates. There was a decrease of 24% between the years 2015 to 2017 this can be partly attributed to instability caused by elections in 2017. Between years 2019 to 2020, the GDP growth rate plummeted from 5.1 to -0.3 (106%) which can be explained by the severe effects of COVID-19. This study adopted the GDP growth rate to measure GDP.

1.1.3 Financial Performance

From a technical standpoint, a company's financial performance is a subjective metric that measures how effectively the company uses its available capital to increase sales (Anginer, Demircuc-Kunt, Ma, 2018). As a result, a firm's financial success tests the organization's financial soundness and well-being in monetary terms (Penman, 2007). The financial success compares the performance of the companies. The ratios such as liquidity, debt, operations, and profitability ratios and so on are used to calculate financial efficiency (Sangmi & Nazir, 2010). The activities of firms which include revenues generated from the operations, other incomes from banking activities or income from the investment of shareholders are often used to assess financial performance (Mulwa, 2015).

Profitability, dividend growth, turnover, asset base, market value and return on investment can all evaluate a company's financial performance. According to Carlucci, Marr and Schiuma (2004), a firm's financial performance may be evaluated depending on the value creation of the stockholders. The most relied metrics to measure performance include ROA and ROE. These measures are mostly utilized because of the abundance of data and their potential to satisfy a broad range of stakeholders' needs (Sayilgan & Yildirim, 2009). ROA was utilized in this study to measure financial performance.

The emergence of COVID-19 is negatively influencing institutions' performances in the World, including insurance firms. In Kenya, it is negatively affecting the sector in various ways, such as reduced interest income from the money markets, reduced premiums, and increased insurance claims (IRA Annual Report, 2020). The trend of financial performance in the Kenyan insurance industry is shown in figure 1.7 below:

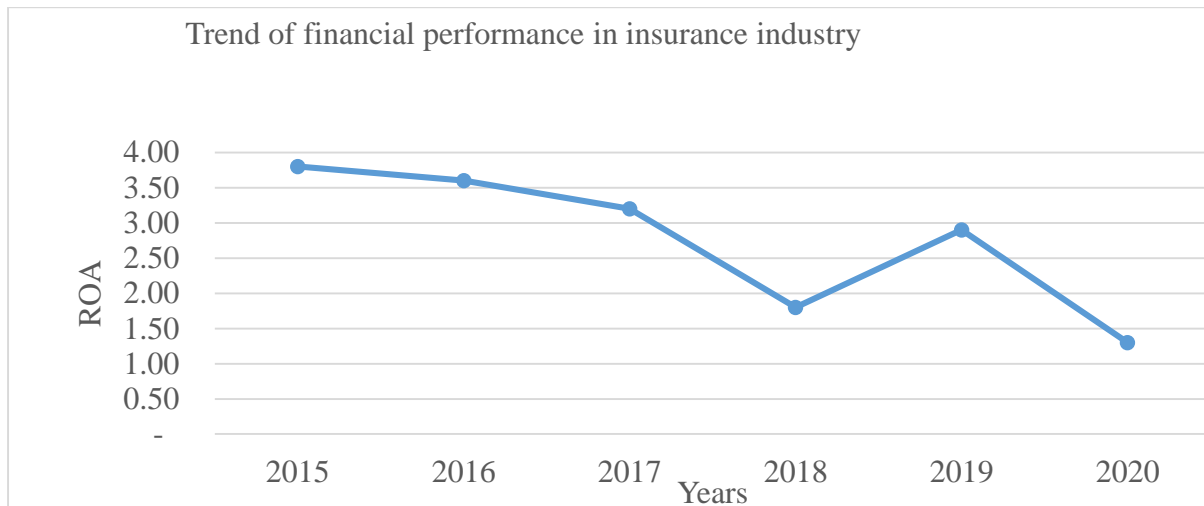


Figure 1.7: Trend of financial performance in the insurance industry

Source: IRA Annual Reports, (2015-2020)

Figure 1.7 indicates a financial performance trend in the insurance industry as measured by ROA with a huge decrease of 52.6% between the years 2015 to 2018 from 3.8 to 1.8. However, there was an increase in the industry profitability between 2018 and 2019, with the ROA increasing by 61.1%. This was largely due to an increase in investment income which increased by 52.3% from 2018 to 2019. There was a major decrease of in ROA between the years 2019 to 2020 of 55.2% from 2.9 to 1.3 on the backdrop of COVID-19.

1.1.4 Insurance Industry in Kenya

A well-developed insurance market serves as a mechanism for effective capital distribution by mobilizing investments and risk transfer (Yang & Muhammad, 2018). The Insurance Act Cap 487 Kenya laws govern the insurance industry. The Insurance Regulatory Authority (IRA) is

in charge of regulating, licensing and expanding the insurance sector. IRA has set out to key result areas to ensure a fair, competitive and stable insurance industry. The key result areas are regulation and supervision, policy and market development, consumer protection and education and strengthening institutional capacities (AKI Annual Report, 2019).

There were 55 insurance companies, 28 health insurers, 211 insurance brokers, 5,579 insurance providers and 129 service providers and cost adjusters, several compensation officers, policy analysts, and life insurance inspectors as of the end of 2019 (IRA, 2019). The general insurance market, which contributed 62.3% of overall premiums in 2019, is primarily funded by the motor insurance and medical insurance divisions, which accounted for 66.8% of the gross premium revenue under the general insurance sector (AKI Annual Report, 2019).

Generally, the insurance industry has witnessed growth in its major income revenue segments, driven by increased adoption of technology, innovation, and alternative distribution channels such as social media. Social media is being employed to increase the reach to target customers due to the growth of the middle class in Kenya and the redirection of core operations to make asset management a new income stream (Ndalu, 2016).

To make the insurance industry more stable changes in regulations have been introduced in the last few years such as risk-based capital requirements. In addition, the industry has enjoyed opportunities due to technology advancements, especially mobile technology. These changes have reduced production and distribution costs, provided access to new customer segments, improved efficiency and claims handling (AKI Annual Report, 2020). Improved technologies have also given brand-new methods to gauge, control, and cost risk, engage with consumers, decrease prices, enhance performance, and expand insurability (Ferenzy, Silverberg, Van Liebergen, & French, 2016).

1.2 Statement of the Problem

For Kenya to attain its economic goals as envisioned in Vision 2030, it will require a stable insurance industry to mitigate risks. The insurance industry in Kenya has continued to post declining financial performance results in the recent past. Despite growth in premiums and asset base, the profitability for the industry has been showing declining trends. The insurance industry ROA declined by 52.6% from the year 2015 to 2018 and by 55.2% from the year 2019 to 2020 while the industry ROE showed an almost similar trend by declining by 57% from the year 2015 to 2018 and by 59.8% from the year 2019 to 2020 (IRA Annual Reports, 2015-2020). Kenya's insurance industry contributed 2.17% to the country's GDP as per insurance penetration, although this is a significant contribution it fell below the world average insurance penetration which stood at 7.4% (IRA Annual Report, 2020).

Muinde (2018); (Sisay, 2017) found that insurance risks affect the financial performance of insurance companies. The declining trends in financial performance in the Kenyan insurance industry show some instability which will need to be investigated if the industry is to ensure sustained economic growth. With the decline in financial performance and some insurance companies in Kenya having collapsed, liquidated or put under statutory management in the past, there is a need to have a comprehensive view of the insurance risks not individually but as a whole. Some of the affected insurance companies are; United Insurance, Blue Shield Insurance, Access Insurance Company, Kenya National Assurance Company, Concord Insurance and Resolution Insurance.

Previous studies on the present topic have shown mixed results, for instance, Kamau & Njeru (2016) and Muinde (2018) found a negative significant effect between liquidity risk and financial performance. Dabo, Andow & James (2018) and Yatama, *et al* (2020) found a negative insignificant effect between liquidity risk and financial performance. None of these studies focused on credit, liquidity, solvency, reinsurance or underwriting risks in one research

study. The studies considered only listed insurance companies and the moderating effect of GDP was not factored in. The current study bridged the above conceptual gaps by considering insurance risks as a whole and including all the insurance companies. Therefore, the study took a holistic approach to assessing the effect of insurance risks on the financial performance of insurance companies in Kenya. The moderating effect of GDP was also incorporated.

Other studies such as Ogilo (2013), Muriithi *et al.* (2016) and Isanzu (2017) studied the effects of credit risk and financial performance from commercial banks' perspective; these researches did not consider credit risk in the insurance industry. Although insurance companies do not advance loans and credits like banks, they experience credit risk that may affect their financial performance. Mwangi & Iraya (2014), Mehari, D., & Aemiro, T. (2013), Aajao (2018), Hamal (2020) and Kamau *et al.* (2021) focused on firm-specific factors such as the growth of premiums, liquidity, loss ratio, leverage, firm size, firm age and financial performance but did not focus on the risks the insurance companies face. Thus, this study will assess the effect of insurance risks on the financial performance of insurance companies in Kenya, with GDP as a moderating variable.

1.3 Objectives of the Study

1.3.1 General Objective

To assess the effect of insurance risks on the financial performance of insurance companies in Kenya.

1.3.2 Specific Objectives

- i. To determine the effect of credit risk on financial performance of insurance companies in Kenya.
- ii. To examine the effect of liquidity risk on financial performance of insurance companies in Kenya.

- iii. To assess the effect of solvency risk on financial performance of insurance companies in Kenya.
- iv. To examine the effect of reinsurance risk on financial performance of insurance companies in Kenya.
- v. To analyse the effect of underwriting risk on financial performance of insurance companies in Kenya.
- vi. To determine the moderating effect of GDP on the relationship between insurance risks and financial performance of insurance companies in Kenya.

1.4 Research Hypotheses

- H₀₁:** Credit risk has no significant effect on financial performance of insurance companies in Kenya.
- H₀₂:** Liquidity risk has no significant effect on financial performance of insurance companies in Kenya.
- H₀₃:** Solvency risk has no significant effect on financial performance of insurance companies in Kenya.
- H₀₄:** Reinsurance risk has no significant effect on financial performance of insurance companies in Kenya.
- H₀₅:** Underwriting risk has no significant effect on financial performance of insurance companies in Kenya.
- H₀₆:** GDP has no significant moderating effect on the relationship between insurance risks and financial performance of insurance companies in Kenya.

1.5 Significance of the Study

Insurance is generally a risky business because it is engaged in insuring risks. The management of insurance firms in Kenya and other players in the insurance industry will be able to use the

information gathered to identify insurance risks that affect their performance and come up with remedial action, allowing them to improve their financial performance. Secondly, the policymakers in the industry such as the National Treasury and Insurance Regulatory Authority (IRA), will find this research resourceful.

The study will provide a platform for the management of insurance companies and policymakers to evaluate the outcome of the various risk mitigation measures recommended and underscore areas for improvement. The study can also be used as a basis for policy formulation in the insurance industry. Moreover, the academic world will find the ongoing research useful as it will come up with insightful discussion and information on insurance and financial performance which will be a basis for future reference and research.

1.6 Scope of the Study

The study was on insurance risks and financial performance of all 53 licenced insurance companies in Kenya between 2015 and 2020. Specifically, the study focused on credit risk, liquidity risk, solvency risk, reinsurance risk and underwriting risk on financial performance which was evaluated with the profitability indicator ROA. The time scope of the research was from 2015 to 2020. This period was important because financial reports in the period 2015 to 2018 and also between 2019 and 2020 showed a decrease in financial performance, although there has been an increase in insurance assets and premiums.

1.7 Limitation of the Study

There was a challenge in collecting data for some variables due to the classification of the statement of financial position items for insurance companies. Liquidity risk calculation was challenging since current assets and current liabilities are not well defined for insurance companies. However, this challenge was overcome by classifying as current assets, those assets that can be converted into cash within one year. And classifying as current liabilities obligations falling due within one year for each insurance company.

1.8 Organization of the Study

The research contains chapters one, two, three, four and five. The introduction is contained in chapter one; the literature review is in chapter two; the research methodology is in chapter three. Research findings and discussions are in chapter four while the research summary, conclusion and recommendations are contained in chapter five. The chapters are divided into sections. The sections are comprehensively examined.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter includes the theories that support the study, empirical studies on different areas of insurance risks and financial performance, a literature review summary, the gaps thereof and how this study addresses them. The research conceptual framework is also included.

2.2 Theoretical Review

A theory is well-supported ideas designed to describe a phenomenon by defining variables in the rules (Davidson, 2008). It is a set of interconnected concepts based on theories. This study is based on agency theory, credit risk theory, liquidity risk theory and collective risk theory.

2.2.1 Agency Theory

Agency theory was advanced by Jensen and Meckling (1976). It presents principal and agent relations in an organization with separate ownership and control. The split of management and ownership leads to differences of the interests among the principal and agents (Hoskisson et al., 1999). This can create conflicts normally referred to as agency problem where management runs an organization with their interests not shareholders'. The opportunities of managers to access even more information than the principals create information asymmetry. The main concern in an agency relationship is finding solutions to agency problems created by the conflict between the principal's objectives and those of the agent.

Managers are responsible for reducing risks to minimize the varying organization returns by concentrating on profitability and the distribution of organization returns (Stulz, 1984). There are criticism of the agency theory. According to Zogning (2017), agency relationships are very complex and ambiguous in that the agent is required to serve the interests of the principal more than other contractual relations, especially on ethical issues. It is assumed that the interests of the principal are always morally acceptable, or that the agent must act contrary to ethics to

fulfil their contractual obligation in the agency relationship. These situations do not comply with any workable business ethics and practices.

However, agency theory has a lot of advantages. The agent is supposed to develop good principles which can help the business to grow (Zogning, 2017). Agency theory was important in this study as it linked financial performance which was the dependent variable and the insurance risks (independent variables) which management can take to ensure good profitability. Management should ensure effective and efficient utilization of the resources entrusted to them by shareholders for better financial performance. An agency problem arises in situations where an insurance company is poorly managed hence making losses and eventually collapses. This makes the shareholders unable to earn dividends or recoup their investments.

2.2.2 Credit Risk Theory

Merton (1974) advanced credit risk theory, and suggests the possibility of defaulting of a firm and individual from its financial commitments is due from to its asset development designed by a process with continuous parameters. A default can occur throughout the life of an outstanding loan that has been advanced to a borrower or in the case of an insurance company, the inability to pay the premium payable by the insured. The credit risk theory is the principal accessible portfolio model for assessing credit risk (Cantor & Frank, 1996). The popularity of the Credit risk model is due to its application in many firms in their business.

Organizations ought to foster a model to check credit risk across different instruments like trades, advances, traditional securities, fixed pay instruments; business contracts, including exchanging credits and receivables and different subsidiaries (Fatemi & Fooladi, 2006). It's also worth noting that a firm's credit risk status means that the risk emerges not just from future default cases, but also from credit rating improvements and downgrades, since the worth of a given credit changes based on credit quality.

Credit risk theory supports credit risk and financial performance of insurance companies. If insurance companies' customers default on their premiums, it may lead to the firm's cash flow problems which may affect their financial performance. It is therefore important that insurance firms ensure they have good credit risk evaluation and management practices in place.

2.2.3 Liquidity Preference Theory

Keynes (1989) proposed the liquidity preference theory. According to the theory, the requirements of an investor of high-interest rates that have a long maturity period are due to the high risks connected with them. All other factors being equal, investors would rather keep cash or other liquid assets that entail less risk. When an investment is highly liquid, it is quicker to exchange it at its worth (Maug, 1998). Investors in insurance companies who want to save funds favour short-period bonds over long-period debt because short-period bonds are more liquid, meaning they can be convertible to cash at less risk of losing the principal. On the other hand, when Insurance Companies borrow, they favour long-period debt since short-period debt exposes them to repaying the debt under difficult conditions.

Jarrow, Lando and Yu (2005), argue that combining these two sets of expectations results in a favourable maturity risk premium that rises with maturity. In a similar vein, liquidity preference theory, as a balance sheet determination theory, helps to not only depict insurance decision issues more precisely, but also to comprehend the essence of the changes that are occurring in this field. In contrast to the conventional approach in which one asset provides only monetary returns and the other only liquidity, the implementation of the liquidity preference theory in the insurance industry suggests that each asset provides a combination of projected monetary returns and a liquidity premium (Jiang, & Li, 2008). The mix of obligations entails a particular mix of debt servicing costs and risks of not being able to turn them over when necessary.

Each agent, whether a person or an agency such as an insurance firm, has a liquidity preference that decides which combination of assets and liabilities is appropriate for them. Instead of

deciding between deposits and loans or passively providing whatever sum of credit is requested, an insurance firm's decision dilemma is how to divide the capital they create or accumulate among various products that provide particular variations of predicted monetary returns and liquidity priority. Insurance companies with liquidity preferences will not passively satisfy credit demand but will compare estimated returns and liquidity of all purchasable assets first. Liquidity preference theory was useful in this study since it supports the connection between liquidity risk and financial performance, it shows how insurance companies must find a balance between assets and liabilities to ensure that they can satisfy their debt commitments as and when due and avoid liquidity risks.

2.2.4 Collective Risk Theory

Collective risk theory was proposed by Lundberg in 1934 and further developed by Cram et al. The theory states that the insurance business undergoes two types of risks, commercial risks and insurance risks (Gathu, 2018). Commercial risks rely on basic economic variations and poor investments. In contrast, insurance risks are distinct and related to risk changes as measured by the difference between claim amounts and expected claim amounts. According to this theory, insurance risks are classified into two types; exterior risks such as excess deaths resulting from wars and also epidemics and the risk of random variations.

The theory of risk has been developed which uses mathematical versions to determine how an insurance company may be shielded from the damaging results of these fluctuations. This theory investigates the whole risk enterprise, the main interest is not on individual claim policies gains or losses but on the total gains from all policies in a portfolio (Schemetter, 2005). This theory is essential to this study as it forms the basis of determining premiums to charge, expected claims, their severity and frequency, reserves to cover claims and the reserves to invest. Collective risk theory supports the connection between underwriting risks and financial

performance, reinsurance risks and financial performance as they are insurance-specific risks that affect financial performance of insurance companies.

2.3 Empirical Review

Several local and foreign scholars have looked at risks and financial performance; here is a review of some of them.

2.3.1 Credit Risk and Financial Performance

Kiptoo, Kariuki and Ocharo (2021) studied risk management and financial performance of insurance firms in Kenya. Credit risk, market risk, operation risk and liquidity risk were the independent variables. Control variables were the age and size of the firm. The dependent variable was financial performance. Using regression analysis the research found that credit risk negatively and significantly affects financial performance. The current study introduced other categories of insurance risks such as solvency risk and reinsurance risk which had not been covered. The GDP growth rate was included as a moderating variable. Previous literature has found these variables affect financial performance of insurance companies.

Yatama, Ali and Shamali (2020) conducted a comparative research study by examining credit risk variables and profitability among the insurance companies at the Kuwait stock exchange. The independent variables were credit, operational and liquidity risks, while ROA and ROE measured profitability. Panel data from the companies was used. The outcome of the investigation indicated that credit risk variables and profitability are positively related. However, the context of this study is different from the Kenyan context and the findings may not hold in the local context due to differences in the economic operating environment.

Cross-sectional research by Caporale, Cerrato and Zhang (2016) examined the impact of credit risk in the UK's general insurance businesses. The research obtained secondary data on firm-specific characteristics from general insurance companies. The criteria considered were

underwriting profit, leverage, reinsurance, written growth premium, excess capital claims incurred, investment profit, and derivatives use. According to the findings, the credit risk rating of insurance companies varies based on the nature of the business line it is involved in; also, macroeconomic and firm-specific factors determined credit risk. This study included other insurance risks and credit risks for general and life insurance companies and will be carried out in Kenya and not in the UK.

Ogilo (2013) used secondary data from the Central Bank of Kenya to determine effect credit risk and performance of commercial banks. Using causal research design and multiple regression analysis, the study found there was a significant relationship between credit risk and performance. The study also found that asset quality, efficiency of management, liquidity and capital adequacy had a weak relationship with performance but earnings were found to have a strong relationship with performance. The above study was on the banking sector, while the current study concentrated on the insurance sector.

2.3.2 Liquidity Risk and Financial Performance

Kamau, Olweny and Muturi (2021) investigated the influence of firm attributes on the financial performance of insurance firms in Kenya. Secondary data was collected from IRA, Association of Kenya Insurers (AKI) and individual firms' websites. Liquidity and leverage were the independent variables while financial performance was the dependent variable. Panel data was analysed through a regression model. The study results showed that leverage and liquidity had a significant negative effect on financial performance of insurance firms in Kenya. The current study introduced other components of insurance risks such as credit risk, reinsurance risk and underwriting risk which had not been covered to enhance the tests of financial performance.

A study was conducted by Saleh, Afifa and Murray (2020) to examine the effect of liquidity risk, credit risk and capital on profitability of the banks based in Jordan. Using econometric panel data analysed through generalized methods of moments, the study revealed liquidity risk,

credit risk and capital affects profitability. The study concluded that understanding and enforcement of Basel requirements can improve banks profitability and also help in risk management. However, the study was for commercial banks, hence the findings can't be generalized to insurance firms.

Kamau and Njeru (2016), investigated the impact of liquidity risk on performance of listed insurance companies in Kenya. Descriptive study design was utilized. A regression model was used to establish the relationship between the liquidity risk and performance. The study findings were liquidity risk and ROE were negatively related. The study investigated only liquidity risk and it was only for listed insurance companies which are only six in number. This research assessed five different insurance risks and included all licensed insurance companies in Kenya therefore, covering a wider scope.

Mehari and Aemiro (2013) analysed firm characteristics that affect performance of insurance companies in Ethiopia. Using secondary data, loss ratio was found to be significantly and negatively related with return on total assets. Growth in writing premium, the insurer's age and the insurer's liquidity have a statistically insignificant relationship with ROA. Credit, solvency, reinsurance and underwriting risks were not included in this research as risks that might affect insurance companies' financial performance. The current research studied these risks as independent variables and was carried out in Kenya, not Ethiopia.

2.3.3 Solvency Risk and Financial Performance

Kamanda and Sibindi (2021) assessed the solvency, underwriting risk and profitability of the Kenyan insurance sector. The proxy for solvency risk was the solvency ratio while underwriting risk was proxied by the combined ratio. ROA and ROE were the proxies for performance. Using secondary data from IRA annual reports, the study employed descriptive statistics and correlational analysis. The study found both solvency and underwriting risk were positively correlated to financial performance. Secondly, it was also found that solvency and

underwriting risk have been on an upward trend. This study did not include panel regression analysis which is more robust. Other insurance risk components such as credit, liquidity and reinsurance risk were not covered. The current study filled the above gaps.

Dabo et al. (2018) examined the effect of solvency risk on performance. The study was conducted within insurance firms in Nigeria. The target population was 25 firms and all of them were included. The study used secondary data from annual reports of listed insurance firms in Nigeria. Simple regression analysis was employed to determine the impact of solvency risk on performance. It was found solvency risk had a significant positive effect on profitability. The context of the study was different from the current research, which will focus on the insurance industry in Kenya. The current study employed panel multiple regression analysis which enabled identification of interactions between different variables and the moderation effect.

Another study was conducted by Omasete (2014) on the risk management and financial performance of Kenyan insurance companies. The study utilized both primary and secondary data. Questionnaires were used to collect primary data while secondary data was obtained from IRA. Exploratory research design was used. The outcome of the investigation showed that solvency risk management and performance had a positive relationship. However, the current research investigated various insurance risks that may affect performance with the moderating effect of GDP included.

Further, Ismail (2013) researched factors affecting financial performance among insurance companies in Malaysia. Profit ratios, equity returns, solvency margins, and underwriting operations' stability were the explanatory variables' proxies. Using causal research design, the study found solvency ratios had a significant positive effect on performance. These findings confirm Chen and Wong's (2004) earlier findings that big-size takaful and insurance firms are well-positioned to establish a solid supporting framework. These frameworks include

strengthening information management systems, upgrading risk management, and improving technological and managerial skills. The current study was conducted in Kenya and not Malaysia, whose insurance industry and economic environment are different.

2.3.4 Reinsurance Risk and Financial Performance

Andoh and Yamoah (2021) did a study on reinsurance and financial performance of non-life insurance companies in Ghana. Secondary data was obtained from National Insurance Commission. Panel regression was employed for data analysis. The study results showed that reinsurance alone does not affect the profitability of non-life insurance companies, but the reinsurance and solvency ratio combined significantly impact their profitability. The current study included other risk components namely, credit risk, liquidity risk and underwriting risk to determine whether alongside reinsurance risk they will affect profitability. This study was conducted in Kenya and included life insurance companies that had not been covered in the above study.

A study done by Ibrahim et al. (2020) to look at reinsurance risk among other specific insurance risks affecting the profitability of insurance companies in Nigeria. Using secondary data, the study results of the fixed effect regression model showed that reinsurance risk had a minimal negative effect on profit. Nonetheless, the research did not focus on other insurance risks such as credit, liquidity and solvency risk. It only used a sample size of 19 firms. The current study filled the above gaps by increasing the scope of the research by including other risk components and covering all 53 licensed insurance companies. It will also be done in Kenya and not Nigeria.

Caporale et al. (2017) investigated the causes of insolvency risk for general insurance firms in the UK. Multiple regression analysis was employed. The research revealed that insolvency risk is different across firms depending on their business concentrations and that different reinsurance levels of general insurance firms affect the insolvency risk. This study was carried out in the UK and only for general insurance firms whose economic environment and

development of the insurance industry are better than in Kenya. This study was done in Kenya and included both general and long-term insurance companies.

2.3.5 Underwriting Risk and Financial Performance

Makau and Okeyo (2021) employed descriptive research design to determine the relationship between risk underwriting, regulatory framework and performance of Sanlam general insurance company. Data collection was done through use of questionnaires. The study found that risk underwriting positively and significantly affected performance of the company. The study focussed on only one insurance company and looked at only one component of insurance risk. It also used primary data. The current study filled these gaps by studying all the licensed insurance companies, analysing other risk components and using secondary data to provide more structured basis of comparison.

Maseki, Kung'u, and Nderitu (2019) employed a descriptive study approach in Kenya to examine characteristics that influence listed insurance companies performance. Stratified sampling was employed to choose respondents. The research concluded that selected factors, risk judgement, macroeconomic factors, and investment portfolio did not significantly influence financial performance. The study did not delve into the insurance risk components; the current study filled this gap by looking at various insurance risk components, including underwriting risk.

Burca and Batrinca (2014), investigated how leverage, age, size, underwriting risk, gross written premiums growth, diversification, equity, investment ratio, total market share, solvency margin and retained risk ratio in the Romanian insurance market affected financial performance. The performance was assessed using ROA and multiple regression analysis was done. From panel data findings; underwriting risk negatively affected financial performance. Since taking excess underwriting risk can have a negative effect on a firm's financial stability

by increasing expenses. The current study was conducted in Kenya and not Romania, whose insurance industry, economic and political environment are different.

Erick et al. (2014), sought to determine how executive compensation and Kenyan insurance companies' financial performance relate. The study employed capital adequacy, underwriting ratios and solvency ratios as the independent variables. The research employed a causal research design and the findings reveal, there is a negative non-significant relationship as Aduda (2011) found. The context of this study is not similar to the current study as it did not investigate the insurance risks of the insurance companies.

2.3.6 Insurance Risks, Gross Domestic Product and Financial Performance

Walde and Makori (2022) undertook a study to determine the effect of macroeconomic variables on the financial performance of deposit taking microfinance institutions in Kenya. GDP, inflation rate, interest rate and exchange rate were the independent variables while financial performance was the dependent variable. The annual growth rate was the proxy for GDP. Using secondary data from CBK and KNBS the research utilized causal research design and multiple regression analysis. GDP was found to have a positive significant effect on performance. The study used GDP as an independent variable and it was for deposit taking microfinance institutions. The current study utilized GDP as a moderating variable and focused on insurance companies.

Meher and Zewudu (2020) employed a quantitative approach and used panel data and explanatory research design to determine the effect of macroeconomic factors and the financial performance of Ethiopian insurance firms. It was noted that GDP per capita and size showed a significant positive relationship with ROA. While leverage, liquidity and underwriting risk showed a significant negative relationship with ROA. However, GDP in the investigation was

used as an explanatory variable, contrary to the current study that used it as a moderating variable.

In addition, Datu (2016) looked at the effect of GDP on the profitability of non-life insurance firms in the Philippines. The study used panel data. The outcome of the investigation indicated that GDP had an insignificant effect but insurance-specific factors have a significant effect on profitability. Nonetheless, the research was done in the Philippines, whose insurance industry is not similar to Kenyan. The current research was done in Kenya and GDP was used as a moderating variable.

Another study was undertaken by Ogada, Achoki, and Njuguna (2016) to look at whether economic growth (growth rate of GDP) has a moderating effect on the financial performance of merged institutions in Kenya. Descriptive research, inferential statistics and panel data analysis were utilized. The outcome of the investigation indicated that the growth rate of GDP had a significant moderating effect on performance. However, in this study GDP growth rate was a moderating variable in insurance companies and not merged institutions.

2.4 Summary of Literature Review and Research Gaps

A summary of literature reviewed and research gaps are presented in Table 2.1

Table 2.1: Summary of Knowledge Gaps

| Author(s) | Context and Focus | Key Findings | Research Gap | Focus of the current Study |
|-----------------------------------|--|--|--|---|
| Kiptoo, Kariuki and Ocharo (2021) | “Risk management and financial performance of insurance firms” | credit risk negatively and significantly affects performance | Some insurance risks such as solvency risk and reinsurance risk were not covered | This study covered both solvency risk and reinsurance risk GDP was used as a moderating variable |

| | | | | |
|------------------------------------|--|--|---|---|
| | | | Moderating effect of GDP was not taken to consideration | |
| Caporale, Cerrato and Zhang (2016) | “Impact of credit risk in the UK’s general insurance businesses” | The nature of the business line, macro and firm-specific factors influence credit risk level | The study looked at only credit risk | The predictor variables utilized included credit risk and other risks including’; liquidity, solvency, re-insurance and underwriting risks |
| Kamau, Olweny and Muturi (2021) | “influence of firm attributes on performance” | liquidity has significant negative effect on performance | The study included only liquidity risk as an insurance risk | This study covered credit risk, reinsurance risk and underwriting risk |
| Kamau and Njeru (2016) | “Effect of Liquidity risk on performance” | A negative effect exists between the two variables. | The scope of the study was limited since it concentrated on listed insurance firms only | All insurance companies formed the study population This study considered insurance risks as a whole and will include liquidity risk and other risk components |
| Mehari and Aemiro (2013) | “Firm characteristics affecting performance” | The insurers’ size, tangibility and leverage positively and significantly affect performance | The research was based in Ethiopian insurance firms The research focused only on firm-specific factors | The research was based on Kenyan insurance firms and will study different insurance risks variables |

| | | | | |
|-------------------------------------|--|---|---|---|
| | | | and not insurance risks | |
| Kamanda and Sibindi (2021) | “Assessing the solvency, underwriting risk and profitability” | solvency and underwriting risk are positively correlated to performance | Panel regression analysis was not done | The current study included panel regression analysis of data |
| Dabo et al. (2018) | “Effect of solvency risk on performance” | There was significant positive influence of solvency risk on profitability | The study was limited to listed insurance firms Only solvency risk was investigated | All insurance companies formed the study population Other insurance risk components alongside solvency risk were studied |
| Andoh and Yamoah (2021) | “Reinsurance and financial performance” | Reinsurance alone does not affect profitability but when combined with the solvency ratio it does | Credit risk, liquidity risk and underwriting risk were not covered by the study | Credit risk, liquidity risk and underwriting risk were covered |
| Caporale, Cerrato, and Zhang (2017) | “Factors impacting the insolvency risk” | Insolvency risk was affected by the nature of insurance firm business lines and reinsurance levels of General insurance | Only insolvency risk was investigated | More financial risk components are to be investigated; including solvency risk |
| Makau and Okeyo (2021) | “Determining the relationship between risk underwriting, regulatory framework and performance” | Risk underwriting positively and significantly affected performance | The study focussed on one insurance company and looked at only one component of insurance risk. | All the licensed insurance companies were included and other risk components alongside underwriting were covered. |

| | | | | |
|-----------------------------------|---|---|---|---|
| Burca and Batrinca, (2014) | “Factors affecting financial performance” | underwriting risk negatively influenced financial performance | The study covered underwriting risk as a determinant The context of the insurance firms was in Romania | The study will cover underwriting risk as an insurance risk among other risks The study will be based in Kenya |
| Walde and Makori (2022) | “Determining the effect of macroeconomic variables the performance” | GDP had significant effect on performance | GDP was an independent variable The study was for deposit-taking microfinance institutions. | The current study utilized GDP as a moderating variable and focused on insurance companies |
| Ogada, Achoki, and Njuguna (2016) | “Determining whether economic growth (growth rate of GDP) has a moderating effect on the financial performance” | Growth rate of GDP has a significant moderating effect on performance | The study was for merged institutions. | This study focused on insurance companies |

Source: Researcher (2022)

2.5 Conceptual Framework

A conceptual framework shows the connection and structure of studied variables in greater depth (Rezigalla, 2020). The interrelationships among the variables are shown in Fig. 2.1, which also serves as a guiding platform to assist the researcher in achieving the research objectives.

Independent Variables

Moderating Variable

Dependent Variable

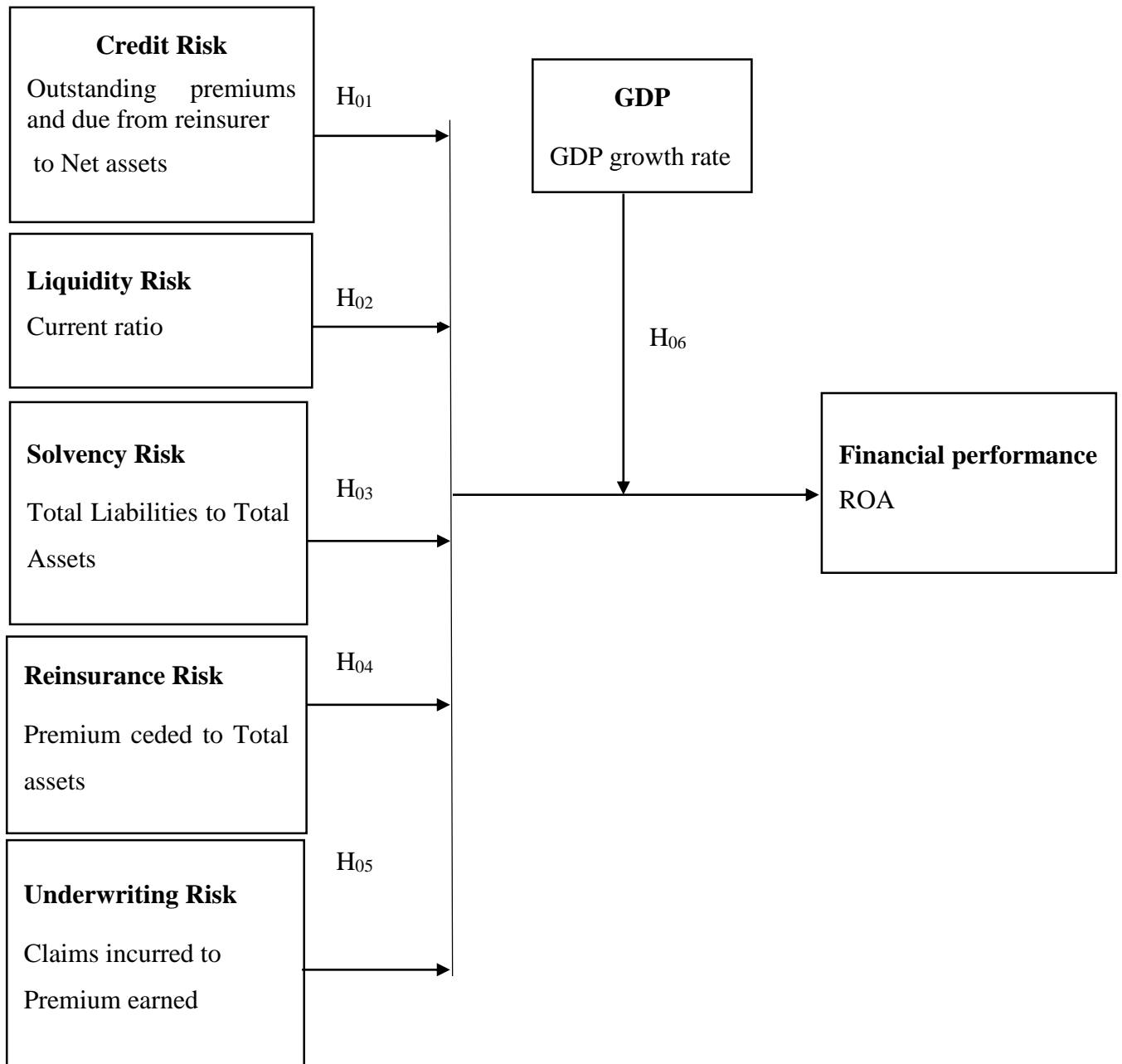


Figure 2.1: Conceptual Framework

Source: Researcher (2022)

The conceptual framework (Fig. 2.1) depicts the relationship between the various variables. Independent variables; credit risk was proxied by outstanding premiums and due from reinsurer to net assets (Sisay, 2017), liquidity risk was proxied by the current ratio (Kamau, Olweny &

Muturi, 2021), solvency risk was proxied by total liabilities to total assets (Dabo, 2018), reinsurance risk was proxied by premium ceded to total assets (Muinde, 2018), underwriting risk was proxied by claims incurred to the premium earned (Burca & Batrinca, 2014). The moderating variable GDP was proxied by the GDP growth rate (Ogada, 2016). The dependent variable (financial performance) was proxied by ROA (Mwangi & Iraya, 2014).

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter presents methods and procedures adopted in the study. The chapter details the research philosophy, research design, empirical model, operationalization and measurement of variables, target population, sampling design, data collection procedures, instruments, analysis and presentation. Diagnostic tests conducted and ethical considerations.

3.2 Research Philosophy

Research philosophy is the way a researcher examines a research problem and attempts an explanation from the knowledge developed (Enc, 1999). There are a number of research philosophies in literature namely; positivism, realism, interpretive and pragmatism (Saunders *et al.*, 2009). The study's research philosophy was positivism. According to Crowther and Lancaster (2008), positivism philosophy uses quantitative data to test whether the hypotheses should be supported or rejected. Positivism presupposes that the study's surroundings and occurrences are impartial, extrinsic and unconnected to the researcher (Saunders *et al.*, 2009), in general, the philosophy uses a deductive technique. The study used positivism philosophy because the data studied was objective, external and not connected to the researcher.

3.3 Research Design

Research design is a blueprint used by a researcher to develop solutions to study challenges (Mugenda & Mugenda, 2013). The explanatory research design was used in this project. Explanatory studies, in contrast to descriptive studies, not only witness and describe the occurrence but also attempts to explain why it occurs (Cooper & Schindler, 2003). The explanatory study seeks to explain a topic that has not been clearly defined before. The researcher was able to identify, explain and report certain links between insurance risks, financial performance and moderating effect of GDP.

3.4 Empirical Model

The panel regression model used was linear panel regression as proposed by Greene (2008). The empirical model was based on two tests: the direct effect test and the moderation effect test, both these tests found the relationship between variables and the moderating effect. The following model was employed in the study.

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \varepsilon_{it} \dots\dots\dots 3.1$$

Where:

Y_{it} = Dependent variable (Financial Performance) of insurance company i at time t

- X_{1it} = Credit risk
- X_{2it} = Liquidity risk
- X_{3it} = Solvency risk
- X_{4it} = Reinsurance risk
- X_{5it} = Underwriting risk
- ε = Error term

β_0 = Constant term

$\beta_1 \dots \beta_5$ = Coefficients of the independent variables

i is the insurance company under observation with $i = 1 \dots 53$

t is the time, with $t = 2015 \dots 2020$

3.4.1 Moderating Effect Model

The GDP was used as a moderating variable. In accordance with Whisman and McClelland (2005), the moderation effect model was built in two steps.

Step One

In this step, GDP was an explanatory variable together with independent variables.

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 GDP_{it} + \varepsilon_{it} \dots\dots\dots 3.2$$

Step Two

In this step, GDP was introduced as a moderator and an insurance risk composite index that averaged credit risk, liquidity risk, solvency risk, reinsurance risk and underwriting risk was computed to have a parameter that represented insurance risk. It was used to determine the interaction effect of the insurance risk components and financial performance.

$$Y_{it} = \beta_0 + \beta_1 IRC_{it} + \beta_2 GDP_{it} + \beta_3 (IRC_{it} * GDP_{it}) + \varepsilon_{it} \dots\dots\dots 3.3$$

Where:

GDP_{it} = GDP growth rate (moderating variable)

IRC_{it} = Insurance Risk Composite of insurance company i at time t

$IRC_{it} * GDP_{it}$ = Interaction between Insurance Risk Composite and GDP

Table 3.1: Decision-Making Criteria for Moderating Variable

| Analysis | Outcome | Conclusion |
|---|--|--|
| Step One: Equation 3.2 GDP as an independent variable | Significant coefficient of GDP | GDP is an explanatory variable |
| | Insignificant coefficient of GDP | GDP is a moderating variable |
| Step Two: Equation 3.3 GDP as a moderating variable | Significant coefficient of interaction terms $IRC_{it} * GDP_{it}$ | GDP moderates the relationship between insurance risks and financial performance |
| | Insignificant coefficient of interaction terms $IRC_{it} * GDP_{it}$ | GDP does not moderate the relationship between insurance risks and financial performance |

Source: Researcher (2022)

3.4.2. Operationalization and Measurement of Variables

Table 3.2 below contains the definition of the variables applied and their respective measurement.

Table 3.2: Operationalization and Measurement of Variables

| Variable | Type | Operationalization | Measurement of variable (s) |
|-----------------------|----------------------|---|--|
| Financial Performance | Dependent Variable | A parameter used to determine an organization's effectiveness in using its assets to make revenue | The ratio of net income to total assets |
| Credit Risk | Independent Variable | The risk of insurance companies not receiving premiums due and reinsurance companies not paying | The ratio of outstanding premium and amount due from reinsurer to net assets |
| Liquidity risk | Independent Variable | The risk of being unable to cover current liabilities as they become due | The ratio of current assets to current liabilities |
| Solvency Risk | Independent Variable | It is the risk of a firm not having enough assets to settle all the liabilities | The ratio of total liabilities to total assets |
| Reinsurance risk | Independent variable | The failure of an insurance company to get the insurance amount from a reinsurance company timely and at right cost | The ratio of premium ceded to total assets |
| Underwriting risk | Independent variable | The risk to an underwriter due to premiums collected being insufficient to cover the cost of coverage | The ratio of claims incurred to premiums earned |
| GDP | Moderating Variable | The monetary worth of goods and services made in a country within a year | Percentage of GDP growth rate |

Source: Researcher (2022)

3.5 Target Population

These are individuals, firms, or objects included in a study for inference-making (Mugenda & Mugenda, 2013). The target population incorporated 53 insurance firms operating in Kenya between 2015 and 2020 and licensed by the Insurance Regulatory Authority.

3.6 Sampling Design and Size of the Sample

A sample is used to get generalized information about the whole universe (Kombo & Tromp 2009). A census approach was employed in to provide accurate detailed information about the population, data was collected from 53 licensed insurance companies in Kenya in 2015 (Appendix II).

3.7 Data Collection Instrument and Procedure

3.7.1 Data Collection

Secondary panel data was utilized to provide more reliable observations due to the time series and cross-sectional attributes. Information was gathered from a variety of sources, including insurance companies audited financial statements and reports from the Insurance Regulatory Authority. The data was gathered for each company during a six years from 2015 to 2020. This period was used because financial reports in the period 2015 to 2018 and also between 2019 and 2020 showed a decrease in financial performance.

3.7.2 Data Collection Instrument

Secondary data which was quantitative was gathered from insurance companies' audited financial statements. The information was gathered according to the schedule for collecting data (Appendix I).

3.7.3 Data Collection Procedure

A study permit (Appendix IV) from National Commission for Science, Technology and Innovation (NACOSTI) was obtained before embarking on the data collection process. This was done after approval by Kenyatta University graduate school (Appendix III). Data from 53

insurance companies in Kenya over six years was collected. The data was obtained from the audited annual financial reports submitted to IRA for each insurance company each year between 2015 and 2020. A data collection schedule (Appendix I) was used.

3.8 Data Analysis and Presentation

Data analysis is the translation of data into useable disposition for the purposes of interpretation, making determinations and recommendations. Before the analysis is done, the variables were first converted into ratio formats. Data extracted from each insurance company's financial reports were cross-examined for clarity to avoid ambiguities. After data extraction, the ratios for every company over time were calculated and coded in Excel and panels were formed before exportation to STATA software for analysis. STATA was used because the software has the capability to analyse panel data. The study used both descriptive and inferential statistics. Descriptive analysis includes mean, standard deviation, maximum and minimum values. Inferential statistics were analysed using correlation and regression analysis. Correlation analysis was done to test for the strength and direction of relationship between variables. Regression analysis tested the statistical significance of the relationship between the variables. Tables and figures were used for data presentation.

3.9 Diagnostic Test

The diagnostic tests were run to ensure data collected meets the assumptions of multiple regression model used. A variety of diagnostic tests were performed, as presented below;

3.9.1 Normality Test

The study used the Jarque-Bera test to examine normality. The significance of the normality test was to ensure the sample data was obtained from a population that contains a normal distribution. If the p-value is greater than 0.05, the data is normal. If it is below 0.05, the data deviates from the normal distribution (Jopp, 2018). The null hypothesis was that the data was normal.

3.9.2 Multicollinearity Test

If the independent variables in research are correlated, there is multicollinearity (Wooldridge, 2013). High degrees of multicollinearity raise the p-values in regression and make the results particularly sensitive to minor changes in the model, which leads to incorrect results. The multicollinearity test was done using VIF and less values below ten implied no multicollinearity (Oscar, 2007). If there was a high level of multicollinearity, the affected variables would have been dropped. The null hypothesis was that the data has no multicollinearity.

3.9.3 Heteroscedasticity Test

This test describes a state where the residual variances are constant and indifferent (Verbeek, 2012). When errors are heteroscedastic, standard estimate approaches are ineffective. The computed coefficients are unbiased and inefficient as a result of heteroscedasticity. Heteroscedasticity was assessed using the Breusch Pagan Godfrey test. A p-value higher than 5% shows that the model is homoscedastic and does not suffer from heteroscedasticity. The generalized least squares (GLS) method would have been used in the case of heteroscedasticity. The null hypothesis was that the error variance is homoscedastic.

3.9.4 Autocorrelation Test

The degree of resemblance between a particular time series and its prior data over subsequent observations is referred to as autocorrelation or serial correlation. As a result, autocorrelation assesses the link between the present and prior data values. Serial correlation is a concern in panel data models because it causes standard errors to be skewed and estimated regression coefficients to be consistent but wasteful (Drukker, 2003). To detect autocorrelation in the residual values of the regression equation's residual values the Durbin-Watson test was used. The generalized least squares (GLS) method would have been used if autocorrelation was identified. The null hypothesis was that the data had no serial correlation.

3.9.5 Stationarity Test

In time series data there is an assumption that data is stationary over time (Wooldridge, 2013). Analysis of data without taking care of its panel characteristics may make the results biased due to inefficient estimates and wrong inferences. The study employed Levin-Lin (LLC) tests to determine whether the variables are stationary or non-stationary. The null hypothesis of this test is that all panels had unit root.

3.9.6 Model Specification Test

In panel data, the researcher chooses the most appropriate model to be employed either a fixed model or a random model. The study conducted the Hausman test to examine whether the fixed or random model would be utilized. The null hypothesis was that the random model was preferred.

3.10 Ethical Consideration

Ethical issues require abiding by various norms and guidelines that regulate research. The research adhered to all ethical guidelines for research at Kenyatta University and across Kenya. Kenyatta University Graduate School provided research permission and NACOSTI provided a research permit.

CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

The study results are demonstrated in sub-sections. Each of the subsections is comprehensively discussed. Descriptive statistics, correlation analysis, diagnostics tests, regression analysis, hypotheses testing and a summary of the findings are included in the study.

4.2 Descriptive Statistics

The descriptive statistics include the discussion of the mean, standard deviation, minimum and maximum values of the variables used in the study. The descriptive statistics results are presented in Table 4.1

Table 4.1: Descriptive Statistics

| Variable | Observation | Mean | Std. Dev. | Minimum | Maximum |
|------------------------------|-------------|-----------|-----------|----------|----------|
| Credit Risk | 318 | 0.452708 | 1.066153 | -1.97221 | 11.69411 |
| Liquidity Risk | 318 | 0.742628 | 0.36484 | 0.02472 | 2.574627 |
| Solvency Risk | 318 | 0.694701 | 0.268486 | 0.012573 | 2.195909 |
| Reinsurance Risk | 318 | 0.2002805 | 0.0264 | 0.003019 | 1.962052 |
| Underwriting risk | 318 | 0.596696 | 0.138273 | 0.082206 | 1.315852 |
| GDP (Growth rate) | 318 | 3.883333 | 1.963035 | -0.3 | 5.6 |
| Financial performance (ROA%) | 318 | 2.675709 | 7.179461 | -26.6176 | 31.69552 |

Source: Study Data (2022)

The study results presented in Table 4.1 indicate that the mean credit risk measured as a ratio between the summation of outstanding premiums and due from reinsurer over net assets over six years from 2015 to 2020 among the insurance companies in Kenya was 0.452708 with a standard deviation of 1.066153. The minimum credit risk in the same period was found to be -1.97221, with the maximum being 11.69411. The negative credit risk indicates some insurance

companies had a negative asset base. Further, it was found that the minimum liquidity risk, a ratio between current assets and current liabilities, was found to be 0.02472, with the maximum being 2.574627. The mean value was 0.2742628 with a standard deviation of 0.036484. The current ratio of less than 1.00 indicates that some insurance companies cannot settle their current liabilities when they fall due. Moreover, it was found that the mean of solvency risk, determined as a ratio between total liabilities and total assets over six years from 2015 to 2020, was 0.694701 with a standard deviation of 0.268486. The minimum solvency risk in the same period was 0.012573, with the maximum being 2.195909. This indicates insurance companies with this ratio above 1.00 had more liabilities than their assets hence a negative asset base and they may struggle to settle customer claims and other liabilities. The study found that the mean of reinsurance risk, premium ceded over total assets was 0.2002805 with a standard deviation of 0.0264039 the minimum value was found to be 0.0030197, with the maximum value being 1.962052. This implied that some firms had recoverable reinsurance while others had payables. Furthermore, the mean value of the underwriting risk a ratio of claims incurred over the premium earned was 0.596696, with a standard deviation of 0.138273. The minimum value of underwriting risk was found to be 0.082206, with the maximum being 1.315852. The mean value of 0.596696 signified on average insurance companies were doing better in managing their underwriting income while those with maximum of 1.315852 it showed the premium earned was less than the claims incurred leading to underwriting losses.

The study found that the average growth rate (GDP) in Kenya between 2015 and 2020 was found to 3.883333 with a standard deviation of 1.963035. The minimum growth rate in the same period was found to be -0.3, with the maximum being 5.6. The Growth rate contraction of -0.3 was in 2020 in the backdrop of COVID-19 pandemic. Finally, the study found that minimum financial performance, determined by ROA (net income over total assets) over six years from 2015 to 2020 among the insurance companies in Kenya was -26.6176%, with the

maximum being 31.69552%. The mean value was 2.675709, with a standard deviation of 7.179461. The negative ROA implied that some of the insurance had negative net income and had been reporting losses. There was also a huge variation in the earnings of insurance companies.

4.4 Correlation Analysis

The correlation coefficient is measured on a scale that varies from + 1 through 0 to - 1. When one variable increases as the other increases, the correlation is positive. On the other side, when one of the variables decreases as the other variable increases, there is a negative association. There is no association when the coefficient is 0. The study results presented in Table 4.2 present the correlation results.

Table 4.2: Correlation Analysis

| Variables | Financial performance (ROA%) | Credit risk | Liquidity risk | Solvency risk | Reinsurance risk | Underwriting risk |
|------------------------------|------------------------------|-------------|----------------|---------------|------------------|-------------------|
| Financial performance (ROA%) | 1.0000 | | | | | |
| Credit risk | -0.3795 | 1.0000 | | | | |
| Liquidity risk | -0.6285 | 0.2972 | 1.0000 | | | |
| Solvency risk | -0.1231 | 0.0175 | 0.1007 | 1.0000 | | |
| Reinsurance risk | 0.1446 | 0.0753 | 0.1429 | 0.1040 | 1.0000 | |
| Underwriting risk | -0.2330 | 0.1960 | 0.2242 | 0.1372 | -0.0659 | 1.0000 |

Source: Study Data (2022)

Using Pearson correlation, the correlation results depicted in Table 4.2 established that credit risk had a moderate negative relationship with financial performance (ROA%) ($r=-.3795$). Liquidity risk had a strong negative relationship with financial performance (ROA%) ($r=-.0652$). Solvency risk had a weak negative relationship with financial performance (ROA%) ($r=-.1231$). The study further found that reinsurance risk had a positive weak relationship with

financial performance (ROA%) ($r=.1446$). Lastly, underwriting risk had a moderate negative relationship with financial performance (ROA%) ($r=-.2330$).

The results are consistent with Kiptoo, Kariuki and Ocharo (2021) which showed credit risk was negatively related financial performance. The results also concur with Kamau and Njeru's (2016) findings which revealed a negative relationship between liquidity risk and financial performance for insurance companies as evaluated by the ROE. The findings are contrary to Dabo et al. (2018) who found that solvency risk had a positive relationship with profitability. Ibrahim et al. (2020) showed that underwriting risks had a negative and significant impact on profitability, while the reinsurance risk had an insignificant effect. Burca and Batrinca (2014) indicated that underwriting risk negatively influences the insurer's financial performance since taking an excessive underwriting risk can affect the company's stability through higher expenses.

4.5 Diagnostics Tests

The section consists of diagnostic tests results for normality, multicollinearity, heteroscedasticity, autocorrelation, stationarity and hausman tests for random or fixed effect model.

4.5.1 Normality Test

The study used skewness and kurtosis test to examine the normality. The significance of the normality test was to ensure the sample data was obtained from a population that contains a normal distribution. The null hypothesis was that the data was normal. The study findings of the normality test are as depicted below in Table 4.3

Table 4.3: Normality Test

| Variable | Observation | Pr(Skewness) | Pr(Kurtosis) | Prob>chi2 |
|-------------|-------------|--------------|--------------|-----------|
| Credit Risk | 318 | 0.0248 | 0.0001 | 0.081 |

| | | | | |
|------------------------------|-----|--------|--------|-------|
| Liquidity Risk | 318 | 0.0153 | 0.4012 | 0.110 |
| Solvency Risk | 318 | 0.0147 | 0.012 | 0.252 |
| Reinsurance Risk | 318 | 0.0250 | 0.0146 | 0.272 |
| Underwriting risk | 318 | 0.0158 | 0.7240 | 0.639 |
| GDP (Growth rate) | 318 | 0.0226 | 0.0511 | 0.340 |
| Financial performance (ROA%) | 318 | 0.0249 | 0.4012 | 0.067 |

Source: Study Data (2022)

It was found that the p values of the variables presented in Table 4.3 were greater than 0.05, the null hypothesis was not rejected and thus the conclusion that data was normally distributed. The significance of the data being normally distributed is that it shows that most of the data points are relatively similar and thus have low possibilities of outliers.

4.5.2 Multicollinearity Test

The multicollinearity test was done using VIF and the study results of the multicollinearity test are presented in Table 4.4

Table 4.4: Multicollinearity Test

| Variable | VIF |
|-------------------|------|
| Credit Risk | 1.12 |
| Liquidity Risk | 1.15 |
| Solvency Risk | 1.03 |
| Reinsurance Risk | 2.89 |
| Underwriting risk | 1.09 |

Source: Study Data (2022)

The results in Table 4.4 indicated the absence of multicollinearity since the VIF of all the variables were less than 10. According to Katrutsa and Strijov (2017), VIF values above 10 indicate the presence of multicollinearity. The null hypothesis was not rejected thus data had no multicollinearity.

4.5.3 Heteroscedasticity Test

To test for heteroscedasticity Breusch Pagan Godfrey test was done, a p-value higher than 5% shows that the model is homoscedastic and does not suffer from heteroscedasticity. The study results of the test are as depicted below in Table 4.5

Table 4.5: Heteroscedasticity Test

| | |
|--|-----------|
| Breusch-Pagan / Cook-Weisberg test for heteroskedasticity | |
| chi2(1) | = 1.4e+05 |
| Prob> chi2 | = 0.2918 |

Source: Study Data (2022)

The results in Table 4.5 above indicated the p-value (0.2918) is more than 0.05 and thus, it can be concluded that there is no heteroskedasticity in the data. The null hypothesis was not rejected thus the error variance is homoscedastic.

4.5.4 Autocorrelation Test

To detect autocorrelation in the residual values of the regression equation's residual values, the Dublin-Watson test was used. The study results of the autocorrelation test are presented in Table 4.6 below

Table 4.6 Autocorrelation Test

| | |
|------------------------------------|----------|
| Wooldridge test | |
| H0: no first-order autocorrelation | |
| F (1, 52) | = 3.550 |
| Prob> F | = 0.0651 |

Source: Study Data (2022)

The null hypothesis was that autocorrelation does not exist. The findings in Table 4.6 show the p-value of 0.0651 which is greater than critical value of 0.05. The null hypothesis of no autocorrelation was not rejected therefore there was no autocorrelation.

4.5.5 Stationarity Test

The study employed Levi lechun (LLC) tests to determine whether the variables are stationary or non-stationary. The purpose of this is to avoid spurious regression results being obtained by using a non-stationary series. The null hypothesis of this test is that all panels had unit root. The study results of the stationarity test are presented in Table 4.7 below

Table 4.7: Stationarity Test

| Variable name | Statistic(adjusted) | P-value | Comment |
|-----------------------------|----------------------------|----------------|----------------|
| Financial performance (ROA) | 0.0937311 | 0.000 | Stationary |
| Credit Risk | 0.0394356 | 0.000 | Stationary |
| Liquidity Risk | 0.0724722 | 0.0012 | Stationary |
| Solvency Risk | 0.0760008 | 0.000 | Stationary |
| Reinsurance Risk | 0.0611534 | 0.002 | Stationary |
| Underwriting risk | 0.0129598 | 0.017 | Stationary |
| GDP (Growth rate) | 0.0499336 | 0.000 | Stationary |

Source: Study Data (2022)

The study findings in Table 4.7 above concerning the stationary indicated that the variables were stationary as the p values were less than 0.05. The null hypothesis of this test was rejected that all panels have unit root. The study therefore, concludes that all the variables do not have unit root and are therefore stationary. The stationarity of the data implies that the mean and variance of the observation concerning the study variables do not change over time.

4.5.6 Model Specification Test

The study conducted the Hausman test to examine whether the fixed or random model would be utilized. The null hypothesis is that the random model is preferred. The study results of the Hausman test are presented below in Table 4.8.

Table 4.8: Hausman Test

| Column | (b) | (B) |
|-------------------|----------|----------|
| | fixed | random |
| Credit Risk | -0.97566 | -1.08281 |
| Liquidity Risk | -0.68196 | -0.76831 |
| Solvency Risk | -7.96738 | -3.44892 |
| Reinsurances Risk | -0.90917 | 0.095877 |
| Underwriting Risk | -7.21963 | -6.24592 |

$$\chi^2(5) = (b-B)'[(V_b - V_B)^{-1}](b-B) = 28.03$$

$$\text{Prob} > \chi^2 = 0.071$$

Source: Study Data (2022)

The study results illustrated in Table 4.8 above depict that the p-value obtained was 0.071, greater than critical value of 0.05. Thus, the null hypothesis was not rejected. The most effective model for the study was the random effect model.

4.6 Model Regression Analysis

The study examined the regression analysis to establish the relationship between the variables. The study demonstrated the results of two regression analysis. The first presentation is the regression analysis without moderation, while the second regression analysis will include the regression analysis after the inclusion of the moderating effect of the GDP growth rate.

4.6.1 Panel Regression Results

The study sought to carry out a panel regression analysis to establish the effect of credit risk, liquidity risk, solvency risk, reinsurance risk and underwriting risk on financial performance (ROA). The panel regression results presented in Table 4.9.

Table 4.9: Panel Regression Results

| Financial Performance (ROA) | Coef. | Std. Err. | z | P>z |
|-----------------------------|----------|-----------|---------|--------|
| Credit Risk | -1.08281 | 0.239285 | 4.5300 | 0.0000 |
| Liquidity Risk | -0.76831 | 0.070912 | 10.8300 | 0.0000 |
| Solvency Risk | -3.44892 | 1.649123 | 2.0900 | 0.0360 |
| Reinsurance Risk | 0.095877 | 1.34081 | 0.0700 | 0.9430 |
| Underwriting Risk | -6.24592 | 2.159279 | 2.8900 | 0.0040 |
| Constant | 7.845377 | 1.782804 | 4.4000 | 0.0000 |

R squared=0.4784**F Statistics=203.28****Prob > chi2 = 0.0000****Source: Study Data (2022)**

The model was;

$$Y_{it} = 7.845377 - 1.08281X_{1it} - 0.76831X_{2it} - 3.44892X_{3it} + 0.095877X_{4it} - 6.24592X_{5it} + \varepsilon_{it}$$

Where: Y_{it} = Financial Performance of insurance company i at time t X_{1it} =Credit risk X_{2it} =Liquidity risk X_{3it} =Solvency risk X_{4it} =Reinsurance risk X_{5it} =Underwriting risk

The results presented in Table 4.9 show that credit risk, liquidity risk, solvency risk, reinsurance risk, and underwriting risk explain 47.84% of the financial performance (ROA) variations of the insurance companies in Kenya. The F statistics value of 203.28 with a p-value of 0.0000 which is less than 0.05 significance level indicates that insurance risks have significant effect on financial performance. The regression results show that in the absence of

credit risk, liquidity risk, solvency risk, reinsurance risk, and underwriting risk, the financial performance (ROA) of the insurance companies in Kenya will be at 7.845377 units.

4.7 Hypotheses Testing

The section presented results of hypothesis testing. The following hypotheses were analysed using panel multiple regression.

H₀₁: Credit risk has no significant effect on financial performance of insurance companies in Kenya.

H₀₂: Liquidity risk has no significant effect on financial performance of insurance companies in Kenya.

H₀₃: Solvency risk has no significant effect on financial performance of insurance companies in Kenya.

H₀₄: Reinsurance risk has no significant effect on financial performance of insurance companies in Kenya.

H₀₅: Underwriting risk has no significant effect on financial performance of insurance companies in Kenya.

H₀₆: GDP has no significant moderating effect on the relationship between insurance risks and financial performance of insurance companies in Kenya.

4.7.1 Effect of Credit Risk on Financial Performance of Insurance Companies in Kenya

The first objective of the study was to determine how credit risk affected financial performance of insurance companies in Kenya. From the results presented in Table 4.9, ($\beta=-1.08281$, $p=0.000<0.05$), we reject the null hypothesis **H₀₁** and conclude that credit risk had a negative significant effect on financial performance of insurance companies in Kenya. This implies that an increase in credit risk by one unit would lead to a decrease in the financial performance (ROA) by 1.08281 units while the other factors are held constant.

The study results are consistent with the findings of Muriithi, Waweru, and Muturi (2016), which revealed credit risk has a negative and significant association with bank performance. Ogilo (2013) study indicated a significant effect between credit risk and performance. Further, Kiptoo, Kariuki and Ocharo (2021) indicate that credit risk negatively and significantly affects financial performance.

4.7.2 Effect of Liquidity Risk on Financial Performance of Insurance Companies in Kenya

The second objective of the study was to examine the effect of liquidity risk on financial performance of insurance companies in Kenya. From the results presented in Table 4.9, ($\beta = -0.76831$, $p = 0.000 < 0.05$), we reject the null hypothesis H_{02} and conclude that liquidity risk had a negative significant effect on financial performance of insurance companies in Kenya. This signifies an increase in liquidity risk by one unit would decrease the financial performance (ROA) by 0.76831 units while the other factors are held constant

The study results concur with Kamau and Njeru (2016), who indicated that liquidity risk and ROE are negatively correlated. Sisay (2017) found that financial risk has a negative effect on the financial performance of insurance firms. Furthermore, Kamau, Olweny and Muturi (2021) revealed that liquidity has a negative and significant influence on the financial performance of insurance firms in Kenya. In addition, Alomari and Azzam (2017) found that liquidity is inversely related to ROA.

4.7.3 Effect of Solvency Risk on Financial Performance of Insurance Companies in Kenya

The third objective of the study was to assess the effect of solvency risk on financial performance of insurance companies in Kenya. From the results presented in Table 4.9, ($\beta = -3.44892$, $p = 0.0360 < 0.05$), we reject the null hypothesis H_{03} and conclude that solvency risk had a negative significant effect on financial performance of insurance companies in Kenya.

This meant that an increase in solvency risk by one unit would decrease the financial performance (ROA) by 3.44892 units while the other factors are held constant.

The study results agree with Muinde's (2018) findings, which revealed that solvency risk, liquidity risk, underwriting risk, reinsurance risk, and financial leverage are negatively related to financial performance. Moreover, Kyule (2015) indicated that solvency negatively affects the ROA of firms listed at NSE.

4.7.4 Effect of Reinsurance Risk on Financial Performance of Insurance Companies in Kenya

The fourth objective of the study was to examine the effect of reinsurance risk on financial performance of insurance companies in Kenya. From the results presented in Table 4.9, ($\beta=0.095877$, $p=0.9430>0.05$), we fail to reject the null hypothesis **H₀₄** and conclude that reinsurance risk had a positive insignificant effect on financial performance of insurance companies in Kenya. This meant that an increase in reinsurance risk by one unit would lead to a rise in the financial performance (ROA) by 0.095877 units while the other factors are held constant.

The results are in agreement with the findings of Obonyo (2016), who indicated there exist a positive but insignificant relationship between reinsurance and financial performance. A study by Ibrahim et al. (2020) showed that reinsurance risk had an insignificant effect on profitability. On the contrary, Andoh and Yamoah (2021) established reinsurance significantly impacts profitability.

4.7.5 Effect of Underwriting Risk on Financial Performance of Insurance Companies in Kenya

The fifth objective of the study was to analyse the effect of underwriting risk on financial performance of insurance companies in Kenya. From the results presented in Table 4.9, ($\beta=-6.24592$, $p=0.0040<0.05$), we reject the null hypothesis **H₀₅** and conclude that underwriting

risk had a negative significant effect on financial performance of insurance companies in Kenya. This meant that an increase in underwriting risk by one unit would decrease the financial performance (ROA) by 6.24592 units while the other factors are held constant. The study results concur with the findings of Burca and Batrinca (2014), who indicated that underwriting risk, leverage, age, size, gross written premiums growth, diversification, equity, investment ratio, total market share, solvency margin affect financial performance.

4.7.6 Moderating Effect of GDP on the Relationship between Insurance Risks and Financial Performance of Insurance Companies in Kenya.

The last objective of the study was to determine the moderating effect of GDP on the relationship between insurance risks and the financial performance of insurance companies in Kenya.

4.7.6.1 Moderation Effect of GDP Growth rate

The study sought to establish the moderating effect of the GDP on the relationship between insurance risks and the financial performance of insurance companies in Kenya. In accordance with Whisman and McClelland (2005), the moderation effect model was built in two steps. In step one, the GDP was used as a predictor variable. The regression coefficients in step one after the GDP has been included as one of the predictor variables are summarized in Table 4.10

Table 4.10: Moderation Effect of GDP (Growth rate) - Step One

| Financial Performance (ROA) | Coef. | Std. Err. | z | P>z |
|-----------------------------|---------|-----------|---------|--------|
| Credit Risk | -1.0829 | 0.2397 | 4.5200 | 0.0000 |
| Liquidity Risk | -0.7684 | 0.0710 | 10.8200 | 0.0000 |
| Solvency Risk | -3.4077 | 1.6591 | 2.0500 | 0.0400 |
| Reinsurance Risk | 0.0977 | 1.3426 | 0.0700 | 0.9420 |
| Underwriting Risk | -6.2519 | 2.1634 | 2.8900 | 0.0040 |
| GDP (Growth rate) | 0.0238 | 0.1179 | 0.2000 | 0.8400 |

| | | | | |
|----------|--------|--------|--------|--------|
| Constant | 7.7273 | 1.8664 | 4.1400 | 0.0000 |
|----------|--------|--------|--------|--------|

R-Squared= 0.4789

F Statistics= 202.74

Prob > chi2 = 0.0000

Source: Study Data (2022)

The model in step one was;

$$Y_{it} = 7.7273 - 1.0829X_{1it} - 0.7684X_{2it} - 3.4077X_{3it} + 0.0977X_{4it} - 6.2519X_{5it} + 0.0238 \text{ GDP}_{it} + \varepsilon_{it}$$

Where;

Y_{it} = Financial Performance

X_{1it} = Credit Risk

X_{2it} = Liquidity Risk

X_{3it} = Solvency Risk

X_{4it} = Reinsurance Risk

X_{5it} = Underwriting Risk

GDP_{it} = GDP Growth rate

The study results presented in Table 4.10 show that the inclusion of the GDP growth rate in the model led to the coefficient of determination (R square) to increase from 47.84% to 47.89%. Additionally, F statistics value was 202.74 a p value of 0.000 which is less than 0.05. This indicates that insurance risks and moderating variable GDP were significant in explaining variations in financial performance. The coefficient of GDP growth rate ($\beta=0.0238$, $p=0.84>0.05$) shows a statistically insignificant positive effect on financial performance of insurance companies in Kenya. Therefore, we conclude that GDP is a moderating variable since it is insignificant in the model.

Table 4.11: Moderation Effect of GDP (Growth rate) - Step Two

| Financial Performance (ROA) | Coef. | Std. Err. | z | P>z |
|-----------------------------|-------|-----------|---|-----|
|-----------------------------|-------|-----------|---|-----|

| | | | | |
|-------------------------------------|----------|--------|---------|--------|
| Insurance risks | -15.8972 | 5.3398 | -2.9800 | 0.0030 |
| GDP (Growth rate) | 0.1405 | 0.0882 | 1.5900 | 0.1110 |
| Insurance risks * GDP (Growth rate) | 12.7312 | 5.1805 | 2.4600 | 0.0140 |
| Constant | 6.8667 | 1.7425 | 3.9400 | 0.0000 |

R-Squared= 0.5820

F Statistics= 369.38

Prob > chi2 = 0.0000

Source: Study Data (2022)

The model in step two was;

$$Y_{it} = 6.8667 - 15.8972 \text{ IRC}_{it} + 0.1405 \text{ GDP}_{it} + 12.7312 (\text{IRC}_{it} * \text{GDP}_{it}) + \epsilon_{it}$$

Where:

GDP_{it} = GDP growth rate (moderating variable)

IRC_{it} = Insurance Risk Composite of insurance company i at time t

$\text{IRC}_{it} * \text{GDP}_{it}$ = Interaction between Insurance Risk Composite and GDP

The study results presented in Table 4.11 show that on introduction of GDP, insurance risk composite (IRC), interaction of insurance risk composite and the moderating variable (IRC*GDP) the coefficient of determination (R squared) changed from 47.89% in step one to 58.20% in step two. F statistics value was 369.38, p value of 0.000 which is less than 0.05. This indicates that GDP, IRC and (IRC*GDP) were significant in explaining variations in financial performance. There is a significant effect of the interaction term between insurance risk composite and GDP ($\beta=12.7312$, $p=0.0140 < 0.05$). Hence, the null hypothesis H_{06} was rejected. It can be concluded that GDP significantly moderates the relationship between the insurance risks and the financial performance of insurance companies in Kenya.

The study results concur with Walde and Makori (2022), Meher and Zewudu's (2020) findings, demonstrating that GDP has a positive and significant relationship with ROA. Contrary a study by Datu (2016) established that insurer-specific factors significantly affect profitability while

macroeconomic indicators like GDP and inflation had no significant effect on the profitability of insurance firms in the Philippines. Also, Ogada, Achoki and Njuguna (2016) established a significant relationship between the moderating effect of economic growth as measured by GDP growth rate and the financial performance of merged institutions.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

The chapter includes the presentation of the summary, conclusion and recommendation of the study. The chapter also consists of the suggested areas of further research to enrich relevant knowledge under the study. Each section is comprehensively discussed.

5.2 Summary

The study adopted the positivism research philosophy. The most effective research design deemed relevant to the current study was an explanatory research design. The explanatory research design was deemed suitable for the study since the research aimed at explaining the relationship of the variables. The target population incorporated 53 licensed insurance companies operating in Kenya between 2015 and 2020. A Census sampling approach was employed and thus, all the firms were included in the study. Secondary data was utilized. Secondary data was gathered from insurance companies' audited financial statements. It was found that credit risk, liquidity risk, solvency risk, reinsurance risk, and underwriting risk explain 47.84% of the financial performance (ROA) variations of the insurance companies in Kenya.

The first objective of the study was to determine the effect of credit risk on financial performance of insurance companies in Kenya. The correlation results revealed that credit risk is negatively associated with financial performance. The regression results demonstrated that credit risk is negatively and significantly related to financial performance (ROA). The null hypothesis was rejected. Hence, credit risk has a significant effect on the financial performance of insurance companies in Kenya.

The second objective of the study was to examine the effect of liquidity risk on financial performance of insurance companies in Kenya. The correlation results showed that liquidity risk is negatively associated with financial performance. The regression results indicated that

liquidity risk is negatively and significantly related to financial performance. The null hypothesis was rejected. Thus, liquidity risk has a significant effect on financial performance of insurance companies in Kenya.

The third objective of the study was to assess the effect of solvency risk on financial performance of insurance companies in Kenya. The correlation results exhibited that solvency risk is negatively associated with financial performance. The regression results indicated that solvency risk is negatively and significantly related to financial performance. The null hypothesis was rejected. Hence, Solvency risk has a significant effect on financial performance of insurance companies in Kenya.

The fourth objective of the study was to determine the effect of reinsurance risk on financial performance of insurance companies in Kenya. The correlation results indicated that reinsurance risk is positively associated with financial performance. The regression results revealed that reinsurance risk is positively but insignificantly related to financial performance. The study failed to reject the null hypothesis. Hence, Reinsurance risk has no significant effect on the financial performance of insurance companies in Kenya.

The fifth objective of the study was to analyse the effect of underwriting risk on financial performance of insurance companies in Kenya. The correlation results demonstrated that underwriting risk is negatively associated with financial performance. The regression results revealed that underwriting risk is negatively and significantly related to financial performance. The null hypothesis was rejected. Therefore, underwriting risk has a significant effect on financial performance of insurance companies in Kenya.

The last objective of the study was to establish the moderating effect of GDP on the relationship between insurance risks and financial performance of insurance companies in Kenya. It was determined that there is a significant effect of the interaction term between the insurance risk

composite and GDP. Therefore the null hypothesis was rejected. Hence, GDP significantly moderates the relationship between insurance risks and financial performance of insurance companies in Kenya.

5.3 Conclusion

Based on the study's findings, it is concluded that for insurance companies to have better financial performance they need to manage their credit risk. The results from the regression analysis showed that credit risk is negatively and significantly related to financial performance. This implies that failure to receive premiums due from debtors and reinsurance companies not paying the due amount will ultimately lead to declining financial performance of insurance companies.

The study found that liquidity risk is negatively and significantly related with financial performance. An increase in liquidity risk will lead to a decline in financial performance of insurance companies. This means some insurance companies will be unable to meet their current liabilities when they become due. Also holding of excess current assets and failing to invest can lead to losing an opportunity to improve financial performance through increased income.

The study results exhibited that solvency risk is negatively associated with financial performance. The regression results showed that solvency risk is negatively and significantly related to financial performance. The study concludes that insurance companies with high solvency risk had more liabilities than assets therefore not enough value in the form of assets to cover all the liabilities. The higher debt to asset ratio means there is a need for external financing, which affects performance of the insurance companies negatively.

The study concludes that reinsurance risk is positively associated with financial performance. The regression results revealed that reinsurance risk is positively but insignificantly related to

financial performance. This means an increase in reinsurance risk does not lead to a decrease in performance of insurance companies. The study concludes that although reinsurance companies protect insurance companies against big losses most of the claims are settled by the insurance companies themselves.

Study findings concluded that underwriting risk is negatively associated with financial performance. The regression results revealed that underwriting risk is negatively and significantly related to financial performance therefore an increase in underwriting risk will lead to a decrease in financial performance. This implies that insurance companies with high underwriting risk incur more claims than the premiums received.

Further, the study concludes that the GDP moderates the relationship between insurance risks and the financial performance of insurance companies in Kenya. This implies that slow or contracting GDP growth rate can increase the insurance risks insurance companies face leading to poor financial performance.

5.4 Recommendations

5.4.1 Practice Recommendations

From the findings of the study, the following practice recommendations are recommended especially to the management of insurance companies. The study recommends that insurance companies ensure that credit risks are well managed since credit risk is negatively and significantly related to financial performance. Credit risks include insurance companies not receiving premiums due and reinsurance companies not paying amount due. The insurance companies in Kenya should develop credit risk management frameworks that will minimize the possibility of a loss resulting from debtors not paying their premiums, put in place efficient paying plans for their customers and reinsure with credible reinsurance companies who will compensate them promptly in case of loss.

Secondly, the study revealed that liquidity risk is negatively and significantly related to financial performance. It therefore recommends that insurance companies with high current ratio should consider investing excess cash in various sectors. While insurance companies with low current ratio should liquidate some investments to ensure they cover current obligations when they fall due. The insurance companies should develop and implement appropriate investment portfolio management to improve their financial performance.

Additionally, since the study found that solvency risk is negatively and significantly related to financial performance. It is recommended that insurance companies in Kenya should increase their customers to boost their income hence maximize their net premium earnings and net assets. Insurance companies with negative net assets should seek to increase their share capital to ensure they remain solvent. The debt to asset ratio should be well managed to ensure insurance companies have enough assets to cover their liabilities.

Further, the study found that reinsurance risk is insignificantly related to financial performance it is recommended that insurance companies in Kenya continue to cover most of their claim by themselves. The insurance companies in Kenya should prepare as Kenya implements the Vision 2030 blueprint and high-risk investment ventures are set up that they have adequate reinsurance to cover them in case of huge claims.

The study found, underwriting risk is negatively and significantly related to financial performance. It is recommended that insurance companies in Kenya should ensure proper policy estimation pricing techniques considering the riskiness of the specific sectors. Insurance companies should also ensure claims and costs are well managed. The insurance companies should provide adequate premium prices compared to the claims for insurance policies that are expensive to cover. The insurance companies can also diversify insurance policy classes to ensure better earnings from premiums this can compensate classes with losses.

5.4.2 Policy Recommendations

From the study findings the following policy recommendations are recommended to various stakeholders including management of insurance companies, policy makers and regulators. The study found that solvency risk and liquidity risk are negatively and significantly related to financial performance. The study findings indicated that some insurance company had a negative net asset base while others were in weak capital adequacy position. The study recommends that IRA should ensure strict adherence to the minimum capital adequacy requirements for insurance companies. This will ensure better financial performance and soundness of the insurers and the ultimate protection of the policyholders.

The study found, underwriting risk is negatively and significantly related to financial performance. Some insurance companies had more claims incurred than premium earned. It is recommended that IRA ensure all insurance companies in Kenya have a strong actuarial function. This will ensure proper pricing patterns for all classes of insurance policies leading to underwriting profits hence better financial performance for the insurance companies.

The study revealed that the GDP growth rate moderates the relationship between insurance risks and financial performance of insurance companies in Kenya. The study therefore recommends that government through National Treasury should implement proper fiscal and monetary policies to ensure stable economy. This is by giving more emphasis to factors that can enhance consumption, investments, government spending and trade since they influence the GDP growth rate. The study also recommends that insurance companies should develop policies to ensure they manage their insurance risks according to the GDP performance. Management of insurance companies should be more proactive in identifying factors affecting GDP growth rate by applying economic analysis tools and take preventive measures to mitigate insurance risks associated with declining GDP growth rate.

5.5 Areas for Further Research

Based on the study findings, it was established that credit risk, liquidity risk, solvency risk, reinsurance risk and underwriting risk explain 47.84% of the financial performance (ROA) variations of the insurance companies in Kenya. Thus, another study can be conducted to examine other insurance risks such as strategic risk, operational risk and investment risk that may affect the remaining 52.16%. The study period included a period in year 2020 which had so many restrictive measures which affected the financial performance of insurance companies negatively due to COVID-19 pandemic. A follow-up study on insurance risks and financial performance of insurance companies focusing on the period from year 2021 when COVID-19 restrictive measures were relaxed is recommended.

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APPENDIX I: DATA COLLECTION INSTRUMENT

NAME OF INSURANCE COMPANY

| Variable | Description | YEAR | | | | | |
|-------------------|---------------------|------|------|------|------|------|------|
| | | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| ROA | Net Income | | | | | | |
| | Total Assets | | | | | | |
| Credit Risk | Premium debtors | | | | | | |
| | Due from reinsurer | | | | | | |
| | Net assets | | | | | | |
| Liquidity Risk | Current assets/ | | | | | | |
| | Current liabilities | | | | | | |
| Solvency Risk | Total Liabilities | | | | | | |
| | Total Assets | | | | | | |
| Reinsurance Risk | Premium ceded | | | | | | |
| | Total assets | | | | | | |
| Underwriting Risk | Claims incurred | | | | | | |
| | Premium earned | | | | | | |
| GDP | GDP growth rate | | | | | | |

APPENDIX II: A LIST OF LICENSED INSURANCE COMPANIES IN KENYA

1. AAR Insurance Kenya Limited
2. Africa Merchant Assurance Company Limited
3. AIG Kenya Insurance Company Limited
4. APA Insurance Limited
5. APA Life Assurance Limited
6. Barclays Life Assurance Kenya Limited
7. Britam General Insurance Company (Kenya) Limited
8. British-American Insurance Company (K) Limited
9. Cannon Assurance Limited
10. Capex Life Assurance Company Limited
11. CIC General Insurance Limited
12. CIC Life Assurance Limited
13. Continental Reinsurance Limited
14. Corporate Insurance Company Limited
15. Directline Assurance Company Limited
16. East Africa Reinsurance Company Limited
17. Fidelity Shield Insurance Company Limited
18. First Assurance Company Limited
19. GA Life Assurance Limited
20. GA Insurance Limited
21. Gateway Insurance Company Limited
22. Geminia Insurance Company
23. ICEA LION General Insurance Co Limited
24. ICEA LION Life Assurance Company Limited
25. Intra Africa Assurance Company Limited

26. Invesco Assurance Company Limited
27. Kenindia Assurance Company Limited
28. Kenya Orient Insurance Limited
29. Kenya Orient Life Assurance Limited
30. Kenya Reinsurance Corporation Limited
31. Liberty Life Assurance Kenya Limited
32. Madison Insurance Company Kenya Limited
33. Mayfair Insurance Company Limited
34. Metropolitan Cannon Life Assurance Limited
35. Occidental Insurance Company Limited
36. Old Mutual Life Assurance Company Limited
37. Pacis Insurance Company Limited
38. Pan Africa Life Assurance Limited
39. Phoenix of East Africa Insurance Company Limited
40. Pioneer Assurance Company Limited
41. Prudential Life Assurance Kenya Limited
42. Resolution Insurance Company Limited
43. Saham Assurance Company Kenya Limited
44. Takaful Insurance of Africa Limited
45. Tausi Assurance Company Limited
46. The Heritage Insurance Company Limited
47. The Kenyan Alliance Insurance Company Limited
48. The Jubilee Insurance Company of Kenya Limited
49. The Monarch Insurance Company Limited
50. Trident Insurance Company Limited
51. UAP Insurance Company Limited

52. UAP Life Assurance Limited
53. Xplico Insurance Company Limited

Source: Insurance Regulatory Authority (IRA), (2015)

APPENDIX III: GRADUATE SCHOOL RESEARCH PROPOSAL APPROVAL



**KENYATTA UNIVERSITY
GRADUATE SCHOOL**

E-mail: dean-graduate@ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 020-8704150

Website: www.ku.ac.ke

Internal Memo

FROM: Dean, Graduate School

DATE: 23rd August, 2022

TO: Mr. Benedict Musyoki Mutua
C/o Department of Accounting & Finance

REF: D58/CTY/PT/33475/14

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

=====
This is to inform you that Graduate School Board, at its meeting on 17th August, 2022, approved your Research Proposal for the M.Sc. Degree entitled, "Insurance Risks and Financial Performance of Insurance Companies in Kenya."

You may now proceed with your Data collection, subject to clearance with the Director General, National Commission for Science, Technology & Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking and Progress Report Forms per semester. The forms are available at the University's Website under Graduate School webpage downloads.

Also, please ensure that you publish article(s) from your thesis before submitting it to Graduate School for examination as per the Commission for University Education and Kenyatta University guidelines.

Thank you

**DR. EDWIN OBUNGU
FOR: DEAN, GRADUATE SCHOOL**

CC. Chairman, Department of Accounting & Finance

Supervisors:

1. Dr. Lucy Wamugo
C/o Department of Accounting & Finance
Kenyatta University
2. Mr. Joseph Theuri
C/o Department of Accounting & Finance
Kenyatta University

APPENDIX IV: RESEARCH PERMIT BY NACOSTI


REPUBLIC OF KENYA


**NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY & INNOVATION**

Ref No: 796812 **Date of Issue: 06/September/2022**

RESEARCH LICENSE



This is to Certify that Mr. BENEDICT MUSYOKI MUTUA of Kenyatta University, has been licensed to conduct research in Nairobi on the topic: INSURANCE RISKS AND FINANCIAL PERFORMANCE OF INSURANCE COMPANIES IN KENYA for the period ending : 06/September/2023.

License No: NACOSTI/P/22/20130

796812
Applicant Identification Number


**Director General
NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY &
INNOVATION**

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