# KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

## THE EFFECT OF LIQUIDITY RISK MANAGEMENT ON COMPANIES PERFORMANCE; EVIDENCE FROM GENERAL INSURANCE COMPANIES IN GHANA

BY

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## DECLARATION

I hereby declare that, this submission is my own work towards the award of degree in Master of Science (Finance) and that, to the best of my knowledge, it contains no materials previously published by another person or group nor any material which has been accepted for the award of any other degree of the university, except where due acknowledgement has been made in the test.

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# DEDICATION

To my dear husband Sammy and lovely daughters, Annaglory and Bettypraise.

KNUST

# ABSTRACT

The main aim of this study relates to investigating the effect of liquidity risk management on financial outcomes of general insurance companies in Ghana. Drawing on historical data for 15 enterprises from 2009 to 2018 from the NIC database, the study pursues fixed effect approach to panel data analysis, and produces striking outcomes. The study found that liquidity risk (premium growth ratio and leverage risk) management consequentially poses major effect in determining ROA and ROE of insurance corporations in Ghana. The study also found liquidity risk (leverage risk and premium growth) management had a positive significant effect on insurers' return on investment. The mixed findings for the consequences of various proxies for liquidity risk on financial outcomes of insurers come with a number of implications. The positive impact of liquidity risk management on ROA, ROE and investment yield implies the need for firms not to think of reinsurance in isolation, but consider it in association with investments. The study concludes that managing liquidity risk is beneficial to the financial performance of insurance companies in Ghana. The study recommends policymakers and regulators must initiate, design and model regulations such that they help tame risk to improve the performance of insurers in Ghana given that the present state of required capital.

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**INTRODUCTION**

**1.1 Background of Study**

A firm is considered liquid if it is able to pay its debts without suffering sudden losses. Liquidity risk arise when a firm cannot cater for its financial obligations as and when they fall due. Insurance companies have over the years been seen as having less exposure to liquidity risk compared to banks as a result of the differences in their business operations. The business model of insurance companies allows them to receive premiums upfront and pay claims later when they are liable to pay. This enables them to maintain a certain amount of liquid assets for some time. Recent developments in the market have led to a number of insurers being exposed to higher levels of liquidity risk (2019).

For insurance companies to be able to assure all their stakeholders that they have enough capital to stay solvent and also able to provide them with all the demands, it is essential for these insurance companies to maintain adequate level of liquidity. On the contrary, the mere fact that these companies have adequate level of capital that not amount to liquidity adequacy. It is however, necessary that insurance companies assess their risk exposure from the perspective of liquidity not from the perspective of capital. To be able to manage your firm's liquidity appropriately, one needs to adopt different approaches in terms of duration from it would be considered for capital. In the attempt to manage the risk of liquidity requires varied approaches in addressing conditions of liquidity as compared to what the company will adopt for addressing capital concerns.

Notwithstanding the need to manage liquidity challenges effectively, the insurance companies ought to be guided by their regulators in terms of their firm liquidity management expectations as compared to capital.

Meanwhile, in 2014, the International Association of Insurance Supervisors (IAIS) provided some guidelines to some managers on how their companies can measure their liquidity for Global Systemically Important Insurers (G-SIIs). Lately, there has been improvement in the supervision and consultations on the systemic risk which involves a more comprehensive framework for liquidity risk management. Additionally, the United Kingdom Authority on Prudential Regulation came out with a consultation paper (CP) for insurance institutions on management of liquidity risk.

## 1.2 Problem Statement

The financial sector of an economy mainly consists of a group of firms that are into the provision some financial products to the corporate and individual clients. The sector includes banks, investment funds, insurance companies and real estate. The development of the financial sector in a less developed economy has been the concern of some economists for the past few decades (Georgantopoulos & Tsamis, 2011). Because of the structural changes and other adjustments in the in the past few years, there is a increasing concentration in Ghana's financial system. The financial industry of the country particularly the insurance sector has seen major growth and rising transformation in its structure over the last years, that has contributed to the increase in new opportunities and  risks in the industry of insurance (NIC, 2012). According to Barros and Obijaku (2007),  the development in the insurance industry is  inaudible when the manager of the industry fail to  come out with  a more faster changes in the

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business climate and also adopt    optimum lead of the existing  opportunities which have been created by the changes in the recent laws.

It is extremely important to assess the insurance firms in Ghana on their financial standing particularly due to the operational risk many of existing insurance companies both life and non-life face generally. In the country Ghana, the National Insurance Commission (NIC) measures the financial capabilities of the insurance companies by the use of some essential bench mark ratios such as investment income ratio, claims ratio, the retention ratio and underwriting profit.  Apart from the aforementioned ratios that are used to assess the performance of insurance companies by the National Insurance Commission, other measures are used by the particularly for the life insurers includes but not limited to size of the firm which is estimated as the total assets of the company, and the firm age are used as key factors for the assessment (Chen & Wong, 2004).

A study to assess how these ratios affects the performance of the insurance companies in Ghana has seen fewer academic investigations. Various indicators which are used to assess the size of companies includes but not limited to total premium paid to the companies, total admitted assets, capital and surplus of the companies. Other proxies for size of firms such as market capitalization and fir's age can be correlated automatically. Bigger insurance firms having lower profits are more likely to go into insolvency and the National Insurance Commission, the regulator is unlikely to provide liquidation for them (Cummins, Harrington & Klein, 1995).

Past studies of the insurance sector in Ghana has come out with quite different trends, thus as while the premiums of the companies globally fell from 2.5% in 2012 to 1.4% in the following year (2013) (Swiss ReSigma, 2013), the insurance industry in Ghana has increases in premiums (NIC, 2010). This data is evidential based on the fact that the insurance market started experiencing some significant growth particularly in the year 2010. In 2012, the insurance industry experienced a drop of about 21 percent in their expenses particularly with regards to claims and managerial in 2010.

It is important to keep abreast of the liquidity implications of the growing insurances market and continual changes around the insurance industry in Ghana. For example: product mixes (composite insurance) are changing. Whereas unit-linked offerings; that is, single insurance that offers both insurance and investment under a single integrated plan is seeing some increases, and strategies on investment are varying to aim more acquaintance to illiquid assets. Notwithstanding the need for managing liquidity effectively, directions given by NIC to insurers with regards to the expectations of the liquidity management of the firm is not as developed as that of Capital. That is if liquidity management is not appropriately handled, management of liquidity may end up in a serious implication to the company (Marozva, 2015).

The guidelines to managers of insurance companies as directed by the International Association of Insurance Supervisors (IAIS) on means the insurance companies may have access to liquidity for Global Systemically Important Insurers (G-SIIs). Also, the IAIS issued a consultation on management of systemic risk which involves an additional liquidity risk management guideline in November 2018. The United Kingdom Authority on Prudential Regulation also came up with a consultation paper

(CP) on the management of liquidity risk for insurance companies in March 2019. Aside these studies, there still appear to be limited study in this area as compared to similar studies using banks as evidence for the research work. There is no study done so far how the management of liquidity risk affects the performance of non-life insurance companies in Ghana. Therefore, this study aims at filling this gap by answering the question: How does liquidity risk management affect the performance of general insurance companies in Ghana?

## 1.3 Research Objectives

The main purpose of this work is to determine the effect of liquidity risk management on the performance of general insurance companies in Ghana.

The specific Objectives are:

1. To evaluate the effect of liquidity risk management on general insurers' return on equity.
2. To examine the effect of liquidity risk management on general insurers' return on assets.
3. To evaluate the effect of liquidity risk management on general insurers' investment income.

## 1.4 Research Questions

1. Does liquidity management affects non-life insurers' return on equity?
2. Does liquidity management affects non-life insurers' return on assets?
3. Does liquidity management affects non-life insurers' investment income?

**1.5 Significant of Study**

The growing nature of the insurance industry in Ghana has made this study important. The growth has come as a result of some of the reforms introduce by the insurance regulators such as the introduction of the risk based capital requirement and the compulsory insurance covers (third party motor insurance and fire insurance for private commercial buildings). To make the insurance industry more stable and resilient in their ability to meet the challenges associated with the growth of the industry, it calls for a study to know how liquidity risk management affect the performance of a company. Liquidity issues may adversely affect the performance of a company. It is therefore important that Insurers and other stakeholders understand how the management of liquidity risk affect the overall performance of the insurance company.

The outcome of this study will help Insurers on decisions to take in managing their liquidity. Insured's are supposed to come into terms with the liquidity position of the company so that insured would also know if the insurance company can indemnify the insured as stated in the contract of insurance when a loss occurs. Insurance Regulators will also find this study helpful as they build policies on Liquidity standards for the growing insurance industry in Ghana in their quest to build a strong and resilient industry. This study also adds up to the scholarly knowledge and further helps other scholars who may want to assess liquidity risk management on insurance companies.

**1.6 Methodology of Research**

The study made use of panel regression model to investigate the effect of liquidity risk management on firm performance of non-life insurance companies in Ghana. Data was compile from the National Insurance Commission Website. Date was taken for ten years from 15 companies spanning from 2009 to 2018 giving 150 study observations.

**1.7 Scope of the Study**

The study used strictly secondary data which was obtained from the National Insurance Commission (NIC). The study only assessed general insurance companies on the basis of how the liquidity risk impacts the financial performance. Financial performance is measured by ROA, ROE and IYD. Liquidity risk was measured by leverage risk (LR), claims loss ratio (CR) and premium growth (PGR).

Firm-related variables such as firm size was controlled for. The sample period for this study is 10 years starting from 2009 to 2018. A sample of 10 general insurance companies were selected for the analysis based on panel regression strategies.

**1.9 Limitations of Study**

The objective of the research is to access the effect of liquidity risk management on the performance of general insurance companies in Ghana. The study stated that the 29 general insurance companies in Ghana as at the end of year, 2018 from the National Insurance Commission (NIC) report will be used for the period of 2009 - 2018. The study was however compelled to restrict the research to 15 general insurance companies as some of the companies were not in operation during the early years and

also the audited financial statement for some of the companies were not available for some of the years.

This sample represents 51.17% of the 29 general insurance companies in Ghana. The sample is not that big relative to the population. However, since general insurance companies share similar characteristics, generalizing the findings of this study will not be problematic

## 1.10 Organisation of Study

The study is organized into five (5) chapters. The first chapter looks at the introduction. This consist of the background of study which looks at liquidity risk management, performance of insurance companies, liquidity risk management and performance of insurance companies, and insurance companies in Ghana. Chapter two is the literature review which gives the theoretical, empirical and conceptual framework with both international and local evidences. Chapter three is the methodology for the study and Chapter four consist of the data analysis, results and discussion. The summary of the study, conclusion and recommendations have been considered in the fifth chapter.

**CHAPTER TWO**

**LITERATURE REVIEW**

**2.1 Introduction**

The chapter has been sub-section under Overview of the insurance industry in Ghana, Theoretical Literature, Conceptual Literature and Empirical Literature. The Overview of the insurance industry in Ghana gives a brief history and performance of the insurance market in Ghana. The Theoretical Literature explains some theories like Risk – Return theory that underlines the study. Conceptual Literature outlines some ideas behind the study and the Empirical Review explains works on related theory and past studies in relation to the objective of the study.

**2.2 Overview of the Insurance Industry in Ghana**

The insurance markets in Ghana have grown over the years and has undergone several regulatory reforms. Some of the reforms include the separation of composite insurance company into life businesses and the non – life businesses. This regulation was enforced by the National Insurance Commission (NIC) in the year 2009 in line with the provision of the insurance Act 2006, Act 724. Another regulation enforcement was the "No Premium No Cover" in April 2014. This ensured that policy holders pay their premium in full before they get covered for the risk they are insuring. This allows an insured to pay for the period (from one day to a year) that can be covered with the premium available and not compulsory getting covered for a year. This regulatory was necessary because, insurance companies (mostly the non – life companies) had challenges in collecting the huge levels of premium debt stated in the financial statement.

As of March 2018, NIC stated that 22 life insurance companies, 29 non – life insurance companies and 3 reinsurance companies are in good standing in Ghana. Currently, The Enterprise Group Limited and SIC insurance company limited are the only insurance companies listed on the Ghana Stock Exchange market. Over the last five years, the insurance industry has experience a vast turnaround of its awareness, operations and importance. This has influence households, companies, the government and the public in general to buy most of insurance companies products. The insurance industry has also contributed immensely to the growth of the financial markets in Ghana.

The capital base of the insurance sector in Ghana has been strengthened by the introduction of the "No Premium No Cover" which has reduced part payments in insurance premiums and improves creditworthiness. From the National Insurance Commission (NIC) 2018 report, there are two measures that are used to assess the relevance of insurance in the country. Insurance penetration - which looks at the ratio of premium to the Gross Domestic Product and Insurance coverage – which looks at the proportion of lives with insurance. Penetration of insurance in the country is still low. Thus, the contribution of total insurance premium to the Gross Domestic Product (GPD) is less than 2% (NIC 2018 annual report). Conscious efforts are therefore being made to improve the penetration through the encouragement and development of microinsurance as well as enforcement of compulsory insurance in the country.

## 2.3 Conceptual Literature

A corporate entity's performance is mostly linked to its financial performance. Financial ratios such as ROA, ROE, investment income, earnings per share (EPS) among others are used to measure the performance of a firm.

Few studies such as Ali, Mohammed and Amer (2015), Yahaya and Lamidi (2015), Olalekan (2018) adopted return on asset (ROA) as proxy for financial performance of the firms. ROA is a variable that is most sustainable because, it indicates how a company is profitable in relation to its total assets. ROA provides stakeholders an idea as to how efficient management of a company is in terms of generating income.

ROE is one of the most important profitability metrics. ROE signifies how good the company is in generating returns on the investment it received from its shareholders. Total assets minus total liabilities give the company's equity. A company that has a high return on equity is more likely to be one that is capable of generating cash internally. Mathematically, ROE equals Net Income or profit divided by shareholder's equity. The higher the ROE, the more easily the company will be able to raise money for growth.

Investment Income also refer to as Return on Investment (ROI) is income that is earned from payment of interest, dividends, capital gains collected upon the sale of security or other assets and any other profit made through an investment vehicle. It is income that is earned from investment such as real estate and the stock market. Thus, ROI refers solely to the financial gains above the original cost of the investment. ROI is generally calculated as total earnings divided by the actual investment cost. The bigger the ratio, the higher the gains accrued. Investment income can be received as a lump sum or regular interest payments paid out over time.

The factors of liquidity risk that influence insurance companies' performances include, claim loss ratio, leverage risk, liquidity ratio, premium growth rate, underwriting risk, among others. For the purpose of this study, claim ratio loss, leverage risk and premium growth rate will be the factors that will be used to influence the performance of the insurance company.

### 2.3.1 Claim Loss Ratio

Claim Loss Ratio also called Loss Ratio is used in the insurance industry and it represents the ratio of losses to premiums earned. Losses in claim loss ratios include insurance claims that has been paid and adjustment expenses. The loss ratio formula is given by insurance claims paid in a period divided by total earned premiums in that same period. Insurance companies are into managing risk and as such they should have a thorough knowledge about the claim loss ratio. For general insurance companies, a high loss ratio can be an indicator of financial distress. It could mean that the insurance company may not be collecting enough premiums to pay claims, expenses, and still make a reasonable profit. If the ratio is lower than expected, it could be that such companies are collecting premiums more than the amount paid in claims or possibly it could indicate difficulties in claiming by customer.

### 2.3.2 Leverage Risk

Financial leverage is captured by the debt – to – equity ratio. Leverage also refers to the use of debt (borrowed funds) to increase returns from an investment or project. Insurance leverage refers to the ratio of deferred insurance liabilities to shareholder equity and it is an important tool for understanding the financial strength of insurance companies. The way an insurance company manages its leverage risk could make it

prosper or insolvent. However, additional studies underscore the point that leverage risk decreases the performance of the companies. It is a financial ratio that shows the rate company's asset that is financed with debt. Leverage is on the other hand is estimated as the ratio of total liabilities to total assets.

### 2.3.3 Premium Growth Rate

An insurance premium is the amount of money you pay for an insurance policy. The premium paid depends on the type of insurance cover one has and the premium growth for an insurance company partly depends on the demand of insurance products. Premium growth is one of the essential factors that impacts financial performance of insurance firms. The premium growth rate of the firm has been seen to impact financial performance of insurance firms, and a number of research work have been done on it.

Independent variable                                      Dependent variable
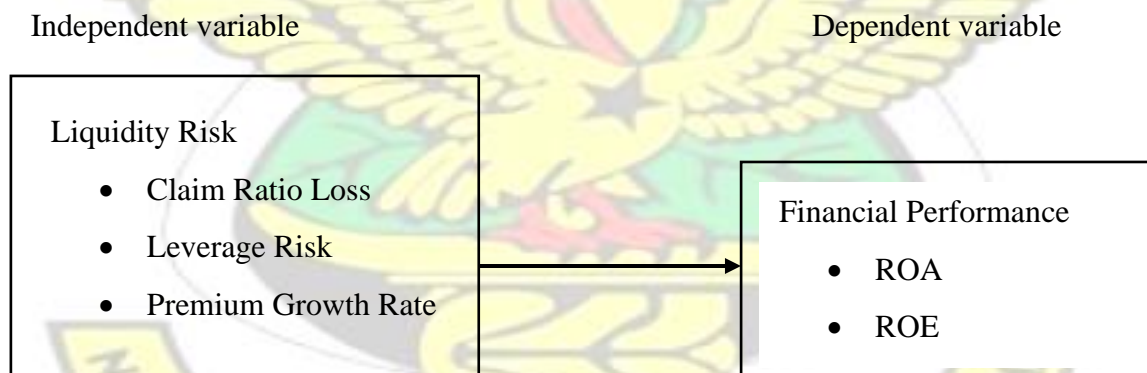


Figure 1: Conceptual Framework

## 2.4 Theoretical Literature

This section reviews the theoretical aspects related to liquidity risk that support the study. These are risk return theory and extreme value theory.

## 2.4.1 Risk Return Theory

This theory was put forward by Markowitz (1952). Risk return theory states that the potential return rises with an increase in risk. With this principle, low levels of uncertainty are associated with low potential returns, and high levels of uncertainty or risk with high potential returns. Conferring to the risk-return trade-off, financed money can yield advanced incomes only if the investor will accept a higher possibility of losses. The risk return model underscores this work because insurance firms are both a risk-taking and profit - making ventures, and their activities should return profits to correspond to operations risk.

## 2.4.2 Extreme Value Theory

Extreme value theory pioneered by Leonard Tippet (1950's), measure the likelihood of an extremely unlikely event. Thus, extreme value theory measures the probability that a data point that deviates significantly from the average will occur. Extreme value theory support this studies because, it is useful in insurance to measure the risk of disastrous events such as tornados, wildfires, earthquakes and the like which occur with very small probability. This theory is an applied and robust tool for modeling risky events per meaning happening with a very low probability.

**2.5 Empirical Review**

The question of how liquidity risk management affects financial outcomes of general insurance companies requires answers based on literature. A couple of studies has been performed to address this question and it is important that outcomes from past studies are discussed. This section presents a review of prior studies on the impact management of liquidity risk has on financial performance of non-life insurance firms in Ghana. Compared to similar studies in banking, research of insurance industry's liquidity has not seen enough scholarly literature.

According to a study conducted by Shiu (2006), on firm specific and other economic factors that impact liquidity of corporate institutions amongst the life insurance institutions in the United Kingdom with data spanning from 1985 to 2002. The findings from the study come out that claims ratio, free assets, equity returns and termination rates impact positively on insurance companies' liquidity standing.

From the study of Chang and Tsai (2014), the adopting independent variables on management of liquidity amongst United States property – liability market with an annual data starting from 2006 to 2010. Koenker and Basset (1978) made use of quantile regression approach to examine the different impacts of the explanatory factors on some liquidity index. The authors made a conclusion which was based on the empirical indication and found that both higher levels and lower levels of liquidity in the insurance market have relationship with the lower usage of leverage usage. The study further found that, re-insurance, concentration of business and size of firm are other important variables in the US property – liability market liquidity.

The study of Liu et al. (2016) studied the reverse causality which exist between liquidity and usage of reinsurance in the United Kingdom non-life insurance industry from 1994 to 2011. The authors conclude that, higher level of liquidity companies make use of large amount of re-insurance agreements whereas the companies with relatively low liquidity levels use small reinsurance amount. Choi et al. (2013) and (2016) used varied approaches earlier adopted by Shiu (2006), Chang and Tsai (2014) and Liu et al. (2010) in their study. The authors adopted a broad-based liquidity of insurance firms measure by the use of a complete data of financial records and with the approach of Berger and Bouwman (2009). The authors estimated the creation of liquidity amongst property – liability insurance firms in the United States with data from 1998 to 2007. After the comprehensive analysis, the study came out that the insurance firms under study were destroys their liquidity.

Kamau and Njeru (2016) moreover assessed the impact liquidity risk has on financial performance of insurance firms which were listed on the NSE for the date spanning from 2012-2015. The study found out that the risks which are inherent with insurance companies such as operational, market and risks of credit have a significant negative relationship with the companies' financial performance. The authors further recommend to manager of insurance companies to establish measures to hedge against the found risks to ensure that there is a healthy financial performance by the insurance companies. In the study of Mehari and Aemiro (2013), the authors sought to find out firm-specific determinants of performance of insurance companies in the Ethiopian market by the use of nine firms operating in the insurance market from 2005 to 2010. The study's finding came out that the firms' age, company size, growth in written premium, leverage, liquidity, and loss ratio (risk) had negative significant relation with

financial performance of insurance firms in Ethiopia. The study further found that writing premium growth, age of the insurance companies and liquidity have no significant relationship with return on asset (ROA) of the companies under study.

In the study of Saeed and Khurram (2015) on the determinates that influence the financial performance of twenty-four (24) general insurance firms in Pakistan for a period from 2005 to 2013. The authors with the use of fixed effect panel regression model, found a significant relationship between loss ratio proves financial performance. Nikhik, Kingshuk, Mihir (2015) also studied on firm-specific variables which affect the entire financial performance Indian life insurance market for a decade spanning from 2003-04 to 2012-13 and found a negative but not significant impact of leverage on financial performance (ROE) of life insurance companies.

In the study by Chen et al. (2009) to come out of the impact of capital structure and operational risk on profitability of the Taiwan life insurance market making use of structural equation modeling technique estimation, the study found that capital structure has significant negative impact on operational risks of the insurance companies, however, there was no reciprocal effect of operational risk on capital structure. The study also found a significant negative effect of operational risk on the profitability of the firms.

Charumathi (2012) examined the firm-specific features that affect profitability of Indian life insurance industry from 2008 to 2011. The study adopted 23 life insurance companies. With the use of panel regression model, the study found a positive relation

between size company, premium growth, liquidity, underwriting risk and equity capital on the return on asset of the life insurance companies under review.

Lee and Lee (2014) studied on the relationship that exists between firms-specific variables and macro-specific variables and the profitability of the insurance industry in Taiwan. The study proxied firm performance with operating ratio and return on Asset. The study's results found that there exists a significant relationship between underwriting risk, reinsurance usage, input cost, return on investment and profitability and operating ratio of the insurance companies. The authors further found that the subsidiary companies of the insurance firms have lower profitability than the substantive insurance companies. Burca and Batrinca (2014) adopted panel regression model to assess the factors that affects financial performance in the insurance market at Romania from 2008 to 2012. The study found that leverage, company size, growth in premium, risk in underwriting, retention ratio and solvency margin are the major determinants of financial performance of insurance companies in Romania.

In Ghana, Baah, Alhassan, et al. (2019) examine whether the association between risk of insurers and profitability is dependent on regulators guidelines with the use of a panel regression model for insurance companies spanning from 2009 to 2025. The study established that both two main regulatory polices alleviate the impact of underwriting risk of the companies on their profits and further recommended that regulations from the regulator reduce the negative impact of underwriting risk and thereby improving profitability.

Akotey et al. (2013) estimated the life insurance market in Ghana's financial performance. The authors adopted panel regression model in estimating the data which was solicited from 2000 to 2010. The study made use of investment income, underwriting profit and net profit as the proxies for performance of the of the insurance companies under review and found a positive relationship between gross written premiums and the profitability of the insurance firms. The analysis however found a negation association investment income and profitability.

In the study of Alhassan et al. (2015), the authors estimated the effect of the market structure driven by the regulator on the pricing behavior in insurance industry in Ghana. The study used 36 insurance firm which was made of 14 and 22 life and non-life firms respectively with the data from 2007 to 2011. The authors conclude that as some evidence show that there exists efficiency–structure hypothesis for life, there were contradictory findings for structure-conduct performance hypothesis when it comes to non-life insurance industry. The study also found that there is an increase level of competition in both life and non-life insurance industry in Ghana, however there is more concentration in the life than the non-life.

Asare et al. (2017) studied on effect of intellectual capital on the profitability of the Ghanaian insurance companies and found that the non-life insurance sector more involved with advanced intellectual capital performance as compared to life insurance sector. The study further found that there exist a significant positive relationship between intellectual capital and the profitability of insurance companies in Ghana.

## 2.6 Summary of Literature Review

The findings that were emanated from the empirical work shows that liquidity management could expose a company to financial losses if the firm fails to take measures such as maintaining a proper match between assets and liabilities. Different from other financial institutions like banks, insurance companies require to keep more liquid assets relative to their short – term liquidity liabilities. Some empirical studies have concluded differently on the effect of liquidity risk management on financial performance. Some demonstrated a direct association between the management of liquidity risk and financial performance, others concluded otherwise. Most of the studies focus on profitability as the measure of financial performance. There is the need for insurance companies to practice prudent risk management in order to protect the interest of stakeholders. This study is therefore aimed at showing the effect of liquidity risk management on the performance of general insurance companies in Ghana.

# CHAPTER THREE

## RESEARCH METHODOLOGY

### 3.1 Introduction

This chapter discusses the methodology pursued to achieve the objectives of the study. The chapter discloses information relative to the design and population of the study. It also informs us about the sample size and sampling techniques employed, sources of data, model development and estimation strategies. The chapter also looks at data analytical methods used.

### 3.2 Research Design

Quantitative design is used because the study collects and analyzes already existing numerical data using econometric methods. Using quantitative design is appropriate for this study as numerical data required to execute the analysis is readily available and accessible from the NIC reports. Also, applying statistical analytics to such data is not problematic.

Again, the adoption of quantitative design is informed by empirical literature, as a number of papers including Obonyo (2016), Emine (2015), Lee and Lee (2012), Tomislava, Miletic and Pavic (2017) have employed similar designs in carrying out similar studies. The advantage of using this design is that it makes the data collection activity less cumbersome, and facilitates analysis of pre-existing data using econometric methods. Also, applying statistical modeling enables the researcher to estimate and determine relationships amongst the variables of the study. The strength of this design is in its ability to enable the researcher use various forms of data and integrate his experience in analyzing the relationships between variables.

## 3.3 Population of the study

The population of this study consists of all registered general insurance companies in Ghana. There are 29 registered general insurance companies in Ghana as at the time of preparing this write-up (NIC, 2018 report). These companies are used as the population of the study.

## 3.4 Sample Size and Sampling Techniques

A sample of 15 registered companies is selected for the study. The benchmark for company selection is based on availability and completeness of data for the 10-year coverage of the study which starts from 2009 to 2018. That is to say that for a company to be included in the sample, it must have data for all the variables for all the years covered by this study. Thus, companies having missing data for some of the years are excluded from the sample. Selecting companies with all variable data for all the years enables the study to use balanced panel. According to Brooks (2008), the balanced panel is able to deal with the problem of unit heterogeneity among variables, and at the same time helps control omitted variables and insurance specific effects (Wooldridge, 2009). A total of 150-firm-year panel data observations is used for this study.

## 3.5 Data and Sources of Data

This study utilizes already existing secondary data. Secondary data for each of the variables needed to accomplish the objectives of the study are used. These are ROA, ROE and ROI (IYD). The rest are leverage risk, claim loss ratio, premium growth, and firm size. These variables are taken from annual reports of NIC.

## 3.6 Data Analysis Models

This study examines the relationship between liquidity risk and financial performance of general insurance companies in Ghana. Balanced panel data regression is used to achieve the results. According to Brooks (2008), this method ensures that the issue of unit heterogeneity is reduced. The general construction of panel regression is given in model 1.

$$Y_{it} = \delta_{it} + \beta' F_{it} + \varepsilon_{it} \dots\dots\dots\dots\dots (1)$$

where $Y_{it}$ denotes the dependent variable, financial performance of insurance company i at time t; $\delta_{it}$ is a constant factor or intercept on the y-axis; $\beta'$ represents the partial effects (coefficients) of $F_{it}$; $F_{it}$ is a vector representing the explanatory variables and $\varepsilon_{it}$ is the error term.

In this study, financial performance is regarded as being a function of liquidity risk which is proxied by leverage risk (LR), claims loss ratio (CR) and premium growth (PG), while firm size as a control. Assuming a linear association ships for the variables, the functional notation form of the conceptualized model is follows

Financial performance = f (leverage risk, claims loss ratio and premium growth and firm size) …………. (2)

In this study, three proxies are used for financial performance. These are ROA, ROE and ROI(IYD).  In the next step of developing the models, the symbolic letters of variables are incorporated in model 2 to yield models 3 to 5 as follows

ROA = f (LR, CR, PG, SIZE) ……………………….. (3)

ROE = f (LR, CR, PG, SIZE) ……………………….. (4)

ROI = f (LR, CR, PG, SIZE) …………………………… (5)

In the next step, the logarithmic transformation of the variables is applied to models 3 to 5 for the construction of empirical models meant for estimation for objective two of this study.

$$LnROA_{it} = \beta_0 + \beta_1 LnLR_{it} + \beta_2 LnCR_{it} + \beta_3 LnPG_{it} + \beta_5 SIZE_{it} + \varepsilon_{it} …….. (6)$$

$$LnROE_{it} = \beta_0 + \beta_1 LnLR_{it} + \beta_2 LnCR_{it} + \beta_3 LnPG_{it} + \beta_5 SIZE_{it} + \varepsilon_{it} …….. (7)$$

$$LnROI_{it} = \beta_0 + \beta_1 LnLR_{it} + \beta_2 LnCR_{it} + \beta_3 LnPG_{it} + \beta_5 SIZE_{it} + \varepsilon_{it} …….. (8)$$

From models 6, 7 and 8, ROA, ROE and ROI are proxies for financial performance of company i at time t; $\boldsymbol{\beta}_0$ is a constant term. $\boldsymbol{\beta}_1$ to $\beta_5$ are weights for independent variables for estimation; t = 1… T; i = 1…. N (t is time in years, and i is the number of cross sections, the number of insurance companies under study). $LR_{it}$ refers to leverage risk, $CR_{it}$ refers to claims loss ratio and $PG_{it}$ refers to premium growth (the main independent variables) for company i at time t.

Control independent variable is SIZE stands for firm size of insurance company i at time t. The $\varepsilon$ is error term presumed having normal distribution properties, and which is a representation for other variable inputs that can explain variations in financial performance but are brought in the models.

**3.7 Data Estimation Strategies**

This study exploits first degree panel regression methods of fixed effect (FE) and random effect (RE) to estimate the data. The study conducts Hausman specification test to aid the choice between FE and RE model estimates, as suggested by Baltagi (2005). The Hausman specification test is explained below.

### 3.7.1 Hausman Test Procedure

Given the controversy regarding whether fixed effect (FE) or random effect (RE) estimation technique is more efficient, this study applies Hausman test in guiding the choice between FE and RE estimation results. The model below represents the test procedure

$$H = (\hat{\beta}_{RE} - \hat{\beta}_{FE})'(\textstyle\sum FE - \textstyle\sum RE)^{-1}(\hat{\beta}_{RE} - \hat{\beta}_{FE}) \dots\dots\dots\dots (9)$$

where $\beta$ is the estimated beta, FE and RE represent fixed and random effects estimators respectively. The null hypothesis of the Hausman test is that the FE and the RE estimators do not differ significantly. Rejecting the null hypothesis means that the random effect estimation result is not appropriate, rather the fixed effect is efficient and robust (Gujarati, 2004).

### 3.7.2 Fixed effect estimation method

The fixed models for the four proxies of financial performance are developed as follows

$$LnROA_{it} = \beta_0 + \beta_1 LnLR_{it} + \beta_2 LnCR_{it} + \beta_3 LnPG_{it} + \beta_5 SIZE_{it} + U_{it} \dots\dots (10)$$

$$LnROE_{it} = \beta_0 + \beta_1 LnLR_{it} + \beta_2 LnCR_{it} + \beta_3 LnPG_{it} + \beta_5 SIZE_{it} + U_{it} \dots\dots (11)$$

$$LnROI_{it} = \beta_0 + \beta_1 LnLR_{it} + \beta_2 LnCR_{it} + \beta_3 LnPG_{it} + \beta_5 SIZE_{it} + U_{it} \dots\dots (12)$$

### 3.7.3 Random effect estimation method

Under this estimation, individual specific effects are proxied by a random variable, and that this random variable does not have any linear relationship with the independent variables (Wooldridge, 2013). An advantage of the random effect estimation is that it

can be used to estimate static variables (Gujarati, 2009). The random effect models designed for this study are shown as

$$LnROA_{it} = \beta_0 + \beta_1 LnLR_{it} + \beta_2 LnCR_{it} + \beta_3 LnPG_{it} + \beta_4 SIZE_{it} + w_{it} \ldots\ldots\ldots (13)$$

$$LnROE_{it} = \beta_0 + \beta_1 LnLR_{it} + \beta_2 LnCR_{it} + \beta_3 LnPG_{it} + \beta_4 SIZE_{it} + w_{it} \ldots \ldots\ldots (14)$$

$$LnROI_{it} = \beta_0 + \beta_1 LnLR_{it} + \beta_2 LnCR_{it} + \beta_3 LnPG_{it} + \beta_4 SIZE_{it} + w_{it} \ldots\ldots\ldots (15)$$

## 3.8 Data Management and Analysis Procedures

### 3.8.1 Panel data regression analysis

Objective two of this study focuses on examining the effect that reinsurance has on financial performance of insurance underwriters. To accomplish this objective, this study deploys first generation panel regression models of FE and RE as analytic systems. To choose between FE and RE systems, this study performs Hausman specification test. In analyzing the regression output, computed variable weights are examined for statistical significance and relative power of individual independent variables in explaining variations in the dependent variable. Numerical probability numbers associated with the variable weights, the test-statistics and standard errors are all examined to make meaning out of the raw estimates.

### 3.8.3 Descriptive statistical analysis

Apart from examining the regression properties in terms of numeric weights of variables, descriptive statistical elements of the variables are also examined to extract basic features for explanation.

### 3.8.4 Data Diagnostic Tests

Data diagnostic tests such as normality test and correlation analysis (for multicollinearity) are also applied for examining normality and multicollinearity elements of the dataset. The data is automatically estimated using E-Views econometric software (version 9).

# CHAPTER FOUR

# RESULTS AND DISCUSSION

## 4.0 Introduction

This chapter discusses the results of data handling activities are submitted. The chapter contains information on descriptive statistical properties of the data, and details linear correlation coefficient estimates of the variables. The last sections of the chapter seek to present data results meant to provide answers to the research questions.

## 4.1 Descriptive Statistics

This section undertakes an analysis of the descriptive behavioral characteristics of the variables for this study. Table 4.1 submits the basic statistics of the variables. In relation to the other estimates, it is vital to discuss the descriptive statistics in order to be prepared to summarize some significant features on the gathered information. The study discusses the mean, median, maximum and minimum returns, standard deviation, skewness, kurtosis, Jarque-Bera test statistics, p-value for testing the normality of Jarque-Bera hypothesis test for the study period. The outcome of the descriptive statistics of the data set was obtained from the EViews 9.

The standard deviation indicates the extent to which the values of the observations are distributed around the mean (Macfie & Nufrio, 2006). That is large standard deviations means the values of the observations are distributed away from the mean whiles a small standard deviation shows the values of a set of observations are concentrated around the mean. The mean and the standard deviation are significant measurements to display the overall situation in any period of time. In the analysis, the variable show very small standard deviations, evidence that the values are not dispersed from the

average. The index has very small difference between the maximum and minimum of the default rations and a low standard deviation indicating a generally low level of fluctuations of the ratios. This is evident that the selected companies show a low volatility in their ratios consistence with Hassan and Samour (2015) but however inconsistent with Aggarwal and Padhan (2017).

From the table firm size reports 19.03197 and 10.23595 as the maximum and the minimum ratios respectively, which shows a larger range from the mean, this means that the ratios of firm size of the companies are more volatile than the other variables. The skewness, kurtosis, Jarque-Bera, and Probability analyse the normality of data. From the table, it is shown that the skew value of the ratios are not zero (0), and thus, shows the presence of skewness in the default ratios.

It is also clear from the table that, five variables; LNROA, LNROE, LNLEVR and LNFIRMSIZE have negative skewness, which implies that the distribution of these variables are more skewed toward left than normal distribution while LNCLR had positive skew, which indicates that   there is a non-normal distribution of the ratio and more skewed toward right than normal distribution.  Again, it can be observed that LNCLR and firm size show the highest and lowest skewness of the data respectively. According to Dajčman and   Festić (2012), normal Kurtosis distribution is 3. Jarque-Bera (J-B) test could be used to analyse normality in data set especially data in the form of time series. The test for Jarque-Bera is known to be one of the best and simple techniques to test for normality.

It examines kurtosis and skewness of different data series with the expectations that normally distributed data have no skewness, and kurtosis coefficient lies within the bench mark of 3, (Jarque - Bera (1980). This however means that theoretically, and according to Jarque and Bera (1980), the coefficient of Jarque-Bera needs to be near zero, as an indication that the data are normally distributed, but examining the result from Table 4.1, it is evident that the Jarque-Bera values of the data set higher than zero even though the values are quite small, with LNIYD recording the highest of 14.09398.

**Table 4.1: Summary Statistics**

|  | LNROA | LNROE | LNIYD | LNLEVR | LNCLR | LNFIRMSIZE |
|---|---|---|---|---|---|---|
| **Mean** | 1.682985 | 2.499765 | 2.318429 | 3.018318 | 4.439676 | 16.79464 |
| **Median** | 1.791759 | 2.639057 | 2.397895 | 3.044522 | 4.375579 | 16.89693 |
| **Maximum** | 4.290459 | 4.795791 | 5.017280 | 6.025866 | 6.249975 | 19.03197 |
| **Minimum** | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 2.708050 | 10.23595 |
| **Std. Dev.** | 0.858740 | 0.955209 | 0.699503 | 1.261391 | 0.674184 | 1.324807 |
| **Skewness** | -0.265905 | -0.609544 | -0.671503 | -0.154231 | 0.146816 | -1.533615 |
| **Kurtosis** | 3.148130 | 3.583668 | 5.499377 | 3.112167 | 2.695549 | 9.191878 |
| **Jarque-Bera** | 1.904784 | 11.41778 | 50.31593 | 0.673317 | 1.118190 | 29.4203 |
| **Probability** | 0.385817 | 0.003316 | 0.000000 | 0.714153 | 0.571726 | 0.000000 |
| **Observations** | 150 | 150 | 150 | 150 | 150 | 150 |

Source: Author's data estimation of Non-Life Insurance Companies from NIC

**4.1.1 Correlation Analysis**

The outcome of the correlation analysis (Table 4.2) is represented in matrix of pair-wise correlation by calculating the correction of the variables with each other. It was found that the variables all the independent variables have feeble to modest correlation and consequently do not posture any difficulty of multicollinearity. Interestingly all the

independent variables had correlation amongst themselves which indicates that there do not exist multicollinearity amongst the chosen independent variables.

**Table 4.2: Correlation Analysis**

| Probability | LNROA | LNROE | LNIYD | LNLEVR | LNCLR | LNFIRMSIZE |
|---|---|---|---|---|---|---|
| LNROA | 1.000000 | | | | | |
| | ----- | | | | | |
| LNROE | 0.848906 | 1.000000 | | | | |
| | 0.0000 | ----- | | | | |
| LNIYD | 0.406837 | 0.289098 | 1.000000 | | | |
| | 0.0000 | 0.0003 | ----- | | | |
| LNLEVR | 0.330149 | 0.345972 | 0.072817 | 1.000000 | | |
| | 0.0000 | 0.0000 | 0.3759 | ----- | | |
| LNCLR | -0.032457 | 0.125877 | -0.201302 | 0.112164 | 1.000000 | |
| | 0.6934 | 0.1248 | 0.0135 | 0.1718 | ----- | |
| LNFIRMSIZE | 0.008458 | 0.025116 | 0.159146 | -0.002028 | 0.046603 | 1.000000 |
| | 0.9182 | 0.7603 | 0.0517 | 0.9803 | 0.5712 | ----- |

Source: Author's data estimation of Non-Life Insurance Companies from NIC

**4.2 Panel Regression Model**

By pursing panel regression techniques, this study makes a choice between fixed effect and random effect models. The Hausman test is used as the bases for the selection of the appropriate model for the study. The following sub-section describe the results obtained from this statistical test.

**4.2.1 Hausman Test Results**

Table 4.3 shows the results generated from the estimation of the data for Hausman test. The estimates show test summary comprising of the chi-square statistic at 0.0000 for

the 4 set of independent variables. The result shows probability of 0.0001 which is less than 5%. Having achieved this probability suggests that null hypothesis is flawed and that means that random effect technique is not the most appropriate model for this study. On the basis of this, the study deems it appropriate to apply the fixed effect model for estimating the panel regression for all the models constructed for addressing objectives of the study.

**Table 4.3: Hausman Test Results**

| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
|---|---|---|---|
| Cross-section random | 0.000000 | 4 | 0.0001 |

Source: Author's calculation based on non-life insurers' annual reports

## 4.3 Effect of Liquidity Risk Management on the Performance of General Insurance Companies in Ghana

This study broadly looks at how liquidity risk management affect the performance of general insurance companies in Ghana. Following prior research, the study defines financial performance in terms of ROA, ROE and IYD as dependent variables. Sub-sections 4.5.1 through to 4.5.3 detail tables containing the outcomes of data for the dependent variables.

## 4.3.1 Effect of Liquidity Risk Management on ROA of insurance Companies in Ghana

The first objective of the study sought to investigate the relationship between liquidity risk management and performance of insurance companies in Ghana. Table 4.4

summaries the numerical results for the variable coefficients, standard errors, t-statistics and probabilities.

Liquidity risk is proxied by leverage risk (LR), claims loss ratio (CR) and premium growth (PGR) in this study. The effect of Liquidity risk on ROA is positive and relevant in statistical terms. PGR had a coefficient of holds 0.54990 in the estimated model, and has a1% significant impact with its probability of 0.000. The result advocates that when the insurance companies are able to manage well higher liquidity risk in terms of premium growth can lead to improvement in ROA situation in the companies. Data for this study offers statistical support for this assertion in that, a unit increase in premium growth causes ROA to rise by 0.5499. This means that when there is growth in premium changed by the insurance companies, they take advantage of it as it impacts positively on the ROA.

For this particular model, insurance companies' leverage has positive significant effect on ROA, injecting 0.219283 coefficient in the model and producing 1% significant probability of 0.000. Thus, an upsurge in leverage stimulates growth of ROA for insurance firms. It is an indication that when the companies increase their level of leverage in their capital structure, the capital in terms of leverage impacts positively to the ROA level of the firms. The finding is consistent with the finding of Saeed and Khurram (2015) who examined the factors influencing the financial performance of twenty-four (24) non-life insurance companies of Pakistan over the period 2005 - 2013 and their findings indicated that leverage risk and loss ratio proves are significant in determining performance.

However, firm size has negative effect on ROA by having -0.027831 weight in the model. The effect of size is however not statistically significant at a probability of 0.7291, suggesting that firm size does not contribute to making ROA of the firms under study. The case of claims loss ratio (CR) on ROA is positive at 0.153616 but not significant at probability number of 0.1708. This result tells us that claims loss ratio of insurance firms do not play any statistically meaningful role in driving ROA position.

**Table 4.4: Effect of Liquidity Risk Management on Return on Asset (LNROA) of General Insurers**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -0.598929 | 1.374468 | -0.435753 | 0.6637 |
| GDPGR | 0.549909 | 0.106369 | 5.169830 | 0.0000 |
| LNLEVR | 0.219283 | 0.050527 | 4.339945 | 0.0000 |
| LNCLR | 0.153616 | 0.111535 | 1.377293 | 0.1708 |
| LNFIRMSIZE | -0.027831 | 0.080184 | -0.347088 | 0.7291 |
| R-squared | 0.373187 | | | |
| Adjusted R-squared | 0.281576 | | | |
| F-statistic | 4.073600 | | | |
| Prob(F-statistic) | 0.000001 | | | |
| Durbin-Watson stat | 2.052112 | | | |

**Source:** Source: Author's data estimation of Non-Life Insurance Companies from NIC

**4.3.2 Effect of Liquidity Risk Management on Return on Equity (LNROE) of General Insurers**

The objective two of the study investigates the effect of liquidity risk (leverage risk (LR), and performance of insurance companies in Ghana proxied by ROE, thus ROE is the second financial performance indicator being examined by this study. Table 4.4

summaries the numerical results for the variable coefficients, standard errors, t-statistics and probabilities.

Table 4.4 reports that liquidity risk (leverage risk (LEVR) contributes positively to their ROE fortunes. By exposing ROE of insurance companies to an upward pressure over the period causes insurers' ROE to rise by 0.219500. This coefficient is significant at 5% at 0.0003.

The study also found a positive relationship between leverage risk and ROE of the non-life insurance companies in Ghana. Leverage Risk (LNCLR) had a coefficient of 0.288155 with a p-value of 0.0283 at 10% significant level. Unlike in the ROA model, premium growth (PG) had a positive insignificant relationship with ROE. The premium growth (PG) had a coefficient of 0.019332 and a probability of 0.4043. Firm size have negative association with ROE, but the impact of firm size stands at (0.3488) for -0.087823 coefficient.

The results is consistent with Charumathi (2012) examined the firm-specific features that affect profitability of Indian life insurance industry from 2008 to 2011. The study adopted 23 life insurance companies. With the use of panel regression model, the study found a positive relation between size company, premium growth, liquidity, underwriting risk and equity capital on the return on asset of the life insurance companies under review.

**Table 4.5: Effect of Liquidity Risk Management on Return on Equity (LNROE) of**

**General Insurers**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 0.873839 | 1.600931 | 0.545832 | 0.5861 |
| LNLEVR | 0.219500 | 0.058852 | 3.729716 | 0.0003 |
| GDPGR | 0.019332 | 0.023103 | 0.836782 | 0.4043 |
| LNCLR | 0.288155 | 0.129912 | 2.218082 | 0.0283 |
| LNFIRMSIZE | -0.087823 | 0.093395 | -0.940338 | 0.3488 |
| R-squared | 0.312710 | | | |
| Adjusted R-squared | 0.212260 | | | |
| F-statistic | 3.113087 | | | |
| Prob(F-statistic) | 0.000071 | | | |
| Durbin-Watson stat | 2.103365 | | | |

Source: Author's data estimation of Non-Life Insurance Companies from NIC

## 4.3.3 Effect of Liquidity Risk Management on Investment (IYD) Performance of General Insurers

The last performance indictor selected for scrutiny is investment return, proxied by investment yield (IYD). Thus, the study set out to determine how liquidity risk management impacts on investment receipts. Table 4.5 contains the results.

It can be seen that liquidity risk management has significant impact on IYD. Statistical evidence shows that liquidity risk management proxied by leverage risk (LNLEVR) management contributes to explaining changes in the quality of return insurers recoup from investment portfolios. The results show that if general insurance companies manage leverage risk very well will lead to increases in investment yield by one unit,

IYD responds by changing correspondingly. The coefficient of leverage risk for this model is positive at 0.214472 for a-1% significant probability of 0.000.

This result can be assessed by deducing that if insurers undertake to take professional and practical steps in handling leverage risk it will have a positive influence on the performance activities of the firms including investments. That, in taking capital decisions, a thorough assessment has to be made in determining the leverage level since the risk associated with leverage can have a proportional effect on the companies' investment prospects.

The study also looked at the effect of liquidity risk management in the perspective of the premium growth (PG) on investment yield. The analysis came out that, the premium growth (PG) has a positive significant effect on investment yield. The premium growth (PG) had a coefficient of 0.024588 with a probability value of 0.067 at 10% level of significance.

The case for the other independent variables in the determination of investment performance shows insignificant contributions toward investment yield. Table 4.5 confirms the insignificant impacts of claims loss ratio and firm size on investment performance, whereby both variable affect investment positively however the impact is not significant.

Claims loss ratio' numerical parameter is t at 0.086314, for 0.3773 probability, whilst that of firm size at 0.001067 for 0.9832 probability. These figures suggest that a given increase in the claims' loss ratio and firm size causes appreciation of corporate

investment outcomes in an statistically immaterial manner. These numbers imply that investment performance is not accounted for by claim loss ratio and size of firm.

**Table 4.6: Effect of Liquidity Risk Management on Investment (IYD)**

**Performance of General Insurers**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -0.786163 | 0.889392 | -0.883933 | 0.3782 |
| LNLEVR | 0.214472 | 0.048535 | 4.418938 | 0.0000 |
| GDPGR | 0.024588 | 0.019387 | 1.268296 | 0.067 |
| LNCLR | 0.086314 | 0.097454 | 0.885690 | 0.3773 |
| LNFIRMSIZE | 0.001067 | 0.050624 | 0.021084 | 0.9832 |
| R-squared | 0.301485 | | | |
| Adjusted R-squared | 0.277231 | | | |
| F-statistic | 12.43030 | | | |
| Prob(F-statistic) | 0.000000 | | | |

Source: Author's data estimation of Non-Life Insurance Companies from NIC

## 4.4 Discussion of Results

The first objective found that liquidity risk (premium growth ratio and leverage risk) management poses a positive effect on ROA of insurance companies in Ghana. The finding is in line with the study of Saeed and Khurram (2015) who examined the factors influencing the financial performance of twenty-four (24) non-life insurance companies of Pakistan over the period 2005 – 2013 and found a significant relationship between liquidity risk on ROA. Mehari and Aemiro (2013) sought to find out firm-specific determinants of performance of insurance firms in the Ethiopian market by the use of nine firms operating in the insurance market from 2005 to 2010. The finding came out that the firms' age, company size, growth in written premium, leverage, liquidity, and loss ratio (risk) had negative significant relation with financial performance of insurance firms in Ethiopia. The study further found that writing

premium growth, age of the insurance companies and liquidity have no significant relationship with return on asset (ROA) of the companies under study. Charumathi (2012) examined the firm-specific features that affect profitability of Indian life insurance industry from 2008 to 2011. The study adopted 23 life insurance companies. With the use of panel regression model, the study found a positive relation between size company, premium growth, liquidity, underwriting risk and equity capital on the return on asset of the life insurance companies under review.

The finding for this objective is however inconsistent with Kamau and Njeru (2016) assessed the impact liquidity risk has on financial performance of insurance firms which were listed on the Nairobi Securities Exchange for the period spanning from 2012-2015. The study found out that the risks which are inherent with insurance companies such as operational, market and risks of credit have a significant negative relationship with the companies' financial performance.

The second objective of the study was to find the impact liquidity risk on ROE and found a significant liquidity ratio (leverage risk and claims loss ratio) to have influence on financial performance of general insurance companies in respect of return on equity. The justification for the positive impact of leverage risk on ROE, according literature, Nikhik, Kingshuk, Mihir (2015) also found a negative but not significant impact of leverage on financial performance (ROE) of life insurance companies.

In the study by Chen et al. (2009), it came out of the impact of capital structure and operational risk on profitability of the Taiwan life insurance market making use of structural equation modeling technique estimation, the study found that capital structure

has significant negative impact on operational risks of the insurance companies, however, there was no reciprocal effect of operational risk on capital structure. The study also found a significant negative effect of operational risk on the profitability of the firms.

Saeed and Khurram (2015) also examine the variables influencing the financial performance of twenty-four (24) non-life insurance companies of Pakistan over the period 2005 - 2013. The study employed the fixed effect model of Hausman test and their findings indicated that, loss ratio proves significant in decisive performance.

Finally, the study learns that liquidity risk (leverage risk and premium growth) management has positive significant effect on insurers' return on investment. The finding is in line with the study of Akotey et al. (2013) which estimated the life insurance market in Ghana's financial performance. The authors adopted panel regression model in estimating the data which was solicited from 2000 to 2010. The study made use of investment income, underwriting profit and net profit as the proxies for performance of the insurance companies under review and found a positive relationship between gross written premiums and the profitability of the insurance firms. The analysis however found a negation association investment income and profitability.

Asare et al. (2017) studied on effect of intellectual capital on the profitability of the Ghanaian insurance companies and found that the non-life insurance sector more involved with advanced intellectual capital performance as compared to life insurance

sector. The study further found that there exist a significant positive relationship between intellectual capital and the profitability of insurance companies in Ghana.

According to a study conducted by Shiu (2006) claims ratio, free assets, equity returns and termination rates impact positively on insurance companies' liquidity standing. From the study of Chang and Tsai (2014), the adopting independent variables on management of liquidity amongst United States property – liability market with an annual data starting from 2006 to 2010. Koenker and Basset (1978) made use of quantile regression approach to examine the different impacts of the explanatory factors on some liquidity index. The authors made a conclusion which was based on the empirical indication and found that both higher levels and lower levels of liquidity in the insurance market have relationship with the lower usage of leverage usage. The study further found that, re-insurance, concentration of business and size of firm are other important variables in the US property – liability market liquidity.

# CHAPTER FIVE

# SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

## 5.0 Introduction

This chapter is designed to cater for the summary of the study's findings in relation to the objectives. The chapter equally draws conclusion and catalogues implications based on the findings. The last two sections of the chapter respectively center on recommendations and recommendation for future empirical work.

## 5.1 Summary of Findings

The main purpose of this study is the investigation of the effect of liquidity risk management on financial performance of general insurance companies in Ghana. The study implements fixed effect procedure to address this objective, and collects data from 15 general insurance companies over a period of one decade from 2009 to 2018. The study finds mixed results pertaining to the impact of liquidity risk ratio on financial performance indicators. Three objectives were set for the study. First, the study investigated the association between liquidity risk management and ROA of insurance companies in Ghana and finds that liquidity risk (premium growth ratio and leverage risk) management consequentially poses major effect in determining ROA of insurance corporations in Ghana. Thus, a proportionally meaningful impact of liquidity risk was found for ROA of firms studied.

The second objective was to find the impact liquidity risk on ROE and found a significant liquidity ratio (leverage risk and claims loss ratio) to have influence on financial performance of general insurance companies in respect of return on equity.

Lastly, the study learns that liquidity risk (leverage risk and premium growth) management has positive significant effect on insurers' return on investment.

## 5.2 Conclusion

The main aim of this study relates to investigating the effect of liquidity risk management on financial outcomes of general insurance companies in Ghana. Drawing on historical data for 15 enterprises from 2009 to 2018 from the NIC database, the study pursues fixed effect approach to panel data analysis, and produces striking outcomes.

The study found that liquidity risk (premium growth ratio and leverage risk) management consequentially poses major effect in determining ROA and ROE of insurance corporations in Ghana. The study also found liquidity risk (leverage risk and premium growth) management had a positive significant effect on insurers' return on investment. The mixed findings for the consequences of various proxies for liquidity risk on financial outcomes of insurers come with a number of implications. The positive impact of liquidity risk management on ROA, ROE and investment yield implies the need for firms not to think of reinsurance in isolation, but consider it in association with investments. Generally, the study concludes that managing liquidity risk is beneficial to the financial performance of insurance companies in Ghana.

## 5.3 Recommendations

Flowing from the study results, the following recommendations are made for all stakeholders and academicians. Regulators of insurance market in Ghana ought to put in place a model regulation to help mitigate risk to progress the insurance companies'

performance given that the current requirement of capital. The study recommends that management of insurance enterprises should take necessary steps to manage liquidity risk as complementary to vigorous asset investments. This will ensure firms' financial stability as losses incurred or risks exposed due to can be balanced or neutralized with returns from investment activities.

Due to the relationship that exists between premium growth (PG), claim loss ratio (CR), investment income (IP) and firm size (SZ) it is highly recommended that insurance companies pay attention to these indicators as some of them could have a devastating impact on their solvency and competitiveness in the business. To detect early signs of insolvency, the NIC, in addition to move towards the Risk Based Supervision approach, monitor these financial ratios and intensify field inspections as well as ensuring compliance with insurance regulation. This can serve as an early warning system in determining distressed insurers. In order to achieve better overall performance, policy makers of the insurance industry must also put in place measures to ensure better corporate performance of the existing companies to make the selling of life insurance appealing to consumers.

## 5.4 Recommendation for Further Studies

This study has focused on liquidity risk management and its effects on financial performance of non-life insurance companies. Further studies can be executed to examine how liquidity risk management affects performance of life-insurance firms.

Additional work is required to look into the impact that other risk management strategies like risk retention have on the financial performance of insurance firms. Future research can look at the mediating effect of management quality in the

relationship between reinsurance utilization and financial performance. A study on the relationship between reinsurance and stability of insurance firms will make original contribution to the literature.

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