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COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF ACCOUNTING AND FINANCE

THE EFFECT OF RISK MANAGEMENT ON FINANCIAL PERFORMANCE OF NON-LIFE INSURANCE COMPANIES IN ETHIOPIA

**A RESEARCH PAPER SUBMITTED TO DEPARTMENT OF ACCOUNTING AND
FINANCE AS A PARTIAL FULFILMENT OF THE REQUIRMENTS FOR MSC
DEGREE INACCOUNTING AND FINANCE**

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Certification

This is to certify that the thesis prepared by Fekade Wolde, entitled: “The Effect of Risk management on financial performance of insurance companies in Ethiopia” and submitted in partial fulfillment of the requirements for the degree of Master of Science in Accounting and Finance complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Place and date of submission: Addis Ababa University, May, 2019

Statement of Declaration

I, Fekade Wolde declared that this thesis entitled “The Effect of risk management on performance of insurance companies in Ethiopia” is my original work, prepared under the guidance of Abebe Yitayew (PHD). All resources used in the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

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List of Acronyms

CLRM	Classical Linear Regression Model
LR	Liquidity Ratio
AUR	Asset utilization Ratio
CIR	Cost to Income ratio
CS	Claim settlement ratio
EIC	Ethiopian Insurance Corporation
NBE	National bank of Ethiopia
OLS	Ordinary Least Square
ROA	Return on Asset
SR	Safety ratio
FS	Firm Size
ISD	Insurance Supervision Directorate
ERM	Enterprise Risk Management
UNCTAD	United Nation Conference on Trade and Development
COSO	Committee of Sponsoring Organizations of the Tread way Commission

Abstract

The study was conducted to examine the effect of risk management on financial performance of insurance companies in Ethiopia; the objective of the study was to investigate the effect of risk management on financial performance from perspectives of financial, operational and enterprise management risk. The study was conducted using primary and secondary data; primary data was collected through interview; while secondary data was collected from financial statements of the insurance companies. In order to achieve the objective of the study, the study used explanatory research design, mixed research approach with a Panel data covering nine-years (2009–2017) are analyzed for ten insurers in Ethiopia. The reason for not including periods after 2017 is incompleteness of the available data at the National bank combined report at the time of data collection. Also in-depth interview was conducted with the top management of insurance companies and other national bank of Ethiopia insurance supervision officers. The finding of the study reveals that; financial performance of an insurance companies can be affected by financial, operational and enterprise management risk; the result of random effect regression model shows that; financial risk; which is measured by liquidity risk have a positive and statically significant effect on financial performance at 1 percent significance level. Cost to income ratio, claim settlement ratio and asset utilization ratio which are proxy for operational risk of insurance companies have negative, negative and positive impact on financial performance of the insurers respectively and statically significant at 1 percent, 5 percent and 1 percent significance level respectively. Firm size which is measure for enterprise risk management have positive effect on financial performance of insurance companies and statically significant at 5 percent significance level. The study recommends Ethiopian insurance companies to give their attention for those variables significantly affect the profit of the companies.

Keywords: risk management, financial performance, insurance companies

CHAPTER ONE

INTRODUCTION

This chapter of the study discusses the theoretical ground of the study and followed by the details of statements of the problem that the researcher tried to identify are presented clearly. The intended objectives of the study, research questions and hypothesis of study are also included in this part of the chapter. And finally the Significance, Scope and Limitation of the study are presented in line with the structure of the study.

1.1. Background of the study

According to Mishkin & Eakins (2013), financial markets and institutions not only affect our everyday life but also involve huge flows of funds, which in turn affect business profits, the production of goods and services, and even the economic well-being of countries. The role of financial institutions in the economy of a country in general and insurance companies in particular are facilitate the efficient and effective financial system through saving mobilization, risk transfer and intermediation (Das et al., 2003).

Insurance companies are in the business of taking risks and Worldwide these companies write policies that deal with specific risks, and in many cases, even underwrite exotic risks. In carrying its core activities, i.e., pricing, underwriting, claims handling and reinsurance management, an insurer will face a wide range of risks which are often interlinked and if not properly managed, could threaten the ability of the institution to achieve and sustain its viability. Therefore, obtaining coverage for every insurable risk is being replaced by the risk management concept. Risk management, which includes insurance coverage, is intended to minimize the costs associated with assuming certain types of risk and providing prudent protection. It deals with pure risks that are characterized by chance occurrence and that may only result in a financial loss (Arif et al., 2015

Risk management is the focal point of the insurance business. While companies are good at assessing insurance risks for their policy holders, they are expected to be good at setting up structures internally for managing their own operating and business risks. To secure others and cover up their insured's life and property, Insurance companies should be good at managing their own risks. It is therefore, necessary that insurance companies manage their risk exposure and conduct proper analysis to avoid losses due to the compensation claims made by the insured.

The 21st century has seen great efforts to risk management. Babbel & Santomero (2006) note that insurers should assess the various types of risks they are exposed to and devise ways of effectively managing them. They further suggest that insurers should accept and manage at firm level, only those risks that are uniquely part of their services. This will reduce the risk exposure. Stulz (2004) suggested that risk management is a viable economic reason why firm managers, might concern themselves with both the expected profit and the distribution of firm returns around their expected value, hence providing a rationale for aligning firm objective functions in order to avoid risk. If risks are not managed adequately insurers as risk-bearing institutions can and do fail (standard and poor's, 2013). Poor management of risk, by insurance companies, leads to accumulation of claims from the clients hence leading to increased losses Magezi (2003)

Kadi (2003) observes that most insurance companies cover insurable risks without carrying out proper analysis of the expected claims from clients and without putting in place a mechanism of identifying appropriate risk reduction methods.

As per its directive of national bank of Ethiopia Insurance Supervision Directorate (ISD) which has compiled the first draft of the risk management guideline for eight commonly identified and known as inherent and significant risks of insurers. In the process of these risks management, the role to be played by the board of directors, management, internal control system and other concerned parties are clearly addressed. So it is an implication that all insurance companies are expected to design their risk management plan (RMPs) in such a way that it serves as a sufficient standard to gauge and rate their risk management practices which basically focusing on inherent and significant risks.

Proper risk management is important in the daily operations of any insurance company to avoid financial losses and bankruptcy. This is in line with Jolly (2007) contribution that preventing losses through precautionary measures is a key element in reducing risks and consequently, a key driver of profitability. The efficiency of risk management by insurance companies will generally influence their financial performance. Gold (2009), asserts that insurance companies could not survive with increased loss and expense ratios. Thus it is important to assess the risk management practice of insurance companies in Ethiopia.

Hence, this study will investigate the effect of risk management on insurance company's financial performance in Ethiopia. In doing so, the study will give wide consideration on risk management from perspective of Financial, Operational and enterprise management risk.

1.1.1. The Insurance Industry in Ethiopia

The history of insurance service is as far back as modern form of banking service in Ethiopia which was introduced in 1905 when the bank of Abyssinia began to transact fire and marine insurance as an agent of a foreign insurance company. Subsequently the number of insurance companies increased significantly and reached 33 in 1960. According to Hailu (2007) as cited on woldemehial (2017), the first significant event that the Ethiopian insurance market observation was the issuance of proclamation No. 281/1970 and it was issued to provide for the control & regulation of insurance business in Ethiopia. The law required an insurer to be a domestic company whose share capital to be not less than Birr 0.4 million for a general insurance business and Birr 0.6 million in the case of long-term insurance business and Birr 1 million for both insurance business. Non-Ethiopian nationals were not barred from involving in insurance business however domestic company as a share company having its head office in Ethiopia and in the case of a company transacting a general insurance business at least 51% and in the case of a company transacting life insurance business, at least 30% of the paid-up capital must be held by Ethiopian national companies. Four years later the enactment of the proclamation, the military government that came to power in 1974 put an end to all private enterprise. Then all insurance companies operating were nationalized and from January 1, 1975 onwards the government took over the ownership and control of these companies & merged them into a single unit called Ethiopian Insurance Corporation.

The nationalization of private insurance companies, the restrictions imposed on private business ventures, and management of the insurance sector had significant adverse impact on the development and growth of Ethiopian insurance industry (Hailu, 2007). However, following the change in the political environment in 1991, the proclamation for the licensing and supervision of insurance business No. 86/1994 heralded the beginning of a new era. Immediately after the enactment of the proclamation private insurance companies began to flourish. According to the Directive of ISB/34/2014, any insurance company required to be a domestic company whose share capital to be not less than Ethiopian Birr 60 million for a general insurance business and Ethiopian

Birr 15 million in the case of long term (life) insurance business and Ethiopian Birr 75 million to do both long-term & general insurance business.

Today the total number of insurance companies, their asset and capital increased significantly. At 2017, there are 17 insurance companies in operation. Ethiopian Insurance Corporation (EIC) is state owned while the rest all are private.

1.2 Statement of the Problem

Insurance companies are in the core business of managing risk. They manage the risks of both their clients and their own risks. This requires an integration of risk management into the companies' systems, processes and culture. Agyei & Yeboah (2011) indicated that, some financial institutions have had difficulties in growth of their profitability and some end up closing their doors; inadequate risk management policies and practices are among the major causes of failures and poor performance of these firms. Further, Kadi (2003) stated that most insurance companies accept premiums to cover all the insurable risks without first carrying out proper analysis of the claims from the clients at and when the risk occurs and they have not put in place a mechanism of identifying various methods of reducing risks. They have accumulated claims from clients and this has led to consistent increase in losses which resulted in hindering of their financial performance cited on (Magezi, 2003). So according to these authors, insurers' financial loss may be happened due to inadequate liquidity management, underpricing (imprudent underwriting practice), management issues and high tolerance to investment risks.

Among a number of financial institutions in Ethiopia; Insurance companies plays a major role in terms of contribution to economic growth and reducing unemployment rate in the country .The Insurance sector is showing a huge increase to accommodate the ever increasing economic and social asset that needs protection. The number of insurance companies tremendously increase from a single government owned company in the 1970s to over 17 registered insurance service providers in 2018 (NBE report,2018).

In line with this, so many studies have been conducted in Ethiopia on insurance sector but in different perspectives. For example, Rebuma (2013), conducted study on the effect of risk management on financial performance. And mainly focused on risk management techniques (loss prevention & control, loss financing, and risk avoidance) and analyzed by using correlation matrix;

Hiwot (2017) explained assessment of risk management practice using the eight (8) component of ERM (Enterprise risk management) Framework. Abraham (2015) conducted study on the assessment of enterprise level risk management practices of insurance companies. The study used 9 (nine) evaluative parameters which have direct linkages with insurance companies own enterprise level risk management functions such as board responsibility, structure and resources, strategies, policies and programs, appraisal and reward, communications, benefits and out comes, auditors view, risk identification and nature of risks facing insurance companies.

W/michael (2017), has also conducted study on the effect of risk management on the financial performance of Ethiopian insurance companies; the aim of the study was to identify determinant factors of risk that affect a financial performance of the industry. The study was conducted by giving wide perspective for financial risk and operational only without considering enterprise management risk. Additionally the important variables which define the operational risk do not included; the measurement given for some part of financial risk was inappropriate.

Sisay (2017), have conducted study on the effect of financial risk management on financial performance of insurance sector in Ethiopia; the objective of the study was to identify those financial risk affects the performance of the insurance sector. This study also fails to consider the operational risk and enterprise management risk.

Kokeb and Gemechu (2016) conducted study on risk management technique and financial performance of insurance companies. They aggressively investigate the existence of relationship between risk management technique and financial performance. The variables used in the study were loss prevention and control, loss financing and risk avoidance. All these variables were correlated with financial performance ROE (Return on equity). So for the conducted studies some of them used correlation analysis to investigate the effect of risk management on financial performance; but, According to Brooks (2008), conducting financial econometric studies though regression as a tool is more flexible and more powerful than correlation however; the study conducted by Rebuma (2013) and Kokeb and Gemechu (2016) analyzed through correlations. Additionally the independent variables used to explain the effect of risk management on financial performance of insurance company was not mainly implying the wide perception of financial, operational and enterprise risk.

Hence, by understanding the above research gaps between correlation instead of regression analysis and the gap in including the three mentioned factors affecting the financial performance

of insurance companies, this study investigates the effect of risk management from perspectives of financial, operational and enterprise management risk on financial performance of the insurance companies in Ethiopia.

1.3. Objective of the Study

1.3.1. General Objective

The general objective of this study is empirically to examine the effect of risk management on the financial performance of non-life insurance companies in Ethiopia

1.3.2. Specific Objectives

- To determine the effect of financial risk management affect the financial performance of insurance companies in Ethiopia.
- To examine the effect of operational risk on financial performance of insurance companies in Ethiopia.
- To examine the effect of enterprise risk management influence on financial performance of insurance companies in Ethiopia.

The researcher believes that the three factors may not be the only independent variables and these research only focused on the gaps seen from the previous studies.

1.4. Research Hypothesis

The aim of this study was to investigate the effect of risk management on financial performance of insurance industries. In doing so, among different types of risks that affect the industry this study focuses on the financial, operational and enterprise management risk. In line with the general and specific objective of the study; the following hypotheses were formulated for investigation. The selected Hypotheses of the study were based on the theories related to a risk management practice and its impact on financial performance. The results from the literature review (to be established in the next chapter) were used to establish expectations for the relationship of the different determinants. Moreover financial risk was measured by (liquidity risk and technical reserve risk (safety ratio)), operational risk was measured by (claim settlement risk, cost to income, and asset utilization) and finally enterprise management risk was measured by the size of insurance companies where total asset of the firm is taken as a measuring variable. Hence, to achieve the objective of the study, the present study seeks to test the following hypotheses.

H1: Liquidity risk measured by liquidity ratio has a significant and positive effect on Ethiopian non-life insurers' financial performance which is measured by return on asset.

H2: Technical reserve risk measured by the safety ratio of outstanding claim to equity has negative and significant effect on Ethiopian non-life insurers financial performance

H3: Claim settlement risk measured by claim settlement ratio of Net claims incurred to Net earned premium has negative and significant effect on Ethiopian non-life insurers' financial performance.

H4: Cost to income ratio which is measured by the ratio of operating expense to operating income has a negative and significant effect on Ethiopian non-life insurers financial performance

H5: Income which is measured by Asset utilization ratio of operating income to total assets has a positive and significant effect on Ethiopian non-life insurers financial performance.

H6: Company size which is measured by logarithm of total Assets has a significant and positive effect on Ethiopian non-life insurers' financial performance.

1.5. Significance of the Study

This study is expected to provide empirical evidence on how risk management affects financial performance of insurance companies. Furthermore, many parties would benefit from the results that will emerge from this study.

The central purpose of the study was to investigate the effect of risk management on financial performance of non-life insurances in Ethiopia. Consequently, the finding of this study will add to the stock of knowledge on the area of risk management in the insurance industry. Specifically, this study is significant in the sense that:

The study assists the managers of insurance firms primarily to determine type of risk that affects financial performance of insurance and make a better informed decision in order to manage the risks. Additionally it will add some insights to the insurance industry about risk management.

Finally, the study also opens the issue under study for further and detail investigations for academic scholars as well as for policy makers as the sector continues to leap forward.

1.6.Scope and Limitation of the study

The scope of this study was limited to the effect of risk management on financial performance of non-life insurances companies in Ethiopia over the period 2009 up to 2017 G.C. From seventeen insurance companies operating in Ethiopia, this study was taken ten non-life insurances companies that established before eleven years ago. In doing so, to estimate the effects of variables, OLS multiple regression model of panel data was used. Although it is evident that there are many factors that affect management of risk in insurance companies but it is impossible to cover all factors in one study, therefore this study is restricted to examining how financial risk (measured by liquidity and technical reserve risk), operational risk (measured by claim settlement, cost to income and asset utilization) and enterprise risk (measured by firm size) affects the financial performance of insurance companies in Ethiopia

The major limitation of this study was; the researcher tried to investigate the effect of risk management on financial performance from the perspectives of both non-life and life insures but the data related to life insures is not available as needed because most of the insurance companies started life insurance recently; additionally in context of Ethiopia the transaction activity of insurance companies made from non-life than life insurers.

1.7.Organization of the Paper

In line with the above chapter one, Chapter two presents relevant theoretical and empirical ground of the study. The chapter also discusses the definition given for risk management and clarification of some aspects of it. Chapter three deals the methodology and design that the researcher applied to carry out the study. Specifically, it includes study methodology and design, target population and sampling with its technique, data source and type, data analyzing method and finally, variables measurement as well as model specification. Chapter four contains the results of the empirical tests based on the regression model that used by the researcher and analysis and discussion of the implication of the results also presented under this chapter. Finally, chapter five covers the

conclusions of the results and the recommendation of the researcher based on the findings of the study obtained.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter reviews the theoretical and empirical literatures on financial performance on Insurance companies. It critically reviews the available literature on risk management and financial performance. It begins by reviewing theories related to risk management, then an overview of the empirical studies and literature on the risk management and financial performance

Theoretical Review

2.1. Risk Management Theory

Risk management is the identification, assessment, and prioritization of risks followed by coordinated and economical application of resources to minimize, monitor, and control the probability and/or impact of unfortunate events or to maximize the realization of opportunities (Wenk, 2005). Effective risk management can bring far reaching benefits to all organizations, whether large or small, public or private sector (Ranong & Phuenngam, 2009).

Risk management is “a scientific approach to the problem of dealing with the pure risks facing an individual or an organization, in which insurance is viewed as simply one of several approaches for dealing with such risks.” (The IAIS Glossary definition)

Rejda (2008) defines risk management as the process through which an organization identifies loss exposures, facing it and selects the most appropriate techniques for treating such exposures.

Risk Management is described as the performance of activities designed to minimize the negative impact (cost) of uncertainty (risk) regarding possible losses

Roth (1990) and Asnzs (1995), risk management is as much about identifying opportunities as avoiding or mitigating losses.

2.2. Insurance and Risk Management

The term insurance defined by referring two important schools of thoughts: i) transfer school and ii) pooling school. According to transfer school, “insurance is a device for the reduction of uncertainty of one party, called the insured, through the transfer of particular risks to another party; called the insurer, who offers a restoration, at least in part of economic losses suffered by the insured” (Irving, 1956). On the other hand, according to pooling school “the essence of insurance lies in the elimination of uncertainty or risk of loss for the individual through the combination of large number of similarly exposed individuals” (Alfred, 1935), cited in (Tanveer, 2010). Insurance operates on the principle of pooling risks where the people contribute to a common fund in form of premiums and where the lucky ones who do not suffer loss help the unlucky ones who suffer loss during a defined insurance period (Irukwu, 1994). Insurance is a contract in which the insured transfers risk of potential loss to the insurer who promises to compensate the former upon suffering loss. The insured then pays an agreed fee called a premium in consideration for this promise. Insurance premium is the monetary consideration paid by the insured to the insurer for the cover granted by the insurance policy. The insurer takes on a number of clients (insured) who pay small premiums that form an aggregate fund called the premium fund (Norman, 2000). The likelihood of an event or loss may be mathematically calculated or it may be based on the statistical results of past experience in order to determine the amount of premiums that would be required to accumulate a common fund or pool, to meet the losses upon their arising (Grose, 1992).

UNCTAD (2007) underlines the insurance industry as one of the pillars of the finance sector that plays a key and dual role (of infrastructural service and commercial service) which are both crucial to the economic development of a country:

From infrastructural perspective, a well-functioning insurance enables efficient allocation of capital, mobilize and channel savings; support trade, commerce and entrepreneurship and improve the quality of lives of individuals in a given country.

From a commercial service perspective, insurance companies promote the domestic financial sector, become significant players in the international capital market, and give financial confidence for investments.

It seems Insurance not only facilitates economic transactions through risk transfer and indemnification but it also promotes financial intermediation (Ward & Ralf, 2000). More specifically, insurance can have effects such as promote financial stability, mobilize savings, facilitate trade and commerce, enable risk to be managed more efficiently, encourage loss mitigation, foster efficient capital allocation and also can be a substitute for and complement government security programs (Skipper, 2001). Insurance provides economic protection from identified risks occurring or discovered within a specified period. Insurance is a unique product in that the ultimate cost is often unknown until long after the coverage period, while the revenue premium payments by policyholders are received before or during the coverage period. Insurance is an important growing part of the financial sector in virtually all the developed and developing countries (Das et al., 2003). A resilient and well regulated insurance industry can significantly contribute to economic growth and efficient resource allocation through transfer of risk and mobilization of savings. In addition, it can enhance financial system efficiency by reducing transaction costs, creating liquidity and facilitating economies of scale in investment (Bodla & Garg, 2003). Some of the contributions of the insurance industry to economic development as (Davies & Podpiera, 2003) state are:

- Insurance promotes financial stability through transfer and pool of risks, thereby encouraging individuals and firms to specialize, create wealth, and undertake beneficial projects they would not otherwise consider.
- Insurance mobilizes savings and channels them to the capital markets, and developing countries with higher savings rates tend to show faster growth and investment.
- Strong insurance can relieve pressure on government budget. It can play an important role in personal retirement planning and health insurance programs, and to that extent can reduce demands on government social security and health programs.
- Insurance supports trade, commerce and entrepreneurial activity to have heavy influence on all economic and commercial activities.

- Insurance may lower the total risk faced by the economy through risk diversification across border as well as to promote risk mitigation activities.
- Insurance improves individuals' quality of life and increase social stability through, for example, individual health, life insurance, and pension funds and worker's compensation.

Insurance business is usually divided into two main classes namely: a) General insurance business. This is a contract between an insurer and the insured where by the insurer undertakes to indemnify the insured against losses, which may result from the occurrence of specified events within specified periods. General insurance business can be subdivided into: motor, fire, accident, oil and gas, contractors' all risks and engineering risks; marine and credit insurance, bond and surety ship etc. This is a contract between the insurer and the insured whereby the insurer undertakes to pay benefits to the policy holder on the attainment of a specified event. b) Life assurance business: comprises individual life business, group life insurance and pension business, health insurance business and annuities.

Risk management and insurance are closely related as it is indicated in most literatures. Insurance alone is not risk management rather Insurance Companies are a corporation primarily engaged in the business of providing insurance protection to the public and sale contracts of insurance. Risk management is far broader and includes the concepts of preventing, minimizing, and avoiding losses. In addition, risk management addresses methods other than insurance for transferring the financial consequences of losses that do occur (Stulz, 2004 and Dorfman, 1997). Risk measurement is a fundamental to the insurance industry, from the pricing of individual contracts to the management of insurance and reinsurance companies to the overall regulation of the industry. Insurance services offered by non- life insurance firms do cushion against risks faced by people and non-insurance firm industries (Amaya & Memba, 2015). Transfer of uncertainties to insurance firms by people and non-insurance firm industries is important because risk management is a difficult thing to do by any person as it involves identification of source of risk and then coming up with methodology of quantifying the risk using mathematical models which helps understand risk profile of the person which assists in handling the risk (Kealhofer, 2003). According to Ndwiga, et al. (2012), identifying risk is the first step in the process of risk management and methods used in identifying risks involve tools used to optimize opportunities of knowing hazards inherent in certain systems, facilities or products and the tools are categorized in broad headings

of inductive, deductive or intuitive methods. Organizations are faced with many risks which can emanate from financial variables' uncertainties, accidental occurrences or even failing of businesses; this can be reduced through risk monitoring and controlling (Saunders, 1996).

In insurance companies, risk management produces as well as the overall quality of management are considered as important factors and together with sufficient financial resources are key factors in protecting against insurance company insolvency. In addition, the process of effective risk management should cover all key elements of the business cycle and more importantly to adequately manage the risks to which the company is exposed.

Effective risk management can bring far reaching benefits to all organizations, whether large or small, public or private sector (Ranong & Phuenggam, 2009) and risk management may reduce or eliminate costly lower-tail outcomes (Stulz, 2003), which may also result in lower expected costs of regulatory scrutiny and external capital (Meulbroek, 2002). These benefits include, superior financial performance, better basis for strategy setting, improved service delivery, greater competitive advantage, less time spent firefighting and fewer unwelcome surprises, increased likelihood of change initiative being achieved, closer internal focus on doing the right things properly, more efficient use of resources, reduced waste and fraud, and better value for money, improved innovation and better management of contingent and maintenance activities (Wenk, 2005). Only the amount of quantifiable risks which are beyond the level of risk appetite of the insurance organization needs to be managed by the company at its own. This is the point where an insurance company needs to conceive a better risk management approach, employing sound and fruitful techniques, tools and procedures, which will promise the remarkable returns, thus, satisfying the organizational goals. Laconically, insurance companies resort to the three main ways of managing risks, i.e., Risk Avoidance through business practices, Risk Transference through the construction of portfolios or Diversification and Managing the risk at the firm level by holding the persons accountable. Further, there exist markets for many of these risks borne by the insurance companies. These include catastrophic risk which can be offset by undertaking positions in the catastrophic futures or bonds. Indeed a number of alternatives to minimize the adverse impacts of such risks are under consideration Jaffee & Russell (1997). Generally an insurance organization relies on a number of techniques in their risk management framework. But most prominently, four types of practices evolve as instrumental in managing the risk and thereby improving the financial

performance of the organization. These important techniques include standards and reports, underwriting authority and limits, investment guidelines or strategies, and incentive Schemes. These tools are employed to quantify the risk exposure, spell out the procedures to manage and limit such exposures to the acceptable levels, and manage or motivate the risk managers to manage risk in a way which is consistent with the organizations goals and promises the better performance of the organization.

Danijela & Zeljko (2009) suggested the risk managers to devote their efforts and resources in eliminating or mitigating the risks for sound profitability. Literature further witnesses that the Insurers use hedging instruments to maximize value. Moreover, these instruments are employed to absorb the negative consequences of asset volatility, liquidity, exchange rate and interest rate risks (Cummins et al., 2001). Addressing risks in a more sophisticated manner, Stulz (1996) argued that the theory of risk management, if applied in a well-defined manner will protect the financial companies from the market shocks, bankruptcy and financial distress. Following the basics of risk management, managers in their best capacity can enhance the value of their business undertakings through their productive efforts. Thus, with the help of provisions of risk management, financial institutions can make themselves withstand against the downside movements of risk.

2.3.Risk Management and Financial Performance

The main focus of risk management has mainly been on controlling and for regulatory compliance, as opposed to enhancing financial performance. However, this risk management often leads to enhanced financial performance as regulatory compliance and control of risks enables the organization to save on costs. Different financial institutions further suggests that; by managing risks, the managers are able to increase the value of the firm through ensuring continued profitability of the firm. Standard and Poor's (2013) identifies poor liquidity management, underpricing and under reserving, a high tolerance for investment risk, management and governance issues, difficulties related to rapid growth and/or expansion into non-core activities as main causes of financial distress and failure in insurance companies. It is important that these factors be managed efficiently by insurance companies, to avoid financial failure and bankruptcy to the firm.

According to Dorfman (2007), ensuring that an organization makes cost effective use of risk management first involves creating an approach built up of well-defined risk management

practices and then embedding them. These risk management practices include financial risks management practices, operational risk management practices, enterprise risk management practices, and strategic risk management practices.

2.4. Managerial Self-interest Theory

This theory was first put forward by Stulz (1984), who argued that firm managers have limited ability to diversify the significant portion of their personal wealth held in the form of stock in the firm and the capitalization of their earnings from the firm. Such managers would prefer stability of the firm's earnings to volatility because, other things equal, such stability improves their own utility, at little or no expense to other stakeholders. This argument can be traced back to the literature on agency. In this area, the relationship between firm performance and managerial remuneration is clearly developed in such work as Ross (1977).

Demarzo & Duffie (1992), point out that observed outcomes may influence owner perception of managerial talent. This would, in turn, favor reduced volatility, or at least the protection of firm specific market value from large negative outcomes that may be found within the distribution of possible returns. For this, if for no other reason, there appears to be ample justification for the assumption that managers will behave in a manner consistent with a concave objective function. Thus, this theory links risk management and firm performances.

2.5. DuPont Theory

This theory is discussed to explain why ROA is used instead of ROE as a dependent variable.

DuPont analysis, a common form of financial statement analysis, decomposes return on net operating assets into two multiplicative components: profit margin and asset turnover. These two accounting ratios measure different constructs and, accordingly, have different properties. According to Mitchell et al. (2013), the traditional role of DuPont formula is to help rational investors decide on the optimal investments to undertake but has since evolved into a modern tool used to find out the strength, weakness and likely improvement on the capital structure of an organization that will help maximize stock holders' wealth. The first Du Pont model was developed before 1970s when firms' main goal was that of maximizing return on assets (ROA), (Liesz & Maranville, 2013). According to (Liesz & Maranville, 2008), Brown F. D. who was an

electrical engineer had been contracted by General Motors company to analyze their finances after which he discovered a relationship that existed between total asset turnover, net profit margin and return on assets. He found out that return on assets is equals to net profit margin multiplied by total asset turnover, which is actually profitability multiplied by efficiency.

Gitman (1998) contend that, in the 1970s the generally accepted goal of financial management became maximizing the wealth of the firm's owners, and focus shifted from return on assets to return on equity (Liesz & Maranville, 2008) which then led to the modified DuPont model now commonly known as, DuPont identity, where return on equity is equals to return on assets multiplied by total assets and divided by equity. This was to cater for the ways institutions leverage their operations and the modern goal of organizations which is maximization of owners' equity. Raza et al. (2013), contend that insurance firms when measured according to their net income levels do not rank the same as when measured using return on equity and usually the best performers in terms of net income do not manage to perform in terms of return on owners' equity. Policyholders therefore do not like the highly performing insurance firms but the insurers which give them high returns on their investments and hence support DuPont method of measuring an insurance firm's performance (Raza et al., 2013).

2.6. Enterprise Risk Management Theory

According to Tseng (2007), Enterprise Risk Management (ERM) is a framework that focuses on adopting a systematic and consistent approach to managing all of the risks confronting an organization. Gordon et al. (2009) on the other hand define ERM as the overall process of managing an organization's exposure to uncertainty with particular emphasis on identifying and managing the events that could potentially prevent the organization from achieving its objective. ERM is an organizational concept that applies to all levels of the organization.

According to The Committee of Sponsoring Organizations (COSO) Enterprise Risk Management Integrated Framework, Enterprise Risk Management is a process, affected by an entity's board of directors, management and other personnel, applied in strategy-setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, accessing the likelihood and impact to provide reasonable assurance regarding the achievement of entity objectives.

2.7.Components of Enterprise Risk management

According to (COSO) Enterprise Risk Management Integrated Framework, (2004) Enterprise risk management consists of eight interrelated components. These components are:

- Internal Environment – The internal environment encompasses the tone of an organization, and sets the basis for how risk is viewed and addressed by an entity’s people, including risk management philosophy and risk appetite, integrity and ethical values, and the environment in which they operate.
- Objective Setting – Objectives must exist before management can identify potential events affecting their achievement. Enterprise risk management ensures that management has in place a process to set objectives and that the chosen objectives support and align with the entity’s mission and are consistent with its risk appetite.
- Event Identification– Internal and external events affecting achievement of an entity’s objectives must be identified, distinguishing between risks and opportunities. Opportunities are channeled back to management’s strategy or objective-setting processes.
- Risk Assessment – Risks are analyzed, considering likelihood and impact, as a basis for determining how they should be managed. Risks are assessed on an inherent and a residual basis.
- Risk Response – Management selects risk responses – avoiding, accepting, reducing, or sharing risk – developing a set of actions to align risks with the entity’s risk tolerances and risk appetite.
- Control Activities– Policies and procedures are established and implemented to help ensure the risk responses are effectively carried out.
- Information and Communication – Relevant information is identified, captured and communicated in a form and timeframe that enable people to carry out their responsibilities. Effective communication also occurs in a broader sense, flowing down, across, and up the entity.
- Monitoring – The entirety of enterprise risk management is monitored and modifications made as necessary.

Insurance companies face two types of risk those are financial risk and non-financial risk; these risks are financial risk and inherent risk. Financial risk refers to risks involved with capital and financial market risk. Non-financial risks refer to Hazard risk, operational risk and strategic risk Ai&Brockett (2008).Some risks are specific to the insurance sector, such as underwriting risks and risks related to the evaluation of technical provisions. Other risks are similar to those of other financial institutions. The National Bank of Ethiopia (NBE) identified eight kind of risk as inherent & significant risk on risk management guideline for insurance companies.

Inherent risk is inherent to a business activity and arises from exposure and uncertainty from potential future events. Significant risk refers to activities that are material to operations and/or business strategies. The commonly identified risks are credit risk, market risk, liquidity risk, underwriting risk, technical reserves risk, operational & technological risk, contagion & related party risk & reinsurance risk.

2.8. Financial Performance Measurements

Insurance companies are engaged in the business of taking risks. Throughout the globe, these companies deal with a host category of risks which have a direct impact on the performance of these companies. These risks prove to be a greater setback in the process of achieving growth in terms of size, assets and performance of the company which is measured in the form of returns. It is understood that the primary goal of performance (both financial and non-financial) measurement is to assess the progress of achieving corporate objectives. In addition, the output is utilized to allocate resources appropriately throughout the organization (Christopher, 2003). The analyst or investor may wish to look deeper into financial statements and seek out margin growth rates or any declining debt. If underlying profitability continues to deteriorate, more stock buybacks or debt leverage will be necessary to maintain return on equity, more increasing company exposure to unanticipated downturns in consumer demand or financial market crises. But letting return on equity decline is often too painful to contemplate since the impact on stock performance hence financial performance can be immediate. The risks on the other side are less immediate and less quantifiable, so there is an understandable temptation to avoid immediate pain (Hagel et al., 2010).

According to Angell & Brewer (2003), financial performance is determined by asset utilization, relative profitability and company's financial leverage. Zenios et al. (1999) stated that profitability

analysis focuses on the relationship between revenues and expenses and on the level of profits relative to the size of investment in the business through the use of profitability ratios. Return on equity (ROE) and return on assets (ROA) are two of the most important measures for evaluating how effectively a company's management team is managing the capital that shareholders entrust to it. Return on equity indicates if a company's value is growing at an acceptable rate. It's calculated as annual net income divided by average shareholders' equity, while return on assets reveals how much profit a company earns for every money of assets. It's calculated as annual net income divided by total assets. The return on total assets ratio is one of the most used methods of quantifying financial performance. It was developed in (1919) by DuPont and it emphasizes the company's ability to efficiently use its assets.

Financial institutions such as banks, insurance companies, securities and credit unions have very different ways of reporting financial information (Flemings, 2004). Insurance companies financial performance can be measured using underwriting and profitability ratios (Flemings, 2004). On the other way, William et al. (2004) argued that the performance of insurance companies in financial terms is normally expressed in net earned premium, profitability from underwriting activities, annual turnover, return on investment, and return on equity. These measures could be classified as profit performance measures and investment performance measures. On the other hand the return on total assets ratio represents one of the most used methods of quantifying financial performance; it emphasizes the company's ability to efficiently use its assets (Maria, 2014). It reflects the ability of insurance's management to generate profits from the insurers' assets, although it may be biased due to off-balance-sheet activities. Most researchers in the field of insurance and their financial performance stated that the key indicator of a firm's financial performance is ROA. Arif & Showket (2015), Njeru (2013), Catherine (2014), Mike (1999), and Hafiz (2011) are among others, who have suggested that although there are different ways to measure profitability it is better to use ROA as it helps to measure the overall resource (asset) performance

2.9. Emperical Litrature Review

To achieve the objective of the study the researcher were reviewed the studies conducted regarding on risk management, the studies which are conducted in different business sector in general, financial sector and more specifically in insurance industry provided herein under.

Joyce & Willy (2016), studied on effects of risk management practices on financial performance of non-life insurance firms operating in Kisii County in Kenya descriptive survey research design was used to collect data. Target population was 237 respondents, comprising of 116 directors and 121 senior managers. Stratified random sampling method was used to get the sample. Primary data was collected using a structured questionnaire while secondary data was collected from published reports and financial statements. The study shows that there was a positive relationship between financial performance of non-life insurance companies, risk identification practices, risk mitigation practices and risk monitoring practices. The study concludes that there is a strong relationship between risk management practices and financial performance of insurance companies in Kisii County, Kenya

Mwangi (2014) studied on the effect of risk management on financial performance of commercial banks in Kenya. Descriptive research design was used in the study. Secondary Data was collected from Central Bank and banks financial reports and multiple regression analysis used in the data analysis. The study found that there was a strong positive relationship between risk management and financial performance of commercial banks in Kenya. The study also found that there was a negative relationship between credit risk, insolvency risk, interest rate sensitivity and financial performance of commercial banks. The study additionally revealed that there was a positive relationship between capital adequacy, size of the banks, operational efficiency and financial performance of commercial banks.

Catherine (2014), has conducted study on the effects of risk management on financial performance of insurance companies in Kenya, data collected from 44 insurance companies and published reports for a period of 2008 - 2012. The study established that a majority of insurance companies in Kenya had adopted risk management practices in their operations and that this had a strong effect on their financial performance. Risk identification was found the most significant in influencing financial performance, followed by risk mitigation, risk management program implementation & monitoring and risk assessment & measurement respectively. The study

concluded that there was a positive relationship between the adoption of risk management practices and the financial performance of insurance companies in Kenya.

The study conducted by Arif & Showket (2015) relationship between financial risk and financial performance of Indian insurances revealed that capital management risk, solvency risk, liquidity risk, volume of capital and size of company were most important determinants of financial performance of life insurance companies in India, whereas had statistically insignificant relationship with underwriting risk. The study led to the conclusion that underwriting risk was found to have statistically insignificant relationship with financial performance of life insurance companies. And capital management risk, solvency risk and underwriting risk exhibit a negative relationship with financial performance while liquidity risk, size and volume of capital exhibit a positive relationship with financial performance of life insurance companies in India.

The study conducted by Mua et al. (2009); using a sample of Chinese firms, examine the effect of risk management strategy over performance of new product development. Their finding shows that risk management strategies that focus on technological, organizational, and marketing factors, individually and interactively improve the performance of new product development. In addition Gupta (2011) examined the risk management in Indian companies and explore the reasons for the adoption or lack of adoption of integrated approach to risk management using the survey research methodology that includes structured questionnaires and interviews of 130 companies. The study shows that effective risk management can improve organizational performance. Moreover Mohsen et al. (2011) assessed effective risk management and company's performance by emphasizing investment in innovations and intellectual capital. The data had been collected from the companies' financial statements and notes are available in the years of 2003 - 2008. 52 companies from 13 different industries were selected purposefully. Their result indicated that positive and significant relationship between total risk management and company's performance. Other study conducted by Giorgio et al. (2013), the effect of enterprise risk management implementation on the firm value, on a sample of 200 European companies, belonging to both financial and non-financial industries, they did this performing a fixed effects panel regression analysis. They found a positive statistically significant relation between the ERM adoptions and firm value. On the other hand, a study of Tony et al. (2012) investigated enterprise risk management and business performance during the financial and economic crises. It examined 156 non-financial companies

listed on the Standard & Poor's (S&P) Toronto Stock Exchange (TSX) Composite Index for 2007 - 2008 and 2008 - 2009 through a content analysis of their annual reports. The study rated risk exposure, risk consequences and risk management information among types of risks. No conclusive results on the relationship between ERM and firm performance.

Ahmed et al. (2011) conducted a study on risk management practices and Islamic Banks in Pakistan. The study used credit, operational and liquidity risks as dependent variables while size, leverage, NPLs ratio, capital adequacy and asset management are utilize as explanatory variable for the period of four years from 2006 to 2009. The study concluded that size of Islamic banks have a positive and statistically significant relationship with financial risks, whereas its relation with operational risk is found to be negative and insignificant. The asset management establishes a positive and significant relationship with liquidity and operational risk. The debt equity ratio and non-performing loans ratio have a negative and significant relationship with liquidity and operational risk. In addition, capital adequacy has negative and significant relationship with credit and operational risk, whereas it is found to be positive and with liquidity risk.

Kenny et al. (2014), studied on risk management practices and financial performance: evidence from the Nigerian deposit money banks, the study used secondary data gathered through content analysis of the selected banks' annual reports and accounts. The cross sectional data were analyzed using descriptive statistics to show pattern and robust standard errors OLS regression to estimate significant influence between banks' risk management practices (credit, liquidity, operating and capital risk practices) and their financial performance. Risk management practices have a significant influence on banks' performance. While the credit and capital risk display significant positive influence on ROA.

Patrick & Florence (2015) influence of risk management practices on financial performance of life assurance firms in Kenya: a survey study of Kisii, the target population was one hundred and eighteen respondents. Census sampling method was used. Questionnaires were used for data collection. Risk management practice is the independent variable which contained; underwriting practice, premium valuation methods, and adjustment provisions of claim liabilities. The findings, Premium valuation methods had positive influence on financial performance of life assurance firms in Kenya. The study established that underwriting guidelines had a positive effect on financial performance of life assurance firms in Kenya. Further the study revealed that adjusting

claims and benefits paid to policy holders of insurance firms" increase value of investment and this gave a reason for claims adjustment to get the best estimate of acceptable costs for every person which is usually determined by observed costs based on risk factors.

Musa et al. (2014) examined the relationship between enterprise risk management and organizational performance: evidence from Nigerian insurance industry, using purposive sampling technique, 10 general insurance companies were selected from 49 companies operating in Nigeria. Contingency reserve, shareholders" fund, gross premium and net premium were used as dummies for ERM indicators. Panel data was adopted for a ten year period of 2001-2010. The study reveals that there is joint cause relationship among ERM variables and organizational performance though, individual relationship of the indicators differ. Both contingency reserve and net claims respectively have significant positive impacts on organizational performance. Liquidity ratio has no significant impact on organizational performance. Shareholders" funds have a negative significant impact on organizational performance.

Eric (2005) investigated risk management techniques and financial performance in the insurance sector in Uganda. The findings on the financial performance of the insurance companies for this study show fluctuating ratios as measured by ROE. Likewise a study by Mwangi & Iraya (2014) found that financial performance was positively related to earning assets and investment yield for Kenyan General Insurers and that growth of premiums and size of underwriter were not significantly related to financial performance. Adams & Buckle (2003) argued that highly geared and low liquid Bermuda insurers perform better and that their underwriting risk is directly related to a resilient financial performance.

Eneyew (2013) conducted his study on the impact of financial risks on the profitability of commercial banks for a total of eight commercial banks in Ethiopia, covering the period of 2000-2011. The study adopted a mixed methods research approach by combining documentary analysis and in-depth interviews. The findings of the study show that Credit risk and liquidity risk have a negative and statistically significant relationship with banks" profitability

The study conducted by Endaweke (2015) was Risk management and its impact on performance in Ethiopian Commercial Banks, balanced fixed effect panel regression was used for the data of 8 commercial banks in the sample covered the period from 2002 - 2013. The results of panel data

regression analysis showed that credit risk management indicator, Liquidity risk management indicator and operational risk indicator had negative and statistically significant impact on banks performance. Capital adequacy ratio had positive statistically insignificant impact on banks performance. In addition to this, analysis of primary data by descriptive statistical tools and on hypothesis testing using regression model, leads the researcher to conclude that banks with good risk management policies have a lower risk and relatively higher return on asset. Finally none performing loan ratio, liquidity ratio and cost to income ratio are significant key drivers of performance of commercial banks in Ethiopia.

Tsion (2015) examined the effectiveness of risk management practice of commercial banks operating in Ethiopia. Information was obtained from 15 purposely sampled commercial banks & adopted concurrent mixed research design. Open and closed-ended questionnaires were administered to 86 respondents from selected commercial banks. The main conclusions of the paper were: risk managers perceive risk management as critical to their banks performance; the types of risks causing the greatest exposures are credit risk, operational risk, liquidity risk, interest rate risk and foreign exchange risk; there was a reasonable level of success with current risk management practices and, banks are utilizing some of the approaches/techniques traditionally used to manage risks. She finally concluded that banks operating in Ethiopia are indeed risk-focused.

Rebuma (2013), studied on risk management techniques and financial performance of Ethiopian insurance companies the purpose of the study was to examine the relationship between applied risk management techniques and financial performance of the insurance companies in Ethiopia, covering the period of 2002-2011. Correlation analysis was used identify the relationship between risk management techniques and financial performance. The findings of the study indicated that risk management techniques (loss prevention and control, loss financing and risk avoidance) were applied in the Ethiopian insurance companies. However, risk management techniques were not commonly applied among insurance companies. The findings also revealed low increase ROE ratios and a general increase in loss ratios of the insurance companies; i.e. a poor financial performance especially as indicated by the loss ratios. Finally, the study indicated the existence of weak relationship between risk management techniques and financial performance that show

ineffective on how risk management techniques are applied to improve performance of the insurance companies.

Likewise, Kokobe & Gemechu (2016), worked on risk management techniques and financial performance of insurance companies in Ethiopia, primary data was collected through questionnaires and secondary data was collected from year-end financial report of the selected company. Primary data was collected from employees and secondary data was collected from financial statements of selected insurance companies and analyzed using Pearson correlation to check the relation between insurance performance and risk management techniques. The result shows that risk management practice and financial performance are not correlated.

W/ michael (2017), has conducted study on the effect of risk management on financial performance of insurance industry in Ethiopia; The study was focused on the investigation of the risk management factors that affect the financial performance of the Ethiopian insurance industry. the study was used explanatory research design, mixed research approach. Panel data covering eleven-years (2005–2015) was analyzed for nine insurers in Ethiopia. Also in-depth interview was conducted with the NBE officers. The results of the fixed effect regression model revealed that technical reserve and liquidity risks have negative & significant impact on ROA (proxy measure for financial performance) of non-life insurers in Ethiopia, whereas company size and reinsurance risk have positive & significant effect on ROA. The study led to the conclusion that technical reserve, size of a company, reinsurance risks and liquidity risk are the pull factors for the financial performance of insurer

Sisay (2017); have conducted study on the effect of financial risk on financial performance of insurance companies in Ethiopia. the study was used balanced panel model in examining the regression model and the data was collected from eight insurance companies covering the period of sixteen (16) consecutive years, 2000-2015. To this end, the study was employed a mixed method research approach by combining documentary analysis and unstructured in-depth interviews.. The regression result of the study show that credit risk, liquidity risk, solvency risk, underwriting risk and technical provisions risk show negative and significant effect at 1% and 5% significance level on performance of insurance companies in Ethiopia,

2.10. Justifications for Importance of Risk Management.

Financial risk

Insurers are in the risk business. In the process of providing insurance and other financial services, they assume various kinds of actuarial and financial risks. Reid and Ashelby (2002) the risks contained in the insurer's product sales-that is, those embedded in the products offered to customers to protect against actuarial risk-are not all borne directly by the insurer itself. In many instances, the institution will eliminate or mitigate the actuarial and financial risk associated with a transaction by proper business practices; in others, it will shift the risk to other parties through a combination of reinsurance, pricing, and product design (Mayers & Smith, 1987). Only those risks that are not eliminated or transferred to others are left to be managed by the firm for its own account. This is the case because the insurance industry recognizes that it should not engage in business in a manner that unnecessarily imposes risk upon it, nor should it absorb risks that can be efficiently transferred to other participants (Dutta a& Radner, 1999). Rather, it should manage risks at the firm level only if they are more efficiently managed there than by the market itself or their owners in their own portfolios. In short, it should accept only those risks that are uniquely a part of the insurer's array of services. Elsewhere it has been argued that risks facing all financial institutions can be segmented into three separable types from a management perspective (Oldfield & Santomero, 1997).

These are risks that can be eliminated or avoided by standard business practices, risks that can be transferred to other participants and risks that must be actively managed at the firm level. In these cases, the practice of risk avoidance involves actions to reduce the chances of idiosyncratic losses from standard insurance activity by eliminating risks that are superfluous to the institution's business purpose. John (2011) common risk avoidance practices include at least three types of actions. The standardization of process, insurance policies, contracts, and procedures to prevent in efficient or incorrect financial decisions is the first of these.

Another is the construction of portfolios on both sides of the balance sheet that benefit from diversification and the application of the law of large numbers and central limit theorem, which reduce the effects of any one loss, experience. Finally, the implementation of incentivecompatible contracts with the institution's management to require that employees be held accountable is the third. In each case, the goal is to rid the firm of risks that are not essential to the financial service provided, or to absorb only an optimal quantity of a particular kind of risk. Wilks & imblelman

(2004) found that there are also some risks that can be eliminated, or at least substantially reduced, through the technique of risk transfer.

Markets exist for many of the risks borne by the insurance firm. Actuarial risk can be transferred to reinsurers. Catastrophe risk can be offset somewhat by undertaking a position in catastrophe futures and in catastrophe bonds. Indeed, a number of capital market alternatives for dealing with this kind of risk are currently under consideration (Jaffee & Russell, 1997). Interest rate risk can be hedged or transferred through interest rate products such as swaps, caps, floors, futures, or other derivative products. Insurance policies and lending documents can be altered to effect a change in their duration and convexity. Equity market risk can be reduced with an appropriate futures position in equities. In addition, an insurer can offer products that absorb some financial risks, while transferring other risks to the purchaser. Dwivedi (2002) defined contribution pension plans and variable universal life policies are clear examples of this approach.

Liquidity risk is another type of financial risk in an insurance company which considered as less threatening than in bank because of higher frequency of money exchange takes place in banking industry compared to insurance industry (Eckles, Hoyt & Miller, 2014). However, liquidity risk management is equally important in insurance as in banking sector because of interconnection of financial system leading to cash crisis and secondly liquidity risk may prove very expensive to insurer due to meeting the cost of liquidity and also impacting the Assets and Liability mismatch. Based on earlier researches, the studies did not center on the liquidity risk especially in the insurance industry. Financial risk management can be qualitative and quantitative. As a specialization of risk management, financial risk management focuses on when and how to hedge using financial instruments to manage costly exposures to risk(Dixon et al., 1990).

Liquidity risk arises from a member institution's inability to provide cash or otherwise obtain the necessary funds, either by increasing liabilities or converting assets, to meet its on- and off-balance sheet obligations as they come due without incurring unacceptable losses or excess funding costs Ontario Risk assessment framework (2005)

Operational risk management

Erkens, Hung & Matos (2012) describe that insurance companies face many risks, which should be managed, but their core competences and main contribution to society is to accept the risks underwritten by businesses and individuals, hence the strategic importance for citizens and governments that insurers protect their assets and revenues, and that policies and scientific methods are established to ensure a minimum financial solvency and the continuity of its operations.

As seen in the research by Laeven & Perotti (2010), operational risk is increasingly important in the management and corporate governance of insurance companies, which increasingly have greater implications and interactions with the other risks that this insurers face, such as market or credit risks. The management and analysis of operational risk is a necessary activity for insurers, presenting many opportunities for development and a major field of study on conceptual and practical issues due to the particularity and complexity implied in this type of risk.

Horcher (2005) states that operational risk is not a new risk, in fact is the first risk that an insurer has to manage, even before signing the first policy. However, the idea that operational risk management is a discipline with its own organizational structure, tools and processes, like credit or market risks, is new and has evolved considerably lately (Hernández& Martínez, 2012b). In 1998, the Committee on Banking Supervision published an advisory work related to operational risk, enabling it to become an accepted part of good risk management practices in modern financial markets.

According to this study, the major types of operational risk include failure of asset utilization , fauilure to manage operting expenses, claim settelement risk, fauilure of internal controls and corporate governance; Failures that can lead to financial losses through error, fraud, or failure in the implementation of obligations in a timely manner or that could compromise the existence of the entity in some way. This could include all levels of the organization that exceeds its authority or conduct unethical and unsafe practices. Other aspects of operational risk include systems failures in information technology, or events such as fires and other disasters (Ai & Brockett, 2008). Most financial institutions allocate the responsibility for managing operational risk to managers in the business units, so it is necessary to develop the incentive structures and processes for best practices.

Those systems are being incorporated into the overall process of internal evaluation, and requiring to those responsible for the business units and losses the details of the results of corrective actions undertaken. Operational risk is a broad concept and is defined by the Basel Committee on Banking Supervision (2004) as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events.

Sound operational risk management (ORM) should be a core element of any institution's overall governance and an integral part of its enterprise risk management (McNeil, Frey & Embrechts, 2005). This entails disciplined and continuously monitored operational risk identification and mitigation efforts. The objective is to avoid errors and occurrence of events capable of causing material financial or reputational losses and any adverse impact on clients and counterparties.

operational risk disclosure. While insurance companies have come a long way in establishing best practices for managing market, credit and liquidity risks, standards of practice for ORM have been far less uniform.

A well-defined and articulate ORM framework needs to be part of the entire insurance culture. We expect regulators to continue elevating standards for insurance companies' ORM, mandating insurers to be much more proactive in identifying, measuring, managing and disclosing operational risks.

Enterprise risk management

This Practice discusses Enterprise Risk Management (ERM) practices within insurance organizations. According to the Casualty Actuarial Society, ERM is defined as "the discipline by which an enterprise in any industry assesses, controls, exploits, finances, and monitors risks from all sources for the purpose of increasing the enterprise's short- and long-term value to its stakeholders." The Committee of Sponsoring Organizations (COSO) of the Treadway Commission defines ERM as "a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risks to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives." Both definitions recognize ERM as a corporate function that motivates an enterprise-wide understanding of risk and encourages commitment to the discipline of risk-based decision-making.

The practice of ERM within the insurance industry continues to evolve. Those insurers that had committed to the discipline of ERM several years ago have begun to realize tangible benefits from their investment; many more insurance organizations continue to work to implement or enhance the discipline within their management framework. Meanwhile, interest in these practices continues to grow among rating agencies and regulators who are interested in how insurers utilize ERM in the day-to-day management of their businesses and pursuit of their goals; Effective ERM is supported by a substantial amount of quantitative analysis (Liebenberg & Hoyt, 2003). In order to be successful, the ERM initiative needs to be comprehensive. However, introducing enhanced standards of risk management is a progressive process that cannot be achieved instantaneously (Kumaraswamy, 2005).

Therefore, it is necessary for an organisation to decide the scope of the ERM initiative, as it develops. The scope of the initiative will be defined by the range of benefits the organisation is seeking to achieve and this will be influenced by the expectations of the various stakeholders in the organisation. Traditional risk management separates risk categories into so called risk-silos (Liebenberg & Hoyt, 2003). This means that different risk types; market, credit, liquidity and operational risk are managed separately. The downside of this method is that because of the splitting up of the risks, every risk needs to be managed individually, leading to inefficiencies in risk management.

Research on ERM has proven that ERM-adopting firms are able to produce a greater reduction of risk per dollar spent on risk management. Firms adopting ERM also experience a reduction in stock volatility. Due to the costliness and complexity of ERM implementation, the reduction in stock volatility is gradual and grows over time (Eckles, Hoyt & Miller, 2014). To study the value implications of ERM in insurance companies,

2.11. Critique of the existing literature relevant to the study

So many theories has been advanced on risk management most of this seems to be making a focus on financial institutions that provide the services of lending e.g. banks to reduce the risk of default

and other risks leaving aside the insurance companies which deal with insuring different risks ranging from general to life (Liebenberg & Hoyt, 2003).

Abraham (2015) studied on the assessment of Enterprise level risk management practice in Ethiopia . The objective of the study was to assess practices and identify the major strengths and weakness. For the study he used both primary and secondary sources of data. The study found that although there are some positive steps so far taken by insurance companies to strengthen their risk management practices there still weakness regarding on consideration of risk management as an essential component and integration of HR with risk management function. The study recommended that insurance companies should give great value and focus to the development of risk management functions awareness, HR management and policies has to be integrated with risk management units and NBE should review the existing risk management guidelines and evaluate each insurance company accordingly.

Kokobe&Gemechu (2016) conducted a study on Risk Management Techniques and financial performance of Insurance companies. The research tries to identify relationship between risk management techniques and insurers performance. The results of the study reveal that low general increase ROE ratios, low return on shareholders' fund, low positive relationship between loss prevention, control technique & ROE, low positive relationship between loss financing & ROE. Positive & strong relation between risk avoidance technique & financial performance. The study recommended insurance companies should adopt enterprise risk management and also apply risk management technique effectively.

Lack of focus of risk management on insurance companies may lead to decline in financial performance of insurance companies which could not be in a position to operate due to unmanaged risks.

2.12. Summary of Literature Review

Although financial performance is influenced by a combination of factors facing the firm, a review of the literature provides evidence as to why firms should concern themselves with risk

management. Vaughan and Vaughan (2008), provide a compelling reason for risk management by firms. They assert that the primary goal of risk management by firms is for survival. Risk management guarantees the continuity of the firm as an operating entity, hence ensuring that the firm is not prevented from attaining all its other goals through losses that might arise from pure risks. It is evident that the decisions made by managers affect the risks and financial performance of an insurance company. This then emphasizes the need for a proper risk management strategy to direct the goals and interests of management to the interests of the organization. A firm's stakeholders also require an assurance that their interests are safeguarded by firm's management and strategies. From the literature, it is discovered that the desire to improve financial performance should be balanced with the risks associated with the operations of the firm. This then leads to the development of a risk management program to meet the strategies of an organization.

2.13. Research Gaps

Research gaps exist since most of the studies have not addressed the effect of risk management on the financial performance from the perspectives of financial ,operational and enterprise management risk of insurance firms. In addition, the majority of the studies are done in the banking sector. but the studies conducted on insurances companies more are focuses on the risk management practice by using other frameworks. As per the researcher's knowledge studies conducted so far were not inclusive of all the three factors ,financial Risk management,Enterprise risk management and Operational risk management as determining factors to assess that the risk management practice of insurance companies in Ethiopia. Hence, this study aims to fill the gap in the literature by focusing on these components to assess the practice of management of risk by insurance companies in Ethiopia.

2.14. Conceptual Framework

A conceptual framework is used in research to outline possible courses of action or to present a preferred approach to an idea or thought (Riggan, 2012). Conceptual framework is an analytical tool with several variations and context (Ravitch & Riggan, 2012). It is used to make conceptual distinctions and organize ideas. Based on the result of literature reviews and theoretical assumptions the following conceptual framework is developed for this study.

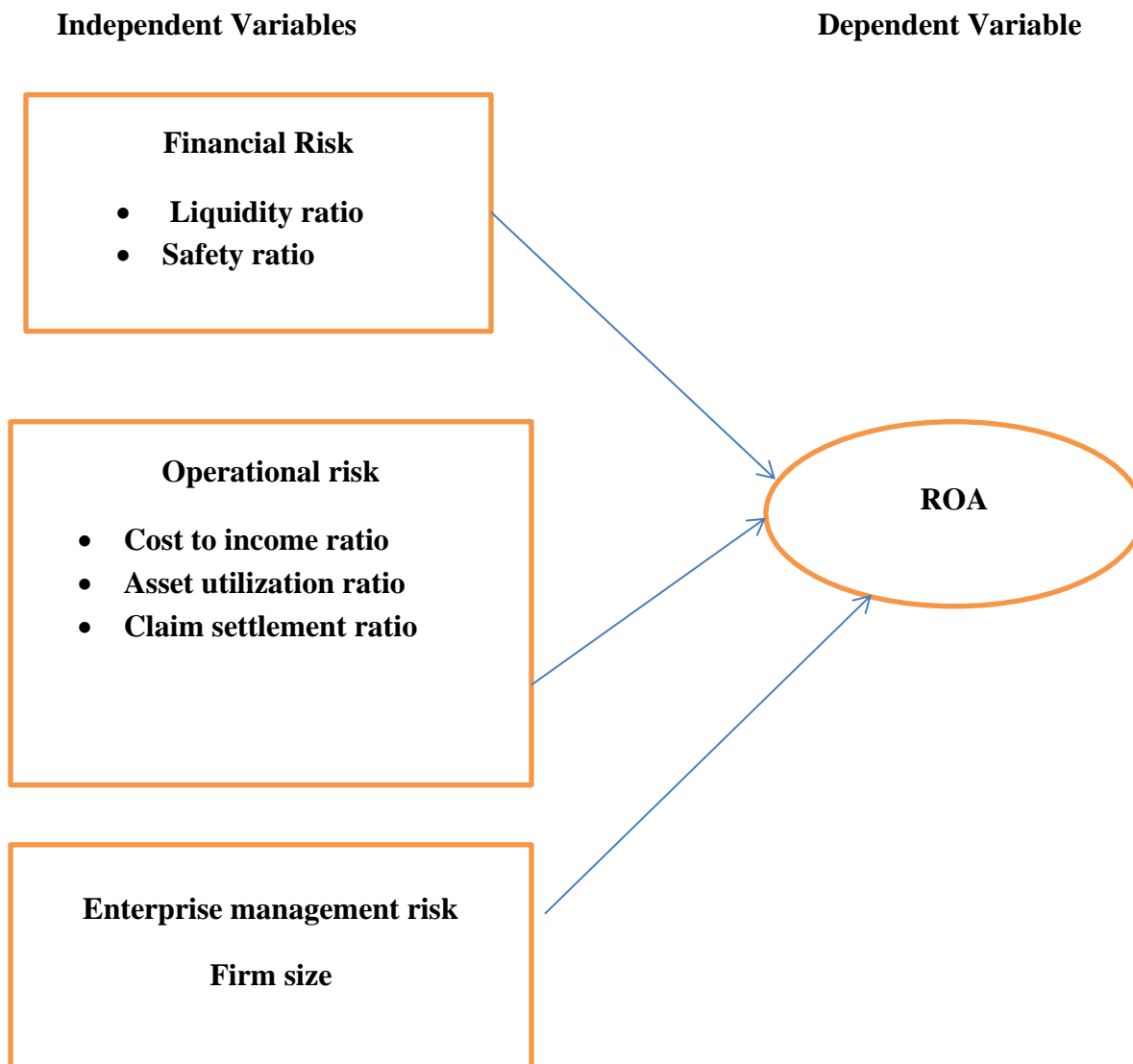


Figure 2.1. conceptual framework of the study.

CHAPTER THREE

RESEARCH METHODOLOGY

Introduction

This chapter consists of research approach that the researcher applied while conducting this study. The research methodology, research design, sampling and study period, data sources and types are given in detail. It also comprises the data analysis and the techniques that used to achieve the objective of the study. Lastly, variable definition, measurement, model specifications and expected sign of the variables are presented in this chapter.

3.1. Research approach

This study adopted mixed approach in order to investigate the effect of risk management on financial performance of insurance companies in Ethiopia.

There are three types of research approach, namely qualitative, quantitative and mixed approach. Qualitative approach used mostly when the researcher needs to develop a complex, holistic picture, analyzes words, reports, detailed view of informants, and conducts the study in a natural setting and involves studies that do not attempt to quantify their results through statistical summary or analysis (Creswell, 2009). The rational reason for adoption of quantitative approach includes: to develop knowledge of cause and effect thinking, reduction to specific variables and hypotheses and questions, use of measurement and observation, and the test of theories, employee strategies of inquiry such as experiments and surveys. The mixed research approach is a means to collect both qualitative and quantitative data and analyses together to answer the research questions. In other words, it involves the collecting and “mixing” or integration of both quantitative and qualitative data in a study. A mixed methods approach is one in which the researcher tends to base knowledge claims on pragmatic (Creswell, 2009). Even though, each approach has its own objective and application time, in the selection process one should take into account the nature of the research problem or issues being addressed. Consequently, the study in hand requires analyzing the relationship between variables based on theories and hypothesis testing using statistical procedures due to the nature of the study. By saying so, this study adopted mixed approach in order

to investigate the effect of risk management on financial performance of insurance companies in Ethiopia.

3.2. Research Design

The primary aim of this study was to examine the effects of risk management on the financial performance of insurance industry in Ethiopia. To achieve this objective explanatory research design is employed in the study. The explanatory type of research design helps to identify and evaluate the causal relationships between the different variables under consideration (Marczyk et al., 2005). If the objective is to determine which variable might be causing a certain behavior, i.e. whether there is a cause and effect relationship between variables, explanatory research must be undertaken (Shields, 2013).

3.3. Population of the study

Currently in Ethiopia, the insurance companies remained at 17, of which 16 were private and one is Public. The target population of the study was all insurance companies registered in Ethiopia; that means all 17 insurance companies.

3.4. Sample size and Sampling techniques

In this study, the sampling technique adopted was purposive sampling technique, because purpose sampling is useful when the researcher wants to make investigation on a set of samples selected from total population. So From the existing seventeen insurance companies that operate in Ethiopia, ten (10) insurance was selected as the study sample by using non-probability purposive sampling technique considering the operating period of 2009 up to 2017 G.C. The researcher was not able to collect data for recent period due to non-availability of a recent data at time of study.

The ground behind selecting these ten (10) insurances from the target population is in accordance with the sampling technique under consideration. In doing so, a number of criteria were listed by the researcher. The criteria were based on year of establishment (only insurance companies those have experiences in the insurance operations and availability of data needed was another criterion for selection of insurances).

Table 3.1: List of all insurance companies in Ethiopia with their establishment period alphabetically.

No	Insurance Name	Year Est. (G.C.)
1	Abay Insurance company S.C	2010
2	Africa Insurance company S.C.	1994
3	Awash Insurance company S.C	1994
4	Berhan Insurance company S.C	2011
5	Bunna Insurance company S.C	2013
6	Ethiopian Insurance corporation	1974
7	Ethio life and General Insurance company S.C	2008
8	Global Insurance company S.C	1997
9	Lion Insurance company S.C	2007
10	Lucy Insurance company S.C	2012
11	National Insurance company of Ethiopian S.C	1994
12	Nib Insurance company S.C	2002
13	Nile Insurance company S.C	1995
14	Nyala Insurance company S.C	1995
15	Oromia Insurance company S.C	2009
16	Tsehay Insurance company S.C	2012
17	United Insurance company S.C	1997

Source: (NBE, 2018 G.C)

Table 3.2: List of study sample insurances in Ethiopia

No	Insurance Name	Year Est. (G.C.)
1	Africa Insurance company S.C.	1994
2	Awash Insurance company S.C	1994
3	Ethiopian Insurance corporation	1974
4	Global Insurance company S.C	1997
5	National Insurance company of Ethiopian S.C	1994
6	Lion Insurance company S.C	2007
7	Nile Insurance company S.C	1995
8	Nyala Insurance company S.C	1995
9	Nib Insurance company S.C	2002
10	United Insurance company S.C	1997

Source: (NBE, 2018 G.C)

3.5. Data and collection methods

To investigate the effect of risk management on financial performance of insurance companies the study used both primary and secondary data. The primary data was collected through unstructured interview and the secondary data was collected from different published and unpublished financial statements of the insurance companies.

According to Gujarati (2009) panel data has the combination of both cross-sectional and time-series, it is more useful data as it captures individual variability (cross-sectional information) and dynamic nature of the data (time series information) and also it ensures more variability or more degree of freedom, more efficiency and less collinearity among the variables. Therefore, to conduct this study, the researcher used a balanced panel data (companies have the same number of

observations). The secondary source of data for this study was the past nine years (2009-2017 G.C) financial data, i.e. balance sheet and income statement of each non-life insurance. Therefore, the data were obtained from National Bank of Ethiopia and respective Private Non-life insurances.

3.6. Data Analysis

The term analysis refers to the computation of certain measures along with searching for patterns of relationship that exist among data-groups” (Kothari, 2004). Hence, statistical techniques such as descriptive statistic and regression were performed to analyze the collected data. The descriptive statistic used to determine the minimum, maximum, mean and standard deviation. Then, multiple linear regression analysis was used to determine the relative importance of variables. To conduct this study, the researcher used statistical tools E-views 10 software. The study has also performed diagnostic tests to ensure whether the OLS assumptions are violated or not.

3.7. Variables Definition, Measurement and hypothesis.

Dependent Variables (Return on Asset a measure for Profitability)

According to Nguyen (2006) to measure the profitability of insurance companies, there are a variety of ratios of which are Return on Asset (ROA), Return on Equity (ROE) and Net interest margin (NIM). However, the choice of the profitability ratio depending on the objective of the profitability measure.

ROA is a better measure of insurance profitability than others since ROA indicates how capable the management of the insurance has been in converting the institution’s assets into net earnings (Malik, 2011). The ROE is a measure of the rate of return flowing to the insurance’s shareholders. This measure of profitability is the most important for insurance’s stockholders because it reflects what the insurance is earning on their investment. On the other hand, the NIM variable is defined as the net interest income divided by total assets. It focused on the profit earned by on interest activities. Therefore, ROA is used as a better measure of profitability than other ratios and it reveals how much profit a company earns for its assets (Malik, 2011). ROA as a proxy of insurance profitability used by many researchers like Yuvaraj and Abate (2013), Pervan et al. (2012) Malik (2011), Meaza (2014) and Gemechis (2017). Return on asset (ROA) in the company measures the ratio of net income after tax for its total asset of the given companies (Tomislava et al, 2017).

Therefore, this study has intended to measure financial performance by using ROA similar to most of the above mentioned researchers. $ROA = \text{Net profit after tax} / \text{Total assets}$

Independent variables

This subsection describes the independent variables that are used in the econometric model to estimate the dependent variable. To measure the predictor variables of insurance companies' performance in Ethiopia, six factors are used as independent variables which are extracted from different studies. The variables namely; liquidity, technical reserve, company size, claim settlement, asset utilization and finally Operating ratio (cost to income)

Financial risks

Liquidity risk (LR): According to Anas et al. (2014) liquidity risk arises if the maturities of the two sides of balance sheet are different. This difference could be due to excessive cash or lack of cash that is needed to be financed. As per Amal (2012), liquidity risk measured through current asset over current liabilities that refer to the degree to which debt obligations coming due in the next 12 months can be paid from cash or assets that will be turned into cash.

The risk of illiquidity increases if principal and interest cash flows related to assets, liabilities and off-balance sheet items are mismatched (NBE, 2010). Rely on Emine (2015) explanation, liquidity risk arise while there is a lack to pay liabilities, which include operating expenses and payment for losses/benefits under insurance policies, when due. In accordance with Amoah et al. (2010), sufficient liquidity allows an institution to meet its obligation as they come due. The inability to accommodate an increased in funding sources (i.e. deposits or borrowings), make the institution very risky as well as inability to meet margin calls, which in the long-run clients loose trust in the institution. In connection with this, previous researcher has used liquidity risk variable for their study (Arif et al., 2015; Amal, 2012 and Suheyli, 2015). As identified by Alice *and* Muturi (2016), and Mazviona *et al.* (2017) liquidity risk has positive and statistical significant effect on performance of insurance companies. Hence, the study hypothesizes liquidity risk as positive and statistically significant effect on performance.

Technical Reserve Risk (safety ratio); Insurance companies collect premiums in advance and keep them in reserve accounts for future claim settlements. For instance, **most premiums**

collected by insurance companies are kept in outstanding claims and unearned premiums reserves which are two main accounts in the liability side of the balance sheet. Outstanding claims reserve is considered riskier than ordinary long-term corporate debt since neither the magnitude nor the timing of the cash outflows is known (Shiu, 2014). Its risk is both holding insufficient technical provisions and holding unjustifiably excessive provisions. Where reserves are set at a lower level than actually required then this could present the company's financial position in a better light than it actually is. This could result in inappropriate underwriting decisions being made. For example, more risky policies may be underwritten on the basis that more capital is available to support this than is actually the case, or higher levels of business may be written. **The insurance technical reserve is calculated as the ratio of net technical reserves to equity, and reflects the potential impact of technical reserves' deficit on equity in the event of unexpected losses.** This ratio demonstrates the potential impact of deficiencies in technical reserves due to the occurrence of unexpected losses on the equity (Adams & Buckle, 2003). Moreover, a negative relationship between technical reserve and performance has also been found in Browne et al. (2001). Consequently, a negative linkage between the insurance financial reserve and the insurers' financial performance is expected

Operational risks

Claim settlement risk (CS): The claims ratio also termed as **loss ratio in insurance business is defined as the claims incurred to net premiums earned.** Claims settlement or compensation for a loss is the only reason the consumer (insured) buys an insurance product. From insurers point of view low ratio is preferable, since low ratio means low damage/loss/ in any subject matter of non-life insurance product and low claim turnover. It is measured through the net claims incurred divided by net premium earned.

This ratio indicates how much percentage of net claims is incurred from the firm's or sectors net earned premium. Claim settlement risk is expected to have negative relationship with profit.

Cost to income ratio (CIR): Cost to income ratio shows the overheads or costs of running the insurance company, including staff salaries and benefits, occupancy expenses and other expenses such as office supplies, as percentage of income. It is used as an indicator of management's ability

to control costs and is expected to have a negative relation with profits, **since improved management of these expenses will increase efficiency and therefore raise profits**. It is also one of the key drivers of profitability that is examined. Similar to Pasiouras & Kosmidou (2007), **Trujillo-Ponce (2012) and others, the cost-to-income ratio is used, to measure insurance“ operational efficiency**. The cost-to-income ratio is calculated by dividing the overhead costs (costs of operating insurance) to the income generated before provisions. Among others, Pasiouras & Kosmidou (2007), and Sastrosuwito & Suzuki (2011) find that better efficiency is associated with higher profitability. Thus, a negative sign between cost-to-income ratio and insurance“ profitability is expected.

Asset Utilization ratio (AUR): According to *Imane (2014)*, Asset utilization ratios measure how efficient a business is at using its assets to make money. Asset utilization ratio can be measured in different way in order to know the performance of each asset in those organizations. For example, a business's receivables turnover, which is defined as its credit sales divided by the value of its accounts receivable from customers, indicates whether a business is able to turn the goods and services it sells into money that is available for other purposes. Inventory turnover is another asset utilization ratio, found by dividing the cost to produce the goods sold during a specified time period by the average value of the business's product inventory during that same time period. **But to know the overall asset utilization of the firm all asset should have to sum up and divided for operating income of the firm;** this is helpful in order to know how the firm is managing its asset to make money. The highest asset utilization of the firm the highest he/she makes money, which is indirectly helpful for the firm to increase its total profit and to overcome the liquidity problem. So in this study, **following Imane (2014) assumption** the variable asset utilization ratio was used to investigate if lack of asset utilization in insurance companies has any effect on the financial performance of the firm. The expected sign of this variable is positive; which means the highest asset utilization the highest profit of the firm.

Enterprise Risk management

Firm size: As the size of an organization increases, the scope of risks is likely to differ in nature, timing and extent. **The need for having a more effective enterprise-wide risk management system will increase with the size of the firm.** Larger firms may have greater resources allowing for greater ability to implement an ERM system. Multiple studies have shown that larger firms

have a higher ERM implementation level than smaller firms (Colquitt, Hoyt & Lee, 1999; Beasley et al., 2005; Hoyt & Liebenberg, 2011). Additionally, Eikenhout (2015) have conducted study on risk management and its impact on performance of insurance companies. The study was conducted to investigate the effect enterprise risk management on financial performance. The proxy variable used to measure enterprise risk management was the size of insurance companies and he comes up with the finding of positive relationship among two variables. So in this study firm size is used as a measurement for enterprise risk management. Size is calculated by using the natural log of the book value of assets (Hoyt & Liebenberg, 2011). The firm size is expected to have a positive relationship with profit.

3.8. Model specification

A general model were developed and tested in order to achieve the desired purpose of the study. The Explanatory variables in this model were financial risks, which is measured by liquidity ratio and safety ratio). The second variable is operational risk, which is measured by claim settlement ratio, cost to income ratio and asset utilization ratio. And finally the last variable is enterprise management risk and this can be measured by the size of the firm.

The variable representing profitability of non-life insurances which was measured by ROA is used as the dependent variable in the regression models.

The regression equation was as follows:

$$ROA_{it} = \beta_0 + \beta_1 (LR)_{it} + \beta_2 (SR) + \beta_3 (CS)_{it} + \beta_4 (CIR)_{it} + \beta_5(AUR)_{it} + \beta_6 (FS)_{it} + U_{it}$$

Where:

β_0 = coefficient of Intercept (Constant)

β_5 = coefficient of asset utilization ratio

β_1 = coefficient of liquidity ratio

β_6 = coefficient of firm size

β_2 = coefficient of claim settlement ratio

u = The Error Term

β_3 = coefficient of cost to income ratio

β_4 = safety ratio

CIR = Cost to Income ratio

LR = liquidity ratio

AUR = asset utilization ratio

SR = Safety ratio

FS = Firm size

CS = Claim settlement ratio

Table 3.3: Summary of Variables, Measurement and Expected findings Sign

Category	Variables	Measurement	Source	Sign
Dependent	Return on Asset (ROA)	Net income after tax/Total Asset	<i>Tomislava et al. (2017)</i>	
Independent Variables	Liquidity ratio(LR)	Firms total current asset/ total current liability	<i>Alice and Muturi (2016) and , Mazviona et al. (2017)</i>	+
	Technical reserve (safety ratio)(SR)	Outstanding claims/ equity	<i>Woldemihael (2017)</i>	-
	Claim settlement ratio(CS)	Net claims incurred/Net earned premium	<i>Woldemihael (2017)</i>	-

	Cost to income ratio(CIR)	Operating Expense/operating income.	<i>Mitku(2015)</i>	-
	Asset utilization ratio(AUR)	Operating Income/Total Assets	<i>Imane(2014)</i>	+
	Firm size	Log of total asset	<i>Woldemihael (2017)</i>	+

CHAPTER FOUR

DATA ANALYSIS AND INTERPRTATION

Introduction

This Chapter deals with result and discussion of the study. The chapter contains three parts. The first sections deal about descriptive statistics of dependent and independent variables. The second part deals with test of CLRM assumptions. The third part presents and explains the result of regression outputs in line with the interview conducted on the effect of risk management on financial performance of Ethiopian non-life insurance companies.

Table 4.1 Summary of descriptive statistics

	ROA	LR	FS	CS	CIR	AU	SAFTEY
Mean	0.080894	0.969422	8.551768	1.873648	1.424202	0.115171	0.825086
Median	0.080576	0.983587	8.581481	1.629593	0.901634	0.095670	0.789404
Maximum	0.146881	1.631958	9.526208	13.07706	14.22114	0.613184	1.523421

Minimum	-0.102709	0.262554	7.511549	-0.418949	-1.313081	0.002904	0.182899
Std. Dev.	0.039770	0.221312	0.412131	1.629111	1.969283	0.084279	0.334094
Observations	90	90	90	90	90	90	90

Source: researcher own computation

Discussion of Descriptive statistics

As it shown in the above table 4.1, the dependent variable used to measure profitability is Return on Asset (ROA) which is calculated by profit after tax divided by the total asset has a mean value 0.08089(8%) with a maximum and minimum of 14.68% and -0.10% respectively. This means that on average non-life insurances has been earning 8 % on their asset during the study period. While the maximum return they have achieved was 14.68% and the minimum was -0.10% of total assets; the negative sign indicate that, the insurance company faces a loss 10% of total asset during the study period. The standard deviation of return on asset was 0.039770 which implies that the volatility of return on the asset from the mean value. In other way it indicates the profitability of the insurance company varies from the mean by 3.42% during the study period.

As mentioned in conceptual frame work of this study, the explanatory variable in this study was classified in to three parts. And the first one is financial risk; which is measured by liquidity ratio and technical reserve (safety) ratio. During the study period the variable liquidity ratio scores the average mean of 0.969422 (96.94%). This indicates that for each one Birr current liability there was 0.97 cent of current assets available to meet the obligation. The maximum and minimum value of this variable was 1.63196 and 0.26255 respectively. In this case; the liquidity level of the firm is poor when it is compared to the minimum requirement of a national bank. The standard deviation of liquidity ratio shows 0.221312; which implies that the dispersion of each observation from its mean. Finally from this descriptive statics we can understand that; the insurance company with higher liquidity ratio will have more current asset to meet current liability than another.

The other variable under financial risk was technical reserve (safety ratio); the average score of this variable is 0.825086 with the maximum and minimum of 1.52342 and 0.1828 respectively. The standard deviation of this variable is 0.3340; which is an indication for each observation in the study deviated from its mean by a value of 0.3340

The second explanatory variable of the study was operational risk; which is measured by cost to income ratio, claim settlement ratio and asset utilization ratio; the variable cost to income ratio has the average value of 1.424. For one birr income earned there is 1.424 expense incurred on average. On the other hand the maximum and minimum value of this variable is 14.22 and -1.313 respectively. So during the study period the variable cost to income ratio was range from -1.313 to 14.22 values. The implication of highest and lowest value is that the most efficient insurance company has a quite substantial cost advantage compared to the least efficient insurance. Finally each observation is deviated from its mean value by 1.97. The second variable under operating risk is claim settlement ratio. The average score of this variable is 1.873648; which indicate that on average how much percentage of net claims is incurred from the insurers' net earned premium. While the maximum and minimum score of this variable is 13.07706 and -0.419 respectively. So during the study period the claim settlement ratio variable was range from -0.419 to 13.07706. On the other hand each observation of claim settlement ratio variable has a deviation value of 1.629111 values from its average.

The third variable under operational risk is asset utilization ratio. This variable has the average value of 0.1151. While the maximum and minimum of this variable is 0.613 and 0.003 respectively. The last explanatory variable of this study is enterprise management risk; which is measured by the size of insurance companies; the average value of this variable is 8.55, with the maximum and minimum value is 9.53 and 7.5 while each observation have a deviation 0.4 from it mean value .so during the study period; the variable firm size which is measured by log of total asset have a value which ranges from 7.5 to 9.53.

4.1. CLRM Assumption and Diagnostic Test

Under this study, in order to investigate the effect of risk management on financial performance of insurance companies the researcher has conducted a diagnostic assumptions needed for this model before to test the regression model and discussion of its result, the researcher carries out the diagnostic test to make sure that the data fit the basic assumption or not. The basic diagnostic assumptions and their test will be presented here under.

Assumption One: Zero Mean: $\{E(U_t) = 0\}$

According to Brook (2014), this assumption requires that the average value (mean) of the error is zero. In fact, if the constant term is included in the regression equation, this assumption will never be violated. Since there is a constant term (C) in the regression, the mean value of the errors is zero.

Assumption Two: Heteroscedasticity ($\text{Var}(u_t) = \sigma^2 < \infty$)

This assumption can be used to check whether the variance of error is constant or not. If the assumption of constant variance is violated, the standard error could be wrong and any inference made from them became misleading. In other word, if the errors do not have a constant variance, they are said heteroskedastic (Brook, 2014). To check heteroskedasticity there are a number of methods are used, but, the **Breush-pagan-Godfrey tests for checking for heteroskedasticity** problem were applied in this study. The following hypothesis was set for the heteroskedasticity test.

H0: There is no Heteroskedasticity problem in the model.

H1: There is Heteroskedasticity problem in the model.

$\alpha = 0.05$

Decision Rule: Reject H0 if p-value is less than significant level. Otherwise, do not reject H0.

Table 4.2 Result of Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.578711	Prob. F(7,82)	0.1533
Obs*R-squared	10.68864	Prob. Chi-Square(7)	0.1528
Scaled explained SS	10.04886	Prob. Chi-Square(7)	0.1858

Source: generated from E-views 10

As shown in the above table 4.2, both F-statics and Chi-square version of the test statics gave the same conclusion that there is no evidence for the presence of heteroscedasticity in this particular study since the P-value is in excess of 0.05. Therefore, the error in the regression model has a **constant variance or (homoscedasticity)** so the null hypothesis should not be rejected.

Assumption Three: Test of Autocorrelation ($\text{cov}(u_i, u_j) = 0$ for $i \neq j$)

This assumption states that the covariance between the error terms over time is zero. According to Brook (2014) “it is assumed that the errors are uncorrelated with one another.

If the error is not un-correlated with one another, it would be stated that they are ‘auto-correlated’ or they are ‘serially correlated’’. To check the presence of autocorrelation in the study, the researcher used Breusch-Godfrey test, which allow the examination of the relationship between error terms and several it’s lagged value at the same time. Therefore, the hypotheses of the autocorrelation test were formulated as follows:

H0: There is no autocorrelation problem in the model

H1: There is autocorrelation in the model.

$\alpha = 0.05$

Decision Rule: Reject H0 if p-value less than significant level. Otherwise, do not reject H0.

Table 4.3 Result of Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.503061	Prob. F(2,80)	0.0882
Obs*R-squared	5.300217	Prob. Chi-Square(2)	0.0706

Source: E-views 10 outputs

As it can be seen from the above table 4.3 both versions (X2 and F-statistics) of the test are greater than the significant value, in this case, the null hypothesis of no autocorrelation should be not-rejected since the P-value are greater than 0.05.

Assumption Four: Test of Multicollinearity

Multicollinearity means there is a linear relationship between the explanatory variables which may cause the regression model biased (Gujirati, 2009). There are two classes of multicollinearity these are; perfect and near multicollinearity. Perfect multicollinearity occurs when there is an exact relationship between two or more variables and this causes a difficulty in explaining which

independent variables are affecting the dependent variables. The second one is much more likely to occur in practice and would arise when there was a non-negligible, but not perfect, relationship between the two independent variables. Then, the simplest method to investigate the existence multicollinearity is by looking at the matrix of correlations between individual variables.

Table 4.4 Result of Multicollinearity Test

Sample: 2009 2017
Included observations: 90

Correlation t-Statistic Probability	ROA	LR	FS	CS	CIR	AU	SAFTEY
ROA	1.000000 ----- -----						
LR	0.244519 2.365600 0.0202	1.000000 ----- -----					
FS	0.426749 4.426577 0.0000	-0.154794 -1.469817 0.1452	1.000000 ----- -----				
CS	-0.273117 -2.663322 0.0092	-0.209542 -2.010312 0.0475	-0.068055 -0.639900 0.5239	1.000000 ----- -----			
CIR	-0.318540 -3.152374 0.0022	-0.015657 -0.146889 0.8836	-0.166240 -1.581478 0.1174	0.107321 1.012613 0.3140	1.000000 ----- -----		
AU	0.519548 5.704068 0.0000	0.235962 2.277840 0.0252	0.279536 2.731158 0.0076	-0.376821 -3.816207 0.0003	-0.319204 -3.159697 0.0022	1.000000 ----- -----	
SAFTEY	-0.353289 -3.542590 0.0006	-0.299419 -2.943853 0.0041	0.002025 0.018997 0.9849	0.291738 2.861211 0.0053	0.194902 1.864096 0.0656	-0.183449 -1.750611 0.0835	1.000000 ----- -----

According to Cooper & Schindler (2009), a correlation above 0.8 should be considered as a problem of multicollinearity. As it can be seen from tables 4.4 there is no issue of multicollinearity in this model. Because the highest correlation among independent variables is -0.37, which is found between asset utilization ratio and claim settlement ratio

Assumption Five: Test of Normality

Even if there are several tests for normality assumption, like the histogram of residuals, normal probability plot (NPP), the most common one is Bera-Jarque (1981) test.

According to Brooks (2008), if the residuals are normally distributed, the histogram should be bell-shaped and the Bera-Jarque statistic would be significant. This means that Jarque Bera formalizes this by testing the residuals for normality and testing whether the coefficient of skeweness and kurtosis are ≈ 0 and ≈ 3 respectively.

Normality assumption of the regression model can be tested with the Jarque- Bera measure. Skewness measures the extent to which a distribution is not symmetric about its mean value and

kurtosis measures how fat the tails of the distribution are. If the Jarque-Bera value is greater than 0.05, it's an indicator for the presence of non-normality (Brooks, 2008).

In addition, it is quite often in the case that one or two very extreme residuals cause a rejection of the normality assumption. Such observations would appear in the tails of the distribution, which enters into the definition of kurtosis, to be very large. Such observations that do not fit in with the pattern of the remainder of the data are known as outliers. If this is the case, one way to improve the chances of error normality is to use dummy variables (Brooks, 2008). In line with this, the study included one dummy variable (D82) to adjust the normality distribution. Thus, the figure below shows the result of normality by including one dummy variable.

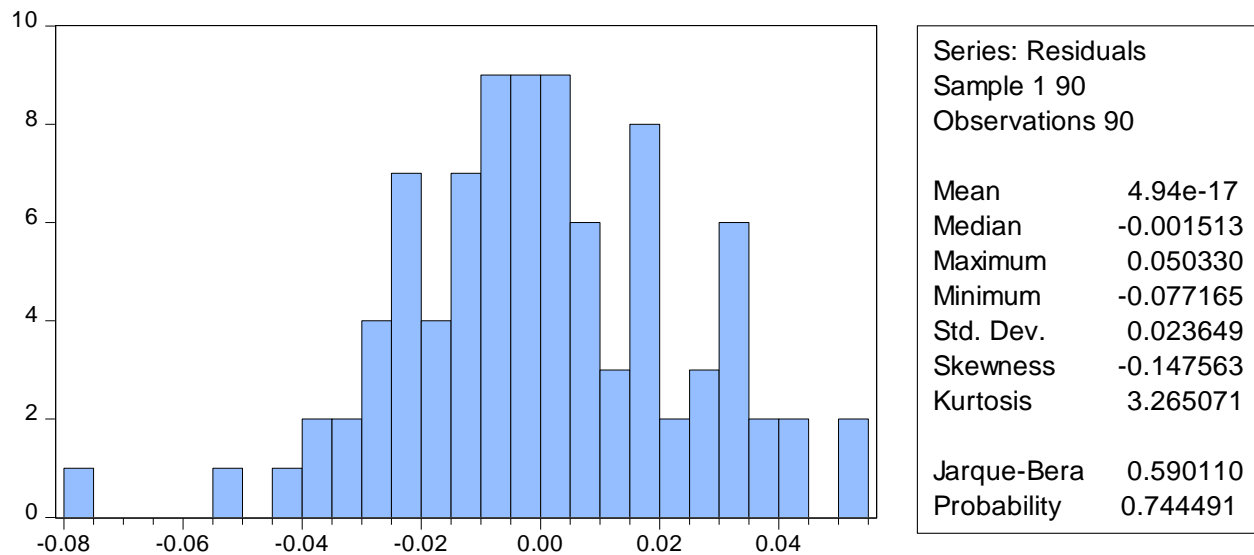
H0: The data are normally distributed.

H1: The data are not normally distributed.

$\alpha = 0.05$

Decision Rule: Reject H0 if p-value less than significant level. Otherwise, do not reject H0

Figure 4.1 Normality Test Result



Source: E-Views 10 Output

As shown in the figure above, the Bera-Jarque statistics have a P-value of 0.74, which clearly implies that it is greater than 0.05, which indicates there is no evidence for the presence of an abnormality in

the data. Thus, the null hypothesis that the data is normally distributed should not be rejected since the P-values were in excess of 0.05 significant levels. It can be concluded that there is no problem of normality; but before adding dummy to the regression there was a problem of normality due to very high negative value of observation. **The negative value is due to loss incurred by lion insurance in the year of 2009 G.C. After the remedial measure taken, namely the outlier observation dummy the normality is fixed.**

4.2. Model Specification Test

The assumption of the CLRM that the econometric model used in the analysis is correctly specified has two meanings. The first is since the model is correctly specified, there is no equation specification error and the second is no model specification error. The model specification error exist due to omission of an important variable(s), inclusion of unnecessary variable(s), incorrect specification of the error, adoption of wrong function form and error of measurement in the regress and regressors. When the appropriate variables are omitted from a model, the OLS estimators of the variables retained in the model are biased and inconsistent. In addition to the above, the variance and standard error of these coefficients are incorrectly estimated. As a result, including of irrelevant variables in the model are also that the estimated variances tend to be larger than necessary, thereby making for less precise estimation of the parameters. That is, the confidence intervals tend to be larger than necessary (Gujirati, 2009). Therefore, in order to select a correct estimated model, the researcher has carried out the Ramsey-RESET Test to check on the model specification. The hypothesis of the model specification test was formulated as follows;

H0: The model is correct.

H1: The model is incorrect.

$\alpha = 0.05$

Decision Rule: Reject H0 if p-value less than significant level. Otherwise, do not reject H0

Table 4.5 Result of Model Specification Test

Ramsey RESET Test
Equation: UNTITLED
Specification: ROA LR FS CS CIR AU SAFTEY DUMMY82 C
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.861872	81	0.3913
F-statistic	0.742824	(1, 81)	0.3913
Likelihood ratio	0.821598	1	0.3647

Source: generated from E-views 10

From the table 4.5 above, do not reject the null hypothesis (H0) since the P-values of t-statistics, F-statistics and likelihood ratio are 0.3913, 0.3913 and 0.3647 respectively which are greater than the significant value. Therefore, it can be concluded that the model is correctly specified.

4.3. Model Selection: Random versus Fixed Effect Model

There are two classes of panel estimator approaches that can be employed in financial research; Fixed and Random Effect model. The question which model is more appropriate for the study is selected through Hausman Test. The Hausman test is helpful in order to examine whether any unobserved omitted variables are uncorrelated with the included explanatory variables or not. If they are uncorrelated, a **random effect** approach can be used; otherwise, **the fixed effect model** is preferable. The null hypothesis for this test is that unobservable heterogeneity term is not correlated or random effect model is appropriate, with the independent variables. If the null hypothesis is rejected then study should employ fixed effect model (Brook, 2014). Therefore, the hypothesis for Hausman test was formulated as follows;

H0: Random effect model is appropriate

H1: Fixed effect model is appropriate.

$\alpha = 0.05$

Decision Rule: Reject H0 if p-value less than significant level. Otherwise, do not reject H0

Table 4.6 Result of Hausman Test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	2.932512	7	0.8912

Source: E-Views 10 Output

The above table 4.6 shows, Hausman test has a P-value of 0.8912 which is more than 0.05 (5%) level of significance. The conclusion from the above Hausman test result is the null hypothesis of the random effect should not reject. This implies that for this study random effect is more appropriate than fixed effect.

4.3. Regression Result Analysis

In this part the regression result has been presented. The following linear regression was developed on variables considered in the model to test the effect of risk management on financial performance of insurance companies in Ethiopia.

$$ROA_{it} = \alpha + \beta_1 (LR)_{it} + \beta_2 (SR)_{it} + \beta_3 (CS)_{it} + \beta_4 (CIR)_{it} + \beta_5 (AUR)_{it} + \beta_6 (FS)_{it} + U_{it}$$

Table 4.7 Regression Output

Dependent Variable: ROA
 Method: Panel EGLS (Cross-section random effects)
 Date: 04/18/19 Time: 08:23
 Sample: 2009 2017
 Periods included: 9
 Cross-sections included: 10
 Total panel (balanced) observations: 90
 Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LR***	0.037675	0.013120	2.871606	0.0052
SR	-0.005801	0.010874	-0.533418	0.5952
CIR***	-0.005286	0.001614	-3.274240	0.0016
CS**	-0.004253	0.001921	-2.214296	0.0296
AU***	0.101479	0.038037	2.667870	0.0092
FS**	0.020723	0.009237	2.243413	0.0276

DUMMY82	-0.177471	0.025167	-7.051765	0.0000
C	-0.122277	0.081996	-1.491247	0.1397
Effects Specification				
			S.D.	Rho
Cross-section random			0.016516	0.3555
Idiosyncratic random			0.022238	0.6445
Weighted Statistics				
R-squared	0.630541	Mean dependent var		0.033123
Adjusted R-squared	0.599002	S.D. dependent var		0.034235
S.E. of regression	0.021679	Sum squared resid		0.038540
F-statistic	19.99231	Durbin-Watson stat		1.795971
Prob(F-statistic)	0.000000			
Unweighted Statistics				
R-squared	0.641918	Mean dependent var		0.080894
Sum squared resid	0.050407	Durbin-Watson stat		1.373134

Source: E-views 10 outputs

Note: *** indicates 1 percent significance level and ** indicates 5 percent significance level

The linear function for the study regression equation is denoted as below;

$$\text{ROA} = -0.1222 + 0.0376\text{LR} - 0.0058\text{SR} - 0.0052\text{CIR} - 0.0042\text{CS} + 0.1014\text{AU} + 0.0207\text{FS}$$

Discussion of Regression results

Financial Risk and Profitability

Liquidity ratio

As it is discussed in the preceding chapters; liquidity is a measure of the capability of an insurer to fulfill their immediate commitment or pay their liabilities to policyholders and other creditors, with in a period of less than a year without having to increase profits from the underwriting activities and investment activities. In this study the relationship between profit (measured by return on asset) and liquidity (measured by current asset of insurance companies divided to current liability) is positive; which is consistent with the study established by Almajali et al.(2012) , Alice and Muturi (2016), Mazviona et al.(2017), As we can observe from the above regression result liquidity ratio of non-life insurance in Ethiopia has a positive and statistically significant effect on

profitability at 1 percent significance level. This implies that, holding other things remain constant; 1 unit increases in liquidity position of the firm will cause profitability to increase by 0.0376 units. The results of a positive relationship between liquidity and profitability shows that non-life insurance that has more liquidity ratio will bring higher profits for their firms and increase overall performance of insurance companies' ability to pay claims incurred to policyholder and creditors. So, if claims and other liabilities of the insurance companies are paid on time for policy holders as well as for creditors; that insurance company will gain a trust of public and this will open a way for that companies to sell more policies in order to increase profit. Therefore, it is expected that non-life insurers in Ethiopia with a more liquid asset will outperform those with less liquid assets. Since, insurer's lower liquidity means they will have more cash constraints and will have more difficulties in repaying to policyholders when the loss occurred.

Safety ratio

The variable safety ratio is also used as a proxy for financial risk and measured by claims outstanding to equity. The regression result of this study reveals that technical reserve (measured by safety ratio) have a negative relationship with profit but not statically significant. Which implies increase in 1 unit safety ratio will decrease the profit by 0.0058 units. The general assumption behind negative sign of this variable is that; an increase in safety ratio will certainly lead to a decrease in performance of Ethiopian insurance companies; because it indicates holding more amount of technical provision for outstanding claim decline the insurers' profit. Regarding its significance, it is even not significant at 10 percent significance level and this is an implication for that; Ethiopian insurance companies are not holding huge amount for technical reserves that affects their profit. This finding is consistent with the finding established by sisay (2017) and woldemihal (2017) by its sign.

Operational risk and Profitability

Cost to Income ratio

The coefficient of cost to income, which provides information on the efficiency of the management regarding expenses relative to income, was negative and statistically significant at 1% significance level. This implies that 1 unit increase in cost to income will decrease the profit of insurance companies by 0.0052 units. Since a little study has been conducted in Ethiopia related to risk

management and its impact on financial performance; this study has no any bench marks to compare the finding with other studies. But a number of studies have been conducted in world as well as locally on other financial institutions. For example, Ford (2004), Welch (2006), Sufian and Chong (2008), have conducted study on the effect risk management on financial performance of banks. And they came up with a finding of negative relationship between two variables and statically significant. As well in Ethiopia, Amdemikael (2012) and mitiku (2017) have conducted study on the effect of risk management on financial performance of banking industry in Ethiopia and they were arrived at the same result. Therefore, operational efficiency exists as one of the major determinant factor that can influence insurance companies' financial performance in an unfavorable way.

Claim Settlement ratio

As expected and hypothesized, the sign and direction of variable claim settlement risk is perfect; this variable indicates that the claims incurred to net premiums earned and indicates how much percentage of net claims is incurred from the firm's net earned premium. In this study the relationship between profitability (measured by return on asset) and claim settlement risk (measured by claims incurred to net premiums earned) is negative. This finding is consistent with study established by woldemihael (2017), (Pervan et al. (2012); Mirie & Cyrus (2014) Yusuf & Dansu (2014) by its sign.

As we can observe from the above regression result; the claim settlement ratio and probability have a negative relationship and statically significant at 5 percent significance level. This implies that; holding other thing remains constant, 1 unit increase in claim settlement ratio will cause profitability to decrease by 0.0042 units.

Asset utilization ratio

The variable asset utilization ratio which is used as a proxy to operational risk in this study has a positive relationship with return on asset of the insurance companies and statically significant at 1 percent significance level. The result of regression output reveals 1 unit increase in asset utilization ratio (measured by firms earning to total asset) will cause profitability to increase by 0.1014 units. This positive relationship is an indication for the more the firm ability in utilizing its asset; the more profit of the firm.

Enterprise Management risk

Firm Size

The variable firm size is used as a proxy to measure enterprise risk management and it has a positive relationship with profitability of insurance companies. The finding of this study is consistent with the finding established by *Woldemichael (2017)*. The result of regression output reveals firm size and profitability have a positive relationship and statically significant at 5 percent significance level. This implies that; 1 percent increase in firm size will cause the profit of insurance company to increase by 0.00207 units. In this case, since the functional form between profitability and firm size is lin-log; the coefficient on the beta should to be divided for 100 in order to make interpretation. The size of the firm can affects the financial performance of insurance companies in many ways. For example, large firms can exploit economies of scale and scope and thus being more efficient compared to small firms. Larger insurers can achieve operating cost efficiencies through increasing output i.e. they are able to realize economies of scale especially in terms of labor costs, which is the most important factor for delivering insurance services.

Moreover, the findings of regression result shows, the value of R-Square, also known as the Coefficient of determination; which is a commonly used statistic to evaluate model fit. R-squared defined that the square of a correlation coefficient; it must lie between 0 and 1. If this correlation is high, the model fits the data well, while if the correlation is low (close to zero), the model is not providing a good fit to the data. The adjusted R-squared compares the explanatory power of regression models that contain different numbers of predictors and it could control the extremes and the biasedness of the model. The value measures how well the regression model explains the actual variations in the dependent variable (Brooks, 2008). R-squared statistics and the adjusted R-squared statistics of the model was (63%) and (60%) respectively. The result of this estimation particularly the adjusted R-Squared indicates that the changes in the independent variables explain 63% of the changes in the dependent variable. This means technical reserve (which is measured by safety ratio), company size, liquidity ratio, claim settlement ratio, cost to income ratio, asset utilization ratio and firm size collectively explain 63% of the changes in financial performance. Thus these variables collectively, are good explanatory variables to identify the effects of risk management on insurance companies“ financial performance in Ethiopia. However, the remaining 37% of changes was explained by other factors which are not included in the model. Overall

reliability and validity of the model was further enhanced by the Probability (F-statistic) value (0.000) which indicates strong statistical significance. Thus the null hypothesis of the overall test of significance that all coefficients are equal to zero was rejected as the p-value was sufficiently low (less than 0.05)

Discussion of Primary Data

To achieve the objective of this study; the researcher used both primary and secondary data; in doing so, the primary data was conducted through interview; but before conducting an interview the researcher identified important variables that affect financial performance of insurance industry in Ethiopia from related theories and empirical literatures; after identifying those variable the researcher conducts an interview from top management of each insurance companies; additionally a senior staffs of insurance department of Ethiopian national bank was included in the interview. The aim of conducting the interview was to identify if those selected variables exactly affect the financial performance of the insurance industry; additionally to know if there are other variables which are important for this study than the selected variables; and also to observe if the interviewee has awareness about risks management from different perspectives.

All the interviewees were interviewed independently at different times. The interview questions were fully unstructured and focused on the identification of risk management from the perspectives of financial risk, operational risks, and enterprise management risk affecting Ethiopian insurance companies' performance in general. More specifically, the interview questions also tried to identify how those risks can influence performance, the major determining factors that can affect insurers' performance among the financial risk, operational risks and enterprise management risks; and determinant measures taken by the insurance companies to reduce the negative effect on their performance and included also their general opinion regarding the matter.

Conducting such data in line with secondary data is very helpful in identifying those proper variables that affect the insurance company performance; because by depending on only secondary data and variables selected from literature making analysis is difficult in representing the reality of the result; since the result of the studies are different from one country to country, study to study, industry to industry.

According to interview conducted from risk, finance and national bank of Ethiopia insurance supervision department, there are many variables which can affect the financial performance of the industry: those variables are: underwriting risk, liquidity risk, solvency risk, operational risk, technical provisions risk and credit risks were listed from a number of risks.

After indenting these variables; the researcher made an interview with each respondent in order to know the effect of each risk on financial performance of the insurance industry. So hereunder in line with the selected variables for this study the result of each variable is discussed below.

The first question was related to liquidity risk; its effect on financial performance, measurement and category of the risk.

The researcher conduct mixed answer from interviewees; in which some of them mentioned that liquidity risk is the first major financial risk that can negatively affect the financial performance of Ethiopian insurance companies. While the others were responded by saying liquidity risk is the first major financial risk that can positively affects the financial performance of the companies. But all respondents were agreed that; handling of liquidity risk is the major task to ensure the availability of sufficient funds to meet obligation of claimants. The implication of positive effect revealed by interviews was related to that; insurance companies by nature must be liquid to meet claims obligation, to avoid loss of business and damage to public image. Additionally by referring the National Bank of Ethiopia's issued directive No SIB/25/2004 some respondents were giving their views as, insurance companies should keep amount of liquid cash and short term securities not less than 65% of total admitted asset to meet their immediate commitments to policyholders. If the insurance companies meet this commitment, they will become sound and increase customer satisfaction and helps to collect more premiums from customers and results increase in financial performance.

While on the other hand; negative effect implication was revealed as; the more current asset tied up it will decrease the investment opportunity of the firm and negatively affects a financial performance. Additionally the major causes of liquidity risk was revealed as; premium which are not collected as expected volume, when the company has no clear cash management policies, lower rate of interest at bank for fixed time deposit & other deposits.

The other question was related to technical reserve (which is proxied by safety ratio); in its effect on financial performance, measurement and category of the risk. The interview result for this variable is straight forward and shows that it has a negative effect on financial performance. All the interviewees agreed that the above mentioned variables are classified as financial risks and have significant relationship with performance of Ethiopian insurance companies.

The third question was related to operational risk; its effect on financial performance, proxy to operational risk and types of risks classified in operational risk. In line with this; the interviewees gave different type of answers; some of them classify claim settlement risk and underwriting risk as operational risks, and others classified other variables which shows overall efficiency of the management in operating the business, those are asset utilization level of the companies, which shows income generating capacity of the firms; managing operating expenses of the companies when compared to its income. Based on their assumption and empirical evidences this study selects claim settlement risk, asset utilization and managing operating expenses of the firm as a measure of operating risk.

The interview result shows that claim settlement risk has a negative effect on financial performance of insurance companies. However one of the officers argued that policyholders main objective is to get compensation for their loss if the insurers settled the claims properly and as much as possible with a short time they can retain their customer and their premium volume will increase and then their financial performance will score high amount. On the other hand; the result of interview conducted reveals that asset utilization (which is measured by asset utilization ratio) has a positive impact on the financial performance of insurance industry. The argument given for this positive relationship is; if insurance companies manage their asset properly they will increase their profit by generating more income by using their asset. the other variable which is used in this study to measure operational risk is level of operating expenses ; the respondents argued that highest operating expenses to operating income has a negative impact on financial performance of insurance industry. The argument behind negative impact is; if the insurance companies incurred highest expenses compared to income it will decrease the profit of the firms.

The last question was made related to enterprise management; in order to know its effect on financial performance; measurement and types of risks classified under enterprise management. The answer collected from interviewee was most likely similar and risks classified under enterprise

management are more wide and qualitative; most of the respondents agreed with enterprise management is overall activity of the companies; which are more done by board of directors and top management of the companies; it shows the commitment of top management for expansion of business, the commitment to adopt new technology and the commitment to decide capital requirements; this all can be measured by size of the companies.

Regarding its effect on financial performance; the interviewee agreed that the effect of company's size on financial performance is positive. Because, if the company size is big it will have the ability to provide more operations and this will lead the company to earn more profit. Finally the information conducted through interview was more or less consistent except mixed argument for liquidity ratio. From this, the researcher concluded that; the variables classified as a main determinant of risk that affect the financial performance of the insurance industry is similar with variables selected from empirical literatures and different theories.

Table 4.8 The Summary of expected and actual signs of independent variables.

Independent Variables	Expected sign effect	Actual effect	Hypothesis status
Liquidity	Positive and Significant	Positive and Significant	Do not reject
Safety (technical R)	Negative and Significant	Negative and Insignificant	Reject
Claim settlement	Negative and Significant	Negative and Significant	Do not reject
Cost to income	Negative and Significant	Negative and Significant	Do not reject
Asset utilization	positive and Significant	positive and Significant	Do not reject
Firm size	Positive and Significant	Positive and Significant	Do not reject

Source: researcher compilation

CHAPTER FIVE

SUMMARY OF MAJOR FINDINGS CONCLUSION AND RECOMMENDATION

Introduction

The objective of this study was to examine the effect of risk management on profitability of insurance companies in Ethiopia; from perspectives of financial, operational and enterprise management. The study used panel data over the period 2009-2017 with selected ten insurances as a sample out of seventeen insurances that operate in Ethiopia. In line with preceding chapters this chapter will comprises the conclusion and recommendation based on the finding of the study.

5.1. SUMMARY OF MAJOR FINDINGS AND CONCLUSION

This study was conducted to examine the effect of risk management on the financial performance of insurance companies in Ethiopia. In doing so, non-life insurer's data was used to study the

subject of interest. The study was conducted through secondary panel data which covers a 9 years range (2009-2017) with total observation of 90; the sampling technique adopted was purposive sampling technique and insurance companies were selected purposively from total population of the study.

In order to estimate the extent of the effects of each variable on financial performance; several tests were needed to be done. Firstly a multicollinearity test was checked through correlation matrix in order to see if there was any issue between variables; assumptions of classical linear regression model was tested and confirmed that the model is viable. Selection of appropriate model was made by Housmen test and confirmed the study to adopt random effect panel model

To analyze the descriptive statistics, the researcher used the mean, maximum, minimum and standard deviation of all variables. Further, the researcher discussed regression analysis and interview conducted to determine the effect of independent variables on the dependent variable. Therefore, in line with the specific objective of the study the researcher reached at the following conclusion

SUMMARY OF FINDINGS

The finding of the study reveals that; the financial performance of insurance companies can be affected by financial, operational and enterprise management risk.

Financial risk which is measured by liquidity ratio and technical reserve (safety ratio) have mixed effect on financial performance of insurance companies; in which, liquidity ratio found statically affecting the financial performance of the insurance companies positively at 1 percent significance level. On other hand; technical reserve (safety ratio) found negatively affecting the financial performance of the insurance industry but it is not statically significant in affecting profit.

Secondly; the operational risk which is measured by claim settlement ratio, cost to income and asset utilization ratio; have different implication on financial performance of the insurance companies. In this case, claim settlement ratio found statically significant at 5 percent significance level and negatively affects the profit. Besides, cost to income ratio has a negative relationship with profit and statically significant at 1 percent significance level. And finally the asset utilization

ratio of the firm have a positive relationship with profit and statically significant at 1 percent significance level.

The last explanatory variable of this study was enterprise risk management; which is measured by firm size or company size. The finding of the study reveals; the size of the insurance company have a positive relationship with profit and statically significant at 5 percent significance level.

CONCLUSION

Finally the study comes up with the conclusion of there is a strong relationship between risk management and financial performance of insurance companies in Ethiopia from the perspectives of financial, operational and enterprise management.

5.2. RECOMMENDATION

Based on the finding of the study; the following points are recommended from this study

Overall the insurance companies should have pay greater attention to the significant variables in this study; from financial risk perceives liquidity ratio, from operational risk perspectives claim settlement ratio, cost to income ratio and asset utilization ratio, From enterprise management perspective; the firm size.

The first recommendation is for financial risk (measured by liquidity ratio); in this case; the insurance company should hold adequate liquid asset by investing in liquid assets to ensure that it is able to meet its financial short term and uncertain claim obligation as and when they fall due. That means; the firm should use aggressive working capital strategy, which shows the liquid asset of the firm should be maintaining to meet its current liabilities. In doing so, the company can easily pay when the debt is due and this help the company to win the public trust; the more the company trusted in the society the more premium will be sold and gain profit.

Additional during the study period the researcher observed that the minimum liquidity ratio of the insurance industry was 0.26 which means 26% and this cannot fulfill the minimum requirement set by national bank. So Ethiopian insurance companies should properly use NBE's Directive No. SIB/25/2004 that commands the insurers to hold 65% of their admitted asset in the form of cash and short term securities

The second recommendation is related to operational risk which is measured claim settlement ratio, cost to income ratio and asset utilization ratio.

The study recommends that; claims managers in Ethiopian insurance industry must effectively manage their claims processes, in order to reduce the amount of claims for every earned premium. In doing so, a good claim management embraces: proactive in recognizing and paying legitimate claims; assessing accurately the reserve associated with each claim; reporting regularly; minimizing unnecessary costs; avoiding protracted legal disputation and whatever possible, handling claims expeditiously.

The other recommendation under operational risk is related to cost to income ratio; which implies the level of operating expenses incurred in line with income earned. In this case, the researcher forward a recommendation to insurance managers; to give an attention in order to minimize other administrative cost and additional operating expenses such as the underwriting cost, which is capable of reducing the company's profit margin; additionally the insurance managers should identify the best investment opportunities in order to utilize the asset of the companies efficiently; in this way overall the company performance will increase.

The last recommendation of this study is related to enterprise risk; which is measured by firm size; increasing the size of the company through its operations or number of branches will help the

companies to generate more return from their operations. So the insurers should increase their asset volume with putting in mind that the large the company sizes the large profit to be earned.

Finally, overall result of this study has different implications from different perspectives of risk management; the finding of this study implies that the effect of risk management on financial performance have a positive as well as negative impact on overall performance of insurance companies; so the managers should have be very active in identifying those variables in order to make proper decision.

5.3. Direction for Future Research

This study only considered the effect of financial, operational, and enterprise management risk by using a number of variables which are used a proxy for each level of risk; on performance of insurance companies in Ethiopian. However, it is recommended for future researchers to further assess other factors of financial risk, operational risk, and enterprise management risk that can affect firms' performance by incorporating additional insurance specific and macro-economic factors. Additionally in line with the effect of risk management, it is better to conduct a study on determinants of premium price in insurance companies as well as the effect of premium price on financial performance of insurance industries in Ethiopia.

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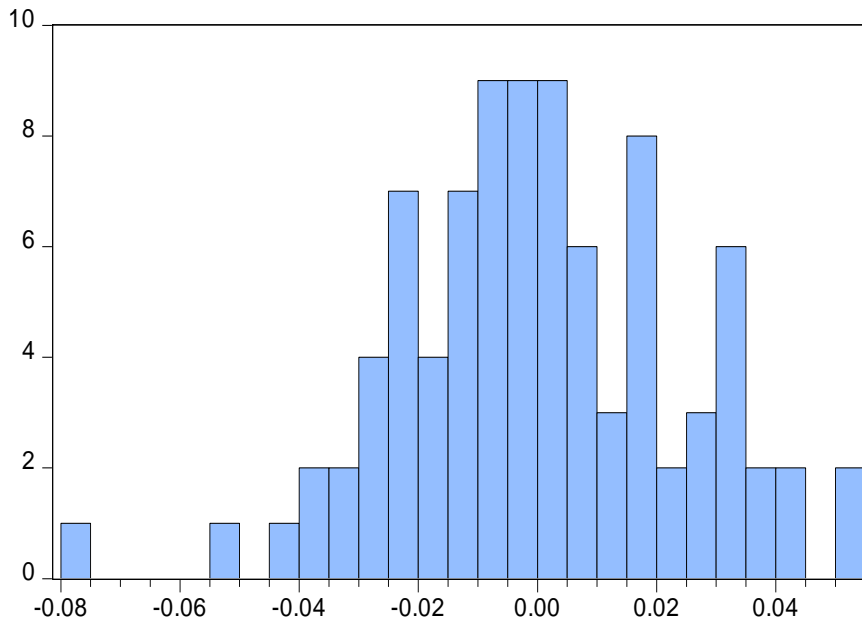
Appendixes

Appendix 1: Result of multicollinearity test

Sample: 2009 2017
Included observations: 90

Correlation t-Statistic Probability	ROA	LR	FS	CS	CIR	AU	SAFTEY
ROA	1.000000 ---- ----						
LR	0.244519 2.365600 0.0202	1.000000 ---- ----					
FS	0.426749 4.426577 0.0000	-0.154794 -1.469817 0.1452	1.000000 ---- ----				
CS	-0.273117 -2.663322 0.0092	-0.209542 -2.010312 0.0475	-0.068055 -0.639900 0.5239	1.000000 ---- ----			
CIR	-0.318540 -3.152374 0.0022	-0.015657 -0.146889 0.8836	-0.166240 -1.581478 0.1174	0.107321 1.012613 0.3140	1.000000 ---- ----		
AU	0.519548 5.704068 0.0000	0.235962 2.277840 0.0252	0.279536 2.731158 0.0076	-0.376821 -3.816207 0.0003	-0.319204 -3.159697 0.0022	1.000000 ---- ----	
SAFTEY	-0.353289 -3.542590 0.0006	-0.299419 -2.943853 0.0041	0.002025 0.018997 0.9849	0.291738 2.861211 0.0053	0.194902 1.864096 0.0656	-0.183449 -1.750611 0.0835	1.000000 ---- ----

Appendix 2: Result of Normality test



Series: Residuals	
Sample 1 90	
Observations 90	
Mean	4.94e-17
Median	-0.001513
Maximum	0.050330
Minimum	-0.077165
Std. Dev.	0.023649
Skewness	-0.147563
Kurtosis	3.265071
Jarque-Bera	0.590110
Probability	0.744491

Appendix 3: Result of Hausman test (model selection)

Correlated Random Effects - Hausman Test
 Equation: Untitled
 Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	2.932512	7	0.8912

Appendix 4: Result of serial correlation test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.503061	Prob. F(2,80)	0.0882
Obs*R-squared	5.300217	Prob. Chi-Square(2)	0.0706

Appendix 5: Result of Heteroskedasticity test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.578711	Prob. F(7,82)	0.1533
Obs*R-squared	10.68864	Prob. Chi-Square(7)	0.1528
Scaled explained SS	10.04886	Prob. Chi-Square(7)	0.1858

Appendix 6: Result of Ramsey reset

Ramsey RESET Test

Equation: UNTITLED

Specification: ROA LR FS CS CIR AU SAFTEY DUMMY82 C

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.861872	81	0.3913
F-statistic	0.742824	(1, 81)	0.3913
Likelihood ratio	0.821598	1	0.3647

Appendix 7: Regression result

Dependent Variable: ROA

Method: Panel EGLS (Cross-section random effects)

Date: 04/18/19 Time: 08:23

Sample: 2009 2017

Periods included: 9

Cross-sections included: 10

Total panel (balanced) observations: 90

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LR***	0.037675	0.013120	2.871606	0.0052
SR	-0.005801	0.010874	-0.533418	0.5952
CIR***	-0.005286	0.001614	-3.274240	0.0016
CS**	-0.004253	0.001921	-2.214296	0.0296
AU***	0.101479	0.038037	2.667870	0.0092
FS**	0.020723	0.009237	2.243413	0.0276
DUMMY82	-0.177471	0.025167	-7.051765	0.0000
C	-0.122277	0.081996	-1.491247	0.1397

Effects Specification

	S.D.	Rho
Cross-section random	0.016516	0.3555
Idiosyncratic random	0.022238	0.6445

Weighted Statistics

R-squared	0.630541	Mean dependent var	0.033123
Adjusted R-squared	0.599002	S.D. dependent var	0.034235
S.E. of regression	0.021679	Sum squared resid	0.038540
F-statistic	19.99231	Durbin-Watson stat	1.795971
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.641918	Mean dependent var	0.080894
Sum squared resid	0.050407	Durbin-Watson stat	1.373134

Appendix 8: List of Insurance Companies sampled for the study

No	Insurance Name	Year Est. (G.C.)
1	Africa Insurance company S.C.	1994
2	Awash Insurance company S.C	1994
3	Ethiopian Insurance corporation	1974
4	Global Insurance company S.C	1997
5	National Insurance company of Ethiopian S.C	1994
6	Lion Insurance company S.C	2007
7	Nile Insurance company S.C	1995
8	Nyala Insurance company S.C	1995
9	Nib Insurance company S.C	2002
10	United Insurance company S.C	1997

Appendix 9: Row Data

Insurance	Year	ROA	LR	CS	CIR	AU	FS	saftey
Ethiopian	2009	0.06318	1.10699 2	0.7297	0.76915 2	0.1547	8.98240 3	0.90328 9
Ethiopian	2010	0.09888 2	1.08720 9	0.6174	0.43705 3	0.1345	9.04314 7	0.78447 6
Ethiopian	2011	0.02774	0.99166 3	0.7446	0.70691 4	0.1547	9.10912	0.96457 2
Ethiopian	2012	0.08445 5	0.94054	0.5591	0.77531 3	0.10125	9.25164	1.11922 4
Ethiopian	2013	0.11418	0.96774 4	0.6003	0.50263 8	0.3264	9.31814 6	1.07170 2
Ethiopian	2014	0.13546 2	0.98485 7	0.5959	0.43549 7	0.28712	9.36002 6	0.88134 1
Ethiopian	2015	0.13894 8	0.94615 4	0.6251	0.43134 8	0.1241	9.39272 6	0.86724 6
Ethiopian	2016	0.13507 8	1.03024 6	0.6347	0.47068 9	0.32145	9.44816 7	0.59993
Ethiopian	2017	0.14688 1	1.11199 4	0.6487	0.45689 9	0.21547	9.52620 8	0.39455 4
Awashins	2009	0.04136 2	0.78562 3	2.85869 5	1.21870 4	0.10225	8.25989 7	1.01267 8
Awashins	2010	0.09033 2	0.83217 2	2.12699 6	0.69892 1	0.11095	8.33616 7	0.90109 9
Awashins	2011	0.06559 5	0.78464 3	2.04343 2	1.15372 5	0.07954 6	8.51958	0.94833 9
Awashins	2012	0.06902 3	0.85071 5	3.26852 7	0.89272 2	0.07929 8	8.67088 6	1.39104 4
Awashins	2013	0.12391 4	0.88901 5	2.15425 5	0.42020 5	0.14847 5	8.74718 6	1.21534 7
Awashins	2014	0.10039 5	0.86094 7	2.44255 4	0.85658 6	0.11164 2	8.76318 5	1.04023 7
Awashins	2015	0.09932	0.83218 4	2.37145 4	0.8225	0.11611 4	8.81138 6	0.96163 5
Awashins	2016	0.07437 1	0.82384 1	2.41696 3	1.11569	0.09041 6	8.92484	0.81009 7
Awashins	2017	0.08730 9	0.89937 5	1.86991 9	1.1184	0.10121 5	9.00218 7	0.63092 8
Globalins	2009	0.03654 4	0.96188 2	0.92820 5	1.61416 5	0.07622 3	7.73235 8	0.21753 7
Globalins	2010	0.05590 5	0.83950 4	0.68727 7	1.21501 7	0.08049 2	7.78370 6	0.18289 9
Globalins	2011	0.02914 9	0.91946 7	1.55586 1	3.09907 1	0.03641 6	7.81531 3	0.25696 2
Globalins	2012	0.01448 6	0.91596 7	3.22805 6	4.10591 7	0.02030 2	7.97125 7	0.59114 8
Globalins	2013	0.11296 4	1.13497 4	1.36181 6	0.46531 5	0.15318 4	8.09414 3	0.52537 6
Globalins	2014	0.12204 9	1.35190 5	0.99606 5	0.42309 8	0.16034 4	8.18776 6	0.30927 8

Globalins	2015	0.10699 7	1.63195 8	1.23901 8	0.45908 4	0.13641 7	8.27053 3	0.23754 5
Globalins	2016	0.09562 1	1.46909 9	1.28383 4	0.53953 6	0.11726 1	8.34356 3	0.21529 6
Globalins	2017	0.06303 3	1.24544 7	2.41086 3	0.91054 6	0.07320 5	8.38092 5	0.2291
Nile insr	2009	0.02173 3	0.71843 9	2.11183 5	6.64359 2	0.07854 5	8.28997 4	1.19533 9
Nile insr	2010	0.13792 9	0.92746	1.17705 6	0.95375 5	0.13792 9	8.35224 1	0.62347 1
Nile insr	2011	0.08626 3	0.96423 1	1.31605 3	1.35280 7	0.09795 1	8.42747 8	0.50082 2
Nile insr	2012	0.09175 9	1.08912 2	1.19727 9	1.19673 8	0.10195 6	8.56131 1	0.49544 3
Nile insr	2013	0.09861 1	1.11082 8	2.05976 7	0.92154 1	0.10961 1	8.62645 5	0.76196 7
Nile insr	2014	0.11259 1	1.08997 4	2.07683	0.92855 9	0.11870 9	8.68603	0.74770 3
Nile insr	2015	0.08164 7	1.15341 2	1.84937 5	1.49099 9	0.08510 8	8.75913 2	0.64883 6
Nile insr	2016	0.03074 9	0.84816 1	2.36280 1	3.90911 5	0.03074 9	8.81415	0.61425
Nile insr	2017	0.12464 5	0.82536 9	1.40216 1	0.66983 8	0.14186 9	8.90753 7	0.59899 6
Nice insr	2009	0.03829 6	0.81123 5	3.59914	1.28204 3	0.00385 6	7.70865 4	0.80726 1
Nice insr	2010	0.04747 6	0.99205 4	3.19334	0.91140 9	0.05883 3	7.79954 1	0.84202 8
Nice insr	2011	0.00283 5	1.12058 9	4.61571 9	14.2211 4	0.00290 4	7.93709 8	1.46861 1
Nice insr	2012	0.12438 5	1.05250 5	1.03647 1	0.30657 9	0.17427 6	8.15983 3	0.78904 1
Nice insr	2013	0.10723	1.20234 7	0.37632 2	0.0306	0.61318 4	8.29312 2	0.67080 1
Nice insr	2014	0.06251 3	1.12319	0.47791	6.83992 6	0.06946 9	8.40526 9	0.83856 2
Nice insr	2015	0.11035 2	1.20802 6	0.59855 4	0.30844 5	0.39398 6	8.44821	0.85822 3
Nice insr	2016	0.06289 4	1.07389 3	0.54267 9	7.57069 1	0.06777 9	8.52713 4	0.97986 8
Nice insr	2017	0.08493 6	1.09399 5	0.57492 8	5.27861 9	0.09324 9	8.60165 1	0.97063 4
Africains r	2009	0.04777 8	0.93614 7	13.0770 6	0.60642 7	0.04985 6	8.37658 7	1.28719 4
Africains r	2010	0.05692	0.88904 7	4.77849 3	0.45441 9	0.05794	8.52301 5	1.21738 4
Africains r	2011	0.04428 2	0.82714 1	4.75225 5	0.58588 1	0.05296 4	8.63431 8	1.39350 2
Africains r	2012	0.04668 8	0.67173 9	5.32477 7	0.73838 2	0.05324 1	8.70353 7	1.50857 2

Africains r	2013	0.052318	0.543082	3.689404	4.440339	0.011091	8.696044	1.519983
Africains r	2014	0.067272	0.631722	2.029165	0.149097	0.080398	8.737963	1.51662
Africains r	2015	0.062634	0.364597	1.014848	0.658114	0.072025	8.784966	0.939506
Africains r	2016	0.058012	0.262554	2.882417	0.650919	0.063905	8.814059	0.685365
Africa ins	2017	0.049063	0.718468	3.934642	0.848363	0.051677	8.858121	0.629261
NiB insur	2009	0.078982	0.942595	1.332727	1.165489	0.078565	8.285989	0.843748
NiB insur	2010	0.078205	0.979704	1.321386	1.254219	0.093389	8.400165	0.866859
NiB insur	2011	0.055885	0.999923	1.389327	1.465747	0.089913	8.48527	0.935931
NiB insur	2012	0.060768	0.969346	1.641206	1.106743	0.088486	8.676869	1.076506
NiB insur	2013	0.088563	1.05178	1.672823	0.955035	0.111177	8.714	1.026142
NiB insur	2014	0.096029	1.107935	2.178431	0.706157	0.112712	8.813739	0.918949
NiB insur	2015	0.069288	1.099381	2.136352	1.37797	0.075571	8.88026	0.747949
NiB insur	2016	0.051193	1.055975	2.41573	2.035144	0.055997	8.913925	0.680347
NiB insur	2017	0.054895	1.027835	3.0423	1.866416	0.055897	8.961369	0.743912
Nyala ins	2009	0.118791	0.906284	1.889284	0.931579	0.123257	8.179471	0.672979
Nyala ins	2010	0.101122	0.982316	1.641628	0.997918	0.137718	8.273644	0.631152
Nyala ins	2011	0.129249	1.01763	1.377494	0.568594	0.159094	8.332908	0.540734
Nyala ins	2012	0.140094	1.099539	0.787678	0.577016	0.182026	8.488662	0.419123
Nyala ins	2013	0.134182	1.142285	0.679993	1.861552	0.164699	8.62978	0.629756
Nyala ins	2014	0.121749	1.217589	1.655913	1.150804	0.143369	8.734486	0.597805
Nyala ins	2015	0.106531	1.244564	2.276384	0.447633	0.122722	8.8731	0.745187
Nyala ins	2016	0.103041	1.17449	0.925108	2.843331	0.1099	8.937057	0.727769
Nyala ins	2017	0.132028	0.329507	1.086642	1.760572	0.203321	8.888214	0.799206
Unice ins	2009	0.047218	1.026818	3.215586	2.060522	0.012548	8.237336	1.001008
Unice ins	2010	0.121994	1.169456	1.844386	0.355048	0.140919	8.326552	0.702676

Unice ins	2011	0.07950 4	1.18929 7	2.67171 5	0.80602 4	0.08741 2	8.41317 9	0.78976 6
Unice ins	2012	0.10112 9	1.24539 5	1.62959 3	0.67393 8	0.12193 4	8.55425 1	0.68018 7
Unice ins	2013	0.13851 7	1.26842 4	1.33335 1	0.37501 5	0.17318 7	8.63572 6	0.65204 4
Unice ins	2014	0.14124 9	0.91118 2	1.41038 1	0.52720 3	0.14124 9	8.70855 9	0.58765 4
Unice ins	2015	0.13064 7	0.72863	1.15621	0.70259 6	0.13064 7	8.74490 7	0.43638 4
Unice ins	2016	0.06575 6	0.71855 8	1.64875 8	0.92255 6	0.08301 7	8.82514 3	0.38179 5
Unice ins	2017	0.07714 3	0.70090 6	1.56453 9	0.84076 8	0.08857 7	8.89851 2	0.44188 1
Lion insr	2009	-0.10271	1.05339 4	-0.41895	-1.31308	0.08039 8	7.51154 9	1.22595 7
Lion insr	2010	0.07427 5	1.11863 5	0.31376 6	0.97616 9	0.07202 5	7.74233 4	1.29811 2
Lion insr	2011	0.04003 2	1.01931 5	0.18191 8	1.44895 8	0.06390 5	7.89626 9	1.3867
Lion insr	2012	0.10124	1.06351 2	0.44831 3	0.87844	0.05167 7	8.07960 4	1.49851 1
Lion insr	2013	0.08186 6	1.18851 2	1.84438 6	0.86830 6	0.07856 5	8.20374 5	1.18144 6
Lion insr	2014	0.07199 2	0.86669 1	2.67171 5	0.78480 4	0.09338 9	8.36422 7	0.67509 2
Lion insr	2015	0.06388 4	0.81051 3	1.62959 3	1.04374 4	0.08991 3	8.43235 5	0.72395 7
Lion insr	2016	0.04478 3	0.69964 6	1.33335 1	1.46193 6	0.08848 6	8.52534 2	1.09498 7
Lion insr	2017	0.03636 4	0.67500 4	1.64875 8	1.63024 3	0.17318 7	8.61074 8	1.52342 1