



**ADDIS ABABA UNIVERSITY**

**COLLEGE OF BUSINESS AND ECONOMICS**

**DEPARTMENT OF ACCOUNTING AND FINANCE**

**THE EFFECT OF FIRM SPECIFIC RISK ON PERFORMANCE OF  
INSURANCE COMPANIES IN ETHIOPIA**

**BY**

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**JANUARY, 2019**

**ADDIS ABABA, ETHIOPIA**

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This is to certify that the thesis prepared by LIKINAW AKEMACH, entitled: Effects of Financial Risk on the Financial Performances of Ethiopian Insurance Companies: 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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## List of acronyms and abbreviations

BPR	Business Process Reengineering
CLRM	Classical Linear Regression Model
COSO	Committee of Sponsoring Organizations
CP	Contingency planning
CR	Credit risk
ERM	Enterprise Risk Management Theory
GDP	Gross Domestic product
IAP	Insurance association of Pakistan
ISD	Insurance Supervision Directorate
LR	Liquidity risk
MOFED	Ministry of finance and economic development
NAIC	National Association of Insurance Commissions
NBE	National Bank of Ethiopia
OLS	Ordinary Least Square
RIR	Reinsurance risk
RMPs	Risks management programs
ROA	Return on Assets Ratio

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## **ABSTRACT**

*The purpose of this study is to investigate the impact of financial risk on performance of insurance company's in Ethiopia. Which examined the effects of firm specific financial risk factors (liquidity risk, credit risk, solvency risk, technical provisions risk, claim settlement risk, reinsurance risk, Underwriting risk and size of the company) on performance proxy by Return on Assets. performance is dependent variable while liquidity risk, credit risk, solvency risk, technical provisions risk, claim settlement risk, reinsurance risk, Underwriting risk and size of the company are independent variables. The sample in this study includes eight insurance companies that operates in Ethiopia for ten(10) financial years (2008-2017).Secondary data obtains from the financial statements (Balance sheet and Profit/Loss account) of insurance companies, financial publications of National Bank of Ethiopia are analyzed. In this study to analyze the collected data; descriptive, correlation and multiple panel linear regression data analysis method has been employed. The results of the random effect regression model revealed that credit risk, liquidity risk and claim settlement risk have negative & significant impact on ROA (proxy measure for financial performance) of insurance company in Ethiopia, whereas company size and reinsurance risk have positive & significant effect on ROA. The study leads to the conclusion that credit risk, liquidity risk, claim settlement risk, reinsurance risk and size of a company are the pull factors for the financial performance of insurers.*

*In general, this study will be significant to insurance companies, general public, students and the insurance regulators as it will offer valuable contributions from both a theoretical and practical perspective.*

# CHAPTER ONE:

## INTRODUCTION

### 1.1 Background of the study

Economic development is an increase of the national income or total volume of production of goods and services of a country accompanied by improvements in the total standard of living of the people. It is comprehensively defined as a multidimensional process of a total upward structural shift of the social system in terms of capacity and capability to produce, supply, distribute, and consumer goods and services required by a growing society with changing taste such that more efficient, higher and more equitable standard of living is attained and absolute poverty eliminated (KassahunEneyew, 2012).

Insurers play a vital role in today's society. They enable individual persons to hedge the risk of ending up in a situation costing more than they can afford. The question however remains to whom the insurance companies can turn to hedge their own risks, how can insurance companies insure themselves for situations they cannot afford?

Insurance industry offer solutions to risks faced by players in other industries. Soekarno and Azhari (2009), assert that individuals and even business firms transfer their uncertainties to insurance firms upon payment of small amounts of money, the premium which are relatively small compared to the possible losses faced by the firms. It has helped in spreading financial risk amongst many persons who pay the premiums to make a pool, from which those who suffer losses are paid. This reduces the cost for those who end up suffering unexpected misfortunes.

The central function of an insurance company is its ability to distribute risk across different participants (Merton, 1995). Saunders and Cornett (2008), also state that modern insurance companies are in the risk management business. They discuss that insurance companies undertake risk bearing and management functions on behalf of their customers through the pooling of risks and the sale of their services as risk specialists. This indicates that management of risks should take the center stage in the operations of insurance companies.

Risk management is an important discipline in business especially the insurance business. Recently, businesses put great emphasis on risk management as this determines their survival and business performance. Insurance companies are in the risk business and as such cover various types of risks for individuals, businesses and companies. 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. However, 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.

Risk management is a process of identifying loss exposures faced by an organization and selecting the most appropriate techniques for treating such exposures (Rejda, 2003). There are many techniques available for insurance companies to manage risks. These include: loss financing, risk avoidance and loss prevention and control (Arif et al., 2015). Management of insurance companies is argued to carefully judge the insurable risks so as not to incur excessive losses in settling claims. Managing risks is an important factor which insurance companies must attend to if they are to achieve financial performance. Insurance companies apply various techniques to manage risks. Some of their risks are re-insured by some companies abroad (Meredith, 2004). The companies also guide clients on how to minimize and prevent losses (UIC, 2000)

Generally, company operations are prone to risks and if the risks are not managed the firm's financial performance will be at stake. Firms with efficient risk management structures outperform their peers as they are well prepared for periods after the occurrence of the related risks. Thus, the major concern of this study is to examine the effect of financial risk on performance of insurance companies in Ethiopia.

## **1.2 Company Background**

According to Kumsa (1992) there have been traditional association which was used to share risks among the member, people contributed either money or labor to assist each other whenever a member faced financial difficulties or needs assistance, and these associations provided support. These associations are “Edir” and “Equb” which have some similarities with modern insurance. He further explained “Edir” is a gathering such as people form an association whereby

each member contributes a fixed sum monthly, to common fund from which predetermined compensations is paid to members upon occurrence of unforeseen events such as death of family members or relatives. Ekub is a kind of traditional association, each member contribute a fixed sum of money for a special time and the winner receives the money and uses it for a project if he/she has one, or sells to another at a premium. Both “Edir” and “Equb” have their trustees who are elected among the members to administer the processes for a certain period of time.

The emergence of modern insurance business in Ethiopia traced back to the establishment of the first bank which was called Bank of Abyssinia in 1905. At the time, an agreement was reached between Emperor Menelik II and a representative of the British owned National Bank of Egypt to open a new bank in Ethiopia. Similarly, modern insurance service, which were introduced in Ethiopia by foreigners, mark out their origin as far back as 1905 when the bank of Abyssinia began to transact fire and marine insurance as an agent of a foreign insurance company.

After many years of dragging feet in the business, the first domestic insurance company, namely Imperial Insurance Company was established in 1951. According to a survey made in 1954, there were nine insurance companies that were providing insurance service in the country. With the exception of Imperial Insurance Company that was established in 1951, all the remaining of the insurance companies were either branches or agents of foreign companies. In 1960, the number of insurance companies increased considerably and reached 33. At that time insurance business like any business undertaking was classified as trade and was administered by the provisions of the commercial code.

According to Hailu Zeleke (2007), the first significant event that the Ethiopian insurance market observation was the issuance of proclamation No. 281/1970 and this proclamation was issued to provide for the control & regulation of insurance business in Ethiopia.

Consequently, it created an insurance council and an insurance controller's office; it's strange impact in the sector. The controller of insurance licensed 15 domestic insurance companies, 36

agents, 7 brokers, 3 actuaries & 11 assessors in accordance with the provisions of the proclamation immediately in the year after the issuance of the law.

Accordingly as stated by the proclamation No. 281/1970, the law required an insurer to be a domestic company whose share capital (fully subscribed) not to be less than Ethiopian Birr 400,000 for a general insurance business, Birr 600,000 in the case of long-term insurance business and Birr 1,000,000 to do both long-term & general insurance business. The proclamation defined '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 nationals or national companies.

After four years that is after the enactment of the proclamation, the military government that came to power in 1974 put an end to all private enterprises. 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. In the years following nationalization, Ethiopian Insurance Corporation became the sole operator. After the change in the political environment in 1991, the proclamation for the licensing and supervision of insurance business heralded the beginning of a new era. Immediately after the enactment of the proclamation in the 1994, private insurance companies began to increase. Currently, there are 17 insurance companies operating in the industry and According to national bank of Ethiopia.

In the year 2012 new insurance business proclamation was issued, proclamation No. 746/2012 and directive No. SIB 34/2013 was followed to consider the requirement of risk based supervision, and which clearly restrict the insurance business to foreigners.

The current directive No. 34/2013 subsequent to insurance proclamation in article 4 states that in order to run insurance business in Ethiopia the share capital must not be less than birr 60 million for general insurance business, birr 15 million for long-term insurance business and birr 75 million to do both long-term and general insurance business.

Insurance sector in Ethiopia is a young industry at early stages of development with limited skills, capacity and incentive to push market extension. The insurance sector is small and underdeveloped

with many small insurers displaying high levels of inefficiency. Most insurers still operate using paper-based systems.

The sector has Small market, with very small life insurance market. Similar to the banking industry, the majority of insurance business in Ethiopia is targeted at the corporate market and focused on general insurance business.

In particular, considering the rule and regulations of the SIB proclamation the insurance sector have been broadly stable and growing in terms of number, service, premium, total asset, total investment, total profit as well as capital in relative to previous years. However the sector still contributed less than 1% to country's GDP.

### **1.3 Statement of the problem**

Chipa&Wamiori (2017) stated that Insurance companies are in the core business of managing risk. The companies 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. Various stakeholders pressure their organizations to effectively manage their risks and to transparently report their performance across such risk management initiatives. Banks (2004) argues that some risks can and should be retained as part of the core business operations and actively managed to create value for stakeholders, while others should be transferred elsewhere, as long as it is cost effective to do so.

Risk management is one of the most important practices to be used especially in insurance companies in order to get higher returns (Gabriel et al., 2008). Managing financial risk involves setting appropriate risk environment, identifying and measuring the insurances risk exposure, mitigating risk exposure, monitoring risk and constructing controls for protecting the insurance companies from financial risk (Tcankova, 2002). As identified by NBE (2010), credit risk, liquidity risk, reinsurance risk, technical provisions risk and underwriting risk are major risks that can affect Ethiopian insurance companies' performance

International studies like; Arif et al. (2015) , Amal (2012) , Adrian (2014), Mirie (2015),Hifza (2011); Emine (2015); Ana-Maria, et al. (2014); and Ijaz (2015)) have been conducted on but result

indicates various outputs while using the same variables to examine the effect of financial risk on performance of insurance companies.

A number of studies have been conducted on risk management by companies in Ethiopia but they are quite different in its industry selection and incorporate additional financial risk variables of insurance companies. Prior studies, such as Abate (2012); Yuvaraj et al. (2013); Meaza (2014); Hadush (2015)) and Daniel et al. (2013) conducted on determinant of profitability in Ethiopian insurance companies but all of them were not included all the crucial financial risk variables collectively. These all researches didn't mainly concentrate on the effect of financial risk area keeping that NBE (2010) give a due emphasis and stressed to track like liquidity risk, credit risk, solvency risk, technical provisions risk, claim settlement risk, reinsurance risk, Underwriting risk and size of the company as they are pointed out to affect performance of Ethiopian insurance companies.

However, to the knowledge of the researcher, no study to date provides a Comprehensive analysis of the impact of financial risks on performance of insurance company in Ethiopia.

Thus, due to the absence of empirical studies in Ethiopia concerning the effect of financial risk on performance of insurance companies' is then what motivated the researcher to put his own contribution on what financial risk factors affect the performance of insurance companies. Hence, these are important issues to be investigated for the insurance managers, professionals, regulators and policy makers to support the sector in achieving the excellence so that required economic outcomes could be obtained from the help of the sector in Ethiopia by understanding the success and failure of the company by considering factors of risk on financial performance.

#### **1.4 Research question**

- Which financial risk factor affects the performance of Ethiopian insurance companies?

## **1.5 Objective of the Study**

### **1.5.1 General Objective**

The general objective of the study is to find out how financial risk affects performance of insurance companies in Ethiopia.

### **1.5.2 Specific Objectives**

Having the statement of the problem and general objective in mind, the researcher addressed the following specific research objectives:

- To investigate how liquidity risk affect performance of insurance companies in Ethiopia.
- To examine the effect of credit risk on performance of insurance companies in Ethiopia.
- To analyze the effect solvency risk on performance of insurance companies in Ethiopia.
- To see the effect of technical provisions risk on performance of insurance companies in Ethiopia.
- To analyze the effect of Claim settlement risk on performance of insurance companies in Ethiopia.
- To check what extent of reinsurance risk affect performance of insurance companies in Ethiopia.
- To find out the extent to which underwriting practice risk influence financial performance of insurance companies in Ethiopia.
- To experiment the effects of company size on the financial performance of Ethiopian insurers.

## **1.6 HYPOTHESIS**

Based on review of relevant and related literatures, it was hypothesized that liquidity risk, credit risk, solvency risk, technical provisions risk, claim settlement risk, reinsurance risk,

Underwriting risk and size of the company measured by Return on Assets(ROA). Accordingly, the present study seeks to test the following eight hypotheses:

H1: Liquidity risk has a significant and negative effect on Ethiopian insurance financial performance;

H2: credit risk has a significant and negative effect on Ethiopian insurance companies' financial performance;

H3: solvency risk has a significant and negative effect on Ethiopian insurance companies' financial performance;

H4: technical provisions risk has a significant and negative effect on Ethiopian insurance companies financial performance;

H5: Claim settlement risk has negative and significant effect on Ethiopian insurance companies financial performance;

H6: Reinsurance risk has positive and significant effect on Ethiopian insurance companies financial performance;

H7: Underwriting risk has negative and significant effect on Ethiopian insurance companies financial performance;

H8: Company size has a significant and positive effect on Ethiopian insurance companies financial performance;

### **1.7 Scope of the study:**

The study focused on identifying the main financial risks that affect performance of insurance companies in Ethiopia.

The study report was conducted based on secondary data's collected from the audited financial statement of those insurance companies in Ethiopia specifically from Balance sheet, revenue account and income statement for the period of 2008 up to 2017. As a result, the research included insurance companies that started operation before 2008, which include one government to owned insurance company and 7 private insurance companies in Ethiopian.

The study has taken the cross sections based on their total assets, profit and market share that can refer more than 70% of the total population. If the number of year's insurance companies operates increased the number of companies out of the sample would also increase, due to this reasons the researcher has taken data from period 2008 up to 2017. Five years and above is the recommended length of data to use in most finance literatures(Abate 2012). The financial statements of these companies was obtained from NBE and the data's of those companies are only fully available starting from 2008, that's why the author investigation starts from 2008.

The study used eight financial risk variables i.e. that liquidity risk, credit risk, solvency risk, technical provisions risk, claim settlement risk, reinsurance risk, Underwriting risk and size of the company. As the result, these variables was explained the topic properly by referring previous empirical works.

## **1.8 Limitations of the Study**

This study has clear and expected limitations, such as;

- The study used ROA as a measure of performance whereas there are other measures that can be used to measure financial performance such as Return on equity, net profit margin and operating profit margin ratios, return on investment;
- The study was employed only eight firm specific risk factors such as liquidity risk , credit risk, solvency risk, technical provisions risk, claim settlement risk, reinsurance risk, Underwriting risk and size of the company, whereas there are others that had been investigated by NBE as risk factor affect performance like market risk.
- This study was limited on firm specific risks, whereas there are other macroeconomic risk variables that affect performance such as GDP, inflation rate, interest rate, money supply, exchange, rate etc. However, due to the constraints, the researcher was forced to limit the study on this small concern.

## **1.9 Significant of the Study**

This study will be significant to insurance companies, general public, students and the insurance regulators as it will offer valuable contributions from both a theoretical and practical perspective.

Theoretically, it will contribute to the general understanding of risk management practices and their effect on financial performance.

The study will enable Insurance companies in Ethiopia to improve their risk management process and to adopt efficient strategies to improve firm financial performance through the risk management processes. This will enable the insurance companies to perform better and to grow their businesses and maintain a competitive advantage.

Apart from benefiting the insurance companies, the general public will benefit from the study through improved insurance services and better management of risks. This will result to affordable rates of insurance premiums and reduction in levels of non-payment and fraud. The study will be helpful to the government in setting regulations on insurance practices in Ethiopia through the NBE and safeguarding the resources of the country. Lastly, the study will add to the existing body of knowledge on risk management to benefit academicians and aid further research on risk management in the insurance sector and the financial sector.

### **1.10 Organization of the Study**

The study has been five subsequent chapters. The first chapter contains an introduction, an overview of the insurance sector, statement of the problem, objectives of the study, research hypotheses, significance of the study, and scope of the study. The second chapter describes the review of related literatures (theoretical and empirical) with regard to the financial risk factor that affects the performance of Ethiopian insurance companies. The third chapter discusses research design and methodology. The fourth chapter is the analysis, discussions and presentation part of the research findings, and the last chapter; chapter five presents the summary and conclusions, and recommendations given and remarked based on the empirical results; followed by the list of references used and appropriate appendixes.

## **CHAPTER TWO**

### **2.Literature Review**

This chapter discusses the literature concerning on the effect of financial risk on performance of insurance companies. This review of literature encompasses six sections.

- Section 2.1. Meaning of Insurance Companies& performance
- Section 2.2.Meaning of risk and financial risk
- Section 2.3.theoretical literature,
- Section 2.4.empirical literature,
- Section 2.5.conceptual framework of the study, and
- Section 2.6.Conclusion and knowledge gap

## **2.1 Insurance Companies**

Insurance companies are companies that offer insurance policies to the public. An insurance company is usually comprised of multiple insurance agents; and it can specialize in one type of insurance, such as life insurance, health insurance, or auto insurance, or offer multiple types of insurance. Insurance companies provide insurance policies to firms or individuals that transfer the burden of the insured to the insurer. They charge premium in exchange for the insurance that they provide and invest the funds that they receive in the form of premium until the funds are needed to cover insurance claims.

According to supervision of insurance business proclamation 746(2012, P: 6464), Insurance is an undertaking by insurer (i.e. non-life and life insurance) to indemnify another person in exchange for consideration called premium against damage, distraction, loss or liability in respect of certain risk or peril to which the object of the insurance may be exposed or to pay sum of money or other thing of value depending upon the happening of certain event.

According to NBE Birritu report (2012, P: 21) Insurance is, one sub sector of the financial sector; a risk transfer mechanism whereby an insured transfers a risk exposure to an insurer in consideration for payment of premium. It is also a tool of prime importance in modern economies. Insurance serves a number of valuable economic functions that are largely distinct from other types of financial intermediaries. In order to highlight specifically the unique attributes of insurance, it is worth focusing on those services providers, excluding for instance the

contractual savings features of whole or universal products. The indemnification and risk pooling properties of insurance facilitate commercial transactions and the provision of credit by mitigating losses as well as the measurement and management of non-diversifiable risk more generally.

Typically, TaiwoAkinlo and Olumuyiwa (2014) said, insurance contracts involve small periodic payments in return for protection against uncertain, but potentially severe losses. According to directive of ISB/25/2004, non-life Insurance shall mean all kinds of insurance business other than long-term insurance business or an insurance contract other than long term insurance business contract, while life insurance is a contract where by the insurer undertake against the payment of premium to pay to the insured or any beneficiary a specified sum on certain conditions dependent up on the life of death of the insured(SIB proclamation 746,2012.P:6465).

Among other things, this effect of income smoothing helps to avoid excessive and costly bankruptcies and facilitate lending to businesses. Most fundamentally, the availability of insurance enables risk-averse individual and entrepreneur to undertake higher risk, higher returns activities than what they would do in the absence of insurance, promoting higher productivity and growth.

Ward and Zurbruegg (2,000) supposed, the significance of insurance was acknowledged in the first conference of United Nations Conference on Trade and Development (UNCTAD) in 1964 by stating that “a sound national insurance and reinsurance market is an essential characteristic of economic growth.” It seems insurance not only facilitates economic transactions through risk transfer and indemnification but it also promotes financial intermediation.

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).

Additionally, insurance companies have importance for both businesses and individuals as they channel funds and indemnify the losses of other sectors in the economy and put them in the same positions as they were before the occurrence of the loss respectively. In addition, insurance

companies provide economic and social benefits in the society by prevention of losses, reduction in anxiousness, fear and increasing employment (Gashaw, 2012, P: 1).

A strong insurance industry promotes a developed contractual saving sector which contributes to a more resilient economy that would be less vulnerable to interest rate and demand shocks while creating a more stable business environment, including macroeconomic stability(Doreen, 2013, p: 7).

So in general, the insurance sector plays an important role in economic development through providing insurance coverage against risks, the provision of alternatives means for saving and mobilization of financial resources from within and outside the country (SIB 746,2012.P:6462).

Performance is the accomplishment of a given task measured against a certain standards and considered as a fulfillment of an obligation. The level of performance of a business over a given period of time is to be measured to identify the level of the accomplished result, evaluating the performance of a business allows decision makers to judge the result of the activities accomplished. Firm's performance can be measured against the objective of the organization angle, and against the industry average. Business dictionary defines that financial performance measures the results of a firm's policies and operations in monetary terms. Performance measures how well a firm can use its assets andgenerate revenue, in other words it measures the overall financial results over a given period of time and can be used to compare the result of similar firms in the same industry.

Good performance indicates the firm's ability to get sufficient return on resource used in the operation of a business. The basic measures ofperformance are economic viability and sustainability. Bawa and Chattha (2013) statedthat the performance of the company plays a leading role towards the growth of the industry which ultimately leads to the overall success of the economy. Almajali et al. (2012) explained performance as an outcome achieved by an individual or a group in an organization related to the authority and responsibility given to achieve the goal legally, it is the function of the ability of an organization to gain and manage the resources in several ways to develop competitive advantage.

According to Kasturi (2006) performance of insurance company in financial terms is normally expressed in net premium earned, profitability from underwriting activities, annual turnover, return on investment, return on equity etc., these measures can be classified as profit performance measures and investment performance measures. Malik (2011) the firm's performance can be estimated by measuring the firm's profitability.

Company performance is the measurement for what had been achieved for certain period of time and would help the company to focus on the right path. Iswatia, & Anshoria, (2007), performance is the function of the ability of an organization to gain and manage the resources in several different ways to develop competitive advantage.

## **2.2. Meaning of risk and financial risk**

The Oxford dictionary gives multiple definitions of the term risk: The possibility that something unpleasant or unwelcome will happen and also the possibility of financial loss. Horcher (2005) states that risk and exposure are closely linked and often used interchangeably. Risk is defined as the probability of loss, while exposure is defined as the possibility of loss. Risk arises as a result of exposure.

Financial market exposure can lead to losses but also to opportunities for gain or profit. Risk is the likelihood of losses occurring from the exposure to the market and changes within the market. Since every organization exists to provide value for its stakeholders, every organization needs to have a level of exposure to create opportunities for gain and profit.

As Ralph (2000) defined risk as the existence of uncertainty about future outcomes. Risk is a key factor in economic life because people and firms make irrevocable investments in research and product development, plant and equipment, inventory, and human capital, without knowing whether the future cash flows from these investments will be sufficient to compensate both debt and equity holders. If such real investments do not generate their required returns, then the financial claims on these returns will decline in value.

**In general there are two types of risk:** insurable risks and non-insurable risk

Insurable risk is those risks whose statistical probability can always be computed like the risk of fire, theft and accident are known as insurable risks. These risks can be insured and the

entrepreneur can reduce such risks. No entrepreneurs feel fear on this type of risk because such risk can be transferred to insurance agency by paying suitable premium.

Non-insurable risk is neither definite nor foreseen is called non-insurable nor uncertainties risk. It cannot be guarded against because no insurance companies afford an insurance against such uncertainties. Its statistical probability also cannot be computed. Non-insurable risk arises due to business cycle, technological changes, unhealthy competition among business firms, change in government policy etc.

According to Prof. Knight the main function of the organization is to bear such non-insurable risks or uncertainties and profit is the reward for bearing such risks. To this theory the uncertainty is caused by the following factors: competitors' behavior, innovations, consumers' behavior (like fashions, tastes...etc), government policy interventions, wage and labor policies, income of people, movement of prices, technological changes, natural disturbances, etc. Even though, this theory of profit is criticized, since it Source: [http://economicsconcepts.com/theories\\_of\\_profit.htm](http://economicsconcepts.com/theories_of_profit.htm))

Insurance companies face two types of risk: financial risk and non-financial risk (Ai & Brockett, 2008). Over the past years the financial risks have become more important. New types of risks are created due to the changing business environment (Casualty Actuarial Society [CAS], 2003). The foreign exchange risk for instance companies occurred due to growing globalization.

According to Holton (2004) financial risk is often defined as the unexpected variability or volatility of returns and thus includes credit risks, liquidity risks and market risks. In line with this, Kithinji (2010) also stated that financial risk management practices are those activities and procedures that are employed by managers in an effort of safeguarding an Organization from credit risks, liquidity risks and market risks. Financial risk management practices fall into three major categories; credit risk practices, liquidity risk management practice as and market risks.

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. 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. 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 (Anthony et al., 1997).

According to Jacques et al. (1997) financial risk encompasses the risk of cash insolvency. However, this notion will be expanded to include the risk of being unable to meet prior claims with the cash generated by the firm, which is determined by the dispersion of net cash flows and the level of fixed obligations, as well as the firm's pool of liquid resources.

Barges (1963) defines financial risk to be the added variability of the net cash flows of the owners of equity that results from the fixed financial obligation associated with debt financing and cash leasing. Financial risk is an umbrella term for multiple categories of risk associated with financial transactions. It can further be explained as the possibility where the investors lose money if they are investing in the company whose cash flows are inadequate to meet the matured obligations (Arif et al., 2015).

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 (1997) 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 (1999), asserts that insurance companies could not survive with increased loss and expense ratios.

Meanwhile, risk management has been linked with shareholder value maximization proposition. Ali and Luft (2002), suggested that a firm will only engage in risk management if it enhances shareholder value; Banks (2004), contributed that it is important for each firm to retain and actively manage some level of risk if it is to increase its market value or if the probability of financial distress is to be lowered; Pagano (2001), confirms that risk management is an important function of insurance institutions in creating value for shareholders and customers.

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## **2.3 Theoretical Literature**

The concept of risk management theory involves studying the various ways by which businesses and individuals raise money, as well as how money is allocated to projects while considering the risk factors associated with them Sarkis (1998). There are a number of theoretical perspectives which are used in explaining the effects of risk management on firm's financial performance.

The theories reviewed in this section are contingency planning theory, enterprise risk management theory, managerial self-interest theory and DuPont Theory.

There is no general theory that provides a unifying framework for the study effect of financial risk on the performance of insurance company in Ethiopia. Because of this, this study tries to view some theories which are nearer to the concept of insurance risk factors and its effect on performance.

### **2.3.1 Contingency Planning Theory**

According to Hisnson& Kowalski (2008), contingency planning (CP) also known as business continuity planning is a crucial element of risk management. The fundamental basis of Contingency Planning is that, since all risks cannot be totally eliminated in practice, residual risks always remain. Despite the organization very best efforts to avoid, prevent or mitigate them, incidents will still occur. Particular situations, combinations of adverse events or unanticipated threats and vulnerabilities may conspire to bypass or overwhelm even the best information security controls designed to ensure confidentiality, integrity and availability of information assets (Hisnson& Kowalski, 2008).

Riley (2012), defines contingency planning as a forward planning process, in a state of uncertainty, in which scenarios and objectives are agreed, managerial and technical actions defined, and potential response systems put in place in order to prevent, or better respond to, an emergency or critical situation. A contingency plan is meant to help network and coordinate individuals, agencies and organizations to affect a rapid and effective response. Contingency planning ensures the availability of stand-by resources and provides mechanism for rapid decision-making that can shorten disaster response and ultimately save lives.

It is the act of preparing for major incidents and disasters, formulating flexible plans and marshaling suitable resources that will come into play in the event, whatever actually eventuates. The very word „contingency“ implies that the activities and resources that will be required following major incidents or disasters are contingent (depend) on the exact nature of the incidents and disasters that actually unfold. In this sense, CP involves preparing for the unexpected and planning for the unknown. The basic purpose of CP is to minimize the adverse consequences or impacts of incidents and disasters.

Therefore, as insurance companies' operations are full of probability, their business transactions and policy contracts are also on contingent basis. If in the policy period no damage/loss is happen, the insurer earns the whole premium which is a rare case, yet if the claim is reported within the policy contract period the compensation should be paid. Both the magnitude of the compensation and the time are not known certainly.

### **2.3.2 Enterprise Risk Management Theory**

The underlying premise of Enterprise Risk Management (ERM) is that every entity exists to provide value for its stakeholders. All entities face uncertainty and the challenge for managements to determine how much uncertainty to accept as it strives to grow stake holder value. Enterprise risk management theory is one of the most common frameworks was introduced by the Committee of Sponsoring Organizations of the Tread way Commission (COSO) in 2004, which defines ERM as (COSO, 2004) it is 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 risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives. It also emphasizes that the organizational benefits of risk management can create value for firms (Nocco&Stulz, 2006).

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. ERM is an organizational concept that applies to all levels of the organization.

Furthermore, a firm's total risk can be reduced, financial distress is less likely (Meulbroek, 2002;Gordon et al., 2009). Traditionally the approach of risk management has been a silo approach in which one risk is managed at a time. In this approach, risk management is purchased without acknowledging the interrelationship of risks. The silo (traditional) risk management causes inefficiencies due to the lack of coordination between the various risk management departments (Hoyt & Liebenberg, 2011). Whereas enterprise risk management is not strictly a serial process, where one component affects only the next. It is a multidirectional, iterative process in which almost any component can and does influence another (COSO, 2004).

Most empirical studies conclude that ERM generally has a significant positive impact on firm value and performance. As opposed to Traditional Risk Management (TRM), where individual risk categories are managed separately in risk silos, ERM allows firms to manage a wide array of risks in an integrated, enterprise-wide fashion (Hoyt & Liebenberg, 2006).

### **2.3.3 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.

### **2.3.4 DuPont Theory**

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 DuPont 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 firms performance (Raza et al., 2013).

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. Effective risk management can bring far reaching benefits to all organizations, whether large or small, public or private sector. 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).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

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## **2.4 Empirical Literature**

### **2.4.1 Financial risk in insurance**

Financial risks associated with the provision of insurance services are risks related to the financial operation of a business, such as liquidity risk, credit risk, solvency risk, technical provisions risk, claim settlement risk, reinsurance risk, Underwriting risk and size of the company. Then, the following subsections discuss these risks in details.

#### **A) Liquidity risk**

Liargovas et al. (2008) explained liquidity risk as 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. It is usually measured by the current assets to current liabilities (current ratio). It shows the ability to convert an asset to cash quickly and reflects the ability of the firm to manage working capital when kept at normal levels. A firm can use liquid assets to finance its activities and investments when external finance is not available or it is too costly. On the other hand, higher liquidity would allow a firm to deal with unexpected contingencies and to cope with its obligations during periods of low earnings.

As indicated by Gerald et al. (2001) liquidity risk is the risk of not being able to meet payment liabilities when due. The liquidity of an investment is defined by how quickly and to what extent it can be converted into cash. The ability to convert the investment into cash is, however, dependent on several factors which influence the scope of the liquidity risk.

In addition to general market conditions which necessitate the dissolution of an investment under unfavorable conditions, an unexpected demand for liquidity may be triggered by a credit rating downgrade, negative publicity (whether justified or not) or reports of problems of other companies in the same or similar lines of business (Gerald et al., 2001).

Maintaining high liquidity can reduce management's discipline as regards both underwriting and investment operations. Moreover, according to the theory of agency costs, high liquidity of assets could increase agency costs for owners because managers might take advantage of the benefits of liquid assets. In addition, liquid assets imply high reinvestment risk since the proceeds from liquid assets would have to be reinvested after a relatively short period of time. Undoubtedly, reinvestment risk would put a strain on the performance of a company. In this case, it is, therefore, likely that insurance companies with less liquid assets outperform those with more liquid assets. Nevertheless, agency costs and reinvestment risk can be effectively minimized if proper actions are taken (Adams et al., 2000).

Anthony et al. (1997) described liquidity risk as the risk of a funding crisis. While some would include the need to plan for growth, the risk here is more correctly seen as the potential for a funding crisis. Such a situation would inevitably be associated with an unexpected event, such as a large claim or a write down of assets, a loss of confidence, or a legal crisis. Because insurers operate in markets where they may receive clustered claims due to natural catastrophes, or massive requests for policy withdrawals and surrenders due to changing interest rates, their liabilities can be said to be somewhat liquid. Their assets, however, are sometimes less liquid, particularly where they invest in private placements and real estate. Given this situation, it is important for an insurer to maintain sufficient liquidity to handle easily any demands for cash. Otherwise, an insurer that would be solvent without a sudden demand for cash may have to sell off illiquid assets at concessionary prices, leading to large losses, further demands for cash, and potential insolvency.

As mentioned by NBE (2010) risk management guide line Operating liquidity or cash management covers the day-to-day cash requirements under normally expected or likely business conditions. Strategic liquidity considers liquidity needs on a longer -term basis and recognizes the possibility of various unexpected and potentially adverse business conditions.

Strategic liquidity is a key consideration of asset/liability management because of its potential effect on the ultimate viability of the company. Liquidity is the availability of funds, or assurance that funds will be available, to honor all cash outflow commitments (both on and off-balance sheet) as they fall due. These commitments are generally met through cash inflows, supplemented by assets readily convertible to cash or through the company's capacity to borrow. The risk of illiquidity increases if principal and interest cash flows related to assets, liabilities and off-balance sheet items are mismatched (NBE, 2010).

More empirical findings have confirmed that there is a positive relationship between liquidity ratio and financial performance of insurers (Ambrose & Carroll 1994; Carson & Hoyt, 1995; Chen & Wong, 2004 and Amal et al., 2012). Companies with more liquid assets are less likely to fail because they can realize cash even in very difficult situations. Furthermore Browne et al.(2001) found evidence supporting that performance is positively related to the proportion of liquid assets in the asset mix of an insurance company.

## **B) Credit risk**

As stated by Anthony et al. (1997) it is the risk that a borrower will not perform in accordance with its obligations. Credit risk may arise from either an inability or unwillingness on the part of the borrower to perform in the pre-committed contracted manner. In addition, Gerald et al. (2001) mentioned that credit risk basically means the risks that counter party cannot meet its liabilities. Even if counterparty does manage to meet its liabilities, the value of a given item may decline if its rating is downgraded. Consequently, the insurance company will be subject to credit risk whenever changes in the economic policy framework entail adverse changes in the creditworthiness of invested assets.

Mortgages as well are subject to credit risk, which must be adequately assessed by means of internal ratings. When managing credit risk, insurance companies must primarily look to avoid concentration risk (e.g. concentration of investments in a particular investment category, low degree of portfolio diversification) and strive to achieve as much diversification in their investments as possible.

As per NBE (2010) risk management guide line credit risk is the risk of financial loss, despite realization of collateral security or property, resulting from the failure of a debtor to honor

its obligations to the company. The area of credit risk includes default risks related to an insurer's portfolio of bonds (credit through investment) and other fixed income investments, counterparty risk on derivative contracts and the risk of default on loans or insured debts and trade debtors. The major risk that arises from a weakening of the credit portfolio is the impairment of capital or liquidity. For most companies, extending credit through investment and lending activities comprise an important portion of their business.

Therefore, the quality of an institution's credit portfolio contributes to the risks borne by policyholders (liquidity) and shareholders (capital impairment).

### **C) Solvency risk**

As defined by **AARDLB** (2010) solvency is defined as having enough value in the form of assets in your business to cover all of the liabilities of the business. Based on the accounting equation that  $\text{assets} = \text{liabilities} + \text{equity}$ , this definition means that a business has positive equity. When a business' equity becomes negative it is said to be insolvent. Bankruptcy is just around the corner for an insolvent business if it does not generate enough cash flow income to meet its debt requirements in a timely manner.

Solvency is the ability of a company to meet its long-term fixed expenses and to accomplish long term expansion and growth. A solvency ratio of greater than twenty percent is considered financially healthy. Research on the property-liability insurance industry reveals that firms with greater financial strength as measured by insurance rating firms, command higher premiums (Sommer, 1996).

Similarly, Cummins et al., (2002) suggest that insurers with greater ratings are perceived as safer which results in higher returns. A positive linkage between solvency margin and the insurer's financial performance is expected, since the insurer's financial stability is an important benchmark to potential customers. In addition, Charumathi (2012) argue that available solvency ratio means the excess value of assets over the value of insurance liabilities and other liabilities of policyholders' and shareholders' funds.

In accordance with SAM (2009) justification, solvency is an ability of an insurer to meet its obligations (liabilities) under all contracts at any time. Due to the very nature of insurance business,

it is impossible to guarantee solvency with certainty. In order to come to a practicable definition, it is necessary to make clear under which circumstances the appropriateness of the assets to cover claims is to be considered, e.g. is only written business (run-off basis, break-up basis) to be considered, or is future new business (going-concern basis) also to be considered. In addition, questions regarding the volume and the nature of an insurance company's business, which time horizon is to be adopted, and the setting of an acceptable degree of probability of becoming insolvent, should all be considered. Solvency is used assessing financial health on a runoff basis while capital adequacy is used assessing financial health on a going-concern basis.

Solvency of the insurance categories as expressed through the solvency margin and as such gives us a description of the size and condition of the capital adequacy of insurers. Solvency margin is the amount of capital that an insurance company must hold in order to cover expenses that may occur due to occurrence of unexpected events. Solvency of the company is one of the most sensitive issues when they consider all the calculations in companies engaged in life insurance. Solvency measure, amount of capital needed to make all the obligations of insurers could be settled in their redemption, is calculated as the ratio of the company's credit rating and minimum requirements for solvency (Jasmina, 2003).

As per Shiu (2004) explanation, insurance companies with higher solvency margin are considered to be sounder financially. Financially sound insurance companies are better able to attract prospective policyholders and are better able to adhere to the specified underwriting guidelines. Insurance companies with higher solvency margin outperform those with lower solvency margin.

#### **D) Technical provisions risk**

As referred by Jasmina (2003) it is a risk of holding insufficient technical provisions or holding unjustifiably excessive provisions, where provisions 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.

In addition, Technical provisions affect the assessment of insurer solvency. Technical provisions are a prerequisite for an adequate assessment of the amount the insurer's liabilities, the insurer's solvency and capital adequacy. In order that level of technical reserves is adequately assessed, but the experienced actuary, it is necessary to choose an appropriate method as input to the valuation.

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 flows is known (Shiu, 2004).

Giovanni (2001) mentioned that a technical risk for the solvency of insurance companies is certainly that of underestimating technical provisions. This risk concerns the impossibility on the part of the companies to meet their commitments towards the insured and the claimants due to insufficient technical provisions. The risk of insufficient technical provisions should therefore be forestalled both by companies by adopting prudential (this term is to be interpreted in relation to the specific and precise methodologies for calculating technical provisions described in the report) calculation procedures and methodologies when setting up the provisions, and by supervisory authorities. If the possession of sufficient technical provisions is an indispensable requisite for the company's solvency, the level of harmonization among the methodologies adopted in the various countries is equally important.

Technical reserves of insurance companies represent the amount of money that will be a guarantee that all obligations of insurers will be reconciled. Technical provisions are formed from the payment of premium of the insured. Premiums paid by the insured are calculated to provide risk insurance coverage. Of each premium paid, insurer is mandatory that part of the money set aside as funds of the technical provisions (Jasmina, 2003).

According to NBE (2010) technical provision risk is that the company's liability to policyholders could be understated. Clearly from the perspective of financial safety and soundness, the concern is with possible understatement of liability because any such

understatement can result in the insurer being unable to discharge all of its obligations to the public. Thus, focus will be given on controlling the risk of liability understatement.

### **E) Claim settlement Risk**

Singh (2007) noted that claims are the defining moment in the customer relationship for insurance firms, with a firm's success often defined by one factor: the customer's experience around claims. If a company does not effectively handle its claims service, it can tarnish its image and hence affect the sales and marketing of its insurance products. Insurance company's attitude to claims settlement has in the past provoked a lot of public criticism and even attracted the attention of governments (Harry, 2012). In fact, it is the only reason the consumer (insured) buys an insurance product. Parsons (2005) one of the principal functions of insurance is the settlement of claims. Claims, being the heartbeat of insurance, are the most critical contact the insuring public has with the industry and thus, critical moment of truth that shapes a customer's overall perception of their insurer (Crawford, 2007). Moreover, Christian &Versicherun, (2015) stated that insurance contracts have, in their function and structure, particular characteristics which must be considered in order to ensure an effective claims settlement.

Roff (2004) has point out the claim settlement practices that to all intents and purposes, the claim department can be seen as the "shop window" of the insurance company. It does not matter how cheap an insurance company's premiums are, or how efficiently they conduct their underwriting administration if a claim is not properly and fairly dealt with, this is where an insurer will be judged. Furthermore, Lijadu (2002) stated that the insurance industry in African is bogged down by unwholesome public perception. He stated that the insurance industry is aware of the public's misconstrued image of the insurance sector. Moreover he emphasized this by saying that the insurance industry is perceived as quick to collect premium, slow to pay claims, using small prints to confuse you, providing poor services and engaging in sharp practices. Harrington &Niehaus (2006) who asserted that insurers need to take their claim handling function more seriously because if a claim is handled well, it results to higher customer retention but if handled poorly, policyholders will lose confidence in the insurer and this may damage its most cherished reputation.

Pervan et al. (2012) investigated the claim ratio of Bosnia and Herzegovina insurance industry's profitability. Their findings indicated a strong negative influence of claims ratio on profitability.

This also supported by Mirie & Cyrus (2014) financial performance was negatively related to loss ratio. Moreover according to Yusuf (2014) effects of claim cost on insurers' profitability on Nigerian Insurers an inverse relationship exist between loss ratio (claim ratio) and profit before tax. Insurance firms with higher claim ratios should be at greater risk of insolvency. Conversely, one might expect that firms with lower loss ratios should be better performers, all else equal (Kevin, 2009). Claims erode earnings, and hence the lower the loss ratio, the higher the financial performance. For these reasons, the claim settlement risk and insurances financial performance has a negative relationship and affects significantly.

#### **F) Reinsurance risk**

Insurers, especially general insurers, often rely heavily on their reinsurers for claim reimbursement. Among others, the credit risk arising in the reinsurance area can be very significant, making it critically important for insurers to establish formal policies with regard to the selection of reinsurers. The use of reinsurance in capital management, the timing of payments of reinsurance premiums and claims in liquidity management the relationship between the reinsurance program and pricing and underwriting management, are among the factor to be considered in the reinsurance risk management process (NBE, 2010).

Reinsurance is a contract of indemnity against liability by which an insurance company procures another insurance company to insure it against loss or liability by reason of the original insurance. It has a global feature as manifested by economic interdependency, mobility of capital and transactions across borders, sharing regulations, international competition and management; and like any product, it is subject to cycles and fluctuations driven by internal and external factors (Plantin, 2006). It is a secondary market and is the main feature of the non-life insurance in the insurance business industry and is one of a number of options or tools to reduce the financial cost to insurance companies arising from the potential occurrence of specified insurance claims, thus, further enhancing innovation, competition, and efficiency in the marketplace (Patrik, 2001). According to the Chartered Insurance Institute (2004), insurance companies use reinsurance for capacity, business, asset management, catastrophe

protection, spread of risk, and market environment reasons, which are all needed at different times in a company's development.

Garven&Lamm (2003) describe reinsurance as both risk management and financial structure decision. In terms of risk management, reinsurance enables the reinsured leverage with skills of analysis and proper and modern way of management of risk portfolios including assessing of underwriting risks, and handling of claims properly and efficiently. Insurance companies reinsure a certain amount of the risk underwritten in order to reduce bankruptcy risk in the case of high losses. Although reinsurance improves the stability of the insurance company through risk dispersion, achievement of solvency requirements, risk profile equilibration and growth of the underwriting capacity, it involves a certain cost. Purchasing reinsurance reduces insurers insolvency risk by stabilizing loss experience, increasing capacity, limiting liability on specific risks, and/or protecting against catastrophes. However, transferring risk to reinsurers is expensive. The cost of reinsurance for an insurer can be much larger than the actuarial price of the risk transferred.

Cummins et al. (2008) analyzed empirically the costs and the benefits of reinsurance for a sample of US property-liability insurers. The results show that reinsurance purchase increases significantly the insurer's costs but reduces significantly the volatility of the loss ratio. With purchasing reinsurance, insurers accept to pay higher costs of insurance production to reduce their underwriting risk. Insurers with higher reinsurance dependence tend to have a lower level of firm profitability. It is possible that an insurer that cedes more business to reinsurer and keeps lower retention more or less operates like a reinsurance broker who only transfers risk without underwriting risk and is likely to report less profit for a relatively high percentage of the premium received is ceded to reinsurers (Lee, 2012).

Retention ratio (net written premium to gross written premium) is the most common ratio in assessing reinsurance risk. Therefore, a positive connection between the retention ratio and the insurers' financial performance is expected, because if insurers retain more premiums, they can increase their income and then intensify their ROA.

## **G) Underwriting risk**

Underwriting is the process of selecting certain types of risks that have historically produced a profit and rejecting those risks that do not fit the underwriting criteria of the insurer. Sound underwriting guidelines are pivotal to an insurer's financial performance. Insurance prices are established based on estimates of expected claim costs and the costs to issue and administer the policy. The estimates and assumptions used to develop policy pricing may prove to ultimately be inaccurate. This may be due to poor assumptions, changing legal environments, increased longevity, higher than expected weather catastrophes (Ernst & Young, 2010).

Underwriting risk is the risk that the premiums collected will not be sufficient to cover the cost of coverage. It comprises a high proportion of an insurer's overall risk. Huge fluctuations in net premiums written indicate a lack of stability in underwriting operation of an insurance company. An unusual increase in net premiums written might indicate that the company is engaging in the so called cash-flow underwriting to attempt to survive its financial difficulty. However, this is not necessarily the case. An unusual increase in net premiums written could indicate favorable business expansion if it is accompanied by adequate reserving, profitable operations, and stable products mix (National Association of Insurance Commissioner, 2001). Good underwriting risk Selection normally produces a favorable loss ratio. This means the premium collected, less loss and expenses, produces a profit for the insurer. Insurers must carefully underwrite all risks to avoid being the victim of adverse selection. The underwriting risk reflects the adequacy or otherwise of insurers' underwriting performance (Adams & Buckle, 2003).

Barth & Eckles (2009) found a negative relationship between premium growth and changes in loss ratios, suggesting that premium growth alone does not necessarily result in higher underwriting risk. Organizations that engage in risky activities are likely to have more volatile cash flows than entities whose management is more averse to risk-taking (Fama & Jensen, 1983). Therefore, a negative connection between the underwriting risk and the insurers' financial performance is expected, since taking an excessive underwriting risk can affect the company's stability through higher expenses. Furthermore, insurance companies with high annual insurance losses will tend to increase their level of corporate management expenses example, claims investigation and loss adjustment costs that could further worsen a decline in their financial performance. Excessive risk-taking could adversely affect the performance of insurance companies.

Another argument raised by Arifet al. (2015) insurance companies with high annual insurance losses will tend to increase their level of corporate management expenses ex-post (e.g., claims investigation and loss adjustment costs) that could further exacerbate a decline in their reported financial performance. In contrast, insurers and re-insurers with lower than expected annual losses are likely to exhibit better financial performance because for example, they do not incur such high monitoring and claim handling costs. In addition, underwriting is the process of selecting certain types of risks that have historically produced a profit and rejecting those risks that do not fit the underwriting criteria of the insurer. Good underwriting of risk selection normally produces a favorable loss ratio. This means the premium collected, less loss and expenses, produces a profit for the insurer. Insurers must carefully underwrite all risks to avoid being the victim of adverse selection. Adverse selection is selection against the insurance company. It is the tendency of insured's with a greater-than-average chance of loss to purchase insurance.

Underwriting involves the risk of determining the premium (pricing risk) and occurrence risk. Pricing risk is present before the insured event occurs because there is a risk that the costs and claims will be higher than the premiums received. It may be called the risk of insufficiency/inadequacy of insurance premiums, since it implies that the rate of loss occurrence has changed contrary to predictions at the time of determining the premiums.

Therefore, it is also called premium risk since it is likely that the insurer will not collect Revenue from premiums that would be sufficient to cover the claims. Property and liability pricing risk also includes the catastrophes risks that are arising from extraordinary events that are not sufficiently covered by the premium or reserve risk. Life insurance pricing risk includes biometric risk (including mortality, longevity, morbidity and disability) and the risk of withdrawal (Jakovcevic et al., 2014).

In addition to the above, Jakovcevic et al. (2014) mentioned that the business activity of the insurance company exposes to underwriting risks. The risk of any insurance contract is that an insured event and an unexpected amount of consequential losses will occur. By the nature of insurance contracts, underwriting risk is random and therefore unpredictable and refers to the uncertainty of insurance. The insurance contract is a legal transaction in which the policyholder agrees to pay the insurance premium and the insurer assumes the obligation to pay compensation in the case of occurrence of the insured event.

## **H) Company Size**

Insurance size is associated with diversification which may impact favorably on risk and product portfolio. On the other hand, increased diversification can reduce risk in the business portfolio thereby reducing returns. Insurers that have become extremely large may exhibit negative relationship between size and profitability as a result of bureaucracy and agency cost. (Hardwick, 1997) suggested that large insurers are likely to perform better than small insurers because they can achieve operating cost efficiencies through increasing output and economizing on the unit cost of innovations in products and process development. The research conducted on the relationship among firm characteristics size and growth by Swiss Re (2008) indicated that large firms are found to grow faster than smaller and younger firms found to grow faster than older firms.

Several studies have been conducted to examine the effect of size on the financial performance of insurance companies. Most of the researchers in insurance have found a positive relationship between size and profitability. For example, Demircuc&Maksimovic (1998) and Sommer (1996) have established a positive correlation between size and profitability. Also, Asimakopoulos et al. (2009) found that the profitability of companies is positively impacted by company size. Browne et al. (2001) has shown empirically that company size is positively related to the financial performance of US life insurance companies. Moreover Almajali et al.(2012) surveyed 25 insurance companies of Jordan during the period 2002-2007 by using a number of basic statistical techniques such as T-test and Multiple-regression. The results showed that Size has a positive statistical effect on the financial performance of Jordanian Insurance Companies.

In this study company size is computed as logarithm of total assets of the insurance company. A positive linkage between company size and its profitability is expected, since larger firms have more resources, a better risk diversification, complex information systems and a better expenses management.

## **2.5 Conclusion and knowledge of gap**

This section summarized the existing literature on risk management and insurance performance. 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. The studies revealed that, the awareness and willingness of companies in managing their risks has definitely increased in the emerging economies due to impact of events such as the European financial crisis.

The review of the literatures correspondingly revealed the existence of gap, and shown that a risk management and firm performance is issue that requires further investigation. Different scholars using empirical investigation on the financial risk factors and firm performance are resulting in dissimilar conclusions. For instance ,an empirical study by Mohsen et al. (2011) indicated that positive and significant relationship between total risk management and company's performance.

In line with this, Suheyli (2015) had also conducted a research on determinant of profitability in Ethiopian insurance companies, but the study didn't include credit risk and solvency risk as measurement of total liabilities over total assets that can show the insurance companies how much they are solvent for their total liabilities. However, this study has included these significant variables. In addition, prior studies conducted on determinant of profitability in Ethiopian insurance companies by (Yuvaraj et al. (2013); Meaza (2014) and Hadush (2015)) and determinant of performance in Ethiopian insurance companies by Daniel et al. (2013). their study had limited on a sample of eight up to nine insurance companies. Thus, this study will employed a mixed approached by taking all (17) insurance companies from the year 2012 to 2017 period of time which helps to obtain full information about all insurance companies.

Generally, with knowledge of the researcher there is no study on the effect financial risk on the performance of insurance companies in Ethiopia with including all the population in the sample frame and by taking all the eight risk factor variables. Thus, this study will fill all of the above stated gaps by taking evidences from Ethiopian insurance companies.

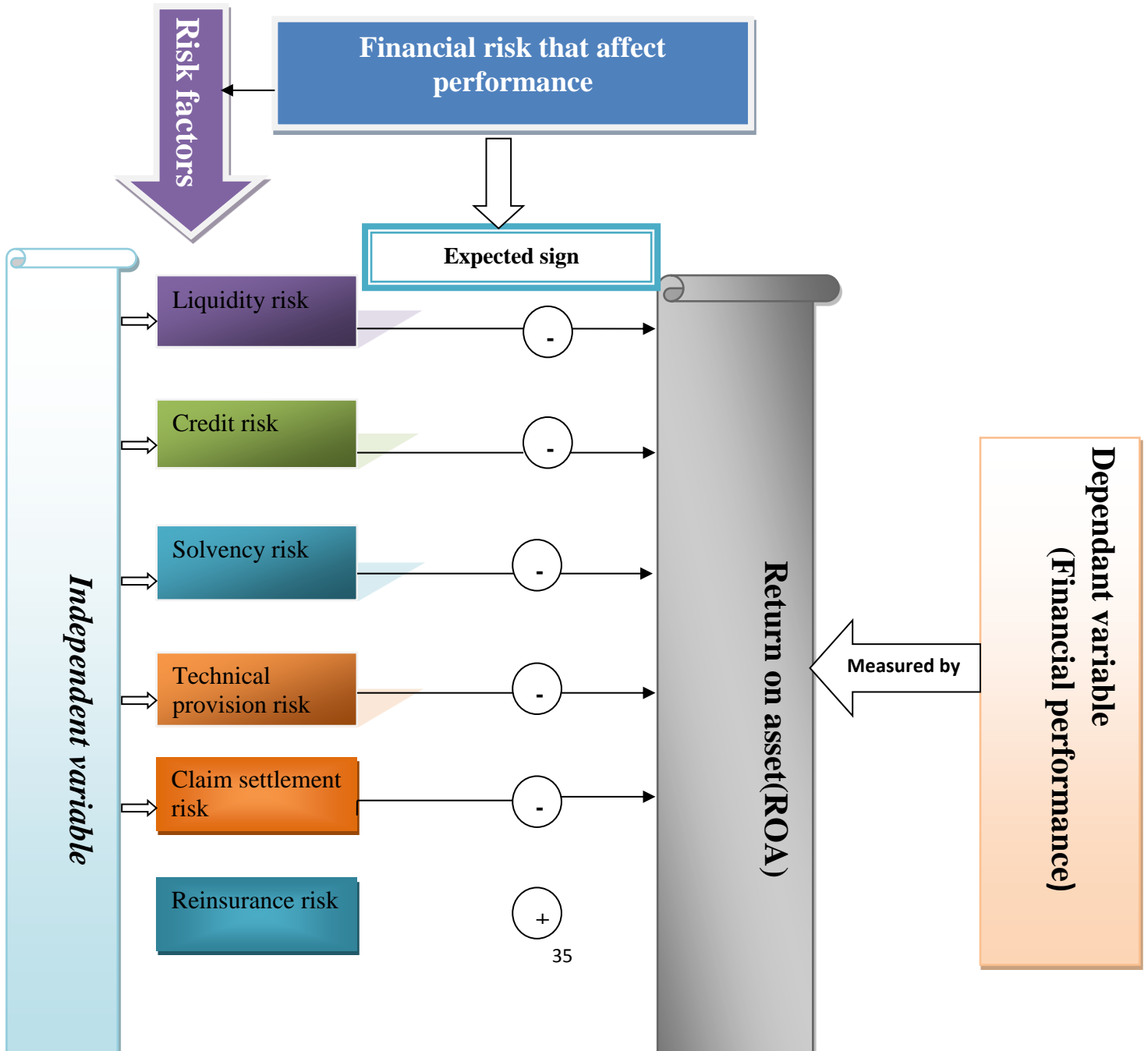
## **2.6 Conceptual framework of the study**

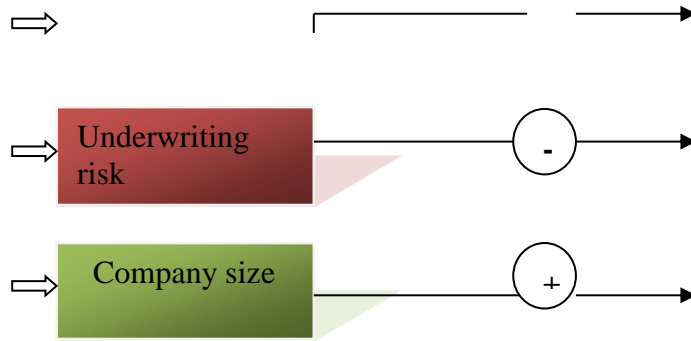
Smyth (2004) defines a conceptual framework as a framework that is structured from a set of broad ideas and theories that help a researcher to properly identify the problem they are looking at frame their questions and find suitable literature. The conceptual framework of the study will consist of independent variables; liquidity risk, credit risk, solvency risk, technical provisions risk, claim

settlement risk, reinsurance risk, Underwriting risk and size of the company and a dependent variable; the financial performance of insurance firms (ROA).

From the theoretical and empirical literature reviews, the following conceptual framework of the study is developed by the researcher.

Figure 2.1 the conceptual framework or model of the study





Source: Researcher design based on theories and empirical literature review

## CHAPTER THREE

### RESEARCH DESIGN AND METHODOLOGY

#### 3. Introduction

The purpose of this chapter is to describe the choice of appropriate research method for the study. In order to achieve the objective of this research, relevant literatures were reviewed then this chapter depicts the steps and procedures applied to analyze the major risk factors affecting performance of insurance companies in Ethiopia. The procedures cover the research design used to conduct the study, the population of the study and the sample size used. Besides, data collection method, data analysis and model specification are presented that are used to arrive at conclusions regarding the major risk factors affecting the performance of insurance companies in Ethiopia.

#### 3.1 Research methods

This is an empirical study, adopts quantitative method of research approach, taken eight(8) Ethiopian insurers (1 public and seven private) as sample. The study has been covered ten (10) financial years, viz., 2008-2017. The data required was drawn from NBE and the public disclosures and annual reports of the respective companies. This study uses linear multiple regression model. For this purpose, the firm specific risk factors such as; liquidity risk, credit risk, solvency risk, technical provisions risk, claim settlement risk, reinsurance risk, Underwriting risk and size of the company are regressed against Return on Assets.

Panel data analysis approach was adopted for the evaluation of the effect of financial risk on performance of insurance companies'. Due to that panel regression technique used which gives informative data by analyzing both cross sectional information, which capture individual variability, and time series information, that capture dynamic adjustment. This model is a probabilistic model that includes more than one independent variable.

### **3.1.1 Population**

The population of the study comprised seventeen insurance companies in operation in Ethiopia in the year 2008-2017. The study report was conducted based on secondary data's sources obtained from National Bank of Ethiopia and from the companies' record specifically from audited financial statement(from Balance sheet, revenue account and income statement for the period of 2008 up to 2017) of those insurance companies in Ethiopia . The insurance companies under study are:- Awash Insurance company, Africa Insurance company, Global Insurance Company, Nile Insurance Company, Nyala Insurance Company, United Insurance Company, Ethiopian Insurance Corporation , National Insurance Company of Ethiopia S.C

### **3.1.2 Sample**

To achieve the research objectives all population are included in the sample selection procedure to established and serving with in the specified period of time from 2008 to 2017. As noted in Jonker&Pennink (2010) it is obvious that researchers are typically unable to study the entire population. Therefore, researchers typically study a subset of the population which known as a sample. The procedure used for drawing the sample from the available lists is the insurance service year profile, for the reason that the study intend to use document sources. Therefore, sample size is decided based on the availability of operating data in the insurance operating in Ethiopia. The sampling techniques can broadly be divided as probability sampling and non-probability sampling (Leedy&Ormrod, 2005). Singh (2006) when the subjects used in the sample is homogeneous; using purposive sampling technique is appropriate, that is part of non-probability sampling,

A sample of 8 insurance companies are taken from the total population of 17 insurers over 10 years period covering calendar years from 2008 to 2017 to provide for 80 observations (8 insurers \* 10 years) which is well enough to operate regression techniques. In addition to this, the selected insurance companies have significant shares from the total population in terms of total asset, capital and profit before tax. Ten years average total asset, capital and profit before tax of insurance industry were 3.74 billion, 1.04 billion and 0.43 billion respectively out of these 3.38 billion, 0.93 billion and 0.39 billion were owned by the selected 8 insurers so this also can take us in a conclusion that, the sampled insurers can represent the total population (Ethiopian insurers.)

### **3.1.3 Methods of data analysis**

The multiple linear regression model were used to identify the relationship between the performance of insurance companies and credit risk, liquidity risk, reinsurance risk, solvency risk, technical provisions risk, Underwriting risk and size of the company. In this study to analyze the collected data; descriptive, correlation and multiple panel linear regression data analysis method could be employed. The descriptive statistics was used to quantitatively describe the important features of the variables using mean, maximum, minimum and standard deviations. The correlation analysis was used to identify the relationship between the independent and dependent variables using Pearson correlation analysis. The correlation analysis shows only the degree of association between variables and does not permit the researcher to make causal inferences regarding the relationship between variables (Marczyk et al., 2005).

As stated by Brooks (2008) panel data is favored for situation often arises in financial modeling where we have data comprising both time series and cross-sectional elements. In addition, we can address a broader range of issues and tackle more complex problems with panel data than would be possible with pure time-series or pure cross-sectional data alone. Accordingly, the study model focused on panel data technique that comprises both cross-sectional elements and time-series elements; the cross-sectional element is reflected by the different Ethiopian insurance companies (eight) and the time-series element is revealed by the period of study (2008-2017). Therefore, the collected panel data is analyzed using descriptive statistics, correlations and multiple linear regression analysis. The rationale for choosing Ordinary Least Square (OLS) is that, if the Classical Linear Regression Model (CLRM) assumptions hold true, then the estimators determined by OLS will have a number of desirable properties, and are known as Best Linear Unbiased Estimators

(Brooks, 2008). Diagnostic checking is done to test whether the sample is consistent with the following assumptions. According to Brooks (2008), the assumptions of ordinary least squares are:

- The errors have zero mean ( $E(u_t) = 0$ )
- variance of the errors is constant ( $\text{Var}(u_t) = \sigma^2 < \infty$ )
- Covariance between the error terms over time is zero ( $\text{cov}(u_i, u_j) = 0$  for  $i \neq j$ )
- Test for Normality ( $u_t \sim N(0, \sigma^2)$ )
- Multi co linearity Test

If all the above assumptions are consistent with the sample, STATA14 be accurate and reliable. The following tests were done in this research to test the above assumptions.

#### **I. The errors have zero mean ( $E(u_t) = 0$ )**

Relay on Brooks (2008), the first assumption required is that the average value of the errors is zero. In fact, if a constant term is included in the regression equation, this assumption will never be violated.

#### **II. Variance of the errors is constant ( $\text{Var}(u_t) = \sigma^2 < \infty$ ) (heteroscedasticity)**

According to Brooks (2008), the variance of the errors is constant this is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be heteroscedastic. If heteroscedasticity occur, the estimators of the ordinary least square method are inefficient and hypothesis testing is no longer reliable or valid as it will underestimate the variances and standard errors. There are several tests to detect the Heteroscedasticity problem, which are Park Test, Glesjer Test, Breusch-Pagan-Goldfrey Test, White's Test and Autoregressive Conditional Heteroscedasticity (ARCH) test. In this study, the popular white test was employed to test for the presence of heteroscedasticity. The hypothesis for the Heteroscedasticity test was formulated as follow;

H0: There is no Heteroscedasticity problem in the model.

H1: There is Heteroscedasticity problem in the model.

$$\alpha = 0.05$$

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

### **III. Covariance between the error terms over time is zero ( $\text{cov}(u_i, u_j) = 0$ for $i \neq j$ )**

#### **(Autocorrelation)**

According to Brooks (2008), when the error term for any observation is related to the error term of other observation, it indicates that autocorrelation problem exist in this model. In the case of autocorrelation problem, the estimated parameters can still remain unbiased and consistent, but it is inefficient. The result of T-test, F-test or the confidence interval will become invalid due to the variances of estimators tend to be underestimated or overestimated. Due to the invalid hypothesis testing, it may lead to misleading results on the significance of parameters in the model. Therefore, the study test for the existence of autocorrelation, the popular Durbin–Watson test and Breusch–Godfrey test were employed.

H0: There is no autocorrelation problem in the model.

H1: There is autocorrelation problem in the model.

$$\alpha = 0.05$$

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

### **IV. Normality ( $u_t \sim N(0, \sigma^2)$ )**

One assumption of classical linear regression model (CLRM) is the normal distribution of the residual part of the model. As noted by (Gujarati, 2004), OLS estimators are BLUE regardless of whether the error terms are normally distributed or not. If the disturbances are independently and identically is distributed with zero mean and constant variance and if the explanatory variables are constant in repeated samples, the OLS coefficient estimators are asymptotically normally distributed with means equal to the corresponding.

However, as per the central limit theorem, if the disturbances are not normally distributed, the OLS estimators are still normally distributed approximately if there are large -sample data. Thus, since the sample size for this study is large enough, it is approximately considered as normally distributed. This implies that residuals are asymptotically normal in this study.

As per Brooks (2008) normality tests are used to determine if a data set is well-modeled by a normal distribution. With the normality assumption, ordinary least square estimation can be easily derived and would be much more valid and straight forward. This study used JarqueBera Test (JB test) to find out whether the error term is normally distributed or not. The hypothesis for the normality test was formulated as follow:

H0: Error term is normally distributed

H1: Error term is not normally distributed

$\alpha = 0.05$

Decision Rule: Reject H0 if p-value of JB tests less than significance level. Otherwise, do not reject H0.

## **V. Multicollinearity**

According to Brooks (2008), Multicollinearity will occur when some or all of the independent variables are highly correlated with one another. If the multicollinearity occurs, the regression model is unable to tell which independent variables are influencing the dependent variable. This study used high pair-wise correlation coefficients method to test the presence of multicollinearity problem in a regression model, because it shows the correlation of independent variables between each other one by one. Malhotra (2007) stated that multicollinearity problems exists when the correlation coefficient among explanatory variables should be greater than 0.75. However, Brooks (2008) mentioned that if the correlation coefficient along with the independent variables is 0.8 and above, multicollinearity problems will be existed.

### **3.1.4 Model Specification Test**

According to Brooks (2008), Specification error occurs when omitting a relevant independent variable, including unnecessary variable or choosing the wrong functional form, so that regression

model will be wrongly predicted. If the omitted variable is correlated with the included variable, the estimators are biased and inconsistent. If the omitted variable is not correlated with the included variable, the estimators are unbiased and consistent. Ramsey RESET test was used to see whether the developed model is correctly regressing.

H0: the model is correctly specified

H1: the model is not correctly specified

$\alpha = 0.05$

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

In light of the above, to investigate the effect of risk management on insurers' financial performance, the following general multiple regression model is adopted from different studies conducted on the same area.

$$ROA_{it} = \beta_0 + \beta_1 LQ_{i,t} + \beta_2 CR_{i,t} + \beta_3 SL_{i,t} + \beta_4 TR_{i,t} + \beta_5 CS_{i,t} + \beta_6 RR_{i,t} + \beta_7 UR_{i,t} + \beta_8 SZ_{i,t} + \varepsilon$$

Source: developed by researcher by reviewing previous research works.

Where; ROA = Return on asset;

CR = credit risk;

UR = Underwriting risk;

RR = Reinsurance risk;

LQ = Liquidity risk;

TR = Technical provision risk;

SL = solvency risk;

SZ = Company size;

CS = claim settlement risk;

$\varepsilon$  = is the error component for company i at time t assumed to have mean zero  $E[\varepsilon_{it}] = 0$

$\beta_0$  = Intercept

$\beta = 1, 2, 3 \dots 8$  are parameters to be estimated;

$i =$  Insurance company  $i = 1 \dots 8$ ; and  $t =$  the index of time periods and  $t = 1 \dots 10$

### **3.1.5 Definition and measurement of variables**

This section explains the variables used as dependent (explained) and independent (explanatory) variables in this study. The definitions or measurements used for these variables are described as follow:

#### **3.1.5.1 Dependent variable**

The most commonly used financial performance ratios are net profit margin, return on assets (ROA) and return on equity. ROE is arguably the most widely used profitability metric, but many scholars quickly recognize that it doesn't tell you if a company has excessive debt or is using debt to drive returns [[www.investopedia.com](http://www.investopedia.com)]. In most of the previous studies on insurance sector, return on assets (ROA) is being used as a proxy of performance (Ahmed, 2011); (Al-Shami, 2008); (Malik,2011); (Lee, 2014) and it also can help to measure the whole company's resources. Moreover, the return on assets compares the net earnings of a business to its total assets. It provides an estimate of the efficiency of management in using assets to create a profit, and so is considered a key tool for evaluating management performance. The return on assets ratio can be used to compare the efficiency of asset usage within an industry, since each of these businesses should require roughly the same proportions of assets to sales in order to provide services to customers.

Farther more, most researchers in the field of insurance and their study stated that the key indicator of a firm's performance is ROA. For instance Hifza Malik (2011) investigated determinants of insurance companies' profitability of insurance sector of Pakistan, Abate Gashaw (2012) investigated Factors Affecting Profitability of Insurance Companies in Ethiopia, Daniel Mehari and Tilahun (2013) explored Firm specific factors that determine insurance companies' performance in Ethiopia, Shami and Ahmed (2008) explore on Determinants Of Insurance Companies' Profitability in UAE, Liargovas and Skandalis(2008) also investigated on Factors Affecting Firm Competitiveness: The Case of Greek Industry, KaurandChattha (2013)

investigated Financial Performance of Life Insurers in Indian Insurance Industry, Doumpos et al. (2012) investigated on Estimating and Explaining the Financial Performance of Property and Casualty Insurers, Chen-Ying Lee (2014) estimated the effects of macroeconomics factors on profitability of property-liability insurance industry in Taiwan, Boadi et al. (2013) explored determinants of Profitability of Insurance Firms in Ghana, Sambasivam and Abate Gashaw (2013) investigated on the performance of insurance companies in Ethiopia, AbdelkaderDerbali (2014) investigated determinants of performance of insurance companies in Tunisia: the case of life insurance; all the above authors used return on asset (ROA) as proxy measure of profitability.

Therefore, for this study the author used this common measure of performance (i.e. ROA) to investigate the effect of financial risk on the performance of Ethiopia insurance sector for ten successive years starting from 2008 up to 2017 G.C.  $ROA = \text{Net profit before tax} / \text{Total assets}$ .

### **3.1.5.2 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, eight factors are used as independent variables which are extracted from different studies. The variables namely; liquidity, credit, solvency, technical provision, claim settlement, reinsurance and underwriting risk, company size.

#### **Liquidity risk**

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. In addition to this, Jamal et al (2014) defined liquidity risk as risk stemming from the lack of marketability of an investment that cannot be bought or sold quickly enough to prevent or minimize a loss. It is the risk that a given security or asset cannot be traded quickly enough in the market to prevent a loss (or make the required profit).

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 arises 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 increase 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 lose 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 (Adrian (2014); Eneyew (2013); Abate (2012) and Emine (2015)), liquidity risk has negative and statistically significant effect on performance insurance companies. Hence, the study hypothesizes liquidity risk as negative and statistically significant effect on performance.

***H1: Liquidity risk has negative and statistically significant effect on Ethiopia insurance companies' performance.***

### **Credit risk**

It is measured using the ratio of premium debtors plus due from reinsurer and other receivable to net asset of insurance company ( $\text{premium debtors} + \text{due from reinsurer} + \text{other receivable} / \text{net asset}$ ). Currently, Ethiopian insurance companies have employed this ratio to grading their credit risk NBE (2010). In accordance with NBE (2010), area of credit risk includes counter party risk on derivative contracts and the risk of default on insured debts and trade debtors.

Gerald et al. (2001) mentioned that credit risk basically means the risks that counterparty cannot meet its liabilities. In addition, as stated by Anthony et al. (1997) it is the risk that a borrower will not perform in accordance with its obligations. Credit risk may arise from either an inability or unwillingness on the part of the borrower to perform in the pre committed contracted manner. In line with this, prior studies indicated that credit risk has negative and significant effect on performance (Eneyew, 2013; Anas et al., 2014 and Jamal et al., 2014). Thus, the study hypothesizes credit risk as negative and statistically significant effect on performance.

***H2: Credit risk has negative and statistically significant effect on Ethiopia insurance companies' performance.***

### **Solvency risk**

It is calculated as ratio of total liabilities to total assets and represented that when there is inability existed for a company to meet its long -term fixed expenses and to accomplish long term expansion and growth (Sommer, 1996). Solvency risk is about a company's inability to meet its financial obligations. A company is said to be solvent if it can meet its obligations and insolvent if it cannot.

As per Elmehdi (2014), solvency risk occurred while there is inability of a financial institution to meet its short, middle and long term financial obligations and also defined as the inability of a financial institution to meet its obligations in the event of cessation of activity or liquidation. As defined by AARDLB (2010), solvency risk is come up when there is no enough value in the form of assets in your business to cover all of the liabilities of the business. Previous researcher has used solvency risk variable to examine the relationship between financial risk and financial performance and discussed that it had a negative effect on return on asset (ROA) (Adrian, 2014) and (Arif et al., 2015). Relay on these empirical evidences, the study hypothesizes solvency risk as negative and statistically significant effect on performance.

***H3: Solvency risk has negative and statistically significant effect on Ethiopia insurance companies' performance.***

### **Technical provisions risk**

It is measured by safety ratio (claims outstanding to equity ratio) and defined as a risk of holding insufficient technical provisions or holding unjustifiably excessive provisions. Technical provision risk is that the company's liability to policyholders could be understated. Clearly from the perspective of financial safety and soundness, the concern is with possible understatement of liability because any such understatement can result in the insurer being unable to discharge all of its obligations to the public (NBE, 2010).

Additionally, as referred by Jasmina (2003) it is a risk of holding insufficient technical provisions or holding unjustifiably excessive provisions, where provisions 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. As per Giovanni (2001) explanation, technical provision risk concerns the impossibility on the part of the companies to meet their commitments towards the insured and the claimants due to insufficient technical provisions.

Suheyli (2015) had applied this variable as one determinant of insurance companies profit and made an analysis that it had negative and statistically significant effect on return on asset. As a result, the researcher also applied this variable with it and hypothesizes technical provision risk as negative and statistically significant effect on performance.

***H4: Technical provision risk has negative and statistically significant effect on Ethiopia insurance companies' performance.***

### **Claim settlement risk**

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 insurance product and low claim turnover. It is measured through the losses incurred divided by annual premium earned. This ratio indicates how much percentage of net claims is incurred from the firm's or sectors net earned premium.

Claim ratio = Net claims incurred/Net earned premium.

***H5: Claim settlement risk has negative and significant effect on Ethiopian non-life insurers' financial performance;***

### **Reinsurance risk**

It is calculated as ratio of premiums ceded in reinsurance to total assets. Insurance companies reinsure a certain amount of the risk underwritten in order to reduce bankruptcy risk in the case of high losses. Although reinsurance improves the stability of the insurance company through risk dispersion, achievement of solvency requirements, risk profile equilibration and growth of the

underwriting capacity, it involves a certain cost (Ana-Maria et al., 2014). As per NBE (2010), insurance companies purchase reinsurance to provide financial security, to increase their own capacity to underwrite insurance business, and to stabilize their underwriting results. Adherence to sound reinsurance risk management policies and procedures go hand in hand with financial soundness. Failure to adhere to such policies and procedures may lead to an increased risk level assessment. The major risks that arise from weakness in a company's reinsurance risk management program are the impairment of capital or liquidity.

Ana-Maria et al. (2014) adopted this variable to study determinants of financial performance in Romanian insurance companies. Besides, prior empirical studies had employed reinsurance risk variable in order to see the effect on profit of insurance companies and made analysis that it had a negative and insignificant effect on return on asset (Mistre, 2015) and (Suheyli, 2015). However, Shiu (2004) find out that it has negative and significant association with performance of insurance companies. In addition, due to their limited capacity and the volatile nature of their business, most general insurers rely heavily on reinsurance, in order to avoid catastrophic losses and reduce the net drain on surplus, by passing on a portion of any risk too large to handle. Nevertheless, it should be noted that there is a cost for reinsurance (Shiu, 2004). Hence, reinsurance dependency increases cost for insurance companies which decrease the performance of insurance companies. Thus, the researcher hypothesizes reinsurance risk as negative and statistically significant effect on performance.

***H6: Reinsurance risk has negative and statistically significant effect on Ethiopia insurance companies' performance.***

### **Underwriting risk**

Underwriting is the process of selecting certain types of risks that have historically produced a profit and rejecting those risks that do not fit the underwriting criteria of the insurer. Sound underwriting guidelines are pivotal to an insurers' financial performance. Insurance prices are

established based on estimates of expected claim costs and the costs to issue and administer the policy. The estimates and assumptions used to develop policy pricing may prove to ultimately be inaccurate. This may be due to poor assumptions, changing legal environments, increased longevity, higher than expected weather catastrophes (Ernst & Young, 2010).

Underwriting risk is the risk that the premiums collected will not be sufficient to cover the cost of coverage. It comprises a high proportion of an insurer's overall risk. Huge fluctuations in net premiums written indicate a lack of stability in underwriting operation of an insurance company. An unusual increase in net premiums written might indicate that the company is engaging in the so called cash-flow underwriting to attempt to survive its financial difficulty. However, this is not necessarily the case. An unusual increase in net premiums written could indicate favorable business expansion if it is accompanied by adequate reserving, profitable operations, and stable products mix (National Association of Insurance Commissioner, 2001). Good underwriting risk selection normally produces a favorable loss ratio. This means the premium collected, less loss and expenses, produces a profit for the insurer. Insurers must carefully underwrite all risks to avoid being the victim of adverse selection. The underwriting risk reflects the adequacy or otherwise of insurers' underwriting performance (Adams & Buckle, 2003).

Barth & Eckles (2009) found a negative relationship between premium growth and changes in loss ratios, suggesting that premium growth alone does not necessarily result in higher underwriting risk. Organizations that engage in risky activities are likely to have more volatile cash flows than entities whose management is more averse to risk-taking (Fama & Jensen, 1983). Therefore, a negative connection between the underwriting risk and the insurers' financial performance is expected, since taking an excessive underwriting risk can affect the company's stability through higher expenses. Furthermore, insurance companies with high annual insurance losses will tend to increase their level of corporate management expenses example, claims investigation and loss adjustment costs that could further worsen a decline in their financial performance. Excessive risk-taking could adversely affect the performance of insurance companies. As per Arif et al. (2015) employed underwriting risk as variable of financial risks and its measurement to examine the effect on financial performance. Similarly, according to AnaMaria et al. (2014) underwriting risk emphasizes the efficiency of the insurer's underwriting activity and the study used the same measurement. As the result, underwriting risk has a negative influence on the insurer's

financial performance, since taking an excessive underwriting risk can affect the company's stability through higher expenses. Furthermore, Ijaz (2015) studies demonstrated that underwriting risk has a negative and statistically significant effect on return on total assets ratio in insurance companies. Moreover, Suheyli (2015) used underwriting risk variable as measured losses (claims) incurred divided by premium earned and find out that underwriting risk has statistically significant and negative relationship with return on asset.

Previous studies of (Ana-Maria et al. (2014); Ijaz (2015); Hifza (2011); Emine (2015); Daniel et al. (2013); Hadush (2015); Meaza (2014); Mistre (2015) and Suheyli (2015)). They concluded that underwriting risk has a negative and statistically significant influence on insurer's performance. Relay on these evidences, the researcher used this variable and hypothesizes underwriting risk as negative and statistically significant effect on performance.

***H7: Underwriting risk has negative and statistically significant effect on Ethiopia insurance companies' performance.***

### **Company Size**

In the theoretical parts, it is indicated that as the company size increases up to a certain stage it allows the company to enjoy the benefit of economies of scale market-power hypothesis. Which means as firms' size increases, they become more diversifies and have more stable cash flows. They are less likely getting bankrupt as compared to small firms so that they can afford getting high return. Gashaw (2012) larger insurance companies make efficiency gains that can be captured as higher earnings due to the fact that they do not operate in very competitive markets.

Ahmed et al. (2011) Performance of large size life insurance companies is better than small size companies. Therefore, based on the theoretical findings it was expected positive and significant relationship between company size and insurance companies' profitability.

In most literatures, the effect of size of insurance companies' profitability is positive, such as Bawa and Chattha (2013), Mehari and Aemiro (2013), Bilal et al. (2013), Ahmed et al. (2011) and Malik (2011), Burca and Batrinca (2014) by including the company size as independent variable, then, all found that company size has a positive linkage with insurers' financial performance. Burca and Batrinca (2014), Explained that since larger firms have more resources, a

better risk diversification, complex information systems and a better expenses management. Swiss Re (2008) stated that larger firms can grow faster than smaller firms.

To the contrary, few researches found negative and significant relationship between insurance company size and profitability, such as:- Mwanfi (2015) Oino (2014) from Kenya and Derbali (2014). Mwanfi further explained that as the relationship between size and performance was negative, perhaps due to diseconomies of scale, it may be prudent to focus on performance instead of growth for its own sake. Derbali concluded that the negative result shows that the Tunisian small size companies are more efficient than those of larger sizes.

The expected sign or relation between the explanatory variable and the explained variables are summarized in table 3.1 as follows:

*H8: Company size has a significant and positive effect on Ethiopian non-life insurers' financial performance;*

**Table3.1**Financial risk that affects performance of insurance companies.

Variables		Measurement	Expected sign
Independent variable	Liquidity(LR)	Current Assets / Current Liabilities	(-)
	Credit risk(CR)	Premium debtors + Due from reinsurer + Other receivable / Net asset	(-)
	Solvency risk(SR)	Total liabilities /Total asset	(-)
	(TPR)	Claims outstanding / Total equity	(-)
	Size of firm(SZ)	Natural log of total assets	(+)
	Reinsurance risk(RR)	Net premium / gross premium	(+)
	Underwriting risk(UR)	$CNWP = (GNWP(t) - GNWP(t-1)) / GNWP(t-1)$	(-)
	Claim settlement risk(CSR)	Net claims incurred/Net earned premium.	(-)
Dependent variable	Financial performance(FP)	Return on asset(ROA) =Net profit before tax/total assets	

Source: Compiled by the researcher mainly based on previous research

## CHAPTER FOUR

### 4 DATA ANALYSIS AND PRESENTATION

This chapter deals with the results and analysis of the findings and it contains three sections. The first section presented descriptive and correlation analysis on variables of the study; the second section presented fulfillment of the classical linear regression model (CLRM) assumptions; the third section laid down the results of regression and interview analysis that constitute the main findings of this study.

#### 4.1 Descriptive statistics

Table 4.1 provides a summary of the descriptive statistics of the dependent and independent variables for eight insurance companies from the year 2008 to 2017 with a total of 80 observations. The table shows the mean, minimum, maximum, standard deviation and number of observations for the dependent variable firms' performance (ROA) and independent variables (liquidity, credit, solvency, technical provision, claim settlement, reinsurance and underwriting risk, company size).

**Table 4.1 Descriptive statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	80	0.091026	0.04714	-0.0265	0.1921
CR	80	0.672621	0.413661	0.05945	1.8659
LQ	80	1.005713	0.22743	0.4336	1.8413
RE	80	0.743854	0.082637	0.5105	0.9001
SR	80	0.646708	0.079673	0.453	0.856
TPR	80	0.69322	0.38024	0.12	2.421
UR	80	0.218746	0.189087	0.0095	0.5326
CS	80	0.64404	0.10374	0.4094	0.9519
lnTA	80	12.40739	1.016713	10.321	14.72

Source: - annual report of sample insurance computed using stata14

Table 4.1 presents a summary of the descriptive statistics of the dependent and independent variables for eight insurance companies for a period of ten(10) years from 2008-2017 with a total of 80 observations. Key figures, including mean, maximum, minimum and standard deviation value were reported. As indicated in the above table, the firms' performance measured by return on asset shows that sampled of Ethiopian insurance companies achieved 9.102% on average before tax profit over the last ten years from 2008 to 2017. From the total sample, return on asset had a maximum of 19.21% and minimum of -2.65%. It means that the most profitable insurance company among the sampled earned 19.21 cents of profit before tax for a single birr (1.00) invested in the assets of the firm. On the other hand, not profitable insurance company of the sampled lost -2.65 cents of profit before tax for each birr (1.00) invested in the assets of the firm and the value of return on asset deviate from its mean by 4.71%.

The average value for credit risk as measured by ratio premium debtors plus due from reinsurer and other receivable to net asset of insurance company was 67.26% with a maximum of 186.59% and a minimum of 5.94%. It means that the average rate of credit risk was 67.26% which is more than the standard rate of national bank of Ethiopia NBE (2010) which is 50%. It implies that there is large amount of uncollectable balance which tends to have default risk. In addition, sampled of Ethiopian insurance companies who have less uncollected amount has 5.94 cents from the total receivable birr (1.00) in the firm which is below the standard rate. On the other hand, sampled of Ethiopian insurance companies who have excess uncollected amount has 1 birr and 0.86 cents from the total receivable birr (1.00) which is above the standard rate and the value of credit risk deviate from its mean by 41.36%.

The average value of the liquidity risk measured by current ratio was 100.57%. The average value indicates that for each one birr current liability, there was 1.0057 birr current asset to meet obligation which is less than the standard rate of national bank of Ethiopia NBE (2010) which is 105% and indicates that there is no excess cash holding by the insurance companies. The maximum and minimum values were 184.13% and 43.36% respectively for the study period.

It means that the most liquid Ethiopian insurance company has 1.84 birr to meet obligation which is more than the standard rate. However, Ethiopian insurance companies who have less liquid have 0.43 cents to meet obligation which is less than the standard rate and the value of liquidity risk deviate from its mean by 22.74%.

The outputs of the descriptive statistics indicate that the mean of reinsurance risk as proxy by premium ceded to total asset was 74.38%. This means that on average 74.38% of gross premium collected as percentage of total asset was ceded to reinsurance which is above the standard rate of national bank of Ethiopia (NBE, 2010) which is 30% that implies most of sampled Ethiopian insurance companies have more reinsurance dependency. The maximum value of premium ceded to total asset ratio was 90.01% which is above the standard rate and a minimum value of 51.05% that is also above the standard rate and the value of reinsurance risk deviate from its mean by 8.26%.

The average value of the solvency risk measured by total liabilities over total assets was 64.67%. It implies that there is 1 birr total assets to cover 0.646 cents of liabilities. The maximum and minimum values were 85.6% and 45.3% respectively for the study period. As regards the standard deviation, the value of solvency risk deviate from its mean by 7.96%.

The outputs of the descriptive statistics indicate that the mean of technical provisions risk as proxy by claims outstanding to net asset was 69.32%. It refers that there is 1 birr of net asset to meet 0.69 cents of claims outstanding. The maximum value of claims outstanding to net asset ratio was 242.1% and a minimum value of 12.00% respectively for the study period. With regard to the standard deviation, the value of technical provisions risk deviate from its mean by 38.02%.

Underwriting risk variable, as proxies by losses incurred divided by annual premium earned; the mean of incurred claims to earned premium ratio was 21.87%. This implies that on average, most insurance companies from the sample paid 21.87% loss incurred out of the total premium earned per year which was below as compared with acceptable standard of around 70% (NBE, 2010). The highest ratio of losses incurred to earned premium value was 53.26% which is below the standard rate that shows that there is no underwriting risk, but the minimum value for a company in a particular year was 9.5% which is below the standard rate. With respect to standard deviations, the ratio of losses incurred to earned premium deviate from its mean by 18.91%.

Insurance size measured by logarithm of total asset is used as a proxy. The mean of the logarithm of total assets during the period was (12.41). Size of insurance companies was highly dispersed from its mean value with the standard deviation of (1.0167.) which means it is the most deviated variable from its mean. The maximum and minimum values were (14.72) and (10.32) respectively.

Finally, risk measure by claim ratio indicates how much percentage of net claims incurred from the insurers of sectors net earned premium. 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. Therefore, it is expected that the more having low ratio is the more generating a good profit. By looking towards table 4.1, the value of claim ratio of the selected insurance companies at maximum, minimum, and average is (0.952), (0.41) and (0.644) respectively. The average (0.644) of claim ratio fits the expected standard of not more than (0.7%). This implies that Ethiopian insurers on average (64.4%) paid for claims the remaining premium (35.6%) goes to expenses and net income. Whereas, variations between insurers in terms of the given indicator are very high, given that its value, individually viewed, ranges from only (41%) to as much as (95.2%).

### **Correlation Analysis**

Correlation measures the degree of linear association between variables. Values of the correlation coefficient are always ranged between +1 and -1. A correlation coefficient of +1 indicates that the existence of a perfect positive association between the two variables, while a correlation coefficient of -1 indicates perfect negative association. A correlation coefficient of zero, on the other hand, indicates the absence of relationship (association) between two variables (Brooks, 2008). The table below shows the correlation matrix among dependent and independent variables.

Table 4.2 Correlation Analysis of Variables

	<b>ROA</b>	<b>CR</b>	<b>LQ</b>	<b>RE</b>	<b>SR</b>	<b>TPR</b>	<b>UR</b>	<b>CS</b>	<b>lnTA</b>
<b>CR</b>	-0.6118	1							
<b>LQ</b>	-0.364	0.4446	1						
<b>RE</b>	-0.2439	0.1168	0.1486	1					
<b>SR</b>	-0.1656	0.547	0.4207	0.16	1				
<b>TPR</b>	-0.0327	0.0466	0.1858	-0.0503	0.2981	1			
<b>UR</b>	-0.0918	0.3082	-0.0177	0.0462	0.0855	-0.1022	1		
<b>CS</b>	-0.5507	0.3842	0.3644	0.3209	0.3156	0.0489	0.1271	1	
<b>lnTA</b>	0.5961	-0.3213	0.0462	-0.4421	0.1549	0.0168	-0.1214	-0.0975	1

Source: - annual report of sample insurance computed using stata14

The correlation result in Table 4.2 shows credit risk, liquidity risk, solvency risk, technical provisions risk, underwriting risk, claim settlement risk and reinsurance risk have negative correlation with return on asset for measurement of Ethiopian insurance companies' performance. It refers that when these risks increases, performance of Ethiopian insurance companies will be go down. However, company size has positive correlation with return on asset which indicates that while company size decreases, at the same time performance of Ethiopian insurance companies will be decrease.

The coefficient estimates of correlation in the above table shows -0.6118, -0.364, -0.2439, -0.1656, -0.0327, -0.0918 and -0.5507 for credit risk, liquidity risk, reinsurance risk, solvency risk, technical provisions risk, underwriting risk and claim settlement risk respectively. This implies that for credit risk, liquidity risk, reinsurance risk, solvency risk, technical provisions risk, underwriting risk and claim settlement risk are negatively correlated with return on asset. From those explanatory variables credit risk and claim settlement risk have a strong estimate of negative coefficient with return on asset. However, company size (0.5961) coefficient number which is strong estimate of positive correlation with return on asset.

## 4.2 Regression model tests

For valid hypothesis testing and to make data available for reliable results, the test of assumption of regression model is required. Accordingly, the study has gone through the most critical regression diagnostic tests consisting of normality, multicollinearity, heteroskedasticity, autocorrelation and model specification tests accordingly.

### 4.2.1 Model Selection (Random Effect versus Fixed Effect Models)

As Brooks (2008) referring on his book, there are broadly two classes of panel estimator approaches that can be employed in financial research: fixed effects models and random effects models. The choice between both approaches is done by running a Hausman test. Therefore a random cross-sectional effect is specified in the estimation so as to capture unobserved idiosyncratic effects of different insurance companies. Thus, to determine whether the random effects are necessary or not this study run the Hausman specification test as recommended by Brooks (2008) and others. The hypothesis for the model selection test was formulated as follow;

H0: Random effects model is appropriate.

H1: Fixed effects model is appropriate.  $\alpha = 0.05$

Decision Rule: Reject H0 if P value is less than significant level 0.05. Otherwise, do not reject H0.

Table 4.3 Hausman Test

Correlated Random Effects - Hausman Test

Equation: HANSUMTEST

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	10.82	8	0.2119

Source: - annual report of sample insurance computed using stata14

The Hausman model selection test for this study has a p-value of 0.2119 for the regression models. Thus, the null hypothesis which is random effect model appropriate was accepted and the research used the random effect model.

In addition, as stated by Gujarati (2004) if  $T$  (the number of time series data) is large and  $N$  (the number of cross-sectional units) is small, there is likely to be little difference in the values of the parameters estimated fixed effect model and random effect model. Hence the choice here is based on computational convenience. On this score, random effect model may be preferable. Therefore, the study has 10 time series and 8 cross sectional which is relevant to random effect model. The rationale behind random effects model is that, unlike the fixedeffects model, the variation across entities is assumed to be random and uncorrelated with the predictor or independent variables included in the model. Random effect model assume that the entity's error term is not correlated with the predictors which allows for time-invariant variables to play a role as explanatory variables (Oscar, 2007).

#### **4.2.2 Test of the classical linear regression model (CLRM) assumption**

To maintain the data validity and robustness of the regressed result of the research, the basic classical linear regression model (CLRM) assumptions must be tested for identifying any misspecification and correcting them so as to argument the research quality (Brooks,2008). There are different CLRM assumptions that need to be satisfied and that are tested in this study, which are: errors equal zero mean test, heteroscedasticity, autocorrelation, normality, multicollinearity and model specification test.

##### **The errors have zero mean ( $E(u_t) = 0$ )**

The first assumption required is that the average value of the errors is zero. In fact, if a constant term is included in the regression equation, this assumption will never be violated (Brook, 2008). In this study the model consisted a constant term called an intercept. In addition by including the intercept we can avoid two main undesirable consequences; first, R- square, could never be negative and second, a regression with intercept parameter could not lead to potentially severe biases in the slope coefficient estimates.

**Test for heteroskedasticity assumption ( $\text{var}(u_t) = \sigma^2 < \infty$ )**

As indicated by Brooks (2008), this assumption requires that the variance of the errors to be constant. If the errors do not have a constant variance, it is said that the assumption of homoscedasticity has been violated. This violation is termed as heteroscedasticity. In this study test was used to test for existence of heteroscedasticity across the range of explanatory variables.

H0: The variance of the error is homoscedasticity

H1: The variance of the error is heteroscedasticity

Table 4.4 Heteroskedasticity Test: White

Source	chi2	df	p
Heteroskedasticity	57.32	44	0.0858
Skewness	7.58	8	0.4754
Kurtosis	0.39	1	0.5317
Total	65.29	53	0.1198

Source: - annual report of sample insurance computed using stata 14

The Whites'' test was used to check for the presence of heteroscedasticity in the residuals. As shown in Table 4.4 both F-statistic and chi-square version of test give the same conclusion that there is no evidence for the presence of heteroscedasticity since the p-values in all of the cases were above 0.05.

Generally, in the regression models used in this study it was proved that the test statistics is not significant and the variance of the error term is constant or homoscedastic and we had sufficient evidence to accept the null hypothesis of Homoscedasticity. The linear model is also correctly specified.

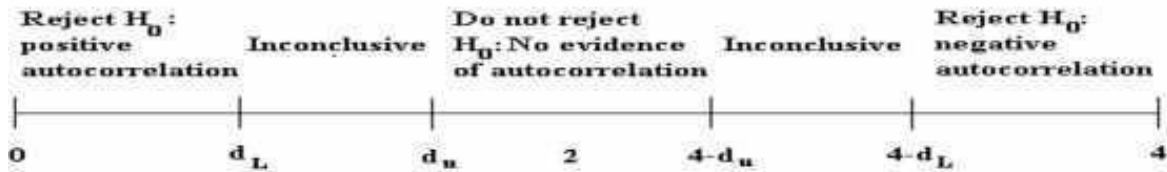
**Test for autocorrelation assumption ( $\text{cov}(u_i, u_j) = 0$  for  $i \neq j$ )**

This assumption stated that the covariance between the error terms over time (or cross sectionals, for that type of data) is zero. In other words, it is assumed that the errors are uncorrelated with one

another. If the errors are not uncorrelated with one another, it would be stated that they are auto correlated or that they are serially correlated (Brooks, 2008).

The study used both Durbin-Watson (DW) and Breusch-Godfrey test for the existence of autocorrelation. In addition, lagged value of a variable (ROA (-1)) is used in this research in order to adjust the autocorrelation. As per Brooks (2008) lagged the value is simply the value that the variable took during a previous period. So from the regression result DW is 1.873 it is closed to two.

Table 4.5 Rejection and non-rejection regions for Durbin-Watson Test



0	dL=1.651	dU=1.817	1.873	4-dU=2.183	4-dL= 2.349	4
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Source: - annual report of sample insurance computed using stata 14

Therefore, to test for autocorrelation, the DW test critical values were used. Then, relevant critical lower and upper values for the test are  $dL= 1.651$  and  $dU=1.817$  respectively. The values of  $4 - dU = 4-1.817=2.183$ ;  $4 - dL = 4-1.651= 2.349$ .

The Durbin-Watson test statistic of 1.873 is clearly found on the non-rejection region so that there is no evidence for the presence of autocorrelation.

Another test for the existence of autocorrelation is by using Breusch-Godfrey test.

H0: The errors are uncorrelated with one another

H1: The errors are correlated with one another

-Godfrey Serial Correlation LM Test:

Table 4.6 Breusch-Godfrey Serial Correlation LM TestBreusch

F-statistic	1.353084	Prob. F(2,115)	0.2625
Obs*R-quared	2.919842	Prob. Chi-Square(2)	0.2323

Source: - annual report of sample insurance computed using stata14

Both versions of the test; F- statistic and R-squared version of the test indicate that the null hypothesis of no autocorrelation should not be rejected, since the p-values are considerably in excess of 0.05. The conclusion from both versions of the test described that the null hypothesis of no autocorrelation is not rejected.

**Test of normality ( $ut \sim N(0, \sigma^2)$ )**

The normality assumption is about the mean of the residuals is zero. In this study, the normality of the data was mainly checked with the popular Bera-Jarque test statistic (Brooks 2008). The Jarque-Bera statistic has a P-value of 93% implies that the p-value for the Jarque-Bera test for the model is very far greater than 5% which indicates that the errors are normally distributed. Furthermore, according to Brooks (2008) the standardized measurements of a distribution are known as its skewness and kurtosis. Skewness measures the extent to which a distribution is not symmetric about its mean value and kurtosis measures how fars the tails of the distribution area. A normal distribution is not skewed and is defined to have a coefficient of kurtosis of 3. Skewness that is normal involves a perfectly symmetric distribution. Kurtosis involves the peakedness of the distribution. Kurtosis that is normal involves a distribution that is bell-shaped and not too peaked or flat. The stata results for the tests of both Skewness and Kurtosis are presented below figure 4.1 are fitted according to their expected conditions.

The hypothesis for the normality test was formulated as follow:

H0: Error term is normally distributed

H1: Error term is not normally distributed

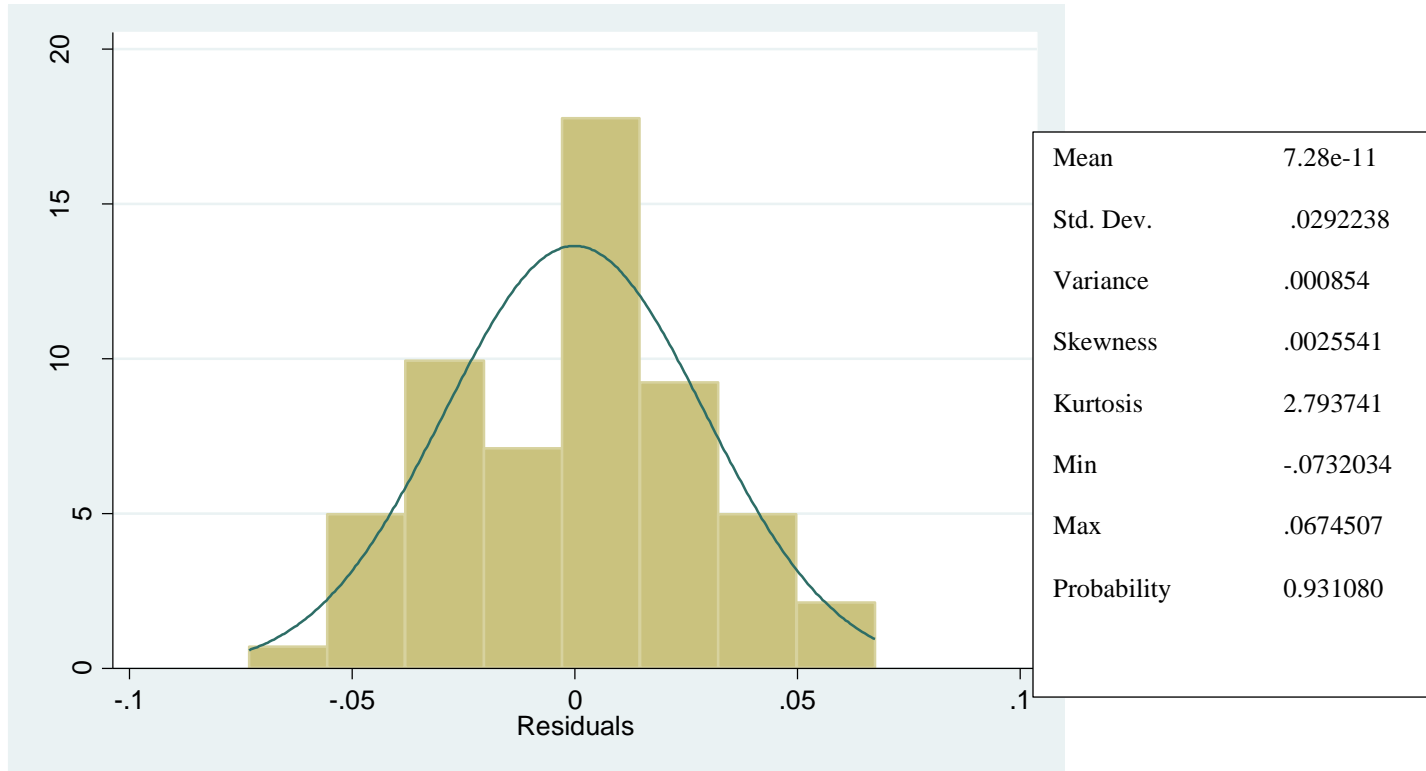


Figure 4.1 Normality Test Result

Source: - annual report of sample insurance computed using stata 14

According to (Gujarati, 2004), the BJ is a large sample test and our sample of 112 was equal to the frame was large; the study considered the BJ test also. As shown in the histogram in the appendix-2 skewness and kurtosis approaches to zero (i.e. .0025541) and Three (i.e. 3.318659) and the Jarque-Bera statistics (i.e. 0.931080). Hence, the null hypothesis that the error term is normally distributed should not be rejected. Therefore it is possible to say that error terms follow normal distribution. The above diagram witnesses that normality assumption holds, i.e., the coefficient of kurtosis was close to 3, skewness was zero and the BeraJarque statistic has a P-value of 0.931080 implying that the data were consistent with a normal distribution assumption. Based on the statistical result, the study failed to reject the null hypothesis of normality at the 5% significance level.

### Test for multicollinearity

As referred by Brooks (2008), an implicit assumption that is made when using the OLS estimation method is that the explanatory variables are not correlated with one another. If there is no relationship between the explanatory variables, they would be said to be orthogonal to one another. However, a problem occurs when the explanatory variables are very highly correlated with each other, and this problem is known as multicollinearity.

Malhotra (2007) stated that multicollinearity problems exists when the correlation coefficient among explanatory variables should be greater than 0.75. However, Brooks (2008) mentioned that if the correlation coefficient along with the independent variables is 0.8 and above, multicollinearity problems will be existed.

Table 4.8 Correlation Matrix between independent variables

	CR	LQ	RE	SR	TPR	UR	CS	lnTA
CR	1							
LQ	0.4446	1						
RE	0.1168	0.1486	1					
SR	0.547	0.4207	0.16	1				
TPR	0.0466	0.1858	-0.0503	0.2981	1			
UR	0.3082	-0.0177	0.0462	0.0855	-0.1022	1		
CS	0.3842	0.3644	0.3209	0.3156	0.0489	0.1271	1	
lnTA	-0.3213	0.0462	-0.4421	0.1549	0.0168	-0.1214	-0.0975	1

Source: - annual report of sample insurance computed using stata14

The method used in this study to test the existence of multicollinearity was by checking the Pearson correlation between the independent variables. The correlations between the independent variables are shown in table 4.7 above. All correlation results are below 0.75, which indicates that multicollinearity is not a problem for this study.

## Model Specification test

According to Brooks (2008), further implicit assumption of the classical linear regression model is that the appropriate ‘functional form’ is linear. This means that the appropriate model is assumed to be linear in the parameters and that in the bivariate case, the relationship between dependent and independent can be represented by a straight line. Model specification error occurs when omitting a relevant independent variable and including unnecessary variable.

According to (Richard, 2015), the nature of the variables that have been omitted from the model affects the selection of the models i.e. if we think there are no omitted variables—or if we believe that the omitted variables are uncorrelated with the explanatory variables that are in the model, then a random effects model is probably best.

Therefore, in order to select a correct estimated model, the researcher had carry out the Ramsey-RESET Test to check on the model specification. The hypothesis for the model specification test was formulated as follow;

H0: The model specification is correct.

H1: The model specification is incorrect.

Ramsey RESET Test

Equation: RAMSEYTEST

Specification: ROA C CR LR RIR SR TPR UR CS CZ

Omitted Variables: Squares of fitted values

Table 4.9 Result of model specification Test: Ramsey-RESET test

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$$F(3, 68) = 0.09$$

$$\text{Prob} > F = 0.9666$$

---

Source: - annual report of sample insurance computed using stata14

From table 4.9, it can be concluded that this research do not reject null hypothesis (H0), since the p value of f statistic is 0.9666, which is greater than significance level of 0.05. Thus, it can be concluded that the model specification is correct from year 2008 to 2017. Overall reliability and validity of the model was enhanced further by the Prob (F-statistic) value of 0.000000.

### **4.3 Interpretation of R-squared, Adjusted R-squared and F-statistic**

#### **4.4.1. Interpretation of R-squared**

As shown in Table 11, an R-squared coefficient of 0.7312 obtained from the estimated model; revealing that 73.12 percent of variation in performance of insurance company proxy by ROA was explained by the selected explanatory variables (claim settlement risk, liquidity risk, reinsurance risk, technical provision risk, solvency risk, company size, credit risk, underwriting risk).

The R-square result makes sense because there are other factors such as market risk, management style, differences in the skills of the workforce that were not included in the model but could help in explaining in the performance of Ethiopian insurance company. These and other remaining factors can account for the remaining 26.88 percent.

#### **4.4.2. Interpretation of Adjusted R-squared**

An adjusted R-squared value which takes into account the loss of degrees of freedom associated with adding extra variables were inferred to see the explanatory powers of the models. In other words the adjusted R-squared shows satisfactory levels, which mean that nearly 70.09 percent of the volatilities in the return on asset, are explained by the volatilities of independent variables included in the equation. Therefore, an adjusted R-square having value of 0.7009 shows that 70.09 percent of dependent variable is explained by the independent variables included in the model.

### 4.4.3 Interpretation of F-Statistics

The F-statistics tests the fitness of the model and a recommended F-statistics should be greater than 5 for it to be considered fit. The regression F-statistic takes a value of 24.14 which is greater than 5 hence the model was fit for estimation.

Furthermore, F-statistics tests for the joint impact of all explanatory variables on the dependent variables. A corresponding p-value of zero attached to the test statistic shows that the null hypothesis that all of the slope parameters are jointly zero should be rejected even at 1 percent level of significance. This implies that all selected explanatory variables can affect the level of interest rate margin or cost of financial intermediation jointly.

### 4.5. Regression Results and Analysis

Table 4.10: Regression Result

Dependent Variable: ROA

Method: Panel Least Squares

Sample: 2008 - 2017

Periods included: 10

Cross-sections included: 8

Total panel (balanced) observations 80

ROA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
CR	-.0331913	.0118825	-2.79	0.007	-.0568844	-.0094981
LQ	-.0340023	.0157537	-2.16	0.034	-.0654143	-.0025904
RE	.1004717	.045544	2.21	0.031	.0096596	.1912839
SR	.0385855	.0557374	0.69	0.491	-.0725516	.1497227
TPR	.0028066	.0084455	0.33	0.741	-.0140333	.0196466
UR	.0340382	.0218363	1.56	0.123	-.009502	.0775785
CS	-.1895721	.0328198	-5.78	0.000	-.2550129	-.1241312
LnTA	.0255012	.0041612	6.13	0.000	.017204	.0337985
_cons	-.1554763	.0630218	-2.47	0.016	-.2811382	-.0298143

*Source: Own computation from the financial statements using stata14.*

Table 4.10 above shows that four explanatory variables had significant impact on financial performance of Ethiopian insurers. The significant variables are credit risk, liquidity risk, reinsurance risk, claim settlement risk and company size since the p-value for those variables were 0,007, 0.034, 0.031, 0.000 & 0.000, respectively.

The negative coefficient of explanatory variables against financial performance are; claim ratio (-0.18957), liquidity risk ratio (-0.034) and, credit risk (-0.03319). On the other hand, variables like company size (0.0255), change in net written premium (0.034), solvency risk (0.0385), technical provision ratio (0.00281), reinsurance risk (0.10047) had a positive coefficient.

## **4.6 Discussion of Regression Result**

### **4.6.1. Technical provision Risk and Return on Asset**

Technical provision risk is that the insurance companies' liability to policyholders could be understated or overstated. The liability level is determined by actuarial methods and it depends on future liabilities and structure of insurance portfolio. The high level of technical reserve risk indicator may signal a bad use of capital resources. On the other hand low level of technical reserve risk indicates the insurer unable to pay its obligation in a proper manner this may exposed it to liquidity problem and can lose its clients easily. The most common technical reserve risk in insurance is outstanding claim reserve risk. Outstanding claims reserve is considered riskier than ordinary long-term corporate debt since neither the magnitude nor the timing of the cash flows is known.

The regression result of this study shows that the coefficient of technical provision which is measured by outstanding claim reserve to equity was positive coefficient (0.00281), which implies that if technical reserve increase by 1 unit, ROA will also increase by (0.00281) units assuming that the remaining independent variables are unchanged. The result of (p-value = 0.741) was statistically not significant both at 1% and 5% significance level. It indicates that when companies holding high/low reserves for outstanding claims; it will have not a significant impact on their financial performance. **More justification**

#### **4.6.2. Company Size and Return on Asset**

The size of the firm affects its financial performance in many ways. 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.

Company size is computed as logarithm of total assets of the insurance company. The regression result of this study show that the variable company size is positively coefficient (0.0255) related to financial performance that means if the size of the company increase by 1 unit, ROA will also increase by (0.0255) units considering that other independent variables remain constant. It also statistically significant (p-value=0.0000) at a 1% level of significance. This indicates that large volume of total asset has a significant effect on insurers' financial performance. Financial performance is likely to increase in large size company; because large insurance companies normally have greater capacity for dealing with adverse market fluctuations than small insurance companies and have more economies of scale, complex information systems and a better expenses management.

The finding of this study is matching with, Malik (2011), Mehari et al. (2013) Chen & Wong (2004) and Shiu (2014). They revealed that large corporate size enables to effectively diversify their assumed risks and respond more quickly to changes in market conditions. An increase in total asset such as the establishment of more branches and the adoption of new technologies enables an insurer to underwrite more policies which may increase the underwriting profit and the total net profit.

Hence, this study supports the hypothesis that company size has a significant positive effect on insurers' financial performance in Ethiopia and so there is no evidence to reject the null hypothesis.

#### **4.6.3. Reinsurance Risk and Return on Asset**

Insurance companies usually take out reinsurance cover to stabilize earnings, increase underwriting capacity and provide protection against catastrophic losses; nevertheless it involves a certain costs. Retention ratio is retained premiums to gross written premiums this means the

amount of liability for which an insurance company will remain responsible after it has completed its reinsurance arrangements.

From the regression result of reinsurance risk (RIR) has a positive relationship with Ethiopian insurance companies' performance by a coefficient estimate of (.1004717). This means that keeping other independent variables constant and when one percent increases in retention ratio, as a result it enhances return on asset (ROA) of Ethiopian insurance companies by 10.04% and the p-value of RIR is (0.031) reveals that it is statistically significant at 5% significance level and the result supported the workable hypothesis that reinsurance risk has positive significant effect on performance of insurance companies in Ethiopia for the period of 2008 to 2017. Result indicated that reinsurance dependency ratio has negative effect on insurers' profitability and implying that retention ratio has positive impact on insurers' financial performance. The result is consistent with prior studies with Shiu (2004) . The random effect regression output also the same with the researcher expected hypothesis as reinsurance risk (retention ratio) has positive and significant impact on Ethiopian insurers' financial performance. Consequently, the null hypothesis failed to reject.

#### **4.6.4. Liquidity Risk and Return on Asset**

The liquidity of insurer is evaluated based on their current liabilities (including unearned premiums and provisions for claims) and the ratio of liquid assets, defined according to different concepts, from cash and cash equivalents, up to short term securities. The study employed the liquidity ratio which can easily express the liquidity risk that is current asset is a base for current liability which computed as current liabilities to current asset.

The regression result in this study indicates that the relationship between liquidity risk and financial performance is negative coefficient ( -0.0340023) this shows when liquidity ratio goes up by 1 unit, on average return on asset will goes down by (-0.0340023) units provided that other independent variables are constant. This result shows that it is statistically significant at 5% level of significance. Accordingly, the result supported the working hypothesis that liquidity risk has negative and statistically significant effect on performance of insurance companies in Ethiopia for the period of 2008 to 2018. This finding is consistent with previous studies of Adrian (2014) and Abate (2012) found out liquidity risk is one of the most significant variable that adversely affect

the profitability of insurance companies. On contrary, (Arif et al. (2015); Amal (2012) and Suheyli (2015)) concluded that liquidity risk has a positive and significant association with performance of insurance companies who argue that the more liquid insurance company can get the better they meet their claims.

Meanwhile, (Yuvaraj et al. (2013); Daniel et al. (2013); Mirie (2015); Hadush (2015); Meaza (2014) and Mistre (2015)) concluded that liquidity has no significant impact on the profitability of insurance companies.

The study finding implies that an increase in liquidity, definitely lead to a decrease in performance of Ethiopian insurance companies. It refers that holding of excess cash brings less profitable if the insurance companies don't invested to increase income.

This finding is in line with the expectation and it corroborates finance theory of a negative relationship, which brought about profitability with liquidity trade-off (James et al., 2014). If the insurance companies do not invest sufficient funds in current assets, it may become illiquid and therefore it is risky. Also, with huge investment in current assets, the insurance companies would lose profitability, as idle current assets would result in unbearable opportunity cost. This would be a consequence of the fact that current assets are usually the less profitable than the fixed assets. Thus, insurance companies holding more liquidity could not be more profitable if they couldn't invest their excess of cash in other investment sector.

#### **4.6.5. Claim Settlement Risk and Return on Asset**

The multiple regression result of this study explains that claim settlement risk measured by claim ratio (net claims incurred to net earned premium) has a negative and significant relationship with financial performance (ROA) of Ethiopian insurance company, since the beta coefficient and p-value of claim ratio are (-.0331913) and (0.007) respectively. The negative coefficient indicates that keeping other independent variables constant when claim ratio increase by 1 unit ROA will decrease by (-.0331913) unit. The result is identical with (Pervan et al. (2012); Mirie& Cyrus

(2014) and Yusuf (2014)). Insurance firms with higher claim ratios should be at greater risk of insolvency. Conversely, one might expect that firms with lower loss ratios should be better performers, all else equal (Kevin, 2009). Claims erode earnings, and hence the lower the loss ratio, the higher the financial performance. For these reasons, the claim settlement risk and insurance financial performance has a negative relationship and affects significantly.

However many of the scholar 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.

The regression output also the same with the expected hypothesis as claim settlement risk (claim ratio) has negative and significant impact on Ethiopian insurers' financial performance. The hypothesis can't be rejecting because of the same negative impact as expected.

#### **4.6.6. Underwriting Risk and Return on Asset**

The coefficient of underwriting which was positive coefficient (.0340382) that denotes if the net written premium growth rate goes up by 1 unit, ROA will increase by (.0340382) or holding other independent variables constant and when one percent increases in underwriting risk, consequently it reduces return on asset (ROA) of Ethiopian insurance companies by 3.40382 percent. Probability value of net written premium growth rate was (p-value= 0.123) which was not statistically significant even at 10% significance level. Thus the growth rate of net premium was not influential factor of Ethiopian insurance financial performance.

The study finding is consistent with previous studies of mirie (2015) and Arif et al. (2015) result showed that underwriting risk had insignificant effect on insurance company's performance. The possible reason for the result as observed by the researcher is that amount of premium earning was higher than the loss incurred during their study period, for this reason underwriting risk could not have significant effect on profit.

However, it is contradict with Lee (2014), Burca&Batrinca (2014). They concluded that underwriting risk has a negative influence on the insurer's profitability, since taking an excessive underwriting risk can affect the company's stability through higher expenses.

Thus, this study doesn't supports the hypothesis that negative impact of underwriting risk on insurance companies financial performance and also insignificant against the expected result.

#### **4.6.7 Credit risk and Return on Asset**

According to the regression result of credit risk (CR) has a negative relationship with Ethiopian insurance companies' performance by a coefficient estimate of (-.0331913). This means that holding other independent variables constant and when one percent increases in credit risk, consequently it reduces return on asset (ROA) of Ethiopian insurance companies by 3.319% and the p value of credit risk (CR) is 0.007 reveals that it is statistically significant at 1% level of significance. Accordingly, the result supports the working hypothesis that credit risk has negative and statistically significant effect on performance of insurance companies in Ethiopia for the period of 2008 to 2017. Thus, this outcome is consistent with prior study of Jamal et al. (2014) that point out the negative significant effect of credit risk on performance.

As implied from the above finding, credit risk is adversely affecting the performance of the insurance companies during the study period in Ethiopia. Hence, the possible reason is associated with the sales of premium on credit bases to the customers who is likely fail to pay their debt to the insurance companies on due date. As the sale on credit of the premium increase their profitability decline significantly. Additionally, not tracking uncollectable who past due and aged plays their fair share in adversely affecting the profitability of the insurance companies. Accordingly, the inability of the reinsurers to pay the claimed amount is increasing significantly as indicated on the financial statement of Ethiopian insurance companies. Hence, the payment requests by Ethiopian insurance companies usually are significant and may to the extent jeopardize insurance companies to considerable credit risk if not received promptly.

Even though, the permission of NBE to provide credit service to government organs meant to decrease the possibility of credit risk, the delay in payment of debt by government organs due to budget constraint as well as luck of advanced receivable management is increasing the outstanding balance of receivables significantly.

Furthermore, the considerable amount of other receivables such as guarantees, customs bond and other loans are trending upwardly. Hence these may create the probability of the insurance

companies to encounter credit risk. The effect of credit risk being a financial risk factor in adversely affecting the performance of insurance companies in Ethiopian.

#### **4.6.8 Solvency risk and Return on Asset**

In accordance with the regression result of solvency risk (SR) has a positive relationship with Ethiopian insurance companies' performance by a coefficient estimate of (.0385855). This means that holding other independent variables constant and when one percent increases in solvency risk, as a result it increase return on asset (ROA) of Ethiopian insurance companies by 3.85855 % and the p value of SR is 0.491 discloses that it is statistically insignificant at 5% level of significance and the result doesn't supported the working hypothesis that solvency risk has negative and statistically significant effect on performance of insurance companies in Ethiopia for the period of 2008 to 2017.

The result is inconsistent with the earlier studies of Arif et al. (2015) and Adrian (2014). for this reason solvency risk could not have significant effect on profitability of insurance company in Ethiopia.

By and large this chapter offered the results of the structured recorded data reviews and in depth interview and then discussed the analysis of these results together. From the above data analysis, Ethiopian non-life insurers' financial performance is highly affected by all variables included in this study except claim settlement risk and underwriting risk. The findings of the study showed that liquidity risk and technical reserve risk have statistically significant and negative relationship with Ethiopian non-life insurers' financial performance. However, claim settlement risk has negative and insignificant relationship with financial performance. On the other hand, variables company size and reinsurance risk have a positive and statistically significant relationship with Ethiopian non-life insurers' financial performance.

$$ROA_{it} = \beta_0 + \beta_1 LQ_{i,t} + \beta_2 CR_{i,t} + \beta_3 SL_{i,t} + \beta_4 TPR_{i,t} + \beta_5 CS_{i,t} + \beta_6 RR_{i,t} + \beta_7 UR_{i,t} + \beta_8 SZ_{i,t} + \varepsilon$$

Source: developed by researcher by reviewing previous research works.

Where; ROA = Return on asset;

CR = credit risk;

UR = Underwriting risk;

RR = Reinsurance risk;

LQ = Liquidity risk;

TR = Technical provision risk;

SL= solvency risk;

SZ = Company size;

CS=claim settlement risk;

$\varepsilon$  =is the error component for company i at time t assumed to have mean zero  $E[\varepsilon_{it}] = 0$

$\beta_0$ = Intercept

$\beta = 1, 2, 3 \dots 8$  are parameters to be estimated;

i = Insurance company  $i = 1 \dots 8$ ; and t = the index of time periods and  $t = 1 \dots 10$

As a result of regression analysis, shown in table 4.7 above, the established regression equation is:  
 $ROA_{it} = -0.15547 - 0.034LQ_{i,t} - 0.0332CR_{i,t} + 0.03858SL_{i,t} + 0.00281TPR_{i,t} - 0.18957CS_{i,t} + 0.10047RR_{i,t} + 0.03403UR_{i,t} + 0.0255SZ_{i,t}$

Source: developed by researcher by reviewing previous research works.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATION

This is the last chapter of the research paper and it comprehensively summarizes the whole chapters of the research paper and followed by the conclusion of the study by concluding the major findings of the study. The last part forwards some recommendations that are thought to be practical and feasible.

#### 5.1. Summary

The research general objective was to examine the effect of financial risk on the performance of insurance companies in Ethiopia. The study used ten (10) years period of time from 2008-2017 data from eight (8) selected insurance companies in Ethiopia. It carried out by constructing a balanced panel regression model using OLS and as per the Hausman test, random effect model was adopted for secondary data obtained from audited annual report.

During the study period Ethiopian insurers maintained an average financial performance (return on asset) ratio of (9.1%). The mean value of the liquidity measured by liquidity ratio was (1.04) that was less than the required standard of (1.05). The average value of technical reserve as measured by the ratio of safety for net outstanding reserve to equity was (0.6932). The mean of the logarithm of total assets during the period was (12.407). The average (0.644) of claim ratio fits the expected standards of not more than (0.70%). The mean of reinsurance risk as a proxy by net written premium to gross written premium was (74.3%) which is slightly higher than the maximum acceptable standard of (70%).

The study also revealed that there was a joint significant relationship between the risk management variables and Ethiopian insurers' financial performance. However, the individual relationship differs a bit. Like, underwriting risk, solvency risk and technical provision risk have no strong relationship with return on asset. The results of the regression analysis showed positive relationship between the ratio of company size (LnTA) and ROA with strong statistical significance. This shows that as company size increases certainly will improve the insurers' financial performance. This indicates that as larger insurance companies of the country experience significantly increases in financial performance through economies of scale. The credit risk has a negative impact on ROA. This implies that higher level of credit risk results in lower financial performance.

In general, the regression result shows, credit risk, liquidity risk, claim settlement risk had negative and significant effect on Ethiopian insurers' performance whereas, reinsurance risk and company size had positive and significant effect on Ethiopian insurance companies' performance. Other than the above mentioned explanatory variables other variables included in the model doesn't have significant influence in Ethiopians insurance financial performance.

## **5.2. Conclusion**

The study revealed that company size, liquidity risk, claim settlement risk, reinsurance risk and credit risk were the most influential factors of Ethiopian insurance financial performance proxy with ROA. Giving to the result, the researcher concluded that the main risk factors that affect the ROA of Ethiopian insurance company were company size, liquidity risk, claim settlement risk, reinsurance risk and credit risk. This conclusion implies that insurance companies with large total asset, less credit risk, low liquidity ratio, and high retention ratio and less claim settlement risk had more profitable than insurance companies with less total asset, high credit risk, high liquidity ratio, low retention ratio and high claim settlement risk. In general managing insurers risk by itself is difficult task as managing one risk solely may affect the other risks in negative way, so managing risks in insurance companies should goes hand to hand with each other and balancing accordingly is a mandatory. This means enterprise risk management (the enterprise risk management (ERM) theory greatly looks to exert influence on the Ethiopian insurers risk management. It is, therefore, important for this industry to be focused on the integration of the whole company's risks.

The result indicates negative and significant association between credit risk and Ethiopian insurance companies' performance which implies the increase in credit risk inevitably lead to a decline in the performance of the insurance companies due to the likely hood of debtors failing to honor their obligation to the insurance company.

Liquidity risk has also negative and significant association with Performance of Ethiopian insurance companies. This implies that an increase in liquidity, definitely lead to a decrease in performance of Ethiopian insurance companies. It refers that holding of excess cash and failed to invest on the available investment lead to the consequence of losing an opportunity of making additional revenue.

Reinsurance proxy by (retention ratio) has positive and significant effect on Ethiopian insurance companies' performance. This implies that an increase in reinsurance (retention ratio), certainly lead to an increase in performance of Ethiopian insurance companies. Even though, reinsurers buffer insurance companies against huge losses, most of the significant claims have been covered by Ethiopian insurance companies. The infant stage of industry sector in the economy made the effect of reinsurance on performance of Ethiopian insurance companies is unlikely.

Solvency risk has shown insignificant and positive relationship with performance of Ethiopian insurance companies. This implies that an increase in solvency risk, certainly not lead to a decrease in performance of insurance companies. It means that higher debt to asset ratio doesn't leads to a need of external funding and therefore performance of Ethiopian insurance companies couldn't be affected adversely.

Technical provisions risk has positive and insignificant influence on Ethiopian insurance companies' performance. This implies that an increase in technical provision risk, certainly not lead to a decrease in performance of Ethiopian insurance companies. This entails that companies holding insufficient provision for outstanding claim would have not a negative impact on Ethiopian insurance companies' performance.

Underwriting risk has positive and insignificant relationship with Ethiopian insurance companies' performance. This implies that an increase in underwriting risk, certainly not lead to a decrease in performance of Ethiopian insurance companies.

In general, reinsurance risk and size of company show positive and statically significant association with performance of Ethiopian insurance company, whereas, credit risk, claim settlement risk and liquidity risk had negative and statically significant effect on performance but other explanatory variables such as underwriting risk, solvency risk and technical provision risk have not a statically significant effect on the performance of insurance company.

### **5.3. Recommendation**

Ethiopian insurance companies should pay greater attention to the significant variables of credit risk and company size, in order to exceed their financial performance. Based on the findings which are obtained from regression analysis, the researcher has drawn the following recommendations.

- ✓ The analysis indicated that credit risk had negative and significant effect on Ethiopian insurance companies' performance. Thus, Ethiopian insurance companies should manage their receivable amount properly through providing payment arrangement for their debtors which is suitable to pay their debt. By categorizing each debtor's outstanding receivable

balance with their period, Ethiopian insurance companies can offer different mode of repayment for debtors to pay their obligation. For instance, for long period of outstanding receivable balance, insisting the debtors to pay their total debt in installment on certain period of time, it could be quarterly, semiannually or annually. In addition, Ethiopian insurance companies should select reinsurer companies listing in best grading level internationally based on their performance.

- ✓ The researcher recommends the National Bank regulation to continue as it is restriction of policy issuance on credit which is not applicable to federal or regional government organs. By doing so, Ethiopian insurance companies can reduce the effect of credit risk for their performance.
- ✓ Concerning the company size insurers should increase their asset volume with putting in mind that as some times firms become larger they might suffer on inefficiencies and this leading to inferior financial performance.
- ✓ The researcher encourages NBE's Directive No. SIB/25/2004 as it enforces the insurers to have substantial amount (65%) of their admitted asset in the form of cash and short term securities. However, as shown in the descriptive part in previous chapter, the sector was not liquid (1.04) this indicates that NBE should follow continuously for the application of this directive.
- ✓ The researcher also recommends the regulatory body (NBE) regarding technical reserve, Directive No. SIB/38/2014, should be revise because it enforces the insurers to hold 100% reserves for claims under litigations, the researcher believe that this is not fair as the chance for both win and defeat is 50% the reserve also should be 50% in order to provide equitable reserve. Moreover, regarding this risk the regulator have to minimize the licensing requirements for surveyors, loss assessors and adjustors as there is shortage of loss assessor, surveyors and no loss adjustor in the country.



## Reference

- Abate, G.(2012).Factors Affecting Profitability of Insurance companies in Ethiopia. Unpublished. Master's Thesis Addis Ababa University.
- Adams, M. & Buckle, M. (2003).The determinants of corporate financial performance in the Bermuda insurance market. *Applied Financial Economics*, Routledge, 13, 133-143.
- Adrian, R. (2014). The Relationship between Financial Risk and Financial Performance insurance companies in Kenya.Unpublished Master's Thesis.University of Nairobi.
- Amal, Y. (2012). Factors Affecting the Financial Performance of Jordanian Insurance Companies Listed at Amman Stock Exchange. *Journal of Management Research*, 4(2), 266-289.
- Anthony, M. & David, F. (1997). Financial Risk Management by Insurers: An Analysis of the Process. *The Journal of Risk and Insurance*, 64(2), 231-270.
- Arif, A. & Showket, A. (2015). Relationship between Financial Risk and Financial Performance: An Insight of Indian Insurance Industry. *International Journal of Science and Research*, 4(11), 1424-1433.
- Barges, A. (1963). The effect of capital structure on the cost of capital: a test and evaluation of the Modigliani and Miller propositions. Englewood Cliffs, NJ, Prentice-Hall.
- Charumathi, B. (2012). Determinants of Profitability on Indian Life Insurers; Empirical Study Proceedings of the World Congress on Engineering, Vol. 1, London, UK.
- Committee of Sponsoring Organizations (COSO), (2004).Enterprise Risk Management-Integrated Framework Executive Summary.
- Cummins, D. & Nini, G. (2002). Optimal Capital Utilization by Financial Firms: Evidence from the Property-Casualty Insurance Industry. *Journal of Financial Services Research*, 21(1/2), 15-53.

- Daniel, M. and Tilahun, A. (2013). Firm specific factors that determine insurance companies' in Ethiopia. *European Scientific Journal*, 9(10), 245-255.
- Emine, O. (2015). The Effects of Firm-Specific Factors on the Profitability of Non-Life Insurance Companies in Turkey. *International Journal of Financial Studies*, 3, 510-529.
- 
- Eneyew, L. (2013). Financial Risks and Profitability of Commercial Banks in Ethiopia. Unpublished Master's Thesis. Addis Ababa University.
- Ernst & Young (2010). Analysis and valuation of insurance companies. Center for Excellence in Accounting & Security Analysis, Columbia Business School.
- Fama, E. & Jensen, M. (1983). Agency Problems and Residual Claims. *Journal of Law and Economics*, 26(2), 327-349.
- Gabriel, S. & Gheorghe, V. (2008). Lesson from the current financial crisis. A risk management approach.
- Gerald, K. & Ulrike, O. (2001). Systemic Risk Factors in the Insurance Industry and Methods for Risk Assessment.
- Giovanni, M. (2001). Technical provisions in non-life insurance. Conference of the insurance supervisory authorities of the member states of the European Union.
- Gordon, L., Loeb, M., & Tseng, C. (2009). Enterprise Risk Management and Firm Performance: A Contingency Perspective. *Journal of Accounting and Public Policy*, 28, 301-327.
- Hadush, G. (2015). Determinants of Profitability on Insurance Companies in Ethiopia. Unpublished Master's Thesis. Addis Ababa University.
- Hailu, Z. (2007). Insurance in Ethiopia: Historical Development, Present Status and Future Challenges. Addis Ababa, Ethiopia. Master Printing Press P.L.C.
- Hifza, M. (2011). Determinants of insurance companies' profitability: an analysis of insurance sector of Pakistan. *Academic Research International*, 1(3), 315-321.

- Hinson, D & Kowalski, L. (2008). Roles and Responsibilities for Contingency Planning. London: UCL Press.
- Ijaz, H. (2015). Macro economy and profitability of insurance companies: a post crisis scenario in Pakistan. Pakistan business review, 243-263.
- Jacques, K. & P. Nigro, (1997). Risk-Based Capital, Portfolio Risk and Bank Capital: A Simultaneous Equations Approach. Journal of Economics and Business, 49, 533-547.
- Jakovcevic, D. & Mihelja, M. (2014). Underwriting Risks as Determinants of Insurance cycles: Case of Croatia. International Journal of Social, Behavioral, 8(5), 1251-1258.
- Jasmina, S. (2003). Actuarial estimation of technical provisions adequacy in life insurance companies. School of Economics and Business in Sarajevo, Bosnia and Herzegovina, 523-533.
- Kadi, J. (2003). Risk Management. Heinemann Higher and Further Education (PTY) Ltd.
- Kithinji, A. (2010). Credit Risk Management and Profitability of Commercial Banks in Kenya. Unpublished Master's Thesis. University of Nairobi.
- Lee, H. (2012). An analysis of reinsurance and firm performance, Evidence from the Taiwan property-liability insurance industry.
- Liargovas, P. & Skandalis, K. (2008). Factor affecting firms' financial performance: The Case of Greece, Athens: University of Peloponnese Press.
- Malhotra, N. (2007). Marketing Research: An applied orientation, 5th ed., PHI, New Delhi
- Mirie, M. and Cyrus, I. (2014). Determinants of financial performance of general insurance underwriters in Kenya, International journal of business and social science, 5 (13).
- Meaza, M. (2014). Determinants of Profitability on Insurance Companies in Ethiopia. Unpublished Master's Thesis. Addis Ababa University.

- Mirie, M. (2015).Determinants of financial performance in general insurance companies inKenya. European Scientific Journal, 11(1), 288-297.
- Mistre, S.(2015).DeterminantsofProfitabilityonInsurance Companies in Ethiopia.Unpublished Master’s Thesis.Addis Ababa University.
- National Bank of Ethiopia (NBE), (2010).Risk Management Guideline for insurance Companies in Ethiopia.
- National Bank of Ethiopia (NBE), reinsurance company establishment directive (SRB/1/2014), Addis Ababa.
- National Bank of Ethiopia (NBE), minimum paid up capital directive (SIB/34/2013), Addis Ababa.
- NBE proclamation, 746/2012. Addis Ababa.
- Parsons, C. (2005). Chartered Insurance Institute (CII) Course book, Insurance Law, CII learning solutions.
- Patrick, A. (2015). Influence of risk management of life assurance firms in Kenya: a survey study of Kisii country. International Journal of Economics, Commerce and Management, 3(5), 978-996.
- Ralph, C. (2000). Failures in Risk Management.England Economic Review.
- Rejda, E. (2003). Principles of Risk management and Insurance: New York, Pearson education Inc.
- Shiu, Y. Determinants of United Kingdom general insurance company performance: British Actuarial Journal, 10, ( 5), 1079-1110, 2004.
- Swiss Re (2008), Profitability of Non-Life Insurance Industry, Egypt, Available At [Www.Insureegypt.Com](http://Www.Insureegypt.Com)

Stulz, R. (1984). Optimal hedging policies. *Journal of Financial and Quantitative Analysis*, 19, 127-140

Tseng, C. (2007). *Internal Control, Enterprise Risk Management, and Firm Performance*  
Unpublished PhD Dissertation Department of Accounting and Information Assurance.  
Robert H. Smith School of Business.

William, G. Zikmund, Barry, J. Babin, C and Mitch, G. (2010). *ResearchBusiness Methods*,  
8 edn. Canada.