



**ST.MARY'S UNIVERSITY SCHOOL OF GRADUATE  
STUDIES**

**FACTORS AFFECTING FINANCIAL PERFORMANCE OF  
ETHIOPIAN INSURANCE COMPANIES**

**By  
SEBLEWENGEL AIMRO**

**MAY, 2018  
ADDIS ABABA, ETHIOPIA**

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**A THESIS SUBMITTED TO ST.MARY'S UNIVERSITY, SCHOOL  
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**MAY, 2018  
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## DECLARATION

I, the undersigned, declare that this thesis is my original work, presented under the guidance of Asmamaw Getie (Asst.Prof.). All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher institution for the purpose of earning any degree.

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**St. Mary University, Addis Ababa**

**May, 2018**

## ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as a university advisor.

Asmamaw Getie (Asst.Prof.) \_\_\_\_\_

Advisor Signature

**St. Mary University, Addis Ababa**

**May, 2018**

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## List of Acronyms

ARCH	Autoregressive Conditional Heteroscedasticity
CLRM	Classical Linear Regression Model
CR	Credit risk
DW	Durbin–Watson
GDP	Gross Domestic product
JB	Jarque Bera
LR	Liquidity risk
NBE	National Bank of Ethiopia
OLS	Ordinary Least Square
RIR	Reinsurance risk
RMPs	Risks management programs
ROA	Return on Assets Ratio
SAM	Solvency Assessment and Management
SR	Solvency risk
TPR	Technical provision risk
UIC	Uganda Insurance Commission
UR	Underwriting risk

## Abstract

*Factors' affecting financial performance of Ethiopian insurance companies has been considered to be an important issue on financial performance of Ethiopian insurance companies. This study empirically examines factors that affecting financial performance of insurance companies in Ethiopia and interprets the result by relating with the regulations. The study used balanced data model in examining the regression model and collect data from eight insurance companies covering the period of eighteen (18) consecutive years, 2000-2017. To this end, the study employed quantitative research approach by reviewing documentary analysis. The study used panel data techniques specifically fixed effect model on the regression analysis and used E-view8 software. The study used one dependent variable return on asset (ROA), eight independent variables that are Credit risk, liquidity ratio, reinsurance dependence, company size, technical provisions risk, underwriting risk, inflation rate and deposit interest rate. The regression result show that credit risk, liquidity ratio, underwriting risk and technical provisions risk show negative and significant effect at 5% significance level on financial performance of insurance companies in Ethiopia, In addition company size and deposit interest rate have positive and significant effect at 5% significance level on financial performance of insurance companies in Ethiopia, Whereas reinsurance dependency and inflation has insignificant effect at 5% significance level on performance of insurance companies. The research concluded that factors affecting on the performance of Ethiopian insurance companies has significant effect on the performance of Ethiopian insurance companies. Hence, the study recommend in support of each variables for Ethiopian insurance companies to give due attention on factors affecting of financial performance to enhance their performance significantly.*

***Key words: Ethiopian Insurance Companies, Financial Performance, ROA***

# CHAPTER ONE

## INTRODUCTION

### 1.1. Background of the study

Performance of insurance companies has gained the momentum from the last couple of years, because insurance sector is not only an avenue for money saving, but also serves as a vehicle to channel funds in an appropriate way from surplus economic sectors to deficit sectors so as to support the investment activities in the economy. Their available resources to generate more revenues. The financial performance measures the financial soundness and health of the organization in monetary terms and thus, can be used to compare the performance of different corporations within any particular industry or between the industries. The financial performance of the insurance companies plays a pivotal role in the growth of the industry as a whole, which ultimately contributes to the success of an economy (Arifet al., 2015).

Research surveyed by Naved (2011), reveals that the efficiency of financial intermediation and transfer of risk can affect economic growth while at the same time institutional insolvencies can result in systemic crises which have unfavorable consequences for the economy as a whole. Hence, the important role that financial institutions such as insurance companies remain in financing and insuring economic activity and contribute to the stability of the financial system in particular and the stability of the economy of concerned country in general is part of immune and repair system of the economy. The insurance sector plays important role in the financial services industry in almost developed and developing countries, contributing to economic growth, efficient resource allocation, reduction of transaction costs, creation of liquidity, facilitation of economics of scale in investment, and spread of financial losses (Haiss et al., 2008).

According to Hifza (2011), profitability is one of the most important objectives of financial management since one goal of financial management is to maximize the owners' wealth, and profitability is very important determinant of performance. A business that is not profitable cannot survive. Conversely, a business that is highly profitable has the ability to reward its owners with a large return on their investment.

Hence, the ultimate goal of a business entity is to earn profit in order to make sure the sustainability of the business in prevailing market conditions Haifa (2011), Pandey(1980), defined the profitability as the ability of a business, whereas it interprets the term profit in relation to other elements. A financial benefit is realized when the amount of revenue gained from a business activity exceeds the expenses, costs and taxes needed to sustain the activity. Although there are numerous approaches, generally, insurers' profitability is estimated through the examination of premium and investment income and of the underwriting results or of the overall operating performance.

The performance of any business firm not only plays the role to increase the market value of that specific firm but also leads towards the growth of the whole sector which ultimately leads towards the overall prosperity of the economy. Assessing the determinants of performance of Insurers has gained the importance in the corporate finance literature because as intermediaries, these companies are not only providing the mechanism of risk transfer, but also helps to channelize the funds in an appropriate way to support the business activities in the economy. However, it has received little attention particularly in developing economies (Ahmed et al., 2011).

The important role that financial institutions such as insurance companies remain in financing and insuring economic activity and contribute to the stability of the financial system in particular and the stability of the economy of concerned country in general is part of immune and repair system of the economy. Therefore it requires empirical investigation so as to sort out what are the important factors affecting profitability of insurance companies and this are help concerned bodies to focus on the relevant factors. Hence, the efficient performance of the institutions has become important and investigations by different researchers focus on what factors determine the performance especially the financial performance of the sector Yuvaraj et al, (2013).

Therefore, from above expression it can be inferred that, the current business world without financial institutions such as insurance companies is unsustainable because in one way, it is a normal practice that some economic units are in surplus while the others remain in deficit and in the other way risky businesses have not a capacity to retain all types of risk in current extremely uncertain environment. There has been a growing number of studies recently that test for

measures and determinants of firm profitability. Financial industry's profitability has attracted scholarly attention in recent studies due to its importance in performance measurement. However, in the context of the insurance sector particularly in developing countries or emerging markets like Ethiopia it has received little attention. Therefore it requires empirical investigation so as to sort out what are the important factors affecting Financial Performance of insurance companies and this are help concerned bodies to focus on the relevant factors.

To this end, this study examined factors affecting financial performance of insurance company's in Ethiopia and useful for investors, researchers, financial analysts and supervisory authorities.

### **1.1.1 Overview of the Ethiopian Insurance Industry**

The Ethiopian insurance industry does not have a long history of development despite the country's long history of civilization. Modern forms of insurance service which were introduced in Ethiopia by Europeans, trace 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. The number of insurance companies increased significantly and reached 33 in 1960. At that time insurance business like any business undertaking was classified as trade and was administered by the provisions of the commercial code. This was the only legislation in force in respect of insurance except the maritime code of Ethiopia that was issued to govern the operations of maritime business and the related marine insurance. The law required an insurer to be a domestic company whose share capital (fully subscribed) to be not less than Birr 400,000 for a general insurance business and Birr 600,000 in the case of long-term insurance business and Birr one million to do both long-term & general insurance business. Non-Ethiopian nationals were not barred from participating in insurance business. However, 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 national companies.

Four years after the enactment of the proclamation, the military government that came to power in 1974 put an end to all private entrepreneurship. Then all insurance companies operating were

nationalized and from January 1, 1975 onwards the government took over the ownership and control of these companies & merged them into a single unit called Ethiopian Insurance Corporation. The insurance sector during the command economic system was characterized by monopoly of the sector by the government, lack of dynamism and innovation, volatile premium growth rates and reliance on a couple of classes of insurance business (motor and marine) for much of gross premium income. The nationalization of private insurance companies, the restrictions imposed on private business ventures, and management of the insurance sector had significant adverse impact on the development and growth of Ethiopian insurance industry Hailu, (2007). However, following the change in the political environment in 1991, the proclamation for the licensing and supervision of insurance business No. 86/1994 heralded the beginning of a new era. Immediately after the enactment of the proclamation private insurance companies began to flourish. According to the directive of ISB/34/2014, any insurance company required to be a domestic company whose share capital (fully subscribed) to be not less than Ethiopian Birr 60m for a general insurance business and Ethiopian Birr 15m in the case of long term (life) insurance business and Ethiopian Birr 75m to do both long term & general insurance business.

Today the total number of insurance companies, branches and their capital increased significantly. At 2016/17, there are seventeen insurance companies in operation. Ethiopian Insurance Corporation (EIC) is state owned while the rest are private. Number of branch reached 492 in 2017. Total Capital of the sector is 4.33 billion in 2016/17, which is increasing 20% from previous year total Capital of the sector i.e. 3.59 billion (NBE, annual report 2016/17)

## **1.2. Statement of the problem**

Insurance plays a significant role in a country's economic growth and offers financial protection to an individual or firm against monetary losses suffered from unforeseen circumstances Kihara(2012). This is because the world is characterized by risks and uncertainties and insurance has evolved as a way of providing security against the risks and uncertainties. In this context, it is crucial to know what drives insurers' profitability. Profitability is propulsive element of any investments in different projects and relative measure of success for a business; it is the efficiency of a company or industry to generate earnings.



According to Swiss (2008), insurers' profitability is determined first by underwriting performance (losses and expenses, which are affected by product pricing, risk selection, claims management, and marketing and administrative expenses); and second, by investment performance, which is a function of asset allocation and asset management as well as asset leverage.

Khan (2013) revealed that leverage, size, earnings volatility and age of the firm are significant determinants of profitability while growth opportunities and liquidity are not significant determinants of profitability. A study of Ahmed (2008) examined the determinants of insurers' profitability indicated that size, volume of capital, leverage & loss ratio are significant determinants of profitability.

Other studies conducted in the area of insurers' profitability Curak, (2012); Shiu Maria (2014); and Ghiorghe, (2014) verified that there is a direct association between profitability of insurance companies and it's both internal and external determinants. Even though, all these and other researchers conducted study on this area, the determinants of profitability. They focused only on internal factors and have not considered external factors like macroeconomic (gross domestic products, Inflation) and basic internal factors like underwriting risk, operational, technical reserve, reinsurance risks and solvency ratio that are potentially accountable for determinant of insurers' profitability Lee(2014) and Shiu (2014).

Arifet al. (2015) and Amal (2012) imply that liquidity ratio had a positive and significant impact on performance of insurance companies. However, Adrian (2014) result showed that liquidity ratio negatively affected the performance of insurance companies. In contrary, Mirie (2015) investigated that liquidity ratio had no significant effect on performance of insurance companies.

Mirie (2015) and Arifet al. (2015) confirmed that underwriting risk had not significant effect on performance of insurance companies. Nevertheless, Hifza (2011); Emine (2015); Ana-Maria, et al. (2014); and Ijaz (2015) studies indicates underwriting risk had a negative and statistically significant effect on performance of insurance companies. Previous Empirical results in different hemisphere of the world indicate various out comes while using the same variables to examine the effect of factor affecting financial performance of insurance companies.

Prior studies, like Abate (2012); Yuvarajet al. (2013); Meaza (2014); Mistre (2015); Suheyli (2015) and Hadush (2015)) conducted on determinant of profitability in Ethiopian insurance companies and Daniel et al. (2013) studied on determinant performance in Ethiopia insurance companies. However, these studies did not examine the effect of credit risk (company specific factor) and deposit interest rate (macroeconomic factor) variable on financial performance of insurance companies in Ethiopia.

Hence, factors which affect financial performance of insurance companies have not been adequately investigated incorporating the above two variables and this study made a comprehensive research on financial performance determinants using both company specific factors and macroeconomic variables. Therefore, this research full fill the above explained gap by providing information about the internal and external factors that affects financial performance of the insurance companies by examining the untouched variables using all insurance companies operating in the country that have 18 years data.

### **1.3. Objective of the Study**

#### **1.3.1 General Objective**

The general objective of the study is to examine factors that affect financial performance of Ethiopian insurance companies.

#### **1.3.2 Specific Objectives**

The specific objectives of the study are;

- To examine the effect credit risk on financial performance of insurance companies in Ethiopia.
- To study the effect of liquidity ratio on financial performance of insurance companies in Ethiopia.
- To scrutinize the effect of reinsurance dependence on financial performance of insurance companies in Ethiopia.
- To analyze the effect company size on financial performance of insurance companies in Ethiopia.

- To investigate the effect technical provisions risk on financial performance of insurance companies in Ethiopia.
- To inspect the effect underwriting risk on financial performance of insurance companies in Ethiopia.
- To examine the effect inflation rate on financial performance of insurance companies in Ethiopia.
- To examine the effect deposit interest rate on financial performance of insurance companies in Ethiopia.

#### **1.4. Scope of the Study**

The study is limited on factors that affect the performance of Ethiopian insurance companies and made the analysis using secondary source of data. The study took in to account the performance of insurance companies for the last 18 years that is from 2000 to 2017. As a result, the research included insurance companies that started operation before 2000, which include one government 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 65% of the total population. The study used eight variables factors that affect the performance of Ethiopian insurance companies i.e. Credit risk, liquidity ratio, reinsurance dependence, company size, technical provisions risk, underwriting risk, inflation rate and deposit interest rate. As the result, these variables explained the topic properly by referring previous empirical works.

#### **1.5. Limitation of the Study**

The study focused on the factors mentioned in the scope of the study section however; there are other variables that have been used in literatures as determinant of insurance Financial Performance like, earning volatility, tangibility, age, retention ratio, expense ratio, asset quality and so on. Some variable like expense ratio was considered to be included in the study.

The study also limited to some of the macroeconomic variable like, inflation and Deposit interest rate, where as there are other macro variables that affect profitability such GDP, as money supply, unemployment rate etc...

The study used ROA as a measure of Financial Performance whereas there are other measures that can be used to measure profitability such as Return on equity, net profit margin profit, gross profit margin and operating profit margin ratios, return on investment;

But due to time and accessibility of the required financial information, the researcher was obliged not to include the factor as a study variable.

## **1.6. Significant of the Study**

Many parties are benefited from the findings that emerged from the results of the study and these are the following organs that are benefited;

Management: Administration could be interested in identifying indicators of success and failure to take the necessary actions to improve the performance of the company and choose the right decisions.

Government: Government might be concerned in knowing which companies operate successfully or failed to take the necessary measures so as to avoid crises of the bankruptcy in these companies.

Investors: Investors could be fascinated in such studies in order to protect their investment, and directing it to the best investment.

Customers: Customers may possibly involve in knowing the ability of insurance companies to pay their obligations based on the indicators of success of the companies.

Academician: academicians could have a chance to know factors that affecting performance of insurance companies which support students to be familiar with it and find out a solution on their teaching and learning process.

Moreover, this research have significant role to play in shading light on how to better understand what variables that are factors on Ethiopia insurance companies' performance. Additionally, this study will have a paramount importance in providing a better ground for insurance managers, business professionals, business initiatives and policy makers. Moreover, the research also contributes an insight point as a stepping stone for further study in the area to future researchers.

## **1.7. Structure of the study**

The research paper is organized in to five chapters. Chapter one is an introduction part where back ground of the study, research question, statement of the problem, objectives of the study, scope, significance and limitation of the study are presented. Chapter two is review of literature in which theories, empirical evidence and conceptual frame work are identified. Chapter three contained research methodology where research design, research approach, population, sampling method, sample size, sources of data, instruments, data analysis technique, model specification, variable definition and hypothesis development were covered. Chapter four focused on the results and discussion in which the findings results that are interpreted. Finally, Chapter five brought of research to an end with summary, conclusion and possible recommendation.

## CHAPTER TWO

### LITERATURE REVIEW

#### **2.1. Theoretical review**

This section reviews the basic theoretical issues related to insurance and insurer's profitability and its determinants. Hence, section 2.1.1 presents the role of insurance in the economy. Then, section 2.1.2 presents concepts of insurers' profitability. Finally, section 2.1.3 presents the theories related to insurer's profitability.

##### **2.1.1. Definition and Role of Insurance**

Insurance is the pooling of fortuitous losses by transfer of such risks to insures, who agree to Indemnify insured for such losses, to provide other pecuniary benefits on their occurrence, or to Render services connected with the risk. E.Rejda (2008) Insurance premium is the monetary consideration paid by the insured to the insurer for the cover granted by the insurance policy. The Insurer takes on a number of clients (Insured) who pay small premiums that form an aggregate fund called the premium fund (Norman, 2000).

Insurance operates on the principle of pooling risks where the people contribute to a common fund in form of premiums and where the lucky ones who do not suffer loss help the unlucky ones who suffer loss during a defined insurance period Irukwu (1994). It seems Insurance not only facilitates economic transactions through risk transfer and indemnification but it also promotes financial intermediation Ward and Zurbruegg (2000).

More specifically, insurance can have effects such as promote financial stability, mobilize savings, facilitate trade and commerce, enable risk to be managed more efficiently, encourage loss mitigation, foster efficient capital allocation and also can be a substitute for and complement government security programs (Skipper, 2001).

Insurance provides economic protection from identified risks occurring or discovered within a specified period. Insurance is a unique product in that the ultimate cost is often unknown until long after the coverage period, while the revenue premium payments by policyholders are received before or during the coverage period. Substitute for and complement government security programs. Insurance provides economic protection from identified risks occurring or

discovered within a specified period. Insurance is a unique product in that the ultimate cost is often unknown until long after the coverage period, while the revenue premium payments by policyholders are received before or during the coverage period (Skipper, 2001).

Insurance is an important growing part of the financial sector in virtually all the developed and developing countries (Das et al., 2003). A resilient and well regulated insurance industry can significantly contribute to economic growth and efficient resource allocation through transfer of risk and mobilization of savings. In addition, it can enhance financial system efficiency by reducing transaction costs, creating liquidity and facilitating economies of scale in investment Bodla et al., (2003).

Insurance business is usually divided into two main classes namely: a) General insurance business - This is a contract between an insurer and the insured where by the insurer undertakes to indemnify the assured against losses, which may result from the occurrence of specified events within specified periods. General insurance business can be subdivided into: motor, fire, accident, oil and gas, contractors' all risks and engineering risks; marine and credit insurance, bond and surety ship etc.

This is a contract between the assurer and the assured whereby the assurer undertakes to pay benefits to the policy holder on the attainment of a specified event. b) Life assurance business: comprises individual life business, group life insurance and pension business, health insurance business and annuities.

### **2.1.2 Factors affecting insurance companies' performance**

#### **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 counterparty 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, counter party 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 comprises 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).

### **Typical areas of concentration for credit risk**

These are the following points that NBE (2010) risk management guide line has located the areas which focus on credit risk.

**Investing/lending activities:** Where credit is extended, almost always with collateral (e.g. Bond). Of course when making investments in any bonds, debentures or other evidences of indebtedness, the insurer is taking on a credit risk. Clearly, such investment area is a major source of credit risk for insurers.

**Trade debtors/Financing of premiums:** There is the credit risk arising from the fact that policyholders may not remit premiums on a timely basis, whether or not there is a premium financing program in place and whether or not the business is written through an intermediary.

**Reinsurance:** Insurers, especially general insurers, often rely heavily on their reinsurers for claim reimbursement. 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.



## **Credit Risk Management**

Accordingly NBE (2010) referred that managing credit risk is a fundamental component in the safe and sound management of companies. Sound credit risk management involves establishing credit:

- Identifying existing or potential credit risks to which the company is exposed, on or off balance sheet, in conducting its investment and lending activities and developing and implementing sound and prudent credit policies to effectively manage and control these risks;
- Developing and implementing effective credit granting, documentation and collection procedures;
- Developing and implementing procedures to effectively monitor and control the nature, characteristics, and quality of the credit portfolio; and developing processes for managing problem accounts.

## **Liquidity ratio**

Liquidity refers to the degree to which debt obligations coming due in the next 12 month 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 abnormal 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 Liargovas, and Skandalis, (2008) 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 and Buckle, 2000).

### **Reinsurance dependence**

According to Munich (2010) reinsurance is a transaction whereby one insurance company (the “reinsurer”) agrees to indemnify another insurance company (the “reinsured, “cedent” or “primary” company) against all or part of the loss that the latter sustains under a policy or policies that it has issued. For this service, the ceding company pays the reinsurer a premium. In addition, the purpose of reinsurance is the same as that of insurance: to spread risk. Reinsurance helps protect insurers against unforeseen or extraordinary losses by allowing them to spread their risks. For example, a catastrophic fire at an industrial enterprise could financially devastate its insurer. With reinsurance, no single insurer finds itself saddled with a financial burden beyond its ability to pay.

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). Cummins, et al. (2008) analyzed that 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.

As per Suheyli (2015) illustration, insurance companies usually take out reinsurance cover to stabilize earnings, increase underwriting capacity and provide protection against catastrophic losses. Nevertheless, there is a cost for reinsurance. As a result, determining an appropriate ceding level is important for insurance companies, and they have to try to strike a balance between decreasing insolvency risk and reducing potential profitability. Although it increases operational stability, increasing reinsurance dependence, i.e. lowering the retention level, reduces the potential profitability. 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.

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).

### **Functions of Reinsurance**

As stated by Munich (2010) the most common reasons for purchasing reinsurance include:

**Capacity Relief-** allows the reinsured to write larger amounts of insurance.

**Catastrophe Protection-** protects the reinsured against a large single, catastrophic loss or multiple large losses.

**Stabilization-** helps smooth the reinsured overall operating results from year to year.

**Surplus Relief-** eases the strain on the reinsured surplus during rapid premium growth.

**Market Withdrawal-** provides a means for the reinsured to withdraw from a line of business or geographic area or production source.

**Market Entrance-** helps the reinsured spread the risk on new lines of business until premium volume reaches a certain point of maturity; can add confidence when in unfamiliar coverage areas.

**Expertise/Experience-** provides the reinsured with a source of underwriting information when developing a new product and/or entering a new line of insurance or a new market.

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 (NBE, 2010).

### **Reinsurance risk management**

As stated by NBE (2010) each company should develop a comprehensive reinsurance program to address the objectives of its reinsurance risk management policy. In developing the reinsurance program, the company should identify its tolerance to risks in its underwriting book and consider which reinsurance arrangements (e.g., the use of quota share reinsurance, surplus treaties, excess of loss coverage or stop loss policies) are most appropriate to limiting risks above its tolerance level.

The reinsurance program should be documented and approved by Insurance Supervision Directorate (ISD). Although the particulars of reinsurance risk management will differ among companies depending upon the nature and the complexity of their underwriting books, a comprehensive reinsurance risk management program requires:

- Identifying when reinsurance is required to limit a company's risk;
- Selecting appropriate reinsurance counterparties and intermediaries to facilitate risk transfer;
- Selecting appropriate reinsurance agreements;
- Developing, documenting and recording effective processes for reinsurance activities;
- Developing and implementing comprehensive procedures to effectively monitor and control the reinsurance activities (NBE, 2010).

### **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.

## **Underwriting risk**

Underwriting risk is the risk that the premiums collected will not be sufficient to cover the cost of coverage. 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, et al. 2010).

As stated by Adams, et al. (2003) underwriting risk emphasizes the efficiency of the insurers underwriting activity and is measured through the loss ratio, which is computed as a ratio of gross claims to gross written premium. Underwriting risk reflects the adequacy or otherwise of insurers' underwriting performance.

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 (NAIC, 2001).

As mentioned by Arif, et al. (2015) underwriting guidelines are pivotal to an insurers' financial performance. The underwriting risk depends on the risk appetite of the life insurers'. For instance, as per Fama, et al. (1983) argued that organizations that engage in risky activities are likely to have more volatile cash flows than entities whose management is more averse to risk taking. 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.

Another argument raised by Arif, et 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 is the function of evaluating the subject of insurance, whether a person, property, profession, business, or other entity, and determining whether to insure it. Underwriting is the foundation of the insurance transaction process. Underwriting is the process of determining whether an insured is an acceptable risk, and if so, at what rate the insured will be accepted. Insurers cannot accept every applicant. An insurer has a responsibility to its current policyholders to make sure that it will be able to meet all the contractual obligations of its existing policies. If the insurance company issues policies on applicants that represent risks that are uninsurable or risks that require premiums higher than the insurer may charge can cover, the insurer's ability to meet its contractual obligations is jeopardized (Temecula, 2001).

On the other hand, a for-profit insurer wants to make money and to increase its number of policyholders. No insurer wants to reject applicants unnecessarily. All these factors must be taken into consideration in the underwriting process. Insurers are not always the "victim" in the underwriting process, sometimes they are the problem. Years ago, for example, insurers sometimes approved policies on a post claims underwriting basis (now illegal). The company accepted applicants with little or no real underwriting, but when individuals attempted to file claims, the company engaged in vigorous investigations of the individual's application in an attempt to demonstrate that he or she did not adequately disclose a certain condition. The company would then rescind (cancel) the policy instead of paying the claim alleging misrepresentation of a condition on the part of the applicant (Temecula, 2001).

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.

### **Underwriting risk management**

The following points are underwriting risk management practices that are sated by NBE (2010) risk management guideline. Managing underwriting risk is a fundamental component in the management of safety and soundness of an insurer. Sound underwriting and risk management involves understanding the risk and prudently managing the company's risk/reward relationship. Although the particulars of underwriting will differ among companies depending upon the nature and the complexity of their products and the manner in which they are marketed and serviced, a comprehensive underwriting and risk management program is required as a basic component and processes designed to quantify the risk exposure at various points in time over the insurance cycle, such as when:

- The company accepts insurance risks;
- Material changes occur in insurance exposures for which underwriting, or limitation of risk is required;
- Claims arise requiring approval;
- Ongoing claim assessment is required; and
- The company's capacity to accept insurance risk changes in a material manner.



Companies must develop policies to effectively manage and control liability at these critical points in the insurance cycle. Good risk management with regard to underwriting management also requires:

- Developing, documenting and implementing effective processes for underwriting, for management of product options, and for adjudication of claims; and
- Developing and implementing comprehensive procedures to effectively monitor and control the nature and characteristics of the insurance risks assumed, or claims approved.

### **Company size**

The company size can be expressed by many variables such as number of employees, number of branches, or total assets.

Most researchers of the field use total assets to express the size of the company Omondi & Muturi, (2013)

The size of the company is considered as an influential factor because it shows that larger companies are better positioned in the market, operate with economies of scale, and thus enjoy higher benefits Flamini, McDonald, & Schumacher, (2015)

### **Inflation**

Inflation is likely to raise consumption expenditure of households and consequently reduced savings can reduce demand for life insurance companies. Therefore, inflation is likely to have negative impact on profitability of life insurance companies. The impact of inflation may be different for life or non-life insurance companies if households and businesses prefer to insure against inflation. Hussain (2012) identifies negative impact of inflation on profitability of textile firms in Pakistan for the period 2006-09. Macroeconomic environment [GDPG] captured by growth rate of GDP is indicative of overall business conditions and hence capacity to insure and therefore, is expected to have positive impact on profitability.

### **Deposit Interest rate**

Interest rate risk is the risk to an institution's net interest margin. The net interest margin is the difference between the amount of interest earned on assets (i.e., interest income from lending activity) and the amount of interest paid on liabilities (i.e., interest expenses paid on deposits and

borrowings). An interest rate is the cost of borrowing money (Hoyt, 1994). Since insurance companies make their promises or commitments to the insured at the time of the sale of policies to the latter, they are not free to adjust the rates fixed or agreed in the sale subsequently depending on circumstance. This feature of insurance exposes them directly to the risks associated with changes in interest rates. Insurance companies invest much of the collected premiums, so the income generated through investing activities is highly dependent on interest rates. Declining interest rates usually equate to slower investment income growth impacting on the insurance.

### **Financial Performance of insurance companies**

Measuring the performance of insurance companies has gained the momentum from the last couple of years, because insurance sector is not only an avenue for money saving, but also serves as a vehicle to channel funds in an appropriate way from surplus economic sectors to deficit sectors so as to support the investment activities in the economy. Technically, performance is defined as a subjective measure which determines how well the organizations use their available resources to generate more revenues. Performance measures the financial soundness and health of the organization in monetary terms and thus, can be used to compare the performance of different corporations within any particular industry or between the industries.

The performance of the insurance companies plays a pivotal role in the growth of the industry as a whole, which ultimately contributes to the success of an economy. The insurance companies endanger their performance by assuming different types of risks. In order to have full and fuller understanding of the impact of financial risk on the profitability of insurance companies the present study will take into consideration various ratios like solvency, liquidity, profitability Arif et al., (2015).

Yuvaraj et al. (2013) as cited in William et al. (2004) suggested that although there are different ways to measure profitability it is better to use ROA. In addition to this, performance of insurance companies in financial terms is normally expressed in net premium earned, profitability from underwriting activities, annual turnover, return on investment and return on equity. These measures could be classified as profit performance measures and investment performance measures. However, most researchers in the field of insurance and their profitability

stated that the key indicator of a firm's performance is ROA defined as before tax profits divided by total assets.

## 2.2. Review of Empirical studies

Ijaz (2015) studied on macro economy and profitability of insurance companies: a post crisis scenario in Pakistan. Profitability was dependent variables and firm size, financial leverage, underwriting risk, financial soundness, growth opportunities, diversification, working capital management and equity market, and Inflation were independent variables. His last findings were firm size, financial leverage, underwriting risk, financial soundness, growth opportunities, diversification, working capital management and equity market conditions were statistically significant determinants of the profitability of insurance companies. Relative firm size, financial leverage and underwriting risk have negative impact while rest of the variables have positive impact on profitability of life insurance companies.

Hifza (2011) investigated the determinants of profitability in insurance companies of Pakistan by targeting all Pakistan insurance companies as a population. The sample in this study includes 35 listed life and non-life insurance companies which cover the period of 2005- 2009. Secondary data obtained from the financial statements (Balance sheet and Profit/Loss account) of insurance companies, financial publications of State Bank of Pakistan and Insurance Year Book that is published by Insurance association of Pakistan (IAP). A key indicator of insurance companies profitability is return on assets (ROA), defined as the before tax profit divide by total assets. The study used profitability as dependent variable while age of company, size of company, volume of capital, leverage and loss ratio are independent variables. He utilized a quantitative tool of analysis and findings proved that there is no relationship between profitability and age of the company and there is significantly positive association between size of the company and profitability. The result also showed that the volume of capital is significantly and positively related to profitability. Loss ratio and leverage ratio showed negative but significant relationship with profitability. Moreover, his findings explained that there is no relationship between profitability and age of the company.

Ana-Maria et al. (2014) performed on determinants of financial performance in the Romanian Insurance companies. Accordingly, the study used 21 companies and the interval period had started from 2008 to 2012, 13 explanatory variables were tested: insurance financial leverage, company size, number of years since the company operates in the Romanian market, growth of gross written premiums, equity, total market share, diversification, underwriting risk, investment ratio, reinsurance dependence, retained risk ratio, solvency margin and growth of GDP/capita. As for the dependent variable, the financial performance of the insurance companies is measured through the return on total assets ratio. According to the final results, gross written premiums, financial leverage and underwriting risk have a negative effect on return on total assets ratio. In addition to this, company size, retained risk ratio, solvency margin and have positive linkage on return on total assets ratio. Equity, total market share, diversification, investment ratio, number of years since the company operates and growth of real GDP/capita do not have significant linkages with the insurers' financial performance.

Another study made by Amal (2012) on factors affecting the financial performance of Jordanian Insurance Companies Listed at Amman Stock Exchange. The study consisted of all insurance companies' enlisted at Amman stock Exchange during the period (2002-2007) which count (25) insurance company. The study took all of them as a study sample and depended on secondary sources which include books Articles, relevant literature, Jordanian insurance companies' financial statement and reports, and Amman Stock Exchange in order to collect the scientific content of the theoretical framework of the study and to explain the basic concepts of the study. Company Leverage, Company liquidity, Company Age, Company Size, Company management competence index were independent variables whereas financial performance through calculating (ROA) was dependent variable. The collected data was analyzed by using a number of basic statistical techniques such as T-test and Multiple- regression. The results showed that the following variables (Leverage, liquidity, Size, Management competence index) have a positive and significant statistical effect on the financial performance of Jordanian Insurance Companies but Company age has no significant statistical impact on Financial Performance of insurance companies.

Emine (2015) studied on effects of firm-specific factors on the profitability of non-life insurance companies in Turkey. Hence, the study covered a period of eight years between 2006 and 2013. Depending on the existence of data, 24 out of 36 non-life insurance companies operating in

Turkey as of 2013 have been selected for this study. Eight independent variables were tested; these are size of the company, age of the company, loss ratio, insurance leverage ratio, current ratio, premium growth rate, motor insurance and premium retention ratio. Two variables were used in this study as the profitability measure of non-life insurance companies. One of these was technical profitability ratio and the other was sales profitability ratio. The main results of the study demonstrated that the profitability of non-life insurance companies was statistically significant and positively related to the size of the company and premium growth rate, whereas profitability was statistically significant and negatively related to the age of the company, loss ratio, and current ratio. However, the share of motor insurance in the companies' insurance portfolio and the premium retention ratio were not found to be important explanatory variables. Besides, the relationship between insurance leverage ratio and technical profitability ratio were significant at the 5% level. However, the relationship between insurance leverage ratio and sales profitability ratio were not statistically significant.

Mirie (2015) conducted a research on determinants of financial performance in general insurance companies in Kenya. The study comprised all the 23 general Kenyan insurance firms. The data was gathered from 22 general insurance companies on the variables of interest representing a 95.65% response rate. One firm was dropped from the sample as it had been placed under receivership as at the time of the study. The study used secondary data for the four financial periods, 2009-2012 and the study employed a multiple regression analysis model. leverage, retention ratio, equity capital, size, management competence index, ownership, age, liquidity & underwriting risk were independents variable and return on assets (ROA) was dependent variable. Based on the findings, financial performance was positively related to leverage, equity capital, management competence index and negatively related to size and ownership structure. The study did not find a relationship between performance and retention ratio, liquidity, underwriting risk and age; it means that financial performance was not significantly predicted by retention ratio, liquidity, underwriting risk and age.

Joseph (2011) studied on financial performance of life insurance companies in Ghana. The study ten (10) companies were selected based upon the availability of data and the number of years that an insurer has been in operation. He applied secondary source of data through collecting annual

financial statements of the ten (10) companies covering the period of 2000 to 2010 were used for the analysis. The data on the macroeconomic conditions of the Ghanaian economy were taken from the databases of the Ghana Statistical Service and the Ministry of Finance and Economic Planning. Sales profitability, Investment income and underwriting profit were dependent variables for profit measurement while gross written premiums, claims, expenses on management, reinsurance, total debts, size of company, interest rate and gross domestic product were independent variables. A panel data analysis approach was adopted for the evaluation of the determinants of insurers' profitability. Gross premium written has a significant impact on all the three measures of life insurers' profitability. Claims payments has a negative relationship with both the underwriting profit and the total net profit but has a positive association with investment income. The expenditure on management is statistically significant to both the level of the total net profit and the investment income. Insurers' assets (size) have a significant positive link with both the total net profit and the underwriting profit. Leverage has a positive relationship with all the three measures of insurers' profitability. Interest rate has a positive relationship with underwriting profit and the sales profitability.

Yuvaraj et al. (2013) studied on the performance of insurance companies in Ethiopia. The study took nine insurance companies within the specified period of time from June 2003 to June 2011. They employed Return on Assets (ROA) as dependent variables and independent variables are age of insurance companies, size of insurance companies, volume of capital, leverage ratio, growth rate, tangibility of company assets and liquidity ratio. Their source of data was secondary data which they had taken from annual reports that contain detailed consolidated balance sheets and income statements. Moreover, they applied quantitative analysis by testing model assumptions and found that significant relationship between age and profitability measured by ROA and also size is positively correlated with ROA. Moreover, there is significant and negative relationship between leverage ratio and ROA plus significant positive correlation between firm growth and ROA. In line with this, significantly strong correlation between volume of capital and ROA along with significant relationship between tangibility of assets and ROA as well slightly negative correlation between liquidity and ROA.

Daniel et al. (2013) studied on firm specific factors that determine insurance companies' performance in Ethiopia. The study employed only nine insurance companies over the period 2005-2010. They exercised secondary sources of data by acquiring an audited annual reports (Balance sheet and Profit/Loss account) of insurance companies were obtained from National Bank of Ethiopia (NBE) and insurance companies' annual publication reports. In addition, the study employed return on total assets (ROA) a key indicator of insurance company's performance was used as dependent variable while age of company, size of the company, growth in writing premium, liquidity, leverage and loss ratio are independent variables. According to the quantitative analysis the results of regression analysis revealed that insurers' size, tangibility and leverage are statistically significant and positively related with return on total asset; however, loss ratio (risk) is statistically significant and negatively related with ROA. Thus, insurers' size, loss ratio (risk), tangibility and leverage are important determinants of performance of insurance companies in Ethiopia. But, growth in writing premium, insurers' age and liquidity has statistically insignificant relationship with ROA.

Abate (2012) made a research on factors affecting profitability of insurance companies in Ethiopia. He targeted all Ethiopian insurance companies out that nine insurance companies had been taken as a sample and it was considered that purposive sampling was employed so as to include all insurance companies established and serving with in the specified period of time from June 2003 to June 2011. He employed a secondary source of data by taking audited financial statements from NBE. Age of company, volume of capital, company size, leverage, firm growth were independent variables and return on asset for dependent variables. Finally, from the regression results; growth, leverage, volume of capital, size, and liquidity were identified as most important determinant factors of profitability hence growth, size, and volume of capital were positively related. In contrast, liquidity ratio and leverage ratio are negatively and significantly related with profitability. Lastly, age of company and tangibility of assets were not significantly related with profitability.

Hadush (2015) studied on determinants of profitability in Ethiopia insurance Companies. For this purpose, the study took all Ethiopian insurance companies as targeted population then performed for a panel of nine Ethiopian general insurance companies for the study period of

2005-2014. The study has used secondary data of quantitative nature of data obtained from the annual audited financial statements (balance sheet and profit/loss account, and revenue account) of insurance companies, financial publications of NBE by applying a statistical package data called Eviews 7 only. Profitability is dependent variable while liquidity, tangibility, volume of capital, premium growth, claim ratio, real GDP and inflation) are independent variables. He used a quantitative tool of analysis and made a model assumptions test for the model assumptions. Regression result shows that tangibility, volume of capital, premium growth, claim ratio, and real GDP are identified as most important determinants of profitability hence tangibility, volume of capital, premium growth are significant and positively related. In contrast, claim ratio and real GDP are negatively but significantly related with profitability. However, liquidity and inflation are not significantly related with profitability.

Meaza (2014) studied on determinants of insurance companies' profitability in Ethiopia by examining the effects of firm specific and macroeconomic factors on profit. For this reason, the study included ten insurance companies for six years (2008-2013). Secondary data obtained from the financial statements (Balance sheet and Profit/Loss account) of insurance companies, and financial publications of MOFED were analyzed. Profitability peroxide by ROA was dependent variables while size of companies, leverage, and tangibility of assets, liquidity, loss ratio, firm growth, managerial efficiency, inflation rate and economic growth were independent variables. All model assumptions test had been done and from regression result; size, leverage, tangibility of asset, loss ratio/ risk, firm growth and managerial efficiency were identified as significant determinants of profitability hence firm size, tangibility of asset, firm growth and, managerial efficiency were positively related. In contrast, leverage and loss ratio/ risk were negatively but significantly related with profitability. Liquidity, inflation and economic growth were not significant determinants of profitability.

Mistre (2015) made a research on determinants of profitability on insurance Sector: Evidence from Insurance Companies in Ethiopia. In order to carry out the study, secondary data of nine insurance companies over the period of 2003-2014 was obtained on the financial performance from the annual reports and audited financial statements. Age of company, size of company, leverage, tangibility of Assets, liquidity, premium growth, loss ratio, reinsurance dependence, solvency margin and growth in gross domestic product were independent variables while profitability measured by ROA( return on assets was dependent variable. The result of the study



illustrated that insurers' size and solvency margin were positively related to insurance performance, while loss ratio and leverage ratio were negatively related to profitability (ROA). Whereas, premium growth, growth in gross domestic product, age of insurance companies and liquidity had insignificant impact on profitability of insurance companies in Ethiopia and determinates such as tangibility of asset and reinsurance dependency had insignificant impact on profitability of insurance companies.

Suheyli (2015) conducted a research on determinants of insurance companies' profitability in Ethiopia. In order to achieve this objective, the study used mixed research approach. Panel data covering eleven-year period from 2004 to 2014 were analyzed for nine insurance companies from the total population of all insurance companies registered by NBE and under operation in Ethiopia. Also in-depth interview was conducted with company managers. Underwriting risk, reinsurance dependence, solvency margin, liquidity, company size, premium growth, technical provisions, inflation and growth rate of GDP were independent variables while profitability was dependent variable. The findings of the study showed that underwriting risk, technical provision and solvency ratio have statistically significant and negative relationship with insurers' profitability. However, reinsurance dependence had insignificant relationship with profitability. On the other hand, variables like liquidity, company size and premium growth have a positive and statistically significant relationship with insurers' profitability. In addition, economic growth rate has significant influence on profitability whereas inflation has insignificant influence on insurers' profitability. The study provided evidence that underwriting risk, technical provision and liquidity were the most important factors that affect profitability of insurance companies in Ethiopia.

### **2.3 Literature gap**

Empirical studies were conducted on relationship between factors affecting and financial performance by Arif et al. (2015) and Adrian (2014). However, Arif et al. (2015) studied in India on life insurance companies the study characteristic was different from developing countries regarding their government regulation, culture of the business, people attitude and economic growth. In addition to this, did not include non-life insurance companies and had taken only India life insurance companies. With respect to Adrian (2014), the study had only made test of significance and overlooked proving of other model assumptions.

Ijaz (2015) made a research on effect of macro economy factor on profitability of insurance companies, Hifza (2011) and Emine (2015) had also conducted a study on determent of profitability in insurance companies and another study made by Amal (2012) on determinant of financial performance in insurance companies. However, the study feature is diverse from developing countries due to the characteristics of government regulation, culture of the business, people attitude and economic growth. Thus, the researcher has taken the above gaps in to account for the study and this study might be differ with above other countries empirical studies due to the above mentioned reasons.

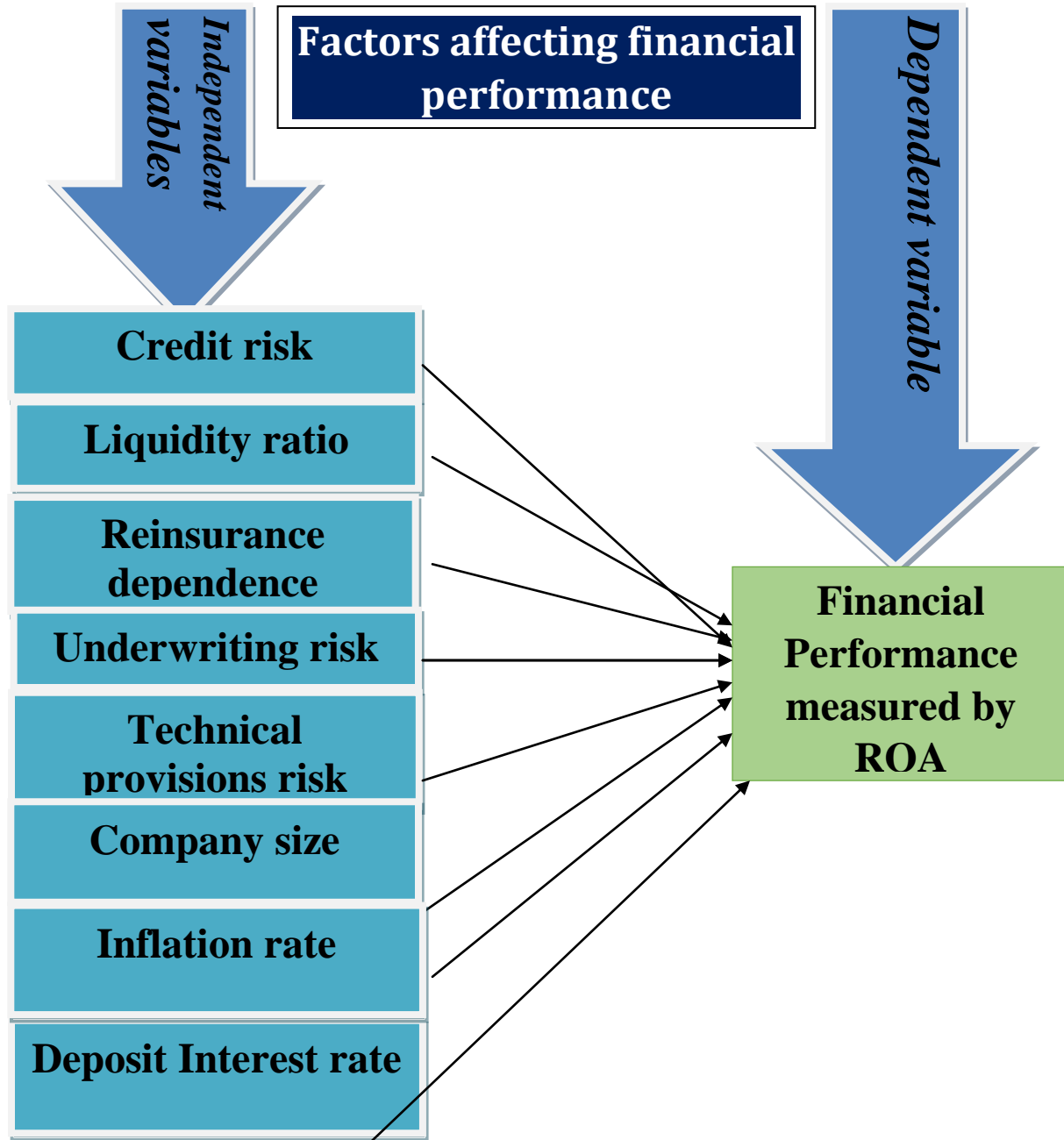
Prior studies, like Abate (2012); Yuvarajet al. (2013); Meaza (2014); Mistre (2015); Suheyli (2015) and Hadush (2015)) conducted on determinant of profitability in Ethiopian insurance companies and Daniel et al. (2013) studied on determinant performance in Ethiopia insurance companies. However, these studies did not examine the effect of credit risk (company specific factor) and deposit interest rate (macroeconomic factor) variable on financial performance of insurance companies in Ethiopia.

As per NBE (2010), credit risk has a great impact on insurance companies' performance by referring credit risk is the risk of financial loss resulting from the failure of a debtor to honor its obligations to the company and the risk arises from a weakening of the credit portfolio is the impairment of capital or liquidity. However, all available previous studies conducted in Ethiopia insurance companies not incorporate this variable on their research work. Thus, this study would fill all of the above stated gaps by taking evidences from Ethiopian insurance companies.

## 2.4. Conceptual Frame Work

From the theoretical and emperical 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: Compiled by the researcher

## CHAPTER THREE

### RESEARCH METHODOLOGY

This chapter deals with research methodology used to carry out the research. The chapter organized in eight sub sections. In its first part there are a research design, then after it is presented subsequently about research approach, population, sample and sampling technique, data type, sources and instruments, data analysis and model specification. The final two parts presented variables selection and hypothesis developments. Finally, operationalizations of study variables are presented.

#### **3.1. Research design**

Cooper et al. (2003) discussed that explanatory studies unlike descriptive studies, go beyond observing and describing the condition and tries to explain the reasons of the phenomenon. Thus, explanatory research design used in this research because the study identified the cause and effect of factor affecting of insurance companies' performance which is be appropriate for the objective of the study.

#### **3.2. Research approach**

The quantitative aspect of the research method aimed to obtain data needed to explain the relationship between factor affecting of insurance companies' performance in Ethiopia. Hence, structured review of documents is applied for this study. The Studies provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. From sample results, the researcher generalizes or makes claims about the population (Creswell, 2009).

#### **3.3. Population of the Study**

The study populations are insurance companies registered by NBE. Currently, there are seventeen insurance companies in Ethiopian that are one government owned and sixteen privately owned insurance companies these are; Ethiopian insurance corporation, Awash insurance S.C, African insurance S.C, National insurance company of Ethiopia S.C, Nyala insurance S.C, Nile insurance S.C, United insurance S.C, Global insurance S.C, Nib insurance S.C, Lion insurance S.C, Oromia Insurance S.C, Abay insurance S.C, Berhan insurance

S.C, Tsehay insurance S.C, Ethio life and general insurance S.C, Lucy insurance S.C and Bunna insurance S.C.

### **3.4. Sample and Sampling Techniques**

The total populations of insurance companies are seventeen but for the study purpose the researcher used sample of eight insurance companies. These insurances selected due to their Establishment year before 2000 and these Insurances market share, total assets and profit. As NBE (2016/17) annual report stated that these eight insurance companies together accounted more than 59% of the market share based on their number of branch and 70% capital held by all Ethiopian insurance companies. Based on these reasons, it is reasonable that sample of eight insurance companies can properly refer the total number of the population.

Therefore, the study covered a period of eighteen (18) years from 2000-2017 and included Ethiopian insurance companies those who have eighteen (18) and above establishment year. Due to this fact, the sample of insurance companies are Ethiopian insurance corporation, Awash insurance S.C, African insurance S.C, National insurance company of Ethiopia S.C, Nyala insurance S.C, Nile insurance S.C, United insurance S.C and Global insurance S.C.

Hence, the researcher employed purposive sampling method to draw the sample from the population and meet the study objective. The matrix for the frame is 18\*8 that includes 144 observations.

### **3.5. Data sources and instruments**

This study obtained the necessary data through secondary data. This research used secondary sources of data. Secondary data on sample of eight insurance companies are obtained from insurance companies' audited financial statements and annual reports filed with NBE through document review. Furthermore, secondary data collected from books, journals and website.

### **3.6. Data analysis**

To achieve objective of the study, the study only concentrated quantitative analysis. Hence, the researcher used econometric model to identify and measure factors affecting of insurance companies' performance in Ethiopia and used Ordinary Least Square (OLS) method using Eviews-8 econometric software package for the study.

According to Brooks (2008) regression is concerned with describing and evaluating the relationship between a given variable (usually called the dependent variable) and one or more other variables (usually known as the independent variables). Thus, the researcher adopted panel data regression model to examine factors affecting of insurance companies' performance in Ethiopia.

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 (2000-2017). Therefore, the panel data analyzed using descriptive statistics, correlations and multiple linear regression analysis. The rational for choosing Ordinary Least Square (OLS) is that, if the Classical Linear Regression Model (CLRM) assumption should true, then the estimators determined by OLS 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:

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

If all the above assumptions are consistent with the sample, E-view result will be accurate and reliable. The following tests are 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;

$H_0$ : There is no Heteroscedasticity problem in the model.

$H_1$ : There is Heteroscedasticity problem in the model.

$\alpha = 0.05$

Decision Rule: Reject  $H_0$  if p-value is less than significance level. Otherwise, do not reject  $H_0$ .

## **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.

$H_0$ : There is no autocorrelation problem in the model.

$H_1$ : There is autocorrelation problem in the model.

$\alpha = 0.05$

Decision Rule: Reject  $H_0$  if p-value less than significance level. Otherwise, do not reject  $H_0$ .

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

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:

$H_0$ : Error term is normally distributed

$H_1$ : Error term is not normally distributed

$\alpha = 0.05$

Decision Rule: Reject  $H_0$  if p-value of JB tests less than significance level. Otherwise, do not reject  $H_0$ .

#### **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.

### **3.7. Model specification**

According to Brooks (2008), it is very easy to generalize the simple model to one with k regressor's (independent variables).  $Y_i = \beta_1 + \beta_2 X_{1i} + \beta_3 X_{2i} + \dots + \beta_k X_{ki} + \epsilon_i$ ,  $i = (1, 2, \dots, i)$ . So, Where  $Y_i$  is the  $i^{\text{th}}$  observation of the dependent variable,  $X_{1i}, \dots, X_{ki}$  are the  $i^{\text{th}}$  observation of the



independent variables,  $\beta_0, \dots, \beta_k$  are the regression coefficients,  $\varepsilon_i$  is the  $i^{\text{th}}$  observation of the stochastic error term.

Accordingly, to test factors affecting on insurance companies' performance, the researcher estimated a linear regression model in the following form.

$$ROA_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 LR_{it} + \beta_3 RID_{it} + \beta_4 TPR_{it} + \beta_5 UR_{it} + \beta_6 CS_{it} + \beta_7 INF_{it} + \beta_8 DIR_{it} + \varepsilon$$

Where:

ROA= Return on asset;

CR= Credit risk

LR= Liquidity

RID= Reinsurance dependence

TPR= Technical provision risk

UR = Underwriting risk

CS= Company size

INF= Inflation rate

DIR= Deposit interest rate

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

$\beta_0$ = Constant

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

$i$  = Insurance company  $i = 1 \dots 8$ ; and  $t$  = the index of time periods and  $t = 1 \dots 18$

### **3.8. Variables Definition and Hypothesis development**

According to Creswell (2009), to make it is clear to readers what groups are receiving the experimental treatment and what outcomes are being measured, the variables need to be specified in quantitative researches.

Thus, this section explained the variables used as dependent and independent (explanatory) variables in the study. The definitions and measurements that are used for these variables are described as follows.

## **Dependent variable**

### **Return on Asset (ROA)**

The study employed return on assets to measure performance of insurance companies. According to Danielet al. (2013) mentioned that return on total assets (ROA) is calculated as net profit before tax by total assets.

This is probably the most important single ratio in comparing the efficiency and financial performance of insurance companies as it indicates the returns generated from the assets that Insurers owns. In addition, as stated by Ana-Maria et al. (2014), the return on total assets ratio represents one of the most used methods of quantifying financial performance. As indicated by Mirie (2015), financial performance is a measure of an organization's earnings, profits, appreciations in value as evidenced by the rise in the entity's share price.

As explained by Amal (2012) return on assets determines an organization's ability to make use of its assets and return on equity reveals what return investors take for their investments. The advantages of financial measures are the easiness of calculation and that definitions are agreed worldwide. Accordingly, in most previous studies on insurance sector, return on asset (ROA) is being used as a proxy of performance Arifet al., (2015); Adrian, 2014; Yuvaraj et al., (2013) and Mirie, (2015). Thus, the study has taken return on asset (ROA) as dependent variable to measure performance of Ethiopian insurance companies.

### **Independent Variables**

This subsection described the independent variables that will be used in the econometric model to estimate the dependent variable. To measure the factors affecting insurance company's performance in Ethiopia. Eight measurements are used as independent variables which are extracted from different studies. The variables namely; credit risk, liquidity ratio, reinsurance dependence, technical provisions risk, underwriting risk, company size and two macroeconomics variables (Inflation and deposit interest rate).

#### **Credit risk**

It is measured using the ratio of premium debtors plus due from reinsurer and other receivable to net asset of insurance company (premium debtors + due from reinsurer + other receivable / 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); Anaset al., (2014) and Jamal et al., (2014). Thus, the study hypothesizes credit risk as negative and statistically significant effect on performance.

***H<sub>1</sub>: Credit risk has negative and statistically significant effect on Ethiopia insurance companies' financial performance.***

### **Liquidity Ratio**

According to Anaset al. (2014) liquidity 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 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 connection with this, previous researcher has used liquidity ratio variable for their study Arifet al., (2015); Amal, (2012) and Suheyli, (2015). As identified by Adrian (2014); Eneyew (2013); Abate (2012) and Emine (2015)), liquidity ratio has negative and statistical significant effect on performance insurance companies. Hence, the study hypothesizes liquidity ratio has negative and statistically significant effect on performance.

***H<sub>2</sub>: Liquidity ratio has negative and statistically significant effect on Ethiopia insurance companies' financial performance.***

### **Reinsurance dependence**

It is calculated as ratio of premiums ceded in reinsurance to total assets. Insurance companies reinsure ascertain 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 dependence as negative and statistically significant effect on performance.

***H<sub>3</sub>: Reinsurance dependence has negative and statistically significant effect on Ethiopia insurance companies' financial performance.***

### **Company Size**

It has been suggested that company size is positively related to profitability. The main reasons behind this can be summarized as follows. First, large insurance companies normally have greater capacity for dealing with adverse market fluctuations than small insurance companies.

Second, large insurance companies usually can relatively easily recruit able employees with professional knowledge compared with small insurance companies. Third, large insurance companies have economies of scale in terms of the labor cost, which is the most significant production factor for delivering insurance services Shiu, (2014). Company size is computed as decimal 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. Relay on these empirical evidences, the study hypothesizes company size has positive and statistically significant effect on performance.

***H<sub>4</sub>: Company size has positive and statistically significant effect on Ethiopia insurance companies' performance financial.***

#### **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.

***H<sub>5</sub>: Technical provision risk has negative and statistically significant effect on Ethiopia insurance companies' financial performance.***

### **Underwriting risk**

It is measured through the losses (claims) incurred divided by premium earned and indicates that underwriting risk emphasizes the efficiency of the insurers underwriting activity and also reflects the adequacy or otherwise of insurers' underwriting performance (Adams, et al. 2003). As per Fama et al. (1983) argued that organizations that engage in risky activities are likely to have more volatile cash flows than entities whose management is more averse to risk taking. 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.

According to Andreas et al. (2014), underwriting risk may be primarily generated from the inadequacy of the premiums in the form of underestimation of the premiums or insufficient diversification of insurance portfolio. Underwriting risk which is present at the time the policy is issued and before the insured event occurs. That is a risk that the costs and claims will be higher than the premiums received. When calculating the sufficient premium it may happen that the calculated premium is insufficient for the underwritten risks.

It is a risk that the insurer will not raise sufficient revenues from premiums to cover claims or sum insured, that represents a significant risk for the insurance company. If the contracted premium is undervalued, it means that at the time of claims liquidation paid premiums will be lower, and the insurer will face a loss on a particular insured event. The other extreme is overrated premium, and also the risk whereupon the insured pays a higher price than the actual value. In this case, the insurance company is uncompetitive in the market due to excessive premiums thereby reducing portfolio and the number of insured (Andreas, et al 2014).

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 Ana-Maria 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.

***H<sub>6</sub>: Underwriting risk has negative and statistically significant effect on Ethiopia insurance companies' financial performance.***

## **Macroeconomics variables (External Factor)**

### **I. Inflation**

Inflation certainly plays a role in insurance and has adverse impact on many aspects of insurance operations, such as claims, expenses and technical provisions. Expected inflation is taken into account when actuaries set actuarially fair premiums, inflation itself is unlikely to seriously impact on the performance of insurance companies. Nevertheless, if inflation is significantly greater than expected, it could cause insurance companies financial difficulty. For instance, unexpected inflation makes real returns on fixed-rate bonds lower than expected. As a consequence, profit margins of insurance companies are compressed and financial performance is accordingly impaired (Browne et al, 1999).

The inflation could affect insurance companies' performance influencing both their liabilities and assets. In expectation of inflation claim payments increases as well as reserves that are required in anticipation of the higher claims, consequently reducing technical result and profitability.

Taking into consideration that inflation affects assets side of the balance sheet, as the bond markets adjust to the higher level of inflation, interest rates begin to rise. This result in bond prices fall, negatively affecting value of investment portfolio. Given the negative relationship between inflation and returns on both fixed-income securities and equities, it is expected that the relationship between performance and inflation will be negative. Hence, the study hypothesizes inflation has negative and statistically significant effect on performance.

***H<sub>7</sub>: Inflation has negative and statistically significant effect on Ethiopia insurance companies' financial performance.***

## **II. Deposit Interest rate**

It is argued that a continuing decline in market interest rates tends to make it more difficult for insurance companies to provide high interest rates for their customers or the insured and-as a result-to maintain hence high levels of profitability. This proposition was tested in Taiwan over a period of declining market interest rates for insurance companies. Flannery's (1981) model (quoted in Yang, 2007) was used to examine the relations between changes in market interest rate and the profitability of 12 domestic insurance companies.

The results suggest that the effects of changes in interest rates on insurance company profitability depend on how profits are measured, that it differs depending on the profit indicator that is employed. Relay on these empirical evidences, the study hypothesizes interest rate has positive and statistically significant effect on performance of insurance companies.

***H<sub>8</sub>: Deposit interest rate has positive and statistically significant effect on Ethiopia insurance companies' financial performance.***



### 3.9. Operationalization of study variables

The following table presented the summary of variables, their measurement and expected sign for the factors affecting performance of insurance companies in Ethiopia.

*Table 3.1. Description of variables and their expected relationship*

	<i>Variables</i>	<i>Measure</i>	<i>Notation</i>	<i>Expected sign</i>
<i>Dependent Variable</i>	Firms' performance	Net profit before tax/total assets	ROA	
<i>Independent Variables</i>	Credit risk	Premium debtors + Due from reinsurer + Other receivable / Net asset	CR	-
	Liquidity ratio	Current Assets / Current Liabilities	LR	-
	Reinsurance dependence	Premium ceded/Total asset	RID	-
	Company size	Natural logarithm of total assets	CS	+
	Technical provisions risk	Claims outstanding / Total equity	TPR	-
	Underwriting risk	Loss or Claim incurred / Premium earned	UR	-
	Inflation rate	Annual inflation rate	IFN	-
	Deposit Interest rate	Ordinary saving interest rate	DIR	+

*Source: Compiled by the researcher*

## CHAPTER FOUR

### DATA ANALYSIS AND PRESENTATION

This chapter of the research paper presents the data analysis; the outcome of the results and reaches to the possible outcome in factors affecting of insurance companies' performance in Ethiopia. The research used the annual balanced panel data, where all the variables are observed for each cross-section and each time period. The study has a time series segment spanning from the period 2000 up to 2017 and a cross section segment which considered eight Ethiopian Insurance companies. Accordingly, the result of descriptive statistics, correlation analysis, the test of CLRM assumption and result of the regression analysis are presented in the following sub-sections.

#### 4.1. Descriptive statistics

The descriptive statistics for the dependent and independent variables for eight Ethiopian Insurance companies from year 2000 to 2017 with a total of 144 observations are presented below.

*Table 4.1. Descriptive statistics*

	ROA	CR	LR	RID	CS	TPR	UR	IFN	DIR
Mean	0.095617	0.68521	1.21823	0.16573	19.05783	0.77053	0.67851	0.16673	0.04000
Maximum	0.61388	1.88648	2.60302	0.68562	21.55564	1.75993	0.90877	0.36400	0.05000
Minimum	-0.09051	0.05523	0.36598	0.03597	16.78926	0.10812	0.15328	0.02840	0.03000
Std. Dev.	0.089395	0.38359	0.45673	0.07295	1.06786	0.39743	0.15918	0.11482	0.00898
Observations	144	144	144	144	144	144	144	144	144

*Source: - annual report of sample insurance computed using E-views 8*

As indicated in the above table, the financial performance measured (ROA) shows that Ethiopian insurance companies have achieved on average a positive net income over the last eighteen years. For the total sample, the mean of ROA was 9.5% with a maximum of 61.3% and a minimum of -9%. The study finding is consistent with previous studies of Ana-Maria et al. (2014); Ijaz (2015); Hifza (2011); Emine (2015); Daniel et al. (2013); Hadush (2015); Meaza (2014); Mistre (2015), Suheyli (2015) and Daniel (2016). That means most profitable insurance among the sampled earned 61.3% profit from investment. Regarding the standard deviation, it means the value of ROA deviate from its mean to both sides by 8.9% which indicate there was low variation from the mean.

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 68.52% with a maximum of 188.64% and a minimum of 5.52%. It means that the average rate of credit risk was 68.52% which is more than the standard rate of national bank of Ethiopia NBE (2010) which is 50%. Thus, this outcome is consistent with prior study of Jamal et al. (2014) and Daniel (2016) is near to the same results. 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 5.52 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 0.88 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 38.35%.

The average value of the liquidity ratio measured by current ratio was 121.82%. The average value indicates that for each one birr current liability, there was 1.20 birr current asset to meet obligation which is more than the standard rate of national bank of Ethiopia NBE (2010) which is 105% and indicates that there is excess cash holding by the insurance companies. The maximum and minimum values were 260.30% and 36.59% respectively for the study period. This finding is consistent with previous studies of Adrian (2014), Abate (2012) and Daniel (2016). It means that the most liquid Ethiopian insurance company has 2.6 birr to meet obligation which is more than the standard rate. However, Ethiopian insurance companies who have less liquid have 36.59 cents to meet obligation which is less than the standard rate and the value of liquidity ratio deviate from its mean by 45.67%.

The outputs of the descriptive statistics indicate that the mean of reinsurance dependency as proxy by premium ceded to total asset was 16.57%. This means that on average 16.57% of gross premium collected as percentage of total asset was ceded to reinsurance which is below the standard rate of national bank of Ethiopia (NBE, 2010) which is 30% that implies most of sampled Ethiopian insurance companies have less reinsurance dependency.

The maximum value of premium ceded to total asset ratio was 68.56% which is above the standard rate and a minimum value of 3.59% that is below the standard rate and the value of reinsurance dependency deviate from its mean by 7.29%. The result is consistent with prior studies of Mistre (2015), Suheyli (2015) and Daniel (2016).

The outputs of descriptive statistics indicate size of the insurance company and its relationship with financial performance, logarithm of total asset is used as proxy. The result is consistent with prior studies of Ana-Maria et al. (2014), Amal (2012), Hifza (2011), Emine (2015), Yuvarajet al. (2013), Danielet al. (2013), Abate (2012), Meaza (2014) Mistre (2015) and Suheyli (2015). The mean of the logarithm of total assets was 19.05. Size of insurance companies was highly dispersed from its mean value (i.e. 19.05) with the standard deviation of 1.067. The maximum and minimum values were 21.55 and 16.78 respectively.

The outputs of the descriptive statistics indicate that the mean of technical provisions risk as proxy by claims outstanding to net asset was 77.05%. It refers that there is 1 birr of net asset to meet 77.05 cents of claims outstanding. The maximum value of claims outstanding to net asset ratio was 175.9% and a minimum value of 10.81% respectively for the study period. Prior Studies Suheyli (2015) and Daniel (2016) results are near to this output. It indicates that the highest claim outstanding to equity for a company in a particular year was 175.9%. With regard to the standard deviation, the value of technical provisions risk deviate from its mean by 39.74%.

Regarding with underwriting risk variable, as proxies by losses incurred divided by annual premium earned; the mean of incurred claims to earned premium ratio was 67.85%. prior Studies Near to This Output are Ana-Maria et al. (2014); Ijaz (2015); Hifza (2011); Emine (2015); Daniel et al. (2013); Hadush (2015); Meaza (2014); Mistre (2015), Suheyli (2015) and Daniel (2016). This implies that on average, most insurance companies from the sample paid 67.85% 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 90.87% which is above the standard rate that shows that there is underwriting risk, but the minimum value for a company in a particular year was 15.91% which is below the standard rate. With respect to standard deviations, the ratio of losses incurred to earned premium deviate from its mean by 15.91%.

Related with inflation had rate (i.e. 16.67%) of the country on average over the past eighteen years. The maximum inflation was recorded in the year 2009 (i.e. 36.4%) and the minimum was in the year 2010 (i.e. 2.8%). The study finding is consistent with previous studies of Hadush (2015), Meaza (2014) and Suheyli (2015) the rate of inflation was highly dispersed over the periods under study towards its mean with standard deviation of 11.48 %. This implies that inflation rate in Ethiopia during the study period was somewhat unstable.

Finally, related with deposit interest rate of the country on average over the past eighteen years was 4%. The maximum deposit interest rate was 5% and the minimum was 3%. The rate of deposit interest was slowly dispersed over the periods under study towards its mean with standard deviation of 0.898%. This implies that deposit interest rate in Ethiopia during the study period was somewhat stable.

## 4.2. Correlation Analysis

The following table shows the correlation matrix among dependent and independent variables.

*Table 4.2. Correlation Analysis of Variables*

	ROA
ROA	1
CR	-0.334859
LR	-0.153063
RID	0.062208
CS	0.547077
TPR	-0.211364
UR	-0.395567
IFN	-0.057238
DIR	0.109752

**Source: - annual report of sample insurance computed using E-views 8**

*Correlation Matrix between independent variables*

	CR	LR	RID	CS	TPR	UR	IFN	DIR
CR	1.000000							
LR	0.430654	1.000000						
RID	-0.027434	0.218523	1.000000					
CS	0.260434	0.586658	-0.352334	1.000000				
TPR	-0.269492	-0.070901	0.253562	-0.229138	1.000000			
UR	-0.155841	0.121953	0.106996	0.194358	0.406960	1.000000		
IFN	0.078123	0.587009	0.105256	0.326288	-0.217552	0.045870	1.000000	
DIR	-0.200963	0.164318	0.145269	0.070521	0.258944	0.256963	-0.013308	1.000000

*Source: - annual report of sample insurance computed using E-views 8*

The correlation result in Table 4.2 shows credit risk, liquidity ratio, technical provisions risk, underwriting risk and inflation have negative correlation with return on asset for measurement of Ethiopian insurance companies' financial performance. It refers that when these variables increase, financial performance of Ethiopian insurance companies will be go down. However, reinsurance dependency, company size and deposit interest rate have positive correlation with return on asset which indicates that while these variables increase, at the same time financial performance of Ethiopian insurance companies will be increased.

The coefficient estimates of correlation in the above table shows -0.334859, -0.153063, -0.21136, -0.395567 and -0.057238 for credit risk, liquidity ratio, technical provisions risk, underwriting risk and inflation rate respectively. This implies that credit risk, liquidity ratio, technical provisions risk and underwriting risk are highly negatively correlated with return on asset. However, reinsurance dependency, company size and deposit interest rate have 0.062208, 0.547077 and 0.109752 coefficient number respectively which is indicates that company size and deposit interest rate are highly positively correlated with return on asset.

### 4.3. Regression model tests

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

There are broadly two classes of panel estimator approaches that can be employed in financial research: fixed effects models (FEM) and random effects models (REM) (Brooks, 2008). The choice between both approaches is done by running a Hausman test. To conduct a Hausman test the number of cross section should be greater than the number of coefficients to be estimated. Hence, the number of coefficients (eight variables) and number of cross sections (eight insurance companies) are equal in this study, so that the researcher cannot test Hausman test.

However, 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, fixed effect model may be preferable. Therefore, the study has 17 time series and 8 cross sectional which is *relevant to fixed effect model*.

According to Brooks (2008) it is often said that the random effects model is more appropriate when the entities in the sample can be thought of as having been randomly selected from the population, but a fixed effect model is more reasonable when the entities in the sample effectively represent the entire population. Thus, the sample for this study was not selected randomly instead it selected rationally that can effectively represent the total number of population, due to this it is appropriate for *fixed effect model* selection.

#### 4.4. Tests for the Classical Linear Regression Model (CLRM) assumptions

Before going further in to panel data econometric measurement, the first issue is to test the assumption of classical linear regression model (CLRM). Five assumptions were made relating to the classical linear regression model (CLRM). These were required to show that estimation technique, ordinary least squares (OLS), had a number of desirable properties, and also hypothesis tests regarding the coefficient estimates could validly be conducted Brooks (2008).

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

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 (Brooks, 2008). Since, this research included a constant term ( $\beta_0$ ) in the regression model and it passed the first assumption.

### II. Test for heteroskedasticity assumption ( $\text{var}(ut) = \sigma^2 < \infty$ )

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.

$H_0$ : The variance of the error is homoscedasticity

$H_1$ : The variance of the error is heteroscedasticity

**Table 4.3. Heteroskedasticity Test**

Heteroskedasticity Test: White

---

F-statistic	0.399434	Prob. F(9,133)	0.9335
Obs*R-squared	3.763473	Prob. Chi-Square(9)	0.9263
Scaled explained SS	25.24029	Prob. Chi-Square(9)	0.6027

---

**Source: - annual report of sample insurance computed using E-views 8**

In this case, both the F- statistic and R-squared versions of the test statistic give the same conclusion that there is no evidence for the presence of heteroscedasticity, since the p-values are considerably in excess of 0.05 and also the third version of the test statistic, ‘Scaled explained SS’, which as the name suggests is based on a normalized version of the explained sum of squares from the auxiliary regression, suggests also that there is no evidence of heteroscedasticity. Thus, the conclusion of the test has shown that no evidence of heteroscedasticity and the null hypothesis is accepted.



### III. Test for autocorrelation assumption ( $cov(u_i, u_j) = 0$ 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). Brooks (2008) noted that the test for the existence of autocorrelation is made using the Durbin-Watson (DW) test and Breusch-Godfrey test.

Accordingly, from the regression result DW is 1.786 it is closed to two. Another test for the existence of autocorrelation is by using Breusch-Godfrey test.

$H_0$ : The errors are uncorrelated with one another

$H_1$ : The errors are correlated with one another

*Table 4.4. Breusch-Godfrey Serial Correlation LM Test*

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.851297	Prob. F(2,131)	0.4292
Obs*R-squared	1.834711	Prob. Chi-Square(2)	0.3996

*Source: - annual report of sample insurance computed using E-views 8*

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.

### IV. Test of normality

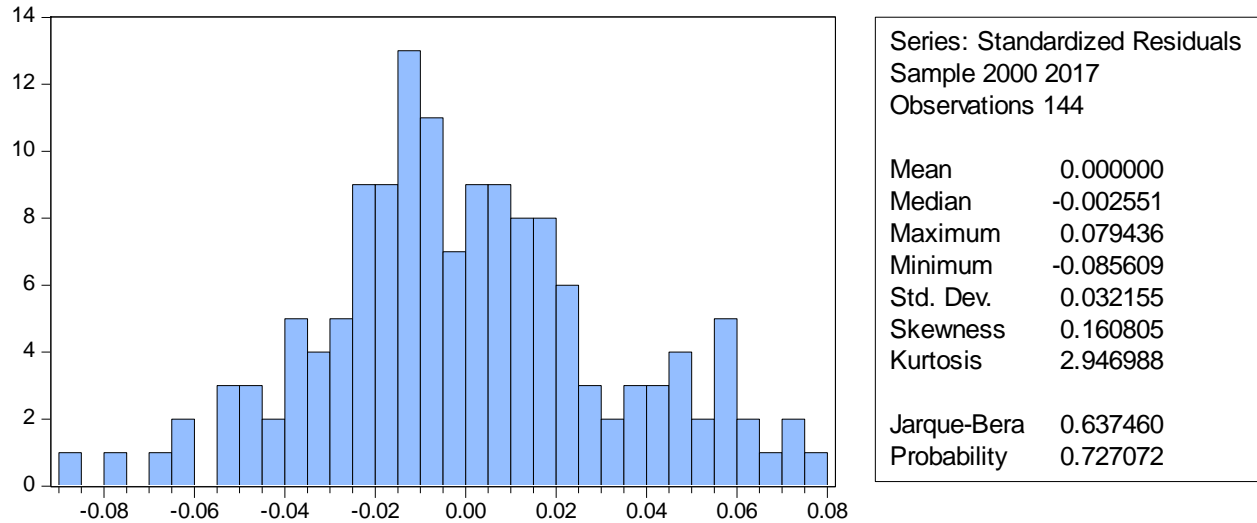
A normal distribution is not skewed and is defined to have a coefficient of kurtosis  $\approx 3$ . Jarque Bera formalizes this by testing the residuals for normality and testing whether the coefficient of skeweness and kurtosis are  $\approx 0$  and  $\approx 3$  respectively. Normality assumption of the regression model can be tested with the Jarque- Bera measure. If the Jarque Bera value is greater than 0.05, it's an indicator for the presence of normality (Brook, 2008). In line with this, the study included one dummy variables DUM 415 to adjust the normality distribution.

The hypothesis for the normality test was formulated as follow:

$H_0$ : Error term is normally distributed

$H_1$ : Error term is not normally distributed

**Figure 4.1. Normality Test Result**



**Source: - annual report of sample insurance computed using E-views 8**

The above diagram witnesses that normality assumption holds, i.e., the coefficient of kurtosis was close to 3, scenes was zero and the Bera-Jarque statistic has a P-value of 0.727 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.

### V. 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 4.5. Correlation Matrix between independent variables*

	CR	LR	RID	CS	TPR	UR	IFN	DIR
CR	1.000000							
LR	0.430654	1.000000						
RID	-0.027434	0.218523	1.000000					
CS	0.260434	0.586658	-0.352334	1.000000				
TPR	-0.269492	-0.070901	0.253562	-0.229138	1.000000			
UR	-0.155841	0.121953	0.106996	0.194358	0.406960	1.000000		
IFN	0.078123	0.587009	0.105256	0.326288	-0.217552	0.045870	1.000000	
DIR	-0.200963	0.164318	0.145269	0.070521	0.258944	0.256963	-0.013308	1.000000

*Source: - annual report of sample insurance computed using E-views 8*

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 4.6 above. All correlation results are below 0.75, which indicates that multicollinearity is not a problem for this study.

#### 4.5. Analysis of regression

This section presents the empirical findings from the econometric output on factors affecting of insurance companies’ performance in Ethiopia. Table 4.7 below reports regression results between the dependent variable (ROA) and explanatory variables. Under the following regression outputs the beta coefficient may be negative or positive; beta indicates that each variable’s level of influence on the dependent variable.

##### Regression result

**Empirical model:** the empirical model used in the study in order to identify factors affecting of insurance companies’ performance in Ethiopia.

$$ROA_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 LR_{it} + \beta_3 RID_{it} + \beta_4 TPR_{it} + \beta_5 UR_{it} + \beta_6 CS_{it} + \beta_7 IFN_{it} + \beta_8 DIR_{it} + \varepsilon$$

**Table 4.6. Regression result**

Dependent Variable: ROA  
Method: Panel Least Squares  
Date: 05/25/18 Time: 15:41  
Sample: 2000 2017  
Periods included: 18  
Cross-sections included: 8  
Total panel (balanced) observations: 144

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.209746	0.040109	5.229447	0.0000
CR	-0.052876	0.011845	-1.931346	0.0458
LR	-0.041072	0.296948	5.964248	0.0346
RID	0.033040	0.008811	-3.749697	0.3803
CS	0.071387	0.047292	1.509507	0.0338
TPR	-0.139444	0.053723	-2.595620	0.0106
UR	-0.298192	0.005204	-3.495773	0.0007
INF	-0.087109	0.022606	-3.853351	0.2652
DIR	0.031349	0.036343	11.31859	0.0447
DUM415	0.274571	0.036375	7.548416	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.755740	Mean dependent var	0.086395
Adjusted R-squared	0.722898	S.D. dependent var	0.064052
S.E. of regression	0.033717	Akaike info criterion	-3.825134
Sum squared resid	0.135287	Schwarz criterion	-3.461052
Log likelihood	277.1091	Hannan-Quinn criter.	-3.677180
F-statistic	23.01159	Durbin-Watson stat	1.786279
Prob(F-statistic)	0.000000		

**Source: - annual report of sample insurance computed using E-views 8**

Thus, based on the result in above Table, the following model was developed to examine the effect of factor affecting financial performance of insurance companies.

$$ROA=0.209746-0.052876CR-0.041072LR+0.033040RID+0.071387CS-0.139444TPR-0.298192UR-0.087109INF+0.031349DIR+\varepsilon$$

This section discusses in detail the analysis of the results for each explanatory variable and factors affecting of insurance companies' performance in Ethiopia. Furthermore, the discussion analyzed the statistical findings of the study in relation to the previous empirical evidences. Hence, the following discussions present the interpretation on the fixed effects model regression results.

P-value indicates at what percentage or precession level of each variable is significant. The R-squared value measures how well the regression model explains the actual variations in the dependent variable (Brooks, 2008). R-squared statistics and the adjusted- R squared statistics of the model was 75.57% and 72.28% respectively. The adjusted  $R^2$  value 72.28% indicates the total variability of factors affecting financial performance of insurance companies was explained by the variables in the model. Thus these variables collectively, are good explanatory variables to identify factors affecting financial performance of insurance companies in Ethiopia. The regression F-statistic (23.01159) and the p-value of zero attached to the test statistic reveal that the null hypothesis that all of the coefficients are jointly zero should be rejected. Thus, it implies that the independent variables in the model were able to explain variations in the dependent variable.

The coefficient for CR is -0.052876 on ROA which indicates that the credit risk of the insurances had negative relationship with ROA and also the relationship is significant at 5% level of significant. And also, the coefficient for LR is -0.041072 on ROA which refers that liquidity ratio had negative and significant relation with ROA at 5% level of significant. In addition to this, the technical provisions risk and underwriting risk with coefficient of -0.139444 and -0.298192 had negative and significant relation with ROA at 5% and 1% level of significant respectively. In contrary, company size and deposit interest rate with coefficient of 0.071387 and 0.031349 had positive and significant relation with ROA at 5% level of significant respectively.

However, reinsurance dependency and inflation have coefficient of 0.033040 and -0.087109 respectively on ROA which implies that reinsurance dependency had positive and insignificant relation with ROA at 5% level of significant and inflation had negative and insignificant relation with ROA at 5% level of significant. The negative relationships indicate that there is an inverse relationship between the five independent variables and ROA. Thus, increasing of those variables will lead to a decrease in ROA of Ethiopian insurance companies. On the other hand the positive relationships indicate that there is a direct relationship between the remaining three independent variables and ROA.

## 4.6. Discussion of Regression result

### Credit risk

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

According to the regression result of credit risk (CR) has a negative relationship with Ethiopian insurance companies' financial performance by a coefficient estimate of -0.052876. 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 5.28% and the p value of credit risk (CR) is 0.0458 reveals that it is statistically significant at 5% level of significance. Accordingly, the result supports the working hypothesis that credit risk has negative and statistically significant effect on financial performance of insurance companies in Ethiopia for the period of 2000 to 2017. Thus, this outcome is consistent with prior study of Jamal et al. (2014) and Daniel (2016) that point out the negative significant effect of credit risk on financial performance.

As implied from the above finding, credit risk is adversely affecting the financial 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.

### Liquidity ratio

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

According to the regression result of liquidity ratio (LR) has a negative relationship with Ethiopian insurance companies' financial performance by a coefficient estimate of -0.041072. This means that holding other independent variables constant and when one percent increases in liquidity, consequently it decreases return on asset (ROA) of Ethiopian insurance

companies by 4.10% and the p value of LR is 0.0346 shows that it is statistically significant at 5% level of significance. Accordingly, the result supported the working hypothesis that liquidity ratio has negative and statistically significant effect on financial performance of insurance companies in Ethiopia for the period of 2000 to 2017. This finding is consistent with previous studies of Adrian (2014), Abate (2012) and Daniel (2016) found out liquidity ratio is one of the most significant variable that adversely affect the financial performance of insurance companies.

On contrary, Arif et al. (2015); Amal (2012) and Suheyli (2015)) concluded that liquidity ratio 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 ratio 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 financial performance of Ethiopian insurance companies. It refers that holding of excess cash brings less profitable if the insurance companies do not invested to increase their income.

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 could not invest their excess of cash in other investment sector.

### **Reinsurance dependency**

***H3: Reinsurance dependency has negative and statistically significant effect on Ethiopia insurance companies' financial performance.***

From the regression result of reinsurance dependency (RID) has a positive relationship with Ethiopian insurance companies' financial performance by a coefficient estimate of 0.033040. This means that keeping other independent variables constant and when one percent increases in reinsurance dependency, as a result it enhances return on asset (ROA) of Ethiopian insurance companies by 3.30% and the p value of RIR is 0.3803 reveals that it is statistically insignificant at 5% significance level and the result does not supported the workable hypothesis that

reinsurance dependency has negative and statistically significant effect on financial performance of insurance companies in Ethiopia for the period of 2000 to 2017. The result is consistent with prior studies of Mistre (2015), Suheyli (2015) and Daniel (2016). However, it is contradict with Shiu (2004) result that it has negative and statistically significant effect on performance of insurance companies, because low retention limits act as if they were the brokers of reinsurers, because a high proportion of their premiums have to be handed over to reinsurance companies, and to a great extent their performance would depend on that of their reinsurers.

On the other hand, the study finding implies that an increase in reinsurance dependency, certainly not lead to a decrease in financial performance of Ethiopian insurance companies. The possible cause of the result is lack of large risk industries which require the involvement of reinsurers in indemnifying the insurance companies' customers.

### **Company size**

***H<sub>4</sub>: Company size has positive and statistically significant effect on Ethiopia insurance companies' performance.***

From the regression result of company size (CS) has a positive relationship with Ethiopian insurance companies' financial performance by a coefficient estimate of 0.071387. This means that keeping other independent variables constant and when one percent increases in company size, as a result it enhances return on asset (ROA) of Ethiopian insurance companies by 7.13% and the p value of CS is 0.0338 reveals that it is statistically significant at 5% significance level and the result supported the workable hypothesis that company size has positive and statistically significant effect on financial performance of insurance companies in Ethiopia for the period of 2000 to 2017.

The result is consistent with prior studies of Ana-Maria et al. (2014), Amal (2012), Hifza (2011), Emine (2015), Yuvarajet al. (2013), Danielet al. (2013), Abate (2012), Meaza (2014) Mistre (2015) and Suheyli (2015). However, it contradicts with finding of Ijaz (2015), Mirie (2015) and Joseph (2011). Hence, the study finding implies that an increase in company size, definitely lead to increase in financial performance of Ethiopian insurance companies. It refers that large corporate size enables to effectively diversify their assumed risks and respond more quickly to changes in market conditions. An increase in total assets 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.

### **Technical provision risk**

***H<sub>5</sub>: Technical provision risk has negative and statistically significant effect on Ethiopia insurance companies' financial performance.***

In line with regression result of technical provision risk (TPR) has a negative relationship with Ethiopian insurance companies' financial performance by a coefficient estimate of -0.139444. This means that holding other independent variables constant at their average value and when one percent increases in technical provision risk, as a result it decreases return on asset (ROA) of Ethiopian insurance companies by 13.94% and the p value of TPR is 0.0106 reveals that it is statistically significant at 5% level of significance.

Consequently, the result supported the working hypothesis that technical provision risk has negative and statistically significant effect on financial performance of insurance companies in Ethiopia for the period of 2000 to 2017. The finding is consistent with earlier result of Suheyli (2015) and Daniel (2016). This implies that an increase in technical provision risk, certainly lead to a decrease in financial performance of Ethiopian insurance companies. It indicates holding insufficient technical provision for outstanding claim decline the insurers' profit. In line with this, understatement liabilities can results in the insurer being unable to discharge all of its obligations to the insured. Thus, if their exist a lack of strong guideline to assess for adequate comprehensive and effective control over outstanding liabilities consecutively leads to decline in profitability of the insurance companies.

### **Underwriting risk**

***H<sub>6</sub>: Underwriting risk has negative and statistically significant effect on Ethiopia insurance companies' performance.***

According to the regression result of underwriting risk (UR) has a negative relationship with Ethiopian insurance companies' financial performance by a coefficient estimate of -0.298192. This means that 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 29.81% and the p value of UR is 0.0007 reveals that it is statistically significant at 1% level of significance.

Accordingly, the result supported the working hypothesis that underwriting risk has negative and statistically significant effect on financial performance of insurance companies in Ethiopia for the period of 2000 to 2017.

The study finding is consistent with previous studies of Ana-Maria et al. (2014); Ijaz (2015); Hifza (2011); Emine (2015); Daniel et al. (2013); Hadush (2015); Meaza (2014); Mistre (2015), Suheyli (2015) and Daniel (2016). However, Mirie (2015) and Arif et al. (2015) result showed that underwriting risk had insignificant effect on insurance companies performance. The study finding implies that an increase in underwriting risk, certainly lead to a decrease in financial performance of Ethiopian insurance companies.

It explains that while the claims incurred is higher than the premiums received, the insurer could not raise sufficient revenues from premiums to cover claims or sum insured. Due to this fact, the insurance companies lose their earnings from premiums' revenues causing their profit to decline.

Higher underwriting risk increases loss ratio and associating adverse effect on insurance companies' performance. The possible reasons for the result are misestimating of the appropriate premium price and insufficient diversification of insurance policies to the insured.

## **Inflation**

*H<sub>7</sub>: Inflation has negative and statistically significant effect on Ethiopia insurance companies' financial performance.*

According to the regression result of inflation (INF) has a negative relationship with Ethiopian insurance companies' financial performance by a coefficient estimate of -0.087109. This means that holding other independent variables constant and when one percent increases inflation, consequently it reduces return on asset (ROA) of Ethiopian insurance companies by 8.71% and the p value of INF is 0.2652 reveals that it is statistically insignificant at 5% level of significance. Accordingly, the result does not support the working hypothesis that inflation has negative and statistically significant effect on financial performance of insurance companies in Ethiopia for the period of 2000 to 2017.

The study finding is consistent with previous studies of Hadush (2015), Meaza (2014) and Suheyli (2015) result showed that inflation had insignificant effect on insurance companies' financial performance. The study finding implies that an increase in inflation, certainly not to lead a decrease or increase significantly in financial performance of Ethiopian insurance companies. Thus, the result suggested that inflation is not a determinant of insurers' financial performance in Ethiopia.

### **Deposit interest rate**

*H<sub>8</sub>: Deposit interest rate has negative and statistically significant effect on Ethiopia insurance companies' performance.*

From the regression result of deposit interest rate (DIR) has a positive relationship with Ethiopian insurance companies' financial performance by a coefficient estimate of 0.031349. This means that keeping other independent variables constant and when one percent increases in deposit interest rate, as a result it enhances return on asset (ROA) of Ethiopian insurance companies by 3.13% and the p value of DIR is 0.0447 reveals that it is statistically significant at 5% significance level and the result supported the workable hypothesis that deposit interest rate has positive and statistically significant effect on financial performance of insurance companies in Ethiopia for the period of 2000 to 2017.

Hence, the study finding implies that an increase in deposit interest rate, definitely lead to increase in financial performance of Ethiopian insurance companies. It refers that insurance companies invest on bank deposit much of the collected premiums, so the income generated through investing activities is highly dependent on interest rates. Due to this fact when they deposit their ideal of cash at bank, insurance companies can enhance their other income through collecting deposit interest income.

*Table 4.7. Comparison of test result with expectation*

<b>Independent Variables</b>	<b>Expected Relationships with ROA</b>	<b>Actual result</b>	<b>Statistical Significance test</b>	<b>Hypothesis Status</b>
<b>Credit risk</b>	-	-	Significant at 5%	Failed to Reject
<b>Liquidity ratio</b>	-	-	Significant at 5%	Failed to Reject
<b>Reinsurance dependency</b>	-	+	Insignificant at 5%	Reject
<b>Company size</b>	+	+	Significant at 5%	Failed to Reject
<b>Technical provisions risk</b>	-	-	Significant at 5%	Failed to Reject
<b>Underwriting risk</b>	-	-	Significant at 1%	Failed to Reject
<b>Inflation</b>	-	-	Insignificant	Reject
<b>Deposit interest rate</b>	+	+	Significant at 5%	Failed to Reject

*Source: Compiled by the researcher*

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATION

The preceding chapter presented the results and discussion, while this chapter deals with summary, conclusion and recommendations based on the findings of the study. Accordingly this, chapter is organized into three subsections.

#### **5.1 Summary of findings**

The research general objective was to examine the factors affecting financial performance of insurance companies in Ethiopia. The study used eighteen (18) years period of time from 2000-2017 data from eight (8) selected insurance companies in Ethiopia. It carried out by constructing a balanced panel regression model using OLS and fixed effect model was adopted for secondary data obtained from audited annual report.

The overall result obtained from the regression model indicates that both company specific factors and macroeconomic variables have effect on financial performance of insurance companies in Ethiopia. The dependent variable used to measure insurance financial performance was return on asset and independent variables these are credit risk, liquidity ratio, company size, reinsurance dependency, technical provisions risk, underwriting risk, inflation and deposit interest rate in order to attain the objective of the study.

From the regression result, credit risk, liquidity ratio, company size, technical provisions risk, underwriting risk and deposit interest rate have significant effect on Ethiopian insurers' financial performance whereas, reinsurance dependency and inflation have no significant effect on financial performance of Ethiopian insurance companies.

## 5.2 Conclusions

The study specifically examines factors affecting financial performance of insurance companies in Ethiopia based on the following conclusions.

- The result indicates negative and significant association between credit risk and Ethiopian insurance companies' financial performance which implies the increase in credit risk inevitably lead to a decline in the financial performance of the insurance companies due to the likely hood of debtors failing to honor their obligation to the insurance company.
- Liquidity ratio has also negative and significant association with financial Performance of Ethiopian insurance companies. This implies that an increase in liquidity, definitely lead to a decrease in financial 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 dependency has positive and insignificant effect on Ethiopian insurance companies' financial performance. This implies that an increase in reinsurance dependency, certainly not lead to decrease or increase significantly in financial 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.
- Company size has positive and significant association with financial Performance of Ethiopian insurance companies. This implies that an increase in company size, definitely lead to increase in financial performance of Ethiopian insurance companies. It refers that large corporate size enables to effectively diversify their assumed risks and respond more quickly to changes in market conditions.
- Technical provisions risk has negative and significant influence on Ethiopian insurance companies' financial performance. This implies that an increase in technical provision risk, certainly lead to decrease in financial performance of Ethiopian insurance companies. This entails that companies holding insufficient provision for outstanding claim would have a negative effect on Ethiopian insurance companies' financial performance because understatement of outstanding claim could be a reason for insurers being unable to discharge their entire obligation to the insured.

- Underwriting risk has negative and significant relationship with Ethiopian insurance companies' financial performance. This implies that an increase in underwriting risk, certainly lead to a decrease in financial performance of Ethiopian insurance companies. This entails that while the costs and claims would be higher than the premiums received, the insurer could not raise sufficient revenues from premiums to cover claims or sum insured.
- Inflation rate has negative and insignificant effect on Ethiopian insurance companies' financial performance. This implies that an increase in inflation rate, certainly not lead to decrease or increase significantly in financial performance of Ethiopian insurance companies.
- Deposit interest rate has positive and significant association with financial Performance of Ethiopian insurance companies. This implies that an increase in deposit interest rate, definitely lead to increase in financial performance of Ethiopian insurance companies. It refers that insurance companies invest on bank deposit much of the collected premiums, so the income generated through investing activities is highly dependent on interest rates.

In general, credit risk, liquidity ratio, technical provisions risk and underwriting risks how negative and significant association with financial performance of Ethiopian insurance companies, whereas company size and deposit interest rate have positive and significant effect on financial performance. However, reinsurance dependency and inflation rate have no significant effect on financial performance of Ethiopian insurance companies.

### 5.3 Recommendation

The findings of the study showed that credit risk, liquidity ratio, technical provisions risk, underwriting risk, company size and deposit interest rate are significant drivers of financial performance of insurance companies in Ethiopia, whereas reinsurance dependency and inflation rate are insignificant determinant of financial performance for Ethiopian insurance companies during the study period. Hence, based on the findings which are obtained from regression, the researcher has drawn the following recommendations.

- The analysis indicated that credit risk had negative and significant effect on Ethiopian insurance companies' financial 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.
- The finding explained that liquidity ratio had negative and significant effect on Ethiopian insurance companies' financial performance. Hence, Ethiopian insurance companies should consider investing their idle of cash on various sectors by diversifying their investment portfolio according to NBE insurance companies' investment regulation (SIB/25/2004). Thus, Ethiopian insurance companies should employ this directive properly through develop and implement suitable investment portfolio management which can improve their return.
- The analysis demonstrates that technical provisions risk had negative and significant effect on Ethiopian insurance companies' financial performance. Consequently, Ethiopian insurance companies should hold sufficient provision for outstanding claims by doing prerequisite adequate assessment on their liabilities and also referring their past experience to develop a comprehensive procedure to effectively monitor and control their outstanding claims. Thus, Ethiopian insurance companies should take in to account these points to reduce the effect of technical provisions risk for their performance.



- The study revealed that underwriting risk had negative and significant effect on Ethiopian insurance companies' financial performance. For this reason, Ethiopian insurance companies should consider to minimize their costs and claims through proper estimation pricing and valuation technique taking in to account risk of specific sector and catastrophic event. In line with this, they have to provide sufficient premium price for insurance policies which takes high insurance coverage. Furthermore, Ethiopian insurance companies should offer adequate diversification of insurance policy portfolio to have better premium earning that can compensate other loss when it's occurred. Hence, Ethiopian insurance companies should give due attention on these areas to reduce the effect of underwriting risk for their performance.
- The study examined that company size has positive and significant association with financial Performance of Ethiopian insurance companies. For this reason, Ethiopian insurance companies should maximize their total asset by investing on fixed asset and current asset which is indicated on NBE directive (SIB/25/2004) about investment sectors allowed to insurance companies in order to invest on those businesses. Thus, Ethiopian insurance companies should employ this directive properly to enhance their total asset.
- The study examined that deposit interest rate has positive and significant association with financial Performance of Ethiopian insurance companies. For this reason, Ethiopian insurance companies should invest their collected premiums on bank deposit as per NBE directive (SIB/25/2004) indicated about short term invest on saving and time deposit account. Accordingly, Ethiopian insurance companies can improve their profit significantly generated from short term investment return (interest income).

#### **5.4 Direction for Future Research**

This study only considered factors affecting financial performance of insurance companies in Ethiopia. However, it is recommended for future researchers to further assess other factors that can affect firms' financial performance by incorporating additional insurance specific like earning volatility, tangibility, age, retention ratio, expense ratio, and asset quality and so on and macro-economic factors like such GDP, as money supply, unemployment rate etc...

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# ***APPENDICES***

## Appendix 1:-Descriptive Analysis

	ROA	CR	LR	RID	CS	TPR	UR	IFN	DIR
Mean	0.095617	0.68521	1.21823	0.16573	19.05783	0.77053	0.67851	0.16673	0.04000
Median	0.080905	0.619685	1.145000	0.147265	18.12000	0.611000	0.548180	0.157975	0.04000
Maximum	0.61388	1.88648	2.60302	0.68562	21.55564	1.75993	0.90877	0.36400	0.05000
Minimum	-0.09051	0.05523	0.36598	0.03597	16.78926	0.10812	0.15328	0.02840	0.03000
Std. Dev.	0.089395	0.38359	0.45673	0.07295	1.06786	0.39743	0.15918	0.11482	0.00898
Skewness	2.344881	0.755907	0.355398	1.290425	3.072728	-0.257931	2.733670	0.369404	11.87464
Kurtosis	16.37150	3.549492	2.168557	5.411954	17.19501	4.068009	10.54091	3.901038	142.0070
Jarque-Bera	1204.746	15.52513	7.179167	74.86986	1435.591	8.440544	520.5429	8.146247	119321.8
Probability	0.000000	0.000425	0.027610	0.000000	0.000000	0.014695	0.000000	0.017024	0.000000
Sum	12.61166	95.69609	6.320000	172.4280	19.87680	88.75504	112.0313	95.51370	1.000000
Sum Sq. Dev.	0.581253	18.80696	0.021022	26.92703	0.786796	1.206558	78.09095	3.484694	0.993056
Observations	144	144	144	144	144	144	144	144	144

## Appendix 2:-Test of Heteroskedasticity

Heteroskedasticity Test: White

F-statistic	0.399434	Prob. F(9,133)	0.9335
Obs*R-squared	3.763473	Prob. Chi-Square(9)	0.9263
Scaled explained SS	25.24029	Prob. Chi-Square(9)	0.6027

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 05/29/18 Time: 11:00

Sample: 2 144

Included observations: 143

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.001311	0.003189	-0.411208	0.6816
CR^2	-0.000569	0.001028	-0.553558	0.5808
DIR^2	0.307943	0.548316	0.561615	0.5753
LR^2	3.85E-05	0.000504	0.076486	0.9391
RID^2	-0.008443	0.014075	-0.599898	0.5496
TPR^2	-7.95E-05	0.000211	-0.376211	0.7074
UR^2	-0.001503	0.002822	-0.532640	0.5952
CS^2	0.009889	0.006737	1.467895	0.1445
INF^2	-0.023218	0.028454	-0.815989	0.4160

R-squared	0.026318	Mean dependent var	0.001614
Adjusted R-squared	-0.039570	S.D. dependent var	0.006378
S.E. of regression	0.006503	Akaike info criterion	-7.165768
Sum squared resid	0.005624	Schwarz criterion	-6.958576
Log likelihood	522.3524	Hannan-Quinn criter.	-7.081575
F-statistic	0.399434	Durbin-Watson stat	1.967121
Prob(F-statistic)	0.933489		



### Appendix 3: - Test of autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.851297	Prob. F(2,131)	0.4292
Obs*R-squared	1.834711	Prob. Chi-Square(2)	0.3996

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 05/29/18 Time: 11:08

Sample: 2 144

Included observations: 143

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.002686	0.044795	-0.059965	0.9523
CR	0.000166	0.011102	0.014976	0.9881
DIR	0.005052	0.354953	0.014234	0.9887
LR	0.000226	0.010428	0.021711	0.9827
RID	0.001026	0.051147	0.020063	0.9840
TPR	1.71E-05	0.005429	0.003156	0.9975
UR	0.001292	0.027815	0.046448	0.9630
CS	0.001495	0.055427	0.026978	0.9785
INF	0.003289	0.110143	0.029861	0.9762
RESID(-1)	0.084941	0.149814	0.566977	0.5717
RESID(-2)	-0.095777	0.112186	-0.853735	0.3948

R-squared	0.012830	Mean dependent var	1.61E-17
Adjusted R-squared	-0.070062	S.D. dependent var	0.040316
S.E. of regression	0.041704	Akaike info criterion	-3.436240
Sum squared resid	0.227842	Schwarz criterion	-3.187610
Log likelihood	257.6911	Hannan-Quinn criter.	-3.335208
F-statistic	0.154781	Durbin-Watson stat	1.972059
Prob(F-statistic)	0.999201		

#### Appendix 4:- Insurance Companies in Ethiopia

<i>S/N</i>	<i>Name</i>	<i>Established Date</i>	<i>Type(life &amp; non-life insurance)</i>	<i>Ownership</i>	<i>Sample</i>
1	<b>Ethiopian Insurance Corporation</b>	1975	Both	Governmental	Include
2	<b>Africa Insurance company S.C</b>	01/12/1994	Both	Private	>>
3	<b>Awash insurance company S.C</b>	01/10/1994	Both	>>	>>
4	<b>National Insurance company of Ethiopia S.C</b>	23/09/1994	non-life insurance	>>	>>
5	<b>Nyala Insurance company S.C</b>	06/01/1995	Both	>>	>>
6	<b>Nile Insurance company S.C</b>	11/04/1995	Both	>>	>>
7	<b>The United Insurance S.C</b>	01/04/1997	Both	>>	>>
8	<b>Global Insurance Company S.C</b>	11/01/1997	non-life insurance	>>	>>
9	<b>Nib Insurance Company S.C</b>	01/05/2002	Both	>>	Exclude
10	<b>Lion Insurance Company S.C</b>	01/07/2007	non-life insurance	>>	>>
11	<b>Oromia Insurance Company S.C</b>	26/01/2009	Both	>>	>>
12	<b>Abay Insurance Company S.C</b>	06/07/2010	non-life insurance	>>	>>
13	<b>Berhan Insurance Company S.C</b>	24/05/2011	non-life insurance	>>	>>
14	<b>Tsehay Insurance Company S.C</b>	08/03/2012	non-life insurance	>>	>>
15	<b>Ethio life &amp; General Insurance Company S.C</b>	23/10/2008	Both	>>	>>
16	<b>Lucy Insurance Company S.C</b>	2011	non-life insurance	>>	>>
17	<b>Bunna Insurance Company S.C</b>	2012	non-life insurance	>>	>>

Source: <http://www.nbe.gov.et/financial/insurer>