



St. MARY'S UNIVERSITY SCHOOL OF GRADUATE STUDIES
THE DETERMINANTS OF PROFITABILITY OF NON LIFE INSURANCES.

A case study in Ethiopian Insurance companies for the period of 2007-2016

BY

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December, 2017

ADDIS ABABA,

ETHIOPIA

DECLARATION

I under signed declare that this Thesis is my work and has not been presented for a degree in any other University, and that all sources of material used for the thesis have been duly acknowledged

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**ST MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES
FACULTY OF BUSINESS**

**THE DETERMINANTS OF THE PROFITABILITY OF NON LIFE
INSURANCE:**

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LIST OF ACRONUMYS

COE-Claims Outstanding to Equity

CS-Company Size

GDP-Gross Domestic Product

INF-Inflation

LQR-Liquidity Ratio

PG-Premium Growth

ROA-Return on Asset

ROE-Return on Equity

RENNSU-D- Reinsurance Dependency

SOLVR-Solvency Ratio

UWR-Underwriting Risk

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To all my beloved families, my friends and colleagues who undeservedly assisting me in the course of this paper preparation. Thanks and I love U!

Abstract

Determinants of Insurance Companies Profitability in Ethiopia

This paper investigated the internal and external determinants of insurance companies' profitability in Ethiopia for the period from 2007-2016. By using the secondary data available from the national Bank of Ethiopia. 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 has negative but 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 provides evidence that underwriting risk, technical provision and liquidity are the most important factors that affect profitability of insurance companies in Ethiopia. So, the study recommends that Ethiopian insurance companies' managers should give consideration to underwriting risk, technical provision and liquidity to increase their profitability significantly.

Keywords: *profitability, determinants, insurance*

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CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

This chapter of the paper deals with the vital role played by the financial institutions in in general and insurance companies' in particular about their contribution to an economy.

The financial industry play a pivotal role in a country's economy development by catalysing resource mobilization from where there is a surplus of accumulation to where it is very scarce. Insurance as one component of the financial business, its contribution to the economy development is very immense. As surveyed by Naveed et al (2011), the efficient performance of financial system of a country –like by transferring risk can affect economic growth in a profound way while at the same time decrease businesses' insolvency.

According to Malik (2001) profitability is the most important objective of financial management as it address the prime objective of managers to maximizing investor's wealth. That is why the concept of profitability attracts the attention of many scholars to do a identify factors contributing or affecting profitability.

External and internal factors to the firm affects either directly or indirectly on the firms' profitability of the business. External factors that affect the firms' profitability are beyond the control of the companies' management whereas the internal factors are those variables affecting the profitability and are under the control of the management (Emine Oner Kaya 2015). Macroeconomic policies, Inflation, GDP, belongs to the external factors (Saikouras and Wood 2007) and firm size, age, capital structure, liquidity, etc. are internal factors.

Thus it requires empirical investigation to identify factors affecting profitability of insurance companies. And this will help the management and other stakeholders 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.

1.2. Background of Insurance

1.2.1. History of insurance at Global level

The earliest known instance of insurance dates back to the Babylonian period circa 2250 BC, when the Babylonians developed a type of loan insurance for maritime business. Examples can be found in the Code of Hammurabi (Buckham et al (2010)). Oana (2012) also mentioned in his paper that Life insurance was known in the ancient Roman time. According to him, the Romans used to have a burial association which was constituted, based on a Regulation of the funeral Board of Lavinium, that work on the basis of fees for registration and regular payment thus, association members were insured to have a pyre and a grave when they died.

Cornelius (1884) in his paper mentioned about the first ever modern insurance contract concluded in the medieval period in England. He stated that this Life Insurance contract was the one contracted by a person named Mr. William Gibbons dated 18 of June 1583 in England.

In England it was the Great Fire of London in 1666 which had changed the opinion of the medieval society. None of the 70 000 destroyed homes of the then London city were insured. One Londoner, Nicholas Barbon, made a fortune out of rebuilding the city and then turned to insuring the houses. His main motive was not solidarity but business, pure and simple. His rational approach and his experience as a banker and mortgage provider made him realise that his insurance companies needed to be built on a different financial foundation, and so, in 1681, he created the first known joint stock insurance companies. (Suice Re. 2008)

As a result of growing trade, and in the wake of emigration, the British system was gradually adopted in most white settler colonies in the Americas, Australia and New Zealand, and in South Africa (Suice Re 2008).

The history that insurance has been developing from the basic funeral insurance coverage to the modern complex insurance policies. Pietro (2011 p 27) in his paper published on Journal of the Washington Institute of China Studies classified the insurance development in to seven stages.

- The first period (ancient to the 1st half of 14th Century) a sort of prehistory of insurance, up to the end of the medieval period was characterized by various primitive forms of protection against uncertainty.
- The second period (2nd half of 14th to the end of the 17th century) was marked by the birth of the insurance policy.

- The third period, (18th century and first half of the 19th century), saw the expansion of the forms of insurance and the emergence of insurance companies to better support economic activity.
- The fourth period (2nd half of 19th century to the 1st decade of 20th century) was highlighted by the development of professional financial management, the establishment of the first insurance groups, and the beginning of government intervention in the form of social insurance.
- The fifth period (1914-1945) that is between World War I (WWI) and World War II (WWII) - was an era of business combinations and mergers in any business field.
- The sixth period - from the end of World War II until the 20th century - witnessed growing importance of regulation and supervision; greater intervention of government with social insurance programs; and closer relationships between insurance, banking, and capital markets. This period consolidated insurance as a crucial market institution.
- The Seventh and current period saw the terrorist attacks on the United States on September 11, 2001, followed by devastating natural catastrophes (e.g., earthquakes and hurricanes) that led to a growing role for government to protect against particular types of risks (e.g., terrorism, natural catastrophes).

1.2.2. Insurance in Ethiopia

Hailu Zeleke (2007) stated the history of insurance service in Ethiopia introduced in 1905. At that time, an agreement was reached between Emperor Menelik II and a representative of the British owned National Bank of Egypt to open a new bank in Ethiopia. Similarly, modern insurance service, which were introduced in Ethiopia by foreigners, mark out their origin as far back as 1905 when the bank of Abyssinia began to transact fire and marine insurance as an agent of a foreign insurance companies. According to a survey made in 1954, there were nine insurance companies that were providing insurance service in the country.

With the exception of Imperial Insurance Companies that was established in 1951, all the remaining of the insurance companies were either branches or agents of foreign companies. In 1960, the number of insurance companies increased considerably and reached 33. At that time insurance business like any business undertaking was classified as trade and was administered by the provisions of the commercial code Hailu (2007).

According to Hailu (2007), the first significant event that the Ethiopian insurance market observation was the issuance of proclamation No. 281/1970 and this proclamation was issued to

provide for the control and regulation of insurance business in Ethiopia. Consequently, it created an insurance council and an insurance controller's office, its strange impact in the sector. The controller of insurance licensed 15 domestic insurance companies, 36 agents, 7 brokers, 3 actuaries and 11 assessors in accordance with the provisions of the proclamation immediately in the year after the issuance of the law.

After four years that is after the enactment of the proclamation, the military government that came to power in 1974 put an end to all private enterprises. Then all insurance companies operating were nationalized and from January 1, 1975 onwards the government took over the ownership and control of these companies and merged them into a single unit called Ethiopian Insurance Corporation. In the years following nationalization, Ethiopian Insurance Corporation became the sole operator. After the change in the political environment in 1991, the proclamation for the licensing and supervision of insurance business heralded the beginning of a new era. Immediately after the enactment of the proclamation in the 1994, private insurance companies began to increase. As of June 2016, there are 17 public and private owned insurance companies operate in Ethiopia (National bank of Ethiopia 2016).

According to the National Bank report the insurance companies increased their branches to 492. About 53.5 percent of insurance branches are located in Addis Ababa and 84.8 percent of the total branches were private. Insurance companies increased their total capital by 20.7 percent to Birr 4.3 billion of which the share of Private insurance companies was 75.6 percent and that of public insurance company was 24.4 percent (NBE 2016 report pp 52)

Table 1.1 Branch Tetwork and Capital of Insurance Companies as of June 30, 2017

No	Insurance Companies	Branches						Capital (in millions ETB)		
		2015/16			2016/17			2015/16	2016/17	% Change
		AA	Regions	Total	AA	Regions	Total	A	B	B/A
1	Ethiopian Insurance Co.	18	52	70	20	55	75	836.5	1056.0	26.2
2	Awash Insurance Co.	24	14	38	26	15	41	292.3	400.0	36.9
3	Africa Insurance Co	11	11	22	14	13	27	240.9	271.0	12.5
4	National Ins Co of Ethiopia	15	14	29	19	15	34	100.0	111.0	11.0
5	United Ins Com S.C	18	10	28	20	11	31	322.5	334.0	3.6
6	Global Ins. Com. Sc.C	6	7	13	8	7	15	109.7	128.0	16.7
7	Nile Ins.Com.S.C	17	19	36	19	20	39	232.3	320.0	37.7
8	Nyla Ins. Com. S.C	13	10	23	15	15	30	327.8	391.0	19.3
9	Nib Ins. Com. S.C	21	9	30	24	13	37	316.3	328.0	3.7
10	Lion Ins. Com S.C	15	13	28	16	15	31	91.2	83.0	-9.0
11	Ethio-Life Ins. Com S.C	12	4	16	15	4	19	81.3	100.0	23.0
12	Oromia Ins. Com. S.C	17	16	33	18	19	37	165.6	215.0	29.0
13	Abay Insurance	10	9	19	12	11	23	160.6	217.0	35.1
14	Berhan Insurance S.C	7	1	8	9	2	11	71.3	91.0	27.6
15	Tsehay Insurance S.C	8	4	12	10	5	15	80.3	98.0	22.0
16	Lucy	6	2	8	7	4	11	96.4	116.0	20.3
17	Buna Insurance S.C	10	3	13	11	5	16	64.6	73.0	13.0
	Total	228	198	426	263	229	492	3589.6	4332.0	328.6

Source: NBE 2016 report

1.3. Statement of the problem

The financial services sector after the coming power of the current government in 1993 has been booming. From one government owned insurance companies a mere decade ago, today, there are around 17 insurance firms with 492 branches around the country which shows that the sector is considered to be one of the country's brightest prospects business.(NBE Report 2016). This is due to the fact that financial sector development has got a due attention from the policy makers and investors. However, according to United Nations Conference on Trade and Development (UNCTD 1988 report) financial sector development including the insurance sector in developing countries, especially in Africa is at its infancy stage.

The insurance industry plays immune and repair system of an economy and successful operation of the industry can set energy for other industries and development of an economy (Abate 2012). To do so, the insurance industry is expected to be financially solvent and strong through being profitable in operation. Hence, not only measuring the financial performance of insurance companies but also getting clear insight about determinants of profitability in the industry is very essential for the internal and external stakeholders of the industry.

In Ethiopian insurance industry context, there are few studies conducted on the determinant of profitability. For example, Sambasivam and Gashaw (2013), have researched the determinant of profitability by taking internal factors like age, size, leverage, growth, Volume of Capital, tangibility of asset and liquidity to determine the profitability of Insurance without taking in to account the external factors that can affect the profitability of Insurance business using ROA as a dependant variable. They concluded that size of company, leverage, volume of capital firm growth and liquidity are the *most* important determinant of performance of life insurance sector, whereas, tangibility of asset and age are not considered as powerful explanatory variables to determine the performance of the insurance companies.

Whereas, Mehari and Aemiro (2011) on the other hand, they researched the determinant variable that affect the profitability insurance companies' performance in Ethiopia using ROA as a dependent variable and , age of company, size of company, leverage, loss ratio, tangibility of assets, liquidity, premium growth as independent (determinant) variables.

Then they concluded that firm size, leverage, loss ratio and tangibility of assets were **statistically significant** variables to explain performance of insurance companies whereas, firm age, liquidity and growth in written premium have *no a statistical significant* relationship with performance of insurance companies.

Gashaw (2012) conducted a research to determine factors affecting insurance companies' profitability in Ethiopian insurance industry. He used like the other researchers ROA as a dependent variable to measure profitability and age, size of company, leverage volume of capital tangibility, liquidity and premium growth as independent variables to determine insurers' profitability. He found that leverage, size volume of capital, growth and liquidity *are most important determinant* of profitability of insurers, on the other hand age and tangibility have *insignificant relationship* with profitability of insurers' in Ethiopia.

Moreover, other research papers' outcome on the determinant and their magnitude in relation to Profitability controversial. Such as Derbai (2014) and Pervan (2012) found a *positive relationship* between age and profitability, and Derbai (2014) also found positive relationship between size and profitability, whereas, Bilal et al. (2013) found *inverse relationship* between age and profitability, but found positive relationship between size and profitability. Malik (2011), Almajali et al. (2012) and Mehari and Aemiro (2013) found *insignificant relationship* between age and profitability and positive relationship between size and profitability.

As a result, there is a need for additional study to supplement or otherwise to the above researchers result in general and to the researches made on Ethiopian insurance in particular. Thus this paper will assess what impact and magnitude may have different internal and external independent variables on the profitability of insurance. The paper also uses a recent panel data (2007-2016) to test if there is any variation or deviation from the hypothetical truth that exist between different variables.

1.4. Research Hypothesis

1. H0-Underwriting risk has no significant impact on profitability of insurance companies' in Ethiopia.
2. H1-Reinsurance dependence has no significant impact on profitability of insurance companies' in Ethiopia

3. H2-Solvency ratio has no significant impact on profitability of insurance companies' in Ethiopia.
4. H3-Liquidity has no significant impact on profitability of insurance companies' in Ethiopia.
5. H4-There is no significant effect between of gross written premium and profitability in Ethiopia?
6. H5-Companies' size has no significant impact on profitability of insurance companies' in Ethiopia.
7. H6-Gross domestic product has no significant impact on profitability of insurance companies' in Ethiopia.
8. H7-Inflation has no significant impact on profitability of insurance companies' in Ethiopia.

1.5. Objectives of the Study

The following are the general and specific objectives of the research.

a. General Objective

This study has undertaken to investigate the determinants of the profitability of non-Life Insurance in the Ethiopian Insurance Industry for the subsequent 10 years (2007-2016).

b. Specific Objectives.

- ❖ To identify the impact of firm specific factors that determines the profitability of non-life Insurance business.
- ❖ To verify the hypothesis proposed in the research questions and identify if there is a complementary or supplementary with previous researches made on Ethiopian non-life insurance profitability.

1.6. Significance of the Study

This study will feed in for the management of Insurance Companies for a better understanding of the internal factors that contribute towards the companies' better performance and enhancing its competitiveness in the industry. It will also identifies the companies' competent edge (niche) in the industry and available opportunities that the companies may strategized itself in the

industry. Finally, the paper can be used by researchers, academic institutions and other insurance companies which work in the same business environment for further study.

1.7. Scope and Limitations of the Study

The study is concentrated on the companies' financial performance from 2007-2016. The research is limited on identifying the determinants of the profitability of non-life insurance in a particular industry. Thus this research didn't see the finance Industry at large which may led to a different finding and conclusion

Moreover, the research is mostly used to secondary data-which is based on the companies' 10 years audited financial accounts and using financial ratio..

There is no sufficient records and publications regarding the profitability of life insurance in the firm to access the profitability of the companies from all sort of its products. Thus conclusion made on the findings could not be a full-fledged analysis about the Insurance Industry.

1.8. Organization of the Paper

This research paper has been organized into five chapters. The first one deals with the introduction, background of the study, statement of the problem, significance of the study, limitation of the study, organization of the study. The second chapter deals with review of the literature that deals with determinants of the profitability's of Non-life insurance. The third chapter focuses on the data interpretation, research design and methodology. The fourth chapter is focus on the interpretation and analysis of data obtained from secondary data which is the review of ten years financial report. The fifth chapter deals with summary, conclusion and recommendations.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

2.1. Introduction

This chapter deals with the concept of insurance companies and profitability, profitability related theories and studies on determinants that determine the profitability of insurance companies. The review is divided into three sections. The first section discusses about theoretical reviews within it concept of insurance companies and Profitability and profitability related theories are presented.

2.2. Theoretical Review

2.2.1. Concept of Insurance and its Nature

The financial system comprises of financial institutions, financial instruments and financial markets that provide an effective payment, credit system and risk transfer and thereby facilitate channelizing of funds from savers to the investors of the economy (Boadi and et al 2013). As part of financial institution, social welfare created by insurance companies is unquestionable. A well developed and evolved insurance sector is a blessing for economic development as it provides long term funds for infrastructure development at the same time strengthening the risk taking ability of the country (B. Charumathi 2012). Chen and wong (2004) also suggests that a strong and healthy insurance sector is of utmost importance for all groups and sectors of the economy.

Cognizant to the above; the concept and definition of insurance vary among different social science fields like economic, social, and legal perspectives. The social aspect of insurance involves the collective bearing of losses through contributions by all members of a group to pay for losses suffered by some group members.ⁱ (Zekarias 2010).

Pfeffer (1956) as cited in Wolfgang's (1981) defined insurance as follows:-“Insurance is a device for the reduction of the uncertainty of one party called the insured, through the transfer of particular risk to another party, called the insurer, who offers a restoration, at least in part , of economic losses suffered by the insured ”.

Pritchett, et al (1906, p: 52) also defined insurance as a social device, in which a group of individuals called “insureds” transfer risk to another party called the “insurers”.

Similarly Ethiopian Commercial Code article 654(2) defines insurance as “An insurance policy is a contract where by a person called the insurer undertakes against payment of one or more premiums to pay a person, called the Beneficiary, a sum of money where a specified risk materializes” (CCE 1960, p: 140).

2.2.2. Benefits of Insurance

As discussed above, Insurance has many benefits for the welfare of the society. Abate et al (2013), stated that the role of financial institutions in the economy of a country in general and insurance companies in particular is very critical in terms of mobilizing resource and sharing societal risks. Malik (2011) also stressed that the insurance related transactions played substantial role in a development of commercial and infrastructural services.. From the latter perspective, it promotes financial and social stability; mobilizes and channels savings; supports trade, commerce and entrepreneurial activity and improves the quality of the lives of individuals and the overall wellbeing in a country.

Michael Koller (as cited in Abate's work 2012) underlined in his research that insurance companies are playing the role of transferring risk and channelling funds from one unit to the other (financial intermediation). This implies that insurance companies are helping the economy of a country in one way by transferring and sharing of risk which can create confidence over the occurrences of uncertain event and in another way insurance companies like he other financial institutions plays the role of financial intermediation so as to channel financial resources from one to the other.

2.2.3.Profitability

Sharma (2000) defined the term profitability by splitting the word in to two words. Profit and ability. According to his definition, Profit from accounting perspective is a difference of total revenue and total expenses incurred to generate the revenue of the business. In broad definition profitability is the ability of a given investment to earn a return from its use and in turn it helps to measure a companies' performance. In other words, profitability is simply the capacity to make a profit, and a profit is what is left over from income earned after deducted all costs and expenses related to earning the income. (study.com)

According to Kaguri (2013) profitability shows how efficiently the management can make profit by using all the resources available in the market. According to Malik (2011) profitability is an index of efficiency; and is regarded as a measure of efficiency and management guide to greater efficiency. Profitability is one of the most important objectives of financial management because one goal of financial management is to maximize the owner` s wealth and profitability is very important determinants of performance.

There are different ways to measure profitability such as: Return on Assets (ROA) ratio, Return on owner's Equity (ROE) ratio and return on investment (ROI). **ROA** ratio is calculated as net profit after tax divided by the total assets. This ratio measure for the operating efficiency for the companies based on the firm's generated profits from its total assets. Whereas; **ROE** ratio is calculated as net profit after tax divided by the total shareholders' equity. This ratio measures the shareholders rate of return on their investment in the company's. (Kabete et al 2012).

Malik (2011),Almajali et al (2012) and Boadi et al (2013) in their respective research paper used regression analysis by taking ROA as dependent variable and leverage, liquidity, size, loss ratio(risk), premium growth ,age of the firm, and management competency as an independent variables .

According to the study by Swiss Re (2008), Profits are 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. The first division of the decomposition shows that an insurer's ROE is determined by earnings after taxes realized for each unit of net premiums (or profit margin) and by the amount of capital funds used to finance and secure the risk exposure of each premium unit (solvency). That is why most researchers use ROA as a measure of profitability in financial institutions

2.3.An Empirical Review-The effects of firm specific factors on profitability

Insurance profitability is influenced by both factors that are under the control of the firm itself and others which are beyond the control of the firm. Factors that are under the control of the firm referred as internal or firm specific factor and those beyond to the firm are external. In other words, the firm can exercise full control on the impact and magnitude of those factors on the profitability of the business whereas, regarding to the external factor, the firm can do little about their impact on the business operation.. However, in most literatures, profitability with regard to insurance companies frequently expressed in as a function of internal determinants. Besides internal determinants, in this research the researcher was included a set of macroeconomic determinants.

Most scholars used the following variables to analyse the profitability of an insurance firm.

- ✓ Size of the companies,
- ✓ Level of liquidity,
- ✓ The capital structure (leverage),
- ✓ Tangibility of asset,
- ✓ Risk / loss ratio,
- ✓ Firm growth, and
- ✓ Managerial efficiency of the firms are the most common internal variable taking in o account in analysing the determinant of profitability in the firms' performance by different scholars in different countries.

2.3.1.Firm (company) size

Firm size is one of the most acknowledged determinants of a financial performance of an insurance companies (Beard et al, 1981). The underlying relationships between size and financial performance though have different results. For instance, B. Charumathi (2012) examined the

factors determining the profitability of life insurers operating in India and identified out that profitability of life insurers is positively and significantly influenced by size.

Almajali and et al (2012) conducts a study with the aim of investigating the factors that mostly affect financial performance of Jordanian Insurance Companies. Similarly the results showed that a positive impact of Size on the financial performance of Jordanian insurance companies.

Malik (2011) examines 35 insurance companies in Pakistan for their performance (2005-2009) and find out that there is a positive association between size of the companies and profitability insurance companies.

Additionally, abate et al (2012) and Daneiel and Tilahun (2013) in their study on 9 insurance companies in Ethiopia explained that the size of a companies has a positive relation with the profitability. On the contrary to the positive relation argument, Olaosebikan (2012) examines the micro-finance insurers in Nigeria for the period of 2007-2009 come out with a result of negative relationship of firm size and profitability.

2.3.2.Firm Liquidity

Liquidity from the context of insurance companies is the probability of an insurance firm to pay its liabilities which include operating expenses and payments for losses/benefits for the obligation it has with policy holders in the short run. The main source of liquidity is from a cash flow (mainly premium and investment income) and liquidation of assets (Chen and Wong 2007).

Liquidity of a firm has got a lot of attention from many scholars to access its impact on profitability. Chen and Wong (2007) in their research of the Asian Insurance companies, they revealed that liquidity ratio has a **significant positive impact** on profitability of insurance companies. Similarly Almajali and et al (2012) conducts a study with the aim of investigating the factors that mostly affect financial performance of Jordanian Insurance Companies and the results showed that liquidity have a **positive statistical effect** on the financial performance of Jordanian Insurance Companies. The same finding is also revealed in B. Charumathi (2012) research Indian life insurance companies that the profitability is positively and significantly influenced by liquidity

Daneiel and Tilahun (2013) research on the profitability of Ethiopian Insurance companies revealed that companies with more liquid assets are less likely to fail because they can mobilize cash even in very difficult situations. That means liquidity has a significant positive relationship with profitability. Boadi and et al (2013) study also found out a positive relationship between liquidity and profitability of insurance firms in Ghana.

On the contrary, Abate (2012) reported negative but significant relation between liquidity ratios with profitability. On the other hand, the result of Daneiel and Tilahun (2013) and Sumaira and Amjad (2013) study revealed that liquidity has statistically insignificant relationship with ROA.

Adams and Buckle 2002 studies suggested that the positive liquidity impact on profitability insurance is not always true as many scholars imagined. They identified in their research on Bermuda insurance market using panel data for 1903–1907, shows that lowly liquid companies and reinsurers have better operational performance than, highly liquid companies and direct insurers.

2.3.3. Leverage

Leverage can be determine through the ratio of total debt to equity. It is possible with this ratio to realize how much money the companies borrows. So insurance leverage could be defined as reserves to surplus or debt to equity. According to Naveed et al (2011) leverage is more important determinants of performance of insurance companies.

Many scholars have examined the effect of leverage on firm profitability. However, the results are inconsistence. In the study of B. Charumathi (2012); Malik (2011) and Abate Gashaw (2012) leverage have negatively and significantly influence the insurance companies profitability. But in the study of Almajali and et al (2012); Boadi and et al (2013) and Daneiel and Tilahun (2013) leverage have positively and significantly influence the insurance companies profitability.

2.3.4. Tangibility of asset

Some studies have been conducted to examine the effects of Tangibility of asset on insurance companies profitability, however, the result are conflicting. Himmelberg and et al. (1909) study showed that tangibility of asset has positive effect on Boadi and et al (2013) study found out that tangibility asset of insurance firms in Ghana discovered that it has a negative relationship between tangibility and profitability.

According to Daneiel and Tilahun (2013) study result shows that tangibility of asset has statistically significant and positively relation of ROA. In the study of Abate (2012) tangibility of assets is not significantly related with profitability.

2.3.5. Risk/ loss ratio

Many scholars agreed on the effect of risk on profitability and have the same opinion with negative and significant effect of risk on profitability. For example, Jian-Shen and et al (2006) provide evidence regarding the operational risk on profitability of life insurance industry in Taiwan. The finding shows that the operational risk exerts a negative and significant effect on profitability.

Malik (2011) in his research regarding Loss ratio found out a negative but significant relationship with profitability. The results of Daneiel and Tilahun (2013) study also revealed that Loss ratio (risk) is important determinants of performance of insurance companies in Ethiopia and it has statistically significant and negatively related with ROA.

2.3.6. Firm growth

According to Abate (2012), firm growth is measured by the percentage change in total assets of insurance companies or sometimes it is measured by percentage change in premiums of insurance companies. Insurance companies having more and more assets over the years have also better chance of being profitable for the reason that they do have internal capacity though it depends on their ability to exploit external opportunities.

2.3.7. The effects of macroeconomics variables on profitability: - GDP and Inflation

The external factors concern both industry features and macroeconomic variables. Macroeconomic growth and inflation. The effect of economic growth and inflation on the profitability of insurance companies is not adequately investigated, Olaosebikan (2012); Poposki and et al (2012); Hussain (2012) and Chen-Ying Lee (2016) are among other investigate the effects of economic growth and inflation on insurance companies profitability. There are more empirical evidences on the effects of economic growth and inflation on banking sector profitability compared to insurance companies' profitability.

Poposki and et al (2012) provides an overview of performances of insurance sector in the Republic of Macedonia, and the findings confirm that expense ratio and claims ratio, economic growth and inflation were the most important factors that determine Macedonian insurance companies' profitability.

Hussain (2012) confirm that macroeconomic environment and inflation have substantial contribution on profitability of insurance companies in Pakistan's financial sector. Chen-Ying Lee (2016) investigation on Taiwanese property-liability insurance industry showed that it has significant influence on profitability in operating ratio model but insignificant influence on profitability in ROA model.

Sufian and Chong (2008) study suggests that inflation has a negative impact on bank profitability, while the impacts of economic growth have not significantly explained the variations in the profitability of the Philippines banks. Naceur (2003) investigates the impact of macroeconomic indicators on bank's profitability in the Tunisian banking industry and found out that the macroeconomic indicators such inflation and growth rates have no impact on bank's interest margins and profitability.

Abera (2012) in his study about the profitability of Ethiopian banking industry he concluded that the relationship between inflation and profitability is statistically insignificant. Ayadi and Boujelbene (2012) also identified in his research on the Tunisian banks performance conclude that the macroeconomic variables, GDP growth and inflation, do not have a significant effect on bank profitability.

Bekeris (2012) studied the correlation between macro factors and corporate profitability of small and medium-sized enterprises of Lithuania. His findings reveal that interbank interest rate changes and unemployment have the strongest impact on profitability. Nissim (2010) also argues that the overall economic activity affects insurance carriers' growth, because the demand for their products is affected by the available income. Further, he underlines that the investment income is highly sensitive to interest rates, both on the short and on the long run. D'Arcy and Gorvett (2000) argue that inflation heavily affects the liability side of property-liability insurers' balance sheets

2.3.8. Summary of the literature review

A lot of empirical works has been done regarding determinants of profitability. Review of the literature showed that the researches on the determinants of profitability had been comprehensively studied in developed countries around the world and in some emerging countries like Pakistan, India and Taiwan. Besides, in Ethiopia most of the researches focused on banks and other non-financial sectors rather than insurance companies.

Different scholars using empirical investigation on the determinants of profitability are resulting in dissimilar conclusions. For instance, an empirical study by Daniel & Tilahun (2013) indicated that positive and significant relationship between size, tangibility and leverage with profitability; however, loss ratio is statistically significant and negatively related with ROA. The result also revealed that there is negative relationship between age and profitability but statistically insignificant. On the other hand, a study of Ahmed (2008) examined the determinants of insurance companies profitability in UAE indicate that that there is no relationship between profitability and age of the company and there is significantly positive relationship between profitability and size & volume of capital.

Result also shows that Leverage ratio & loss ratio significantly and opposite related to profitability. Khan and Amjad (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. This initiate that determinants of profitability are issue that requires further investigation.

Empirical evidences regarding determinants of insurance companies' profitability (Yuvaraj and Abate 2013) focused only on internal factors such as age, size, leverage, growth, volume of capital, tangibility of assets and liquidity. However this study was focused on other factors like

underwriting risk, reinsurance dependence, solvency margin, liquidity risk, premium growth, technical provisions, company size, inflation and growth rate of GDP because these variables exert strong impact on insurance companies' profitability based on the selected previous empirical works.

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

This chapter presents the study areas description, research philosophy, design and strategies, data sources, data collection instruments, sampling design and sample size, data processing procedures, data analysis tools and ethical considerations of the study.

3.1. Research Design and Approach

Research design is a blue print for selecting the sources and types of data relevant to the research questions. With regard to research application, there are namely three types of research methodologies namely qualitative, quantitative and mixed. (Johnston, 2010).

According to Crosswell (2009) there are three types of research researches. These are quantitative, qualitative and mixed. **Quantitative** approach is a method used for testing objective theories by examining the relationship of variables. **Qualitative** research is a method employed to assess and understand the meaning of individuals or groups assigned to a social or human problem with the intent of developing theory. **A mixed** approach the method used by employing the two methodologies together. (Crosswell 2009)

Based on the above brief description of the methodologies popularly used by many researchers, in this study, the quantitative method is primarily used.

In this paper, the result of multiple regression analysis is adopted to measure the effect of determinant on the firm profitability using classical linear regression analysis by employing the statistical data analysis tool named SPSS.

3.2. Sampling Technique and Sample Size Determination

After the liberation of the Ethiopian economy since 1904, the insurance industry is booming and to-date seventeen insurance companies are working in Ethiopia (as presented in appendix 1). In order to reach meaningful conclusion, there is no need to sample from the seventeen insurance companies, as they are already few in numbers to collect information over the period of 2007-2016. But, because of lack of 10 years financial data in most of the newly established insurance companies, the number of Insurance sampled is reduced to nine.

The researcher believes that the sample size is sufficient to make sound conclusion about the population as far as it covers 50% of the total population. Moreover, the inclusion of EIC in the sample which takes the lions share in the country's insurance activity makes the sample more representative and reasonable. Hence samples are chosen to represent the relevant attributes of the whole population. Accordingly, available audited financial statements of ten consecutive years from 2007-2016 of the insurance companies is reviewed.

Thus, to make the panel data structured, i.e. every cross-section follows the same regular frequency with the same start and end dates. Besides, ten years is assumed to be relevant because five years and above is the recommended length of data to use in most finance literatures.

The procedure used for selecting the sample from the available lists is based on their age, for the reason that the study intend to use secondary data available at the NBE archive. Therefore, sample size is decided based on the availability of operating data in the companies. According to Singh, (2006) when the subjects used in the sample is homogeneous, using purposive sampling technique is appropriate. Therefore, the researcher used purposive sampling method to draw the sample from the population.

3.2. Data and Data Source

The necessary data used in the study is obtained through secondary sources mainly from the annual report compiled by the NBE. Books, journal articles, and internet were explored to gather published data on the issues under investigation.

The researcher used **Return on Asset (ROA)** as dependent variable to measure profitability. Since ROA reflects the ability of insurer's management to generate profit, it is considered in this study as a better variable used to measure profitability comparing to Return on Equity (RoE) which only indicates return to shareholders on their equity. The Return on Assets ratio is an important measure of profitability because it measures the efficiency with which the companies is managing its investment in assets and using them to generate profit.

3.3. Data analysis techniques and methodology followed

According to William (2010), data sampling techniques involves specifying relationships between two or more variables; perhaps extending to the development of descriptive or predictive equations. In order to achieve the objectives of this research study, the panel data regression model is used to identify the relationship between the profitability and (determinants) explanatory variables like underwriting risk, reinsurance dependence, solvency ratio, liquidity, premium growth, companies size, inflation and growth rate of. This is because prior studies; Malik (2011), Shiu (2007). Charumathi (2012) mostly developed this model to identify the determinant of insurance companies' profitability.

Thus, the collected panel data is analyzed using expressive statistics, correlations, multiple linear regression analysis and inferential statistics. Mean values and standard deviations are used to analyze the general trends of the data from 2007-2016 based on the sector sample the insurance companies. In addition, ordinary least square (OLS) is conducted using SPSS to determine the most significant and influential explanatory variables affecting the profitability of the insurance companies.

Modeling is based on panel data techniques. Panel data or longitudinal data consisting of both cross-sectional elements and time-series elements; the cross-sectional element is represented by the different insurance firms and the time-series element is reflected by the observation across a 10 year period (2007-2016). According to Atlai (2005), panel data is more favorable than pure time-series data for the sake of individual heterogeneity.

Thus the research takes the famous formula used by different research papers to investigate the insurance specific determinants on profitability.

$$ROA_{it} = \beta_0 + \beta_1 (ISD)_{xt} + \beta_2 (MED)_{yt} + \epsilon_{it}$$

Where;

ROA_{it} is a dependent variable for the insurance *i* at a time *t*; $\beta_0, \beta_1, \beta_2$ is the estimated coefficient including the intercept; **(ISD)_{xt}** represent the *X*-th insurance specific determinant at a time *t*; **(MED)_{yt}** represent the *y*th macroeconomic determinant at the a time *t* and **E_{it}** is the error term

The individual determinate variables which are used in this study is formulated the research equation is formulated as follows taking the previous research papers experiences.

$$ROA_{it} = \beta_0 + \beta_1 UR_{i,t} + \beta_2 RD_{i,t} + \beta_3 SR_{i,t} + \beta_4 TP_{i,t} + \beta_5 LQ_{i,t} + \beta_6 CS_{i,t} + \beta_7 PG_{i,t} + \beta_8 I_{i,t} + \beta_9 GDP_{i,t} + \epsilon$$

Where:-

ROA_{it} = dependent variable return on asset;

PG = premium growth;

UR = underwriting risk; TP = technical provision;

RD = reinsurance dependence; GDP = growth rate of GDP;

LQ = Liquidity; I = inflation;

CS = companies size

SR = solvency ratio;

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

β₀ = Constant

β = 1, 2, 3...9 are parameters to be estimate;

i = Insurance companies i = 1. . . 9; and t = the index of time periods and t = 1. . . 11

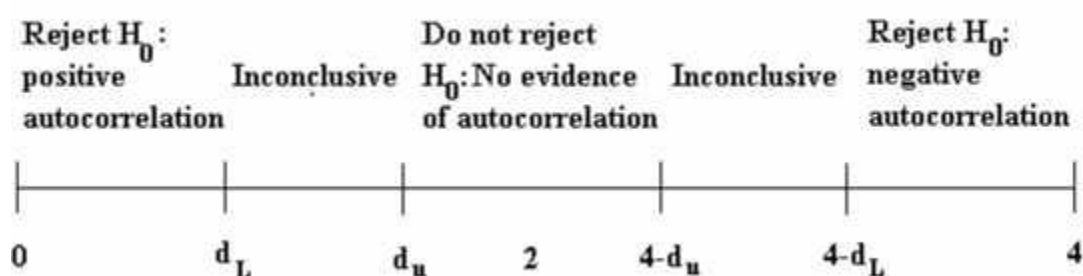
In this study, fixed effect model is selected rather than random effect model as the number of time series (10 years) is greater than the number of cross –sectional units (9 insurances).

As mentioned in Brooks (2008), there are basic assumptions required to show that the estimation technique, OLS had a number of desirable properties, and also so that hypothesis tests regarding the coefficient estimates could validly be conducted. If these Classical Linear Regression Model (CLRM) assumptions hold, then the estimators determined by OLS will have a number of desirable properties, and are known as Best Linear Unbiased Estimators. Therefore, for the purpose of this study, diagnostic tests are performed to ensure whether the assumptions of the CLRM are blue or not in the model. Consequently, the basic CLRM assumptions test in this study are errors have zero mean, homoscedasticity, autocorrelation, normality and multicollinearity. According to Brooks (2008) when the assumptions are satisfied, it means that all the information available from the patterns was used. But, if there is assumption violation of that data usually means that there is a pattern of data that have not included in the model, and could actually find a model that fits the data better.

The first assumption is errors have zero mean. According to Brooks (2008), if a constant term is included in the regression equation, this assumption will never be violated. The second assumption is heteroskedastic. The assumption of homoscedasticity is that the variance of the errors is constant or equal. If the variance of the errors is not constant, this would be known as heteroskedastic (Guajarati, 2007). In order to test homoscedasticity the white test will be used.

The third assumption is the autocorrelation assumption that the covariance between the error terms over time is zero; it 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 serially correlated. Usually, Durbin-Watson (DW) value in the main regression table is considered and used to test the presence of autocorrelation. According to Brooks (2008), DW has 2 critical values: an upper critical value (d_U) and a lower critical value (d_L), and there is also an intermediate region where the null hypothesis of no autocorrelation can neither be rejected nor not rejected.

Figure 3.1: Rejection and Non-Rejection Regions for DW Test



The rejection, non-rejection, and inconclusive regions are shown on the number line in figure 3.1. So, the null hypothesis is rejected and the existence of positive autocorrelation presumed if DW is less than the lower critical value; the null hypothesis is rejected and the existence of negative autocorrelation presumed if DW is greater than 4 minus the lower critical value; the null hypothesis is not rejected and no significant residual autocorrelation is presumed if DW is between the upper and 4 minus the upper limits; the null hypothesis is neither rejected nor not rejected if DW is between the lower and the upper limits, and between 4 minus the upper and 4 minus the lower limits.

The fourth assumption is Normality of the error distribution that assumed the errors of prediction (differences between the obtained and predicted dependent variable scores) are normally distributed. Violation of this assumption can be detected by constructing a histogram of residuals (Brooks, 2008).

Finally the fifth assumption is multicollinearity assumption which refers to the situation in which the independent variables are highly correlated. When independent variables are multicollinearity, there is overlap or sharing of predictive power. This may lead to the paradoxical effect, whereby the regression model fit the data well, but none of the explanatory variables (individually) has a significant impact in predicting the dependent variable (Gujarati, 2007). A Pearson correlation was used for the purpose of testing multicollinearity in this study.

The Pearson correlation matrix is a technique of testing multicollinearity of explanatory variables by investigating the relationship of bivariate variables (Wooldridge, 2006).

3.5. Variable definition/ measurement

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

3.5.1. Dependent variable

The most commonly used profitability ratios are net profit margin, return on assets (ROA) and return on equity. The return on total assets ratio represents one of the most used methods of quantifying financial performance. It was developed in 1919 by DuPont and it emphasizes the companies' ability to efficiently use its assets (Maria, 2016). ROA reflects the ability of insurance's management to generate profits from the insurances' assets, although it may be biased due to off-balance-sheet activities. In most of the previous studies on insurance sector, Return on Asset (ROA) is being used as a proxy of profitability (Ahmed, 2011); (Al-Shami, 2008); (Malik, 2011); (Lee, 2016). Therefore, this study has attempted to measure profitability by using ROA similar to most of the aforementioned researchers. $ROA = \text{Net profit before tax} / \text{Total Assets}$

3.5.2. Independent variables

This subsection describes the independent variables that is used in the econometric model to estimate the dependent variable. To measure the predictor variables of insurance companies' profitability in Ethiopia, nine measures are used as independent variables which are extracted from different studies. The variables namely; underwriting risk, reinsurance dependence, solvency margin, liquidity, companies' size, premium growth, technical provisions, inflation and growth rate of GDP.

1. **Underwriting risk-** The underwriting risk emphasizes the efficiency of the insurers' underwriting activity and it is measured through the **losses incurred divided by annual premium earned.**

2. **Reinsurance dependence-** The reinsurance dependence is calculated as **ratio of gross written premiums ceded in reinsurance to total assets**. Insurance companies reinsure a certain amount of the risk underwritten in order to reduce bankruptcy risk in the case of high losses. Although reinsurance improves the stability of the insurance companies through risk dispersion, achievement of solvency requirements, risk profile equilibration and growth of the underwriting capacity, it involves a certain cost.
3. **Solvency ratio:** The solvency ratio is calculated as ratio of net assets to net written premiums, and represents a key indicator of the insurer's financial stability.
4. **Liquidity:** the liquidity ratio measures the firm's ability to use its near cash or quick assets to retire its liabilities. Liquidity Ratio = Current Assets / Current Liabilities.
5. **Company's size:** is computed as logarithm of total assets of the insurance companies.
6. **Premium growth:** Proxy for premium growth is the percentage increase in gross written premiums (GWP). The equation is expressed as: $PG = (GWP(t) - GWP(t-1)) / GWP(t-1)$
7. **Growth of real GDP:** it is a macroeconomic variable, and it is expected to have a positive influence on the insurers' financial performance, since economic growth improves the living standards and the levels of income, increasing the purchasing power of population.
8. **Inflation-** occurs when the prices of goods and services increase over time. Inflation cannot be measured by an increase in the cost of one product or service, or even several products or services. Rather, inflation is a general increase in the overall price level of the goods and services in the economy. Inflation rates $(IR) = (I_t - I_{t-1}) / I_{t-1}$,

CHAPTER FOUR

4. Results and Discussions

This chapter presents the research methods adopted in this study. This chapter analysis the determinants of Ethiopian Insurance Companies' profitability vis-a-vis the industry, using 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 covering from the period 2007 up to 2016 and a cross section segment of nine insurance companies.

This chapter presents model specification & tests for the classical linear regression model assumptions, descriptive statistics and correlation analysis, discussion of results and finally summary of the main findings

4.1. Specification Test (Fixed effect Versus Random effect) Model

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. But, in this study the numbers of cross section are not greater than the number of coefficients to be estimated so it is not possible to conduct a Hausman test.

Therefore a fixed cross-sectional effect is specified in the estimation so as to capture unobserved peculiar effects of different insurance companies. In addition, as noted in Gujarati (2003) 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 by 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 than random effect model (Gujarati, 2003). Since the number of time series (i.e. 11 year) is greater than the number of cross-sectional units (i.e. 9 insurance companies). According to Brooks (2008) and Wooldridge (2006), it is often said that the REM is more appropriate when the entities in the sample can be thought of as having been randomly selected from the population, but a FEM is more plausible when the entities in the sample effectively constitute the entire population/sample frame. Thus FEM is taken as appropriate tool for this research.

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

In this section the researcher presents the test for the assumptions of classical linear regression model (CLRM) namely the error have zero mean, heteroskedastic, autocorrelation, normality and multicollinearity.

The errors have zero mean ($E(u_t) = 0$). According to Brooks (2008), if a constant term is included in the regression equation, this assumption will never be violated. Thus, since the regression model used in this study included a constant term, this assumption was not violated.

Homoscedasticity (variance of the errors is constant ($Var(u_t) = \sigma^2 < \infty$)).

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 white test was used to test for existence of heteroscedasticity across the range of explanatory variables.

Table 4.1 Heteroscedasticity Test: White

Heteroskedasticity Test: White				
Null hypothesis: Homoskedasticity				
F-statistic	1.149490	Prob. F(9,80)	0.3388	
Obs*R-squared	10.30585	Prob. Chi-Square(9)	0.3263	
Scaled explained SS	157.1110	Prob. Chi-Square(9)	0.0000	
Test Equation:				
Dependent Variable: RESID^2				
Method: Least Squares				
Date: 02/17/18 Time: 18:20				
Sample: 1 90				
Included observations: 90				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.122031	0.098591	1.237749	0.2194
COE^2	0.006883	0.011492	0.598948	0.5509
CS^2	-0.000257	0.000175	-1.468225	0.1460
GDP^2	0.027586	4.478023	0.006160	0.9951
INF^2	0.093305	0.032293	2.889359	0.0050
LQR^2	0.013455	0.015416	0.872790	0.3854
PG^2	-0.000503	0.000324	-1.552936	0.1244
REINSU_D^2	-0.020884	0.017737	-1.177443	0.2425
SOLVR^2	-0.018165	0.008548	-2.125173	0.0367
UWR^2	-0.057538	0.041264	-1.394395	0.1671
R-squared	0.114509	Mean dependent var	0.007771	
Adjusted R-squared	0.014892	S.D. dependent var	0.048547	
S.E. of regression	0.048184	Akaike info criterion	-3.123149	
Sum squared resid	0.185734	Schwarz criterion	-2.845393	
Log likelihood	150.5417	Hannan-Quinn criter.	-3.011141	
F-statistic	1.149490	Durbin-Watson stat	1.833353	
Prob(F-statistic)	0.338816			

Source: Eview output from data of the insurance com, 2007 – 2016

In this study as shown in table 4.1, both the F-statistic and Chi-Square versions of the test statistic gave the same conclusion that there is no evidence for the presence of heteroscedasticity, since the p-values were in excess of 0.05. 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, also gave the same conclusion that there is no evidence for the presence of heteroscedasticity problem, since the p-value was considerably in excess of 0.05

Covariance between the error terms over time is zero (cov (ui, uj) = 0.)

This is an assumption that the errors are linearly independent of one another (uncorrelated with one another). If the errors are correlated with one another, it is stated that they are auto correlated. Brooks (2008) noted that the test for the existence of autocorrelation is made using the Durbin-Watson (DW) test and Breusch-Godfrey test. As far as concerning this paper the researcher used both the Durbin–Watson test and the Breusch-Godfrey test to detect the problem of autocorrelation. The DW test uses two critical values; the upper critical value (dU) and the lower critical value (dL). According to DW test, the null hypothesis of there is no autocorrelation will be rejected if the DW value from the regression is less than DL and greater than 4 minus dL. But the null hypothesis is not rejected if the DW value is between dU, and 4 minus dU. and finally, the test result will be inconclusive if the DW value is between dU and dL, and between 4 minus dU and 4 minus dL. The rejection /non-rejection rule is given by selecting the appropriate region from the following figure:

Table 4: 2 Rejection and non-rejection regions for Durbin-Watson Test

0	dl=1.357	du= 1.741	1.8333	4-dl=2.259	4-dl=2.643	4
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Source: Eview output and durbin Watson table

The Durbin-Watson test statistic value in the regression result was 1.869. To identify determinants of Ethiopian insurance companies profitability, 11 (9*11) observations were used in the model. Therefore, to test for autocorrelation, the DW test critical values were used. Then relevant critical lower and upper values for the test are dL= 1.357 and dU=1.741 respectively. The values of 4 - dU = 4-1.741=2.259; 4 - dL = 4-1.357=2.643. The Durbin-Watson test statistic of 1.869 is clearly between the upper limit (dU) which is 1.741 and the critical value of 4- dU i.e.2.259 and thus, the null hypothesis of no autocorrelation is within the non- rejection region of the number line and thus there is no evidence for the presence of autocorrelation. Other test for the existence of autocorrelation is by using Breusch-Godfrey test.

Table 4.3 Breusch-Godfrey Serial Correlation LM Test:

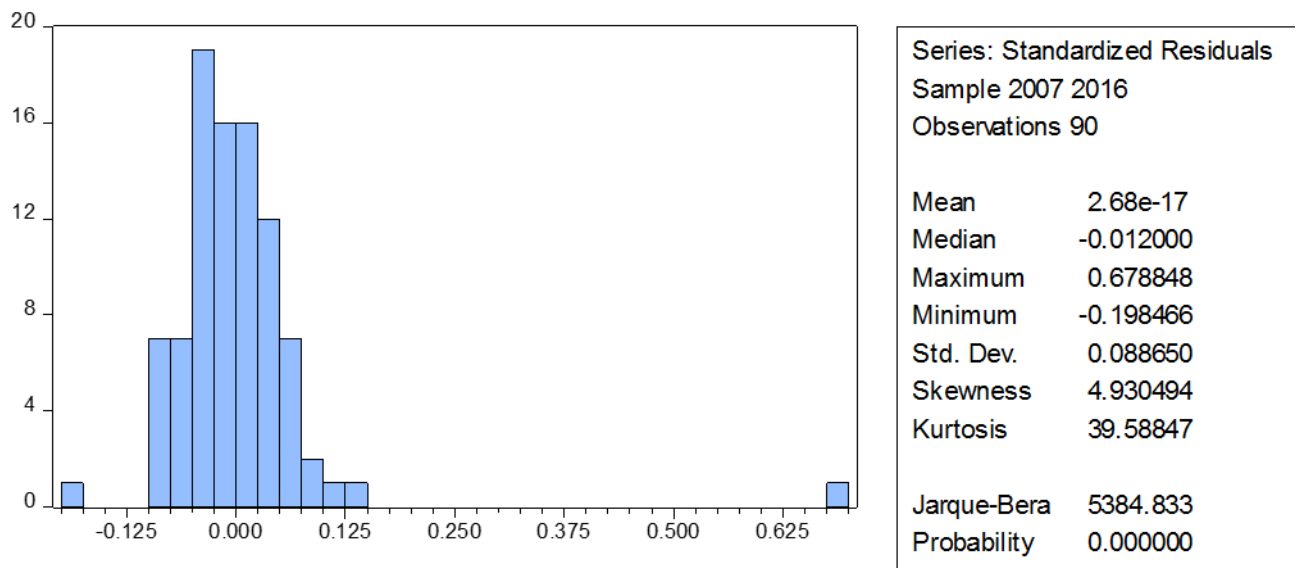
Breusch-Godfrey Serial Correlation LM Test				
Null hypothesis: No serial correlation at up to 2 lags				
F-statistic	0.272980	Prob. F(2,78)	0.7618	
Obs*R-squared	0.625574	Prob. Chi-Square(2)	0.7314	
Test Equation:				
Dependent Variable: RESID				
Method: Least Squares				
Date: 02/17/18 Time: 18:49				
Sample: 1 90				
Included observations: 90				
Presample missing value lagged residuals set to zero.				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.041759	0.380359	0.109787	0.9129
COE	-0.000481	0.044079	-0.010907	0.9913
CS	-0.000777	0.012729	-0.061057	0.9515
GDP	-0.193996	1.924310	-0.100813	0.9200
INF	0.004013	0.050942	0.078782	0.9374
LQR	0.002938	0.063228	0.046470	0.9631
PG	-0.000422	0.006030	-0.070043	0.9443
REINSU_D	-0.005266	0.078580	-0.067018	0.9467
SOLVR	-0.005691	0.047587	-0.119586	0.9051
UWR	-0.002744	0.048678	-0.056376	0.9552
RESID(-1)	0.050904	0.117840	0.431975	0.6670
RESID(-2)	-0.071546	0.118351	-0.604525	0.5472
R-squared	0.006951	Mean dependent var	-3.14E-17	
Adjusted R-squared	-0.133095	S.D. dependent var	0.088650	
S.E. of regression	0.094365	Akaike info criterion	-1.759726	
Sum squared resid	0.694572	Schwarz criterion	-1.426418	
Log likelihood	91.18765	Hannan-Quinn criter.	-1.625316	
F-statistic	0.049633	Durbin-Watson stat	2.005304	
Prob(F-statistic)	0.999997			

Source: Eview output

Both versions of the test; an F-version and a χ^2 version of the test indicate that the null hypothesis of no autocorrelation should not be rejected. The conclusion from both versions of the test in this case is that the null hypothesis of no autocorrelation is not rejected.

Test for Normality-According to Brooks (2008), if the residuals are normally distributed, the histogram should be bell-shaped and the Bera-Jarque statistic would not be significant. This means that the p-value given at the bottom of the normality test screen should be greater than 0.05 to support the null hypothesis of presence of normal distribution at the 5 percent level.

Table 4.4 Normality test Result



Multicollinearity Test-Multicollinearity in the regression model suggests substantial correlations among independent variables. This phenomenon introduces a problem because the estimates of the sample parameters become inefficient and entail large standard errors, which makes the coefficient values and signs unreliable. In addition, multiple independent variables with high correlation add no additional information to the model. It also conceals the real impact of each variable on the dependent variable (Anderson et al., 2008). Hair et al. (2006) argued that correlation coefficient below 0.9 may not cause serious multicollinearity problem. In addition, Malhotra (2007) stated that multicollinearity problems exists when the correlation coefficient among variables should be greater than 0.75

Table 4.5: Correlation Matrix between independent variables

	ROA	COE	CS	INF	LQR	PG	REINSU_D	SOLVR	UWR
ROA	1.000000								
COE	0.175718	1.000000							
CS	0.253742	0.405707	1.000000						
INF	0.368689	0.141583	0.316632	1.000000					
GDP	-0.185982	-0.140659	-0.349669	-0.239844					
LQR	-0.247046	-0.527022	-0.101886	-0.061864	1.000000				
PG	0.037156	0.017534	0.107965	0.432115	0.038836	1.000000			
REINSU_D	-0.032232	0.164981	-0.011183	-0.240171	-0.150762	-0.182545	1.000000		
SOLVR	-0.005632	-0.535881	-0.190121	0.185664	0.399644	0.087829	-0.629867	1.000000	
UWR	-0.686169	-0.083260	-0.118801	-0.176106	0.273413	-0.094935	-0.063940	-0.213831	1.000000

Source: E views output, 2017

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 4.4 above. All correlation results are below 0.75, which indicates that multicollinearity is not a problem for this study. In general, all tests illustrated above were testimonials as to the employed model was not sensitive to the problems of violation of the CLRM assumption.

4.3. Descriptive statistics

Table 4.6 presents a summary of the descriptive statistics of the dependent and independent variables for nine insurance companies for a period of ten years from 2007-2016 with a total of 90 observations. Key figures, including mean, maximum, minimum and standard deviation value were reported.

Table 4.6: Descriptive Statistics of the Variables

	ROA	COE	CS	INF	GDP	LQR	PG	REINSU_D	SOLVR	UWR
Mean	0.126858	0.845047	19.51074	0.303720	0.106640	0.987825	0.643338	0.622240	0.782039	0.605943
Median	0.103710	0.808750	19.49541	0.217000	0.105350	0.987020	0.196850	0.611315	0.669390	0.651460
Maximum	0.972300	1.523500	21.75520	0.770000	0.117900	1.631950	12.52090	1.816460	2.117530	0.895150
Minimum	-0.026000	0.129200	17.41000	0.028000	0.098200	0.262550	-0.906600	0.254190	0.257450	-0.818000
Std. Dev.	0.152215	0.328869	0.972041	0.245017	0.005890	0.210946	1.895699	0.193916	0.411744	0.258677
Skewness	4.468872	0.238573	-0.031992	0.933845	0.417851	-0.221744	3.970482	2.594545	1.415922	-3.761215
Kurtosis	23.64412	2.830527	2.758701	2.520058	2.163652	5.154154	21.00583	17.39719	4.553179	20.96881
Jarque-Bera	1897.737	0.961458	0.233696	13.94479	5.242027	18.13898	1452.258	878.2712	39.11889	1422.994
Probability	0.000000	0.618333	0.889720	0.000937	0.072729	0.000115	0.000000	0.000000	0.000000	0.000000
Sum	11.41723	76.05420	1755.966	27.33480	9.597600	88.90421	57.90042	56.00156	70.38351	54.53486
Sum Sq. Dev.	2.062071	9.625769	84.09279	5.342957	0.003088	3.960352	319.8370	3.346699	15.08843	5.955345
Observations	90	90	90	90	90	90	90	90	90	90

Source: Eview output.

As indicated in the above table, the profitability measures (ROA) shows that Ethiopian insurance companies achieved on average a positive before tax profit over the last ten years. For the total sample, the mean of ROA was 8% with a maximum of 97% and a minimum of (-0.02%). That means the most profitable insurance companies among the sampled earned 0.97 cents of profit before tax for a single birr invested in the assets of the firm. Regarding the standard deviation, it means the value of ROA deviate from its mean to both sides by 15 percent which indicate there was high variation from the mean. This implies that insurance companies incurred loss need to optimize the use of their assets to increase the return on their assets.

Concerning the underwriting risk variable, as proxies by losses incurred divided by annual premium earned; the mean of incurred claims to earned premium ratio was 60 percent. This implies that on average, most insurance companies from the sample paid 0.60 percent loss incurred out of the total premium earned per year which was favourable as compared with acceptable standard of around 70%. The highest ratio of losses incurred to earned premium value was 90 percent which is above the mean was -82 percent which is far below the maximum standard of 70 percent. This indicates that there is high variation in underwriting performance in the Ethiopian insurance companies.

The average value for solvency ratio as measured by net asset to net written premium was 0.78. The standard deviation of 0.4117, maximum of 2.11 and the minimum of 0.25 which is higher than the minimum requirement of 20 percent.

Liquidity measures the ability of insurance companies to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses. The average value of the liquidity measured by current ratio was 0.99% that was far below the NBE requirement of 150% which showed the sector was operating at a low current ratio position during the study period. The average value 0.99 indicates that for each one birr current liability there was 0.99 birr current asset to meet obligation. The maximum value and the minimum value was 1.63 and -0.22 respectively for the study period. The value of standard deviation (i.e. 0.21) indicates high dispersion from the mean value of liquidity in the case of Ethiopia insurance companies.

The average value of the growth variable as proxies by change in gross written premium was 11 percent. This implies that on average, the insurance gross premium increased by 1.27 percent over the study period. While the accepted values of premium growth range are between -33% and +33%, the maximum & minimum values of premium growth were 30 & -90 percent

respectively. This high increase and decrease in premium growth for a companies in a particular year indicates that unstable premium underwritings.

The outputs of the descriptive statistics indicate that the mean of reinsurance dependency as proxies by premium ceded to total asset was 62%. This means that on average 62 percent of gross premium collected as percentage of total asset was ceded to reinsurance which is above the standard of around 30%. The maximum value of premium ceded ratio was 1.82 percent and a minimum value of 25 percent. The minimum ratio of premium ceded indicate that the lower risk of dependency on reinsurance, but the higher will be the exposure of the capital base to unforeseen above average losses and catastrophe.

Further, to check the size of the insurance companies and its relationship with profitability, logarithm of total asset is used as proxy. The mean of the logarithm of total assets over the period 2007 to 2016 was 19.52. Size of insurance companies was highly dispersed from its mean value (i.e. 19.52) with the standard deviation of 0.32. The maximum and minimum values were 21.75 and 17.50 respectively.

Regarding GDP, the mean value of real GDP growth rate was 11% indicating the average real growth rate of the country's economy over the past 10 years. The maximum growth of 12.6 and the minimum was 9.8%. The country has been recording double digit growth rate with little dispersion towards the average over the period under study with the standard deviation of one percent. This indicates that economic growth in Ethiopia during the period of 2007 to 2016 remains stable.

Finally, other variable employed in this study, general inflation had rate 0.30% of the country on average over the past ten years was more than the average GDP. 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 rate of inflation was highly dispersed over the periods under study towards its mean with standard deviation of 0.25 %. This implies that inflation rate in Ethiopia during the study period was somewhat unstable.

Table 4.7 Regression Results for determinants of Ethiopian insurance companies' Profitability

Dependent Variable: ROA
 Method: Panel Least Squares
 Date: 02/17/18 Time: 21:08
 Sample: 2007 2016
 Periods included: 10
 Cross-sections included: 9
 Total panel (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.769603	0.370800	2.075519	0.0412
COE	-0.062630	0.043671	-1.434128	0.1554
CS	0.001020	0.012561	0.081220	0.9355
INF	0.219045	0.049630	4.413581	0.0000
GDP	-1.046866	1.844373	-0.567600	0.5719
LQR	0.084450	0.062521	1.350756	0.1806
PG	-0.017512	0.005935	-2.950828	0.0042
REINSU_D	-0.281757	0.076255	-3.694953	0.0004
SOLVR	-0.212906	0.046020	-4.626347	0.0000
UWR	-0.486761	0.047964	-10.14847	0.0000
R-squared	0.660810	Mean dependent var		0.126858
Adjusted R-squared	0.622651	S.D. dependent var		0.152215
S.E. of regression	0.093504	Akaike info criterion		-1.797195
Sum squared resid	0.699433	Schwarz criterion		-1.519438
Log likelihood	90.87378	Hannan-Quinn criter.		-1.685187
F-statistic	17.31735	Durbin-Watson stat		1.232998
Prob(F-statistic)	0.000000			

Source: E-view result

From the above table, variables have we can see that Inflation, solvency ratio and under writing risk have a significant impact on profitability as their P value is 0.000. Whereas Reinsurance Dependence has an impact on profitability at 1% and Premium Growth at 5% confidence level.

Regarding the coefficient of explanatory variables; underwriting risk ratio, reinsurance dependence, solvency ratio, gross domestic products, Premium Growth, and Claim on Equity were negative against profitability as far as the coefficients for those variables were -0.4867, -0.2817, -0.2129, -1.046, -0.01751, and -0.0626 respectively. On the other hand, variables like Company size, inflation and liquidity have a positive relationship with profitability with a coefficients of 0.0010, 0.2190 and 0.0844 respectively.

Profitability determinants are individually discussed in the next Paragraph by referring regression result of table 4.6, interview results and previous empirical studies.

Underwriting risk: - The underwriting risk emphasizes the efficiency of the insurer's underwriting activity and the exposure to financial loss resulting from the selection and approval of risks to be insured. It is a risk of losses from under-priced products, insufficient volume of premium, improper underwriting controls, and the development of new products that are not properly priced. The coefficient of underwriting which is measured by claim incurred to earned premium ratio was negative and statistically significant at 1% significance level (p-value=0). The results indicate that low underwriting risk produce positive effect on profitability. It implies that higher underwriting risk increases the operating ratio, indicating adverse effect on the firm's profitability.

This finding is consistent with previous studies Ying Lee (2014), Burca and Batrinca (2014). They concluded that underwriting risk has a negative influence on the insurer's profitability, since taking an excessive underwriting risk can affect the company's stability through higher expenses. The finding is consistent with the interview results suggested that underwriting is a fundamental objective to produce profitable book of business. The interviewees indicated that the major causes of underwriting risk are lack of adequate pre risk evaluation and selection, difficulty of standard criteria for risk evaluation; claims handling practice are not up to desirable practice level, most branch managers are production oriented instead of profit oriented. Other basic the reason is moral hazard; the possibility that insured's may deliberately cause an insured event or pretend that such an event occurred to obtain insurance payments. Thus, this study supports the hypothesis that significant negative impact of underwriting risk on insurance companies' profitability.

Reinsurance dependence:- Insurance companies usually take out reinsurance cover to stabilise earnings, increase underwriting capacity and provide protection against catastrophic losses, nevertheless it involves a certain costs. The coefficient of reinsurance dependence which is measured as ratio of premiums ceded in reinsurance to total asset was negative, and it is positively significant at 1% level (p value= 0.0004) indicating that its influence is high. .The insignificant parameter indicates that the reinsurance dependence does affect Ethiopian insurance profitability. Referring to previous studies, the results concerning reinsurance dependence are mixed. Shiu (2014) found a negative relationship between reinsurance dependence and insurers profitability, but it is not significant which is inconsistent with this study. However, Ying lee (2014) found a significant negative relationship between reinsurance dependence and insurance profits.

Liquidity:-Liquidity is the availability of funds, or assurance that funds will be available, to honour all cash outflow commitments (both on and off-balance sheet) as they fall due. The regression results in this research indicate that the relation between liquidity and profitability is positive and significant at 10 % significance level (p-value= 0.1816). This result implies that more liquid insurance have higher profitability, all other things held constant, if current assets pay insurance firm's current liabilities, it will have direct positive impact on profitability.

The current study is consistent with the previous empirical findings; (Amal, 2012 and Chen & Wong, 2004).They suggested that the insurance companies should increase the current assets and decrease current liabilities because, companies with a lower level of liquidity will have more cash constraints and will have more difficulties in repaying to policyholders when loss occurred. Since liquidity measures the ability of insurance companies to fulfil their immediate commitments to policyholders and other creditors without having to increase profits on underwriting and investment activities and liquidate financial assets. Consistent with this, National Bank of Ethiopia made directive No SIB/25/2004. According to this directive, insurance companies should keep amount of liquid cash (i.e. 65%) of total admitted asset to meet immediate commitments to policy holders. If the insurance companies meets this commitment, they will become sound and increase customer satisfaction and helps more premium collection from customers and results increase in profitability. Thus, this study support the hypothesis that liquidity has positive impact on profitability of insurance companies in Ethiopia, as it is statistically significant.

Solvency ratio (Capital Adequacy):- Solvency ratio is one of the indicators of financial soundness. Insurance companies with higher solvency ratio are considered to be sounder financially. Financially sound insurance companies are better able to attract prospective policyholders and are better able to adhere to the specified underwriting guidelines. By adhering to the guidelines, the insurance companies can expect a better underwriting result. The coefficient of solvency ratio which is measured by net assets to net written premiums was negative and statistically significant at 1% significance level (p-value=0). This means that the more solvent a company is (i.e. more equity or less underwrite premium), the less profitability it will have. The result indicates that insurance companies increase underwrite premium to increase the underwriting profit without increasing their capital ,which may results an excess of liabilities over assets, sometimes referred to as capital deficit. It follows then that the smaller the equity base in relation to the liabilities of the company, the lower the company's ability to absorb unforeseen shocks and unable to guarantee repayment to all claimants. While underwrite

premium increase, insurance companies in Ethiopia due to lack of capital adequacy, they may not retain premium collected from mega projects and they may cede high percentage to cross-border reinsurers. To avoid this problem, NBE made new directive (SIB/34/2014). According to this directives “SIB/34/2014” about the capital increments, all insurers existing or under formation insurers should have to increase their capital for both life and general from (3m &4m to 15m & 60m) respectively. Durinck et al. (1997) found that companies are required to use some degree of liabilities to finance their activities if they want to increase profit.

Company size:-Regarding the company size of the insurer it can be stated that, it is much harder for smaller companies to write insurance premiums than for bigger ones since smaller company cannot secure their clients in the cases of aggregate uncertainty or big catastrophe event. Larger insurers can achieve operating cost efficiencies through increasing output i.e. they are able to realize economies of scale especially in terms of labour costs, which is the most important factor for delivering insurance services.

Company size is computed as logarithm of total assets of the insurance company. The regression result of this study show that the variable size is positively related to profitability and statistically significant at the 1% level of significance (pvalue= 0.9355).This indicates that profitability of large insurance companies is better than small size companies. Profitability is likely to increase in size, because large insurance companies normally have greater capacity for dealing with adverse market fluctuations than small insurance companies and have more economies of scale in terms of the unit cost, which is the most significant production factor for delivering insurance services, complex information systems and a better expenses management. The finding of this study is congruent with, Malik (2011), Chen and Wong (2004) and Shiu (2014).They revealed that large corporate size enables to effectively diversify their assumed risks and respond more quickly to changes in market conditions. An increase in total assets such as the establishment of more branches and the adoption of new technologies enables an

Premium growth:-Premium growth measures the rate of market penetration. Concerning the premium growth, the regression results in this research imply that the relation between premium growth and profitability is positive and significant at 5% significance level (p-value= 0.0042).The positive coefficient of growth in writing premium indicates a positive relationship between growth in writing premium and profitability. It implies that Insurance companies underwrite more premium over the years have better chance of being profitable for the reason that they gain return from premium collected when the excessive attention on marketing to grow

premiums with a proportionate allocation of resources towards the management of their investment portfolios is given. The result of the study supports the findings of Chen and Wong (2004), but their found is not significantly different from zero. This result clearly supports hypothesis that premium growth has a positive and significant impact on profitability of insurance companies in Ethiopia.

Gross domestic product: - Gross domestic product is the market value of all finished goods and services produced in a country within a specified period, mostly one year. It is a gauge of economic recession and recovery and an economy's general monetary ability to address externalities. Oshinloye et al (2009) showed that no country can experience meaningful development without the presence of formidable insurance industry, thereby making insurance business in any nation indispensable irrespective of its quota to the gross domestic product.

According to Ezirim (2002), insurance industry is perceived as an indispensable tool of economic progress, growth and development. Growth rate of GDP reflects economic activity as well as level of economic development and as such affect the various factors related to the supply and demand for insurance products and services. If GDP grows, the likelihood of selling insurance policies also grows and insurers are likely to benefit from that in form of higher profits. However, result of this study shows that a negative coefficient of -1.0468 and it was statistically significant at 1% significance level (P-value 0.5719) indicating that growth in economic condition measured in terms of gross domestic product have negative impact on profitability of Ethiopian insurers for the study period. The finding is consistent with the interview results suggests that while the country's continuous economic growth, the growth of insurance industry in Ethiopia is not good, because the level of awareness about insurance in the populace is very low. Other basic the reason behind this result is while economic growth increases activities like automobile insurance, home owner insurance, worker compensations; the demand for insurance coverage for such activities are relatively inelastic. Lack of innovative products or investment opportunity and fear of risky investments by insurance company themselves, industry effect (price cutting) and moral hazard are also other reasons for this result. The finding of this study is congruent with (Naveed, 2008), (Maria, 2014), and Lee (2014). But their finding was not significantly different from zero. The current study found that economic growth is not positively affect the insurer's profitability in Ethiopia and thus the conclusion about the impact of Ethiopian economic growth on insurers' profitability remains ambiguous and further research is required.

Inflation:-The inflation could affect insurance companies' profitability 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. The coefficient of inflation was negative, and it was statistically significant, (p-values 0.0000), thus the effect of inflation on Ethiopian insurers' profitability is significant. The result suggested that inflation is not a determinant of insurers' profitability in Ethiopia. The interview result reveals inverse to regression results. According to the interviewees, inflation has policies are typically not adjusted periodically. For instance, the price of automobiles or spare parts increased from time to time, but the price of rate chart is not adjusted for underwrite premiums as a price increased, which resulting in costs increased faster than revenues. Negative influences of inflation on insurers' profitability was confirmed in empirical studies by Shiu (2014), Pervan (2012) and Ying Lee (2014), but are not significantly different from zero.

Generally this chapter presented the results of the structured record reviews and then discussed the finding accordingly. From the above data analysis, insurance profitability is highly affected by all variables included in this study except company size and GDP. The findings of the study showed that underwriting risk, solvency ratio have statistically significant and negative relationship with insurers' profitability. However, reinsurance dependence has negative but insignificant relationship with profitability. On the other hand, variables like liquidity, company's size and premium growth have a positive and statistically significant relationship with insurers' profitability.

Table 4.8-Hypothesis Result

Hypothesis	Finding
Underwriting risk has no significant impact on profitability of insurance companies' in Ethiopia. (Hypothesis 1)-	FALSE
Reinsurance dependence has no significant impact on profitability of insurance companies' in Ethiopia (Hypothesis 2)-	TRUE
Solvency ratio has no significant impact on profitability of insurance companies' in Ethiopia. (Hypothesis 3)	FALSE
Liquidity has no significant impact on profitability of insurance companies' in Ethiopia. (Hypothesis 4)	FALSE
There is no significant effect between growth of gross written premium and insurance companies' profitability in Ethiopia-Hypothesis 5	FALSE
Companies' size has no significant impact on profitability of insurance companies' in Ethiopia. Hypothesis 6	FALSE
Gross domestic product has no significant impact on profitability of insurance companies' in Ethiopia. (Hypothesis 7)	FALSE
Inflation has no significant impact on profitability of insurance companies' in Ethiopia.(Hypothesis 8)	TRUE

CHAPTER FIVE

5. Conclusions and Recommendation

This Chapter presents a summary and conclusion of the findings of the study and recommendations which are based on the findings. Accordingly this chapter is organized into two subsections. Section 5.1 presents the conclusions and section 5.2 presents the recommendations

5.1. Conclusions

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. Therefore, in order to survive negative shocks and maintain a good financial stability, it is important to identify the determinants that mostly influence the insurers' profitability. To this end, this study aimed at examining possible factors i.e. the main insurance-specific and macro-economic factors that can affect Ethiopian insurance profitability and to what extent these determinants exert impact on Ethiopian insurers profitability.

Mixed method research approach, particularly structured review of insurers' documents used to achieve the stated objective. The analyses are performed using data derived from the financial statements of Ethiopian insurance companies during ten-year period from 2007-2016 by descriptive statistics and multiple regressions. Fixed effect model is used to estimate the regression equation. In the study underwriting risk, reinsurance dependence, solvency ratio (capital adequacy), technical provision, liquidity, companies' size, premium growth, real GDP and inflation are considered as independent variables while return on asset is considered as dependent variables. The empirical findings on the effect of AIC insurance profitability for the sample suggested the following conclusions.

The results of the regression analysis showed

- a. Negative relationship between the ratio of underwriting risk (claims incurred to earned premium) and profitability with strong statistical significance. This shows that as minimizing underwriting risk it will certainly improve the insurers' profitability since

taking an excessive underwriting risk can affect the companies' stability through higher expenses.

- b. Again, the result showed a negative relationship between reinsurance dependence and technical provision with profitability. This indicates that as minimizing dependency on reinsurers or decreasing amount of premium ceded will result in increased profitability.
- c. A negative relationship between profitability and technical provision ratio implies inadequate provision hold decrease insurance companies' ability to pay claims and will result unable an insurer to underwrite more policies which may decrease the underwriting profit and the total net profit.
- d. A positive relationship between profitability and liquidity implies a good liquidity position increases insurance companies' ability to pay claims incurred and will have positive impact on insurers' profitability.
- e. The ratio of net asset to net written premium has a negative impact on ROA with statistical significance. This implies that higher level of solvency ratio results in lower profit.
- f. Regarding premium growth, results in this study revealed that premium growth has a positive and significant effect on profitability. This implies that insurance companies underwrite more premium over the years have better chance of being profitable when the underwriters are cost conscious and profit oriented.
- g. The logarithm of total assets has a positive impact on profitability with strong significance coefficient. This indicates that as larger insurance companies of the country experience more significant increases in profitability through economies of scale.
- h. The economic growth rate has significant and negative influence on insurers' profitability which is inconsistency with the theory of if economy grows, the likelihood of selling insurance policies also grows and insurers are likely to benefit from that in form of higher profits.
- i. On the other hand, inflation has little or no impact on the profitability of Ethiopian insurance companies, since inflation was not significant even at 10% significance level.

In general, underwriting risk, technical provision, liquidity, companies' size, solvency ratio, premium growth and gross domestic products are significant key drivers of profitability of the insurance companies, whereas reinsurance dependence and inflation are insignificant determinant of insurance companies' profitability.

5.2.Recommendations

On the basis of the findings of this study, the researcher has drawn the following recommendations:

- ❖ underwriting is basic activity for insurance companies, the insurers should reduce the impact of underwriting risk (amount of losses) by improving their underwriting performance through techniques like product selections, increase claims handling practice and gathering sufficient information or detail about subject matter of insurance before agreement with the insured.
- ❖ The sector was operating at low liquidity position; therefore the insurers' should closely review liquidity risk and device the strategy like liquidity management program and cash flow forecast to reduce the high liquidity risk.
- ❖ As far as absence of secondary market, lack of innovative products, industry competition, price cutting and fear of risky investments by insurers themselves, moral hazards are also factors that can affect Ethiopian insurance profitability negatively; insurers should try their best in order to provide new product developments, new insurance services and to participate in risky investment areas which may in turn increases their profitability significantly.
- ❖ Finally, the study sought to investigate the determinant of profitability of non-life insurances. However, the variables used in the statistical analysis did not include all factors that can affect insurances profitability. Thus, future research shall conduct research on the issue like impact of government regulation policy and other directives and non- financial determinant of insurance profitability such as management quality, efficiency and productivity.

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Annex 1: -List of Insurance Companies in Ethiopia

No	Name Establishment	date
1	Ethiopian Insurance Corporation	1975
2	Africa Insurance Company	01/12/1994
3	Awash Insurance Company	01/10/1994
4	Global Insurance Company	11/01/1997
5	Lion Insurance Company	01/07/2007
6	NIB Insurance Company	01/05/2002
7	Nile Insurance Company	11/04/1995
8	Nyala Insurance Company	06/01/1995
9	United Insurance	01/04/1997
10	Abay Insurance Company	26/07/2010
11	Berhan Insurance	24/05/2011
12	National Insurance Company of Ethiopia	23/09/1994
13	Oromia Insurance Company	26/01/2009
14	Ethio-Life and General Insurance	23/10/2008
15	Tsehay Insurance	28/03/2012
16	Bunna Insurance	23/08/2011
17	Lucy Insurance	15/11/2012

Source: www.nbe.org.et

Annex 2. Eveiw Data

year	Insurance	ROA	UWR	SOLVR	LQR	CS	PG	REINSU_D	COE	GDP	INF
2007	EIC	0.08810	0.69292	0.98221	1.20722	20.47490	0.20380	0.53294	0.65280	0.11790	0.15820
2008	EIC	0.09090	0.71774	0.78779	0.99240	20.57300	0.19430	0.57698	0.77620	0.11190	0.25300
2009	EIC	0.08680	0.72970	0.74026	1.10699	20.68270	0.17570	0.60786	0.90330	0.10040	0.36400
2010	EIC	0.13310	0.61743	0.67307	1.08721	20.82260	0.32830	0.70204	0.78450	0.10570	0.02800
2011	EIC	0.11220	0.74458	0.48058	0.99166	20.97450	0.27160	0.76692	0.96460	0.11280	0.18100
2012	EIC	0.13660	0.55911	0.33451	0.94054	21.30270	0.50660	0.83218	1.11920	0.10900	0.34100
2013	EIC	0.16520	0.60025	0.34176	0.96774	21.45580	0.37500	0.98175	1.07170	0.09820	0.13500
2014	EIC	0.19210	0.59586	0.35871	0.98486	21.55230	-0.07800	0.51729	0.88130	0.10350	0.08100
2015	EIC	0.19680	0.62506	0.30631	0.94615	21.62755	0.66552	0.79906	1.03330	0.10200	0.77000
2016	EIC	0.19770	0.61827	0.45933	1.03025	21.75521	0.11262	0.78251	1.04520	0.10500	0.72600
2007	Awash	0.06500	0.77685	0.58331	0.98919	18.71660	0.27790	0.64705	0.62500	0.11790	0.15820
2008	Awash	0.06850	0.70144	0.54875	0.81711	18.84820	0.15820	0.65701	0.81020	0.11190	0.25300
2009	Awash	0.05180	0.81454	0.54117	0.78562	19.01910	0.14460	0.63388	1.01270	0.10040	0.36400
2010	Awash	0.11090	0.62492	0.60223	0.83217	19.19470	0.19940	0.63782	0.90110	0.10570	0.02800
2011	Awash	0.07950	0.61647	0.52471	0.78464	19.61710	0.47380	0.61620	0.94830	0.11280	0.18100
2012	Awash	0.07930	0.66121	0.46087	0.85071	19.96550	0.58380	0.68883	1.39100	0.10900	0.34100
2013	Awash	0.14850	0.54786	0.48416	0.88901	20.14110	0.07700	0.62012	1.21530	0.09820	0.13500
2014	Awash	0.10220	0.57902	0.59523	0.86095	20.17800	0.02130	0.61261	1.04020	0.10350	0.08100
2015	Awash	0.11580	0.56821	0.59201	0.83218	20.28896	4.55821	0.62416	1.05080	0.10200	0.77000
2016	Awash	0.13250	0.63270	0.73999	0.82384	20.55020	-0.75729	0.56957	1.09020	0.10500	0.72600
2007	Global	0.05000	0.50294	2.11754	1.54321	32 17.41	71 0.14	0.34614	0.12920	0.11790	0.15820
2008	Global	0.04000	0.51190	1.74158	0.84661	66 17.60	58 0.20	0.34607	0.17580	0.11190	0.25300
2009	Global	0.05000	0.50558	1.99873	0.96188	19 17.80	44 0.04	0.29788	0.21750	0.10040	0.36400
2010	Global	0.08000	0.44128	1.59714	0.83950	95 17.92	26 0.24	0.32935	0.18290	0.10570	0.02800
2011	Global	0.03000	0.78775	1.25083	0.91947	95 17.99	54 0.49	0.45751	0.25700	0.11280	0.18100
2012	Global	0.02000	0.87616	0.68596	0.91597	60 18.35	45 0.84	0.58926	0.59110	0.10900	0.34100
2013	Global	0.15000	0.56819	1.05219	1.13497	50 18.63	75 -0.0	0.43393	0.52540	0.09820	0.13500
2014	Global	0.16000	0.57349	1.37678	1.35190	19 18.85	30 0.14	0.40059	0.30930	0.10350	0.08100
2015	Global	0.14000	0.62958	1.64851	1.63196	19.04361	30.97741	0.39038	0.65340	0.10200	0.77000
2016	Global	0.15000	0.63785	1.71511	1.46910	19.21176	-0.79466	0.37478	0.65440	0.10500	0.72600
2007	Nile	0.02270	0.85503	0.52875	0.88102	19.07250	0.09910	0.56084	1.31610	0.11790	0.15820
2008	Nile	-0.02600	0.83037	0.50353	0.68428	3 19.055	2 -0.00	0.56682	1.49560	0.11190	0.25300
2009	Nile	0.02170	0.69379	0.55529	0.71844	19.08840	0.11040	0.60884	1.19530	0.10040	0.36400
2010	Nile	0.13790	0.57367	0.70133	0.92746	19.23170	0.15720	0.61042	0.62350	0.10570	0.02800
2011	Nile	0.09800	0.71453	0.60488	0.96423	19.40500	0.34330	0.68953	0.50080	0.11280	0.18100
2012	Nile	0.10200	0.70506	0.57277	1.08912	19.71310	0.44860	0.73393	0.49540	0.10900	0.34100
2013	Nile	0.10960	0.73032	0.69443	1.11083	19.86310	-0.03800	0.60727	0.76200	0.09820	0.13500
2014	Nile	0.11870	0.70059	0.63700	1.08997	20.00030	0.16930	0.61904	0.74770	0.10350	0.08100
2016	Nile	0.11345	0.78329	0.60017	0.84816	20.29533	-0.79466	0.62178	0.78350	0.10500	0.72600
2007	Nice	0.08490	0.64588	0.41543	0.94899	17.49500	0.17610	0.88270	0.92270	0.11790	0.15820
2008	Nice	0.05720	0.67400	0.44589	0.93149	17.59670	0.15730	0.92274	0.72640	0.11190	0.25300
2009	Nice	0.04630	0.68131	0.44599	0.81123	17.74980	0.14010	0.90267	0.80730	0.10040	0.36400
2010	Nice	0.05880	0.67727	0.40671	0.99205	17.95910	0.31590	0.96354	0.84200	0.10570	0.02800
2011	Nice	0.00290	0.72756	0.29924	1.12059	18.27580	0.24520	0.87407	1.46860	0.11280	0.18100

2012	Nice	0.17430	0.54051	0.35062	1.05251	18.78870	0.67950	0.87898	0.78900	0.10900	0.34100
2013	Nice	0.12370	0.59027	0.53260	1.20235	19.21430	0.12880	0.72998	0.67080	0.09820	0.13500
2014	Nice	0.06950	0.70024	0.56992	1.12319	19.35380	0.05320	0.57416	0.83860	0.10350	0.08100
2015	Nice	0.08951	0.70024	0.76845	1.20803	19.45272	12.52097	0.25420	0.84440	0.10200	0.77000
2016	Nice	0.97230	0.65706	0.55383	1.07389	19.63445	-0.90667	0.54725	0.95680	0.10500	0.72600
2007	Africa	0.02000	0.80724	0.79218	1.08335	33 18.97	82 0.21	0.47500	0.87670	0.11790	0.15820
2008	Africa	0.03000	0.81751	0.59037	0.99905	90 19.25	33 0.29	0.46711	1.11650	0.11190	0.25300
2009	Africa	0.04000	0.82829	0.55469	0.93615	61 19.28	78 0.13	0.51183	1.28720	0.10040	0.36400
2010	Africa	0.05000	0.81552	0.49967	0.88905	90 19.62	50 0.45	0.52999	1.21740	0.10570	0.02800
2011	Africa	0.05000	0.81996	0.40801	0.82714	71 19.88	13 0.38	0.56886	1.39350	0.11280	0.18100
2012	Africa	0.05000	0.85395	0.37298	0.67174	17 20.04	06 0.40	0.68051	1.50860	0.10900	0.34100
2013	Africa	0.06000	0.85346	0.44334	0.54308	31 20.02	34 -0.0	0.62450	1.52000	0.09820	0.13500
2014	Africa	0.08000	0.89516	0.53612	0.63172	17 20.11	99 0.01	0.57784	1.51660	0.10350	0.08100
2015	Africa	0.81200	0.80978	0.81831	0.36460	20.22813	5.24502	0.53711	1.52080	0.10200	0.77000
2016	Africa	0.91390	0.81801	0.78054	0.26255	20.29512	-0.81028	0.57459	1.52350	0.10500	0.72600
2007	Nib	0.07570	0.66713	0.66572	1.05409	18.40780	0.42580	0.67307	0.36640	0.11790	0.15820
2008	Nib	0.11220	0.66116	0.38526	0.85727	18.65290	0.50790	0.79425	0.64150	0.11190	0.25300
2009	Nib	0.09750	0.68086	0.44979	0.94259	19.07920	0.31560	0.68228	0.84370	0.10040	0.36400
2010	Nib	0.09340	0.66331	0.43991	0.97970	19.34210	0.30940	0.68686	0.86690	0.10570	0.02800
2011	Nib	0.08990	0.29085	0.94880	0.99992	19.53810	0.25760	0.71009	0.93590	0.11280	0.18100
2012	Nib	0.08850	0.29954	0.57952	0.96935	19.97920	0.54820	0.70722	1.07650	0.10900	0.34100
2013	Nib	0.11120	0.26890	1.19185	1.05178	20.06470	-0.05710	0.61222	1.02610	0.09820	0.13500
2014	Nib	0.11270	0.35232	1.53536	1.10793	20.29440	0.06320	0.51737	0.91890	0.10350	0.08100
2015	Nib	0.10522	0.35232	1.97156	1.09938	20.44755	4.85819	0.44390	1.11340	0.10200	0.77000
2016	Nib	0.11660	0.70521	0.91644	1.05598	20.52507	-0.81412	0.44731	1.12390	0.10500	0.72600
2007	Nyala	0.09700	0.52396	0.83499	1.07711	1 18.657	1 0.147	0.65916	0.60480	0.11790	0.15820
2008	Nyala	0.05500	0.68218	0.66010	0.97208	1 18.778	3 0.172	0.68469	0.82490	0.11190	0.25300
2009	Nyala	0.13400	0.61710	0.94132	0.90628	3 18.833	9 -0.03	0.62234	0.67300	0.10040	0.36400
2010	Nyala	0.13700	0.14766	0.25746	0.98232	3 19.050	8 0.341	1.81646	0.63120	0.10570	0.02800
2011	Nyala	0.15900	0.54837	0.97851	1.01763	6 19.187	2 0.103	0.64699	0.54070	0.11280	0.18100
2012	Nyala	0.18200	0.40937	0.92193	1.09954	5 19.545	9 0.341	0.60618	0.41910	0.10900	0.34100
2013	Nyala	0.16400	0.46080	1.03091	1.14229	3 19.870	8 0.303	0.57087	0.62980	0.09820	0.13500
2014	Nyala	0.14300	0.41972	1.27160	1.21759	6 20.111	9 0.094	0.46917	0.59780	0.10350	0.08100
2015	Nyala	0.12880	0.83565	1.15187	1.24659	20.43233	6.75336	0.43790	0.61040	0.10200	0.77000
2016	Nyala	0.13675	0.54024	1.51054	1.17449	20.57833	-0.83167	0.40507	0.57900	0.10500	0.72600
2007	United	0.10020	0.72021	0.74642	1.11146	18.52990	0.69160	0.72883	0.65580	0.11790	0.15820
2008	United	0.16680	0.58778	0.71814	1.10678	18.80900	0.35790	0.74869	0.73620	0.11190	0.25300
2009	United	0.04720	0.77066	0.70484	1.02682	18.96720	0.03890	0.66400	1.00100	0.10040	0.36400
2010	United	0.14090	0.58263	0.86970	1.16946	19.17260	0.09550	0.59233	0.70270	0.10570	0.02800
2011	United	0.08740	0.71300	0.76988	1.18930	19.37210	0.28870	0.62531	0.78980	0.11280	0.18100
2012	United	0.12190	0.64127	0.73600	1.24539	19.69690	0.47620	0.66708	0.68020	0.10900	0.34100
2013	United	0.17320	0.54363	0.91823	1.26842	19.88450	0.04150	0.57592	0.65200	0.09820	0.13500
2014	United	0.14120	0.53294	0.95493	0.91118	20.05220	0.10190	0.53664	0.58770	0.10350	0.08100
2015	United	0.13245	0.60436	1.12054	0.72863	20.13589	6.19555	0.53342	0.59060	0.10200	0.77000
2016	United	0.15000	0.72328	1.18247	0.71856	20.32064	-0.84050	0.47090	0.60430	0.10500	0.72600

Source:- Financial Reports compiled by NBE
