ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DETERMINANTS OF ETHIOPIAN INSURANCE COMPANIES PROFITABLITY

BY

REDWAN KELIL

JANUARY, 2018

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DECLARATION

I, **Redwan Kelil**, would declare this thesis is my original work prepared under guidance of **Asmamaw Getie (Ass. Pro.)**. All source materials utilized for this thesis exertion have been duly recognized. I similarly confirm that this thesis hasn't be given to either partially or entirely to any other learning institutions for obtaining any degree.

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St. Mary's University, Addis Ababa, January, 2018

ENDORSEMENT

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

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St. Mary's University, Addis Ababa **January, 2018**

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List of Abbreviations/ Acronyms

Avg. – Average

Br. – Birr

CR – Current Ratio

DU – Durbin-Watson

GDP – Gross domestic product

GR – Growth Rate

INFL –Iinflation

LN _of _EQ – Natural logarithm of equity

LV – leverage

MS – Market share

MOFEC – ministry of finance and Economic commission

NBE – national bank of Ethiopia

ROA – Return On Asset ratio

TANASS – Tangibility of asset

ABSTRACT

This study titled "Determinates of Ethiopian Insurance Companies Profitability". The major objective of the study was to investigate the most important determinant of profitability in the insurance sector of Ethiopia by using regression analysis model. The study was based on entirely secondary data collected from NBE, each insurance companies and MOFEC. The study covers the time period from 2006 - 2015. The study used Explanatory research design to check the relationship between dependent variable profitability and independent variables (liquidity, leverage, tangibility of asset, level of equity, market share, economic growth and inflation). The regression result reveals that liquidity has direct and significant influence on profitability, leverage, GDP, Inflation have indirect and significant relation with profitability and market share and level of equity have direct but insignificant effect on Ethiopian insurance companies profitability the other variable which is tangibility of asset has indirect and insignificant relationship with profitability. Finally, the study suggests the mangers of Ethiopian insurance companies to prepare financial plans like cash budget, and pro-forma balance sheet and income statement to cop up with macroeconomic changes and to provide new product lines that maximizes their market share and last but not the least to closely review liquidity risk and device the strategy like liquidity management.

Key words: profitability, liquidity, leverage, level of equity, market share.

CHAPTER ONE
INTRODUCTION

This section consists of 8 sections: which includes background of the study area, statement of the problem tried to show the need for study, main objectives and questions are presented, the significance of the study, the last three sections deal about scope, limitation and finally ends up by showing chapter layout of the remaining chapters.

1.1 Background of the Study

In modern society, the financial sector is growing rapidly and gaining importance in the world financial development. The financial system includes financial institutions, financial instruments and financial markets that provide an effective payment, credit system and risk transfer and mainly they facilitate the flow of funds from savers to the investors of the economy. According to Yuvaraj & Abate (2013) the role of financial institutions in the economy of a country in general is creating efficient and effective financial system through savings mobilization, risk transfer and intermediation. Therefore, financial institutions, channel funds and transfers risks from one economic unit to another economic units so as to facilitate trade and resources arrangement. In short, the main role of a financial system is to lubricate the gears facilitating the economic operations. One of the components of the financial system is insurance companies.

According to Charumathi (2012) Insurance companies provide unique financial services to the growth and development of every economy. Such specialized financial services range from the underwriting of risks inherent in economic entities and the mobilization of large amount of funds through premiums for long term investments. The risk absorption role of insurers promotes financial stability in the financial markets and provides a sense of peace to economic entities the insurance companies' ability to cover risk in the economy hinges on their capacity to create profit or value for their shareholders. A well developed and evolved insurance industry is a boon for economic development as it provides long- term funds for development.

Although the insurance industry has grown rapidly in the industrialized countries, its growth in developing countries like Ethiopia has neither been satisfactory nor in tandem with the growth of banks and other sectors of the economy. One reason for this is their performance is not as such satisfactory. According to Iswatia & Anshoria (2007) Performance is the function

of the ability of an organization to gain and manage the resources in several different ways to develop competitive advantage. According to Walker (2001), there are two kinds of performance, financial performance and non-financial performance. Financial performance emphasizes on variables related directly to financial report. Company's performance is evaluated in three dimensions. The first dimension is company's productivity, or processing inputs into outputs efficiently. The second is profitability dimension, or the level of which company's earnings are bigger than its costs. The third dimension is market premium, or the level of which company's market value is exceeding its book value.

In this study the researcher focused on the profitability dimension of evaluating performance. Profitability is one of the most important objectives of financial management because the ultimate goal of financial management is to maximize the owner` s wealth. The owner's wealth is maximized if the company is profitable. There has been a growing number of studies recently that test for measures and determinants of firm profitability. Financial industry's profitability has attracted scholarly attention in recent studies due to its importance in performance measurement. However, based on literature review, in the context of the Insurance sector particularly in developing countries like Ethiopia it has received little attention on profitability of insurance. Therefore, this study focuses on identifying determinants of insurance companies' profitability in Ethiopia.

1.2 Statement of the Problem

Insurance industry is playing important role in a country economic development and their effective functioning would contribute for the growth and development other sectors and the for the country economy in general. According to Walker (2001), insurance operate on the principles of pooling risks where the people contribute to a common fund in form of premiums and where the luckily ones who do not suffer loss help the unlucky ones who suffer loss during a defined insurance period. It seems insurance not only promotes facilitate economic transaction though risk transfer and indemnification but it also promote financial stability, mobilize saving, facilitate trade and commerce, enable risk to be managed more efficiently, encourage loss mitigation, foster efficient allocation capital allocation and also can be a substitute for and complement government security programs.

According to Wright (1992), Due to the unique accounting system and unique financial statement items used by insurance companies, profitability of the industry has always been difficult to measure as compared with other financial institutions or corporations. Different

scholars using empirical investigation on the determinants of insurers' profitability are resulted indifferent conclusions.

In this problem area, that is Determinants of Insurance Companies Profitability, there are several studies conducted in different countries including Ethiopia; while a large body of research is conducted on this area in banking sector; profitability has not been undertaken in the insurance industry adequately. To the researcher's best knowledge, the studies conducted in the areas of insurance are few in number and did not give such an emphasis on the factors considered to be determinants of profitability of insurance industry in Ethiopia.

Abate and Yuveraj (2012) focused only on internal factors and have not considered external factors like economic growth and Inflation. There finding indicates size, and volume of capital are positively related. In contrast, liquidity ratio and leverage ratio are negatively and significantly related with profitability. The age of companies and tangibility of assets are not significantly related with profitability. On the other hand Suheyli (2015), showed that underwriting risk, technical provision and solvency ratio have significant negative relationship and liquidity, company size and premium growth have positive significant relationship with profitably. Meaza (2014), from the regression result; firm size, tangibility of asset, firm growth and, managerial efficiency are positively related. In contrast, leverage and loss ratio/ risk are negatively but significantly related with profitability. Liquidity, inflation, and economic growth are not significant determinants of profitability. Kalkidan (2017) also conducted a study in this area the results clearly show size, tangibility of asset and economic growth have significant relation with profitability on the other hand loss ratio , premier growth and economic growth has negative significant and liquidity and market concentration insignificant effect on profitability and finally, Behailu (2016) tried to analyse the factors affecting insurance companies profitability the findings indicate size, loss ratio, leverage ratio have positive significant effect while reinsurance ,economic growth and inflation has negative insignificant effect and motor insurance and market share have positive but insignificant effect on profitability.

Even though, most of the studies focused on both internal and macroeconomic factors that affect insurers' profitability in Ethiopia but they did not consider basic internal factors like *level of equity capital* (Charumathi, 2016). The higher the level of equity the less will be the profit because equity has a higher cost when compared with other financing sources. In addition to this, as per the literature review most of the previous studies don't tried to include

industry specific factors like *Market share* (Teklit & Jasmindeep, 2016). The higher the market share the higher will be the profitability.

In addition to the above literature gap, there is lack of consistency of the findings of the previous studies conducted in this title. determinants of findings from previous research tend to vary across time periods and they are highly result a contradicting result for instance, according to Abate and Yuveraj (2012) and Abate (2012) and Lire and Tegegn (2016) liquidity has negative and significant effect on profitability but on the other hand, Behaylu (2017) concludes liquidity has positive and significant effect on profitability. As clearly shown in the empirical review part this inconsistency holds true for leverage, tangibility of asset, GDP and inflation.

Therefore, this study tried to fill the above explained gap in knowledge by providing information about the firm specific, industry specific and external factors that affects profitability by examining the untouched ones, and replicating the existing in the Ethiopia by using all insurance company operating in the country that have 10 years data. To this end, the study provides insights into the recent profitability determinants of insurance companies in Ethiopia.

1.3 Research Questions

1.3.1 Main Question

What are the most important determinants of profitability in Ethiopian insurance sector?

1.3.2 Specific Questions

1. How does *leverage ratio* have a relationship with insurance companies' profitability in Ethiopia?
2. How does *liquidity ratio* have a relationship with insurance companies' profitability in Ethiopia?
3. How does *tangibility of asset* have significant impact on profitability of insurance companies in Ethiopia?
4. How does *level of equity* have a relationship with insurance companies' profitability in Ethiopia?
5. How does *market share* have a relationship with insurance companies' profitability in Ethiopia?

6. How does *economic growth* have an impact on profitability of insurance companies in Ethiopia?
7. How does *inflation* have an impact on profitability of insurance companies in Ethiopia?

1.4 Objective of the Study

1.4.1 General Objectives

The core objective to conduct this study is to investigate the most important determinant of profitability in the insurance sector of Ethiopia.

1.4.2 Specific Objectives

In line with the general objective the specific objectives of the study are:

1. To find out the relationship between *leverage ratio* and insurance companies' profitability in Ethiopia.
2. To find out the relationship between *liquidity ratio* and insurance companies' profitability in Ethiopia.
3. To check whether *tangibility of asset* have significant impact on profitability of insurance companies in Ethiopia.
4. To check whether *level of equity* have significant impact on profitability of insurance companies in Ethiopia.
5. To identify whether *market share* determines profitability of insurance companies in Ethiopia.
6. To examine whether *economic growth* have an impact on profitability of insurance companies in Ethiopia.
7. To examine whether *inflation* have an impact on profitability of insurance companies in Ethiopia.

1.5 Significance of the Study

The main reason for this study is that the researchers have not paid enough attention to this subject in Ethiopia. Therefore, this study drops light on the scarcity of these types of study. This study, attempted to assess the determinants of insurance companies' profitability in Ethiopia, provides evidence on what effect the firm-specific, industry specific factors and the macroeconomic factors have on the insurance company's profitability in Ethiopia. Analyzing and understanding the impact of different factors on the insurance profitability in Ethiopia is a major stepping result to enlighten what should be done if profitability is to be achieved.

Therefore, the findings of the study benefits to insurance companies, regulatory authorities, managers and others interested in the area the opportunity to gain deep knowledge about the relationship of internal and external factors with profitability. This in turn helps them knowing factors affecting profitability and thereby takes appropriate actions to increase profitability of insurance industry. Moreover, the researchers also contribute that this study can potentially serve as a stepping stone for further research in the area.

1.6 Scope of the Study

The scope of the study determined by the objective of the research which is stated earlier and it's emphasizes on identify and examining the determinants of profitability. Even though there are other formal and informal financial institutions, the study focused only on the determinants of profitability of insurance companies in Ethiopia. There are only one public insurance sector and 16 private insurance companies in Ethiopia. 9 out of 17 insurance companies which have at least 10 years data have been included in the sample purposively.
8 excluded insurance companies are either newly established (not operational before 2006) or their data is not retrievable. List of insurance companies which have been considered for study is provided in the appendix respectively. Secondary annual balanced panel data of selected insurance companies for 10 years (2006-2015) is used in this study; the time period is used because, five years and above is recommended length time in most finance literatures and to get relevant and recent data for the study. The study focused on firm's specific determinants like (liquidity ratio, leverage ratio, tangibility of asset, level of equity), industry specific Market share and macroeconomics determinants (like, growth rate of GDP and inflation). Scope of the study confined merely on the quantitative measure of determinates of insurance companies profitability in Ethiopia. Therefore the researcher used entirely secondary data for the study.

1.7 Limitation of the Study

Due to some constraints, the study is likely to suffer from certain limitations; So that, the findings of the study may be understood in a proper perspective. The study doesn't included non financial determinants like customer satisfaction, government regulations, management efficiency which can support the result but this study is based on entirely secondary data and the limitation of using secondary data may affect the results and the secondary data collected from income statement, balance sheet was limited to only General insurance business,

because income statement of life assurance business is not prepared at the end of each year. It may be prepared one time in three years or five years due to difficulty to prepare income statement of life assurance business and it needs an actuary which is high cost and also not all insurance company in Ethiopia gives life assurance services. Insurance companies operating for less than ten years excluded in this study because they do not have full data for the study period.

1.8 Organization of the Study

The remaining chapters of this paper are organized accordingly. Chapter two describes theoretical framework of the study, literature review of prior empirical studies on determinants of insurance companies' profitability, literature gap and conceptual framework. Chapter three focuses on research methodology of the current study by using secondary data. This chapter comprises of the description of research design, method of data collection, construction of measurements, data preparation processes and data analysis techniques. Chapter four analyses and interprets the results from data collected from a total sample of 9 insurance companies listed in Ethiopia. Lastly, chapter five summarizes the final results findings and provides justifications for the discrepancies of hypotheses and final results. Recommendations and will be highlighted and brought forward for further research.

CHAPTER TWO

LITRATHURE REVIEW

This chapter begins with an analysis of theoretical framework that will be used to support our research. Besides, in depth review of prior empirical studies on each variable will be carried out. Furthermore, proposed conceptual framework will be identified. Lastly, this chapter will ends with the hypotheses established for this study.

2.1 Theoretical Review

2.1.1 Insurance

There is no single definition for insurance. Insurance can be defined from the view point of several disciplines, including law, economy, history, actuarial science, risk theory and sociology. A working definition of insurance and the one that captures the essential characteristics of a true insurance plan by the Commission on Insurance terminology of the American Risk and Insurance Association is defined as Insurance is contract in which the insured transfer risk to potential loss to the insurer who promise to compensate the former upon suffering loss. Insurance premium is the monetary consideration paid by the insured for the cover granted by the insurance policy. The insurer take a number of clients (insured) who small premium that form an aggregate fund is called the premium fund (Walker, 2001).

Also from a view point of individual, insurance can be defined as an economic device whereby the individual substitutes small certain cost (the Premium) for a large uncertain financial loss (the contingency insured against) that would exist if it were not for the insurance. In addition to eliminating risk for the individual through transfer, the insurance device reduces the aggregate amount of risk in the economy by substituting certain cost for uncertain losses. So from the view point of society insurance is an economic device for reducing and eliminating risk through the process of combining a sufficient number of homogeneous exposures into a group to make the losses predictable for the group as a whole (Vaughan & Vaughan, 1999).

Moreover, there is another definition by Bickelhaupt (1983) that defines insurance as: Insurance is an agreement by which one party (the insurer) promises to pay another party (the insured or policy holder) a sum of money if something happens which causes the insured to

suffer a financial loss. Hence, in the case of accident the responsibility for paying such losses is transacted from policy holder to the insurer. In return for accepting the burden of paying for losses when they occur, the insurer charges the insured a price called the insurance premium.

2.1.2 Characteristics of Insurance

An insurance agreement typically characterized by pooling of losses, payment of fortuitous losses, risk transfer and indemnification. Pooling or the sharing of losses is the heart of insurance. Pooling is the spreading of losses incurred by the few over the entire group, so that in the process, average loss is substituted for actual loss. Moreover, pooling involves the grouping of a large number of exposure units so that the law of large numbers can operate to provide a substantially accurate prediction of future losses (Rejda, 2008). The law of large number means that the greater the number of exposure units, the more accurate the insurers can be in calculating their premiums, and this is because they are better able to assess the size of future loss payments and hence to work out an appropriate charge that will enable them to cover those losses (Bickelhaupt, 1983).

A payment of fortuitous loss is one that is unforeseen and unexpected and occurs as a result of chance. In other words, the loss must be accidental. The law of large numbers is based on the assumption that losses are accidental and occur randomly. Risk transfer means that a pure risk is transferred from the insured to the insurer, who typically is in a stronger financial position to pay the loss than the insured. Indemnification means that the insured is restored to his or her approximate financial position prior to the occurrence of loss. Thus for example, if one's home burns in fire, a home owner's policy will indemnify or restore the person to the previous position (Rejda, 2008).

2.1.3 The Role of Insurance Companies

Insurance companies are in the business of assuming risk on behalf of their customers in exchange for a fee, called a premium. Insurance companies make a profit by charging premiums that are sufficient to pay the expected claims to the company plus a profit. Insurance is classified by which type of undesirable event is insured. The most common types of insurance are life insurance and property and casualty insurance. The business of any insurance company is to pay claims in return for the payment of premiums. But running such a business is, of course, a great deal more complex than this. According to Diacon and Carter (2003), every insurance company undertakes the following essential activities: Generating

new business, paying claims, maintaining fund, investing the fund to earn investment income, buying reinsurance, underwriting, Paying taxes, deciding a price, provide additional services, drawing up accounts:

2.1.4 Profitability

In real world profitability for any business attached with the firm business performance. Performance is a difficult concept in terms of definition and evaluation. Profitability is considered as one of the basic performance measurement variables. According to Asrat and Tesfahun (2016) profitability is defined as an output, and the proper measure select to assess corporate performance is considered according to the organization type and objectives of evaluation. Profitability refers to the ability of the company to generate earnings by properly managing its expenses (Van Horne, 2008).

2.2 Determinants of Insurance Companies Profitability: Empirical Evidences

2.2.1 Empirical Evidences from other countries

Kazimierz (2016) conducted a research by the title of "Determinants of Profitability of General Insurance Companies Performance in Poland" This paper tried to identify the determinants of the performance of general insurance companies in Poland using both firm specific factors and macroeconomic factors over the period 2006-2013. Six financial performance measures are used to capture different aspects of the insurance. The empirical results prove that profitability performance being- negatively affected by underwriting activity and by the net operating expenses variable. The study also reveals that the size of a company has positive relationship with its profitability. The study also confirmed statistically significant and positive relationships between profitability ratio of technical activity and GDP.

The study conducted in Albania by Edlira Luçi et al, (2016) in the title of Assessment of Insurance Companies Profitability: case of Albania**.** The objective of this paper was to assess the impact of internal factors like growth rate, liquidity, liability, fixed assets, company size and volume of capital, on the profitability of insurance companies in Albania. The purpose of the study was to provide a useful tool for the insurance companies operating in Albania. The researches took insurance companies during the period 2008- 2013. The methodology used to achieve the paper's objective is based on the multiple regression tools with panel data. The

results of the multiple regression indicated that there was a statistically significant relationship between growth rate, liquidity, liabilities and fixed assets to the profitability of insurers, while the impact of factors of company size and the volume of capital was not statistically significant.

The other study that is conducted in this subject area is by Emine (2014), by the title of "The Effects of Firm-Specific Factors on the Profitability of Non-Life Insurance Companies in Turkey".The main objective of the study was study to investigate the firm-specific factors affecting the profitability of non-life insurance companies operating in Turkey. The researcher took data of 24 non-life insurance companies operating in Turkey from the period 2006–2013. The dependent variable profitability is measured by two different variables: technical profitability ratio and sales profitability ratio. Finally, the empirical results show, the firm-specific factors affecting the profitability of Turkish non-life insurance companies are the size of the company, age of the company, loss ratio, current ratio, and premium growth rate.

Chen-Ying Lee (2014) conducted a research by the title of "The Effects of Firm Specific Factors and Macroeconomics on Profitability of Property – liability Insurance Industry in Taiwan" The article investigates the relationship between firm specific factors and macroeconomics on profitability in Taiwanese property-liability insurance industry using the panel data over the1999 through 2009 time period. Using operating ratio and return on assets (ROA) for the two kinds of profitability indicators to measure insurers' profitability. The results show that underwriting risk, reinsurance usage, input cost, return on investment (ROI) and financial holding group have significant influence on profitability in both operating ratio and ROA models.

Charumathi B. (2012) conducted a research on the Indian Insurance companies by the title of "Determinants of Profitability of Indian Life Insurers" the study tried to model the factors determining the profitability of life insurers operating in India taking return on asset as dependent variable. The researcher took all the 23 Indian life insurers (including 1 public and 22 private) operating at that time and it used the data pertaining to 3 financial years, viz., 2008-09, 2009-10 and 2010-11. The study examines profitability only with internal or firm

specific characteristics such as leverage, size; premium growth, liquidity, underwriting risk and equity capital are regressed against Return on Assets. Finally, the study concludes profitability of life insurers is positively and significantly influenced by the size and liquidity. The leverage, premium growth and logarithm of equity capital have negatively and significantly influenced the profitability of Indian life insurers. The study does not find any evidence for the relationship between underwriting risk and profitability.

Hafiza Malik (2011) conducted a research in the title "Determinants of Insurance Sector of Pakistan" in this study the researcher took a sample of 35 listed life and non life insurance companies and also covers the time period from 2005-2009. The study used entirely secondary data. Finally, the finding shows that Age of the company doesn't have relationship with its profitability but size of the company, volume of capital; loss ratio and leverage ratio have a significant relationship with insurance companies' profitability.

Nikhel B. et al. (2015) conducted a research by the title of "Factors Determining Financial Performance of Indian Life Insurance Companies" the study took 10 fully operating life insurance companies in India, the researchers collected 10 years data from 2003/2004 to 20012/2013, the linear regression model was applied in order to get the relationship between ROE that taken as a profit measure and independent variables like underwriting risk, liquidity, leverage, volume of capital, tangibility and size. The findings of the study revealed that there is negative significant relationship between volume of capital and leverage with financial performance (ROE) and there is insignificant positive relationship of tangibility and liquidity with financial performance (ROE).

Andres & Stephen (2013) conducted a research by the title of "Determinants of Profitability in Life Insurance Companies: Evidence from the Philippines " This paper examines the profitability of the Philippine life insurance industry using pooled ordinary least squares on a balanced panel of 23 insurance companies for the years 2000-2012. The analysis makes use of Return on Assets (ROA) as a measure of profitability that is influenced by selected firm level, industry level and macroeconomic factors. The empirical results show that most of the firm level factors influenced ROA while industry level and macroeconomic factors have negligible effect on it. Specifically profitability of Philippine life insurance companies is negatively correlated with liquidity, leverage, number of locations and firm size. GDP and inflation were shown to have no statistically significant effects on profitability.

Mirie M. & Jane W (2015) conducted a research by the title of "Determinates of Financial Performance in General Insurance Companies in Kenya" The main objective of the study was to establish the factors that affect the profitability of general insurers in Kenya. The study employed multiple linear regressions, with return on assets as the dependent variable, and considered all the general insurance companies in Kenya for the period 2009-2012. Finally the study reveals Profitability was positively related to leverage, equity capital, management competence index and negatively related to size and ownership structure. The study did not find a relationship between performance and retention ratio, liquidity, underwriting risk and age.

Erick k. Et al. (2011) conducted a research in Ghana by the title of "determinants of the profitability of insurance firms in Ghana" The general objective of the study was to find out the determinants of the profitability of insurance firms in Ghana. Secondary data on financial reports were collected from sixteen insurance firms in Ghana for the period 2005 to 2010.The study was quantitative in nature. The study discovered that, apart from tangibility which has a negative relationship, there is a positive relationship between leverage, liquidity and profitability of insurance firms in Ghana.

Borome Joseph (2013), conducted a research in the title of "Determinants of Financial Performance for Life Insurance Companies in Kenya" The objective of this study was to determine the factors that affect the financial performance of life insurance companies in Kenya. The researcher selected Solvency Margin, Growth of Premiums, Insurance Financial Leverage, Investment Ratio, Diversification, Company Size, and Retention Ratio as a variable. The study employed multiple linear regression analysis with data for 24 life insurers that were operating in Kenya for the respective five year period 2010 - 2014. The study found that Diversification and Investment ratio showed a strong positive relationship to financial performance while Insurance Financial Leverage showed a moderate positive relationship to Financial Performance of life insurance companies in Kenya. Retention ratio showed a strong negative relationship to financial performance. Company Size and Growth of Premiums showed a weak negative relationship to financial performance while Solvency Margin showed a weak positive relationship to Financial Performance of life insurance companies in Kenya.

2.2.2 Empirical Evidences from Ethiopia

Suheyli Reshid conducted a study on the title "Determinants of insurance companies Profitability in Ethiopia" the researcher used eleven years data from 2004-2014 and analyzed nine insurance companies. The finding showed that underwriting risk, technical provision and solvency ratio have significant negative relationship and liquidity, company size and premium growth have positive significant relationship with profitably.

Abate and Yuveraj (2013) insurers' profitability is determined by growth, leverage, and volume of capital, size, and liquidity hence growth, size, and volume of capital are positively related. In contrast, liquidity ratio and leverage ratio are negatively but significantly related with profitability. The age of companies and tangibility of assets are not significantly related with profitability.

The other study conducted in Ethiopian level is "Determinants of Insurance Companies' Profitability in Ethiopia" by Meaza Melese in the year of 2014. This paper examined the effects of firm specific factors like (size of company, leverage ratio, liquidity ratio, loss ratio/ risk, tangibility of assets, growth and managerial efficiency) and macroeconomic factors (economic growth and inflation) on profitability peroxide by ROA. The sample in this study includes ten insurance companies for six years (2008-2013). From the regression result; size, leverage, tangibility of asset, loss ratio/ risk, firm growth and managerial efficiency are identified as significant determinants of profitability hence firm size, tangibility of asset, firm growth and, managerial efficiency are positively related. In contrast, leverage and loss ratio/ risk are negatively but significantly related with profitability. Liquidity, inflation, and economic growth are not significant determinants of profitability.

Abate (2012) conducted a research by the title of "Factors affecting the profitability of Ethiopian insurance companies" the study used nine of the listed insurance companies for nine years (2003-2011). Secondary data obtained from the financial statements (Balance sheet and Profit/Loss account) of insurance companies, financial publications of NBE are analyzed. The findings of the study was; growth, leverage, volume of capital, size, and liquidity are identified as most important determinant factors of profitability hence growth, size, and volume of capita are positively related. In contrast, liquidity ratio and leverage ratio are negatively but significantly related with profitability. Lastly, age of company and tangibility of assets are not significantly related with profitability.

In the year 2016 Asrat and Tesfahun (2016) tried to determine the basic variables that varies profitability of Ethiopian insurance companies they used 8 insurance companies by using non probability judgmental sampling. The study tried to test the effect of both firm specific and macroeconomic variables. The fixed effect panel data model regression analysis shows that private insurers' profitability is statistically significantly affected by firm specific factor which is underwriting risk negatively, company size positively, premium growth positively, and solvency ratio negatively and reinsurance dependency has no influence on profitability and statistically insignificant. The macroeconomic variable economic growth rate has significant influence on profitability and inflation has insignificant influence on insurers' profitability whereas interest rate which measured by time deposit weighted average was insignificant variable.

2.2.3 Conclusion and Knowledge Gap

As clearly shown above in the Empirical review part measurement of financial industry's profitability has attracted scholarly attention in recent studies and there has been a growing number of studies recently that test for measures and determinants of insurance companies' profitability. Meaza Melese (2014) , Mirie M. & Jane W (2015), Charumathi B. (2012), Nikhel B. et al. (2015), Edlira Luçi et al, (2016), Andres & Stephen (2013) , Erick k. Et al. (2011) Suheyli Reshid (2015), Abate and Yuveraj (2013) and Hafiza Malik (2011) are some of researchers who conduct about the determinants of insurance companies profitability. Even though, many study area the results found by the researchers mentioned above in the empirical revealed inconsistencies according to the country and the type of insurance company in which the research is conducted regarding selected variables.

Moreover, as it can see in empirical evidences, most literatures are done in outside Ethiopia. Even though few studies conducted in this title in Ethiopian context they concerned in profitability of banks rather than insurance companies. Therefore, there are fewer literatures concerning insurance companies as compared to banks and most of them focus on firm specific factors. According to the knowledge of the researcher there are only few researches which considered the effects of macroeconomic factors on the profitability of insurance companies such as Meaza (2014) and Suheyli (2015) and Asrat and Tesfahun (2016) this shows it has received little attention. Accordingly, this research includes firm specific,

industry specific and macroeconomic factors and takes recent data from 10 years financial statements of Ethiopian insurance companies'. This study will add literature on determinants' of profitability of insurance companies in Ethiopia.

2.3 Conceptual Framework

General insurers' profitability is influenced by both internal and external factors. Whereas internal factors focus on insurers specific characteristics, the external factors concern both industry features and macroeconomic variables.

2.3.1 Specific Determinants (Internal factors)

The internal determinants of insurance company's profitability are those management controllable factors which account for the inter-firm differences in profitability, given the external environment.

Leverage – This is measured by ratio of total debt to equity (debt/equity ratio). This ratio shows the degree to which a business is utilizing borrowed money. It reflects insurance companies' ability to manage their economic exposure to unexpected losses (Adam & Buckle, 2000).

$$\text{Leverage ratio} = \frac{\text{Total Debt}}{\text{Total equity}}$$

Liquidity – This refers to the degree to which debt obligations coming due in the next twelve months can be paid from cash or assets that will be turned in to cash. Insurance liquidity is the ability of the insurer to fulfil their immediate commitments to policyholders without having to increase profits on underwriting and investment activities and/or liquidate financial assets $\text{Liquidity ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$

Tangibility of asset - Tangibility is defined in respect to the model as the ratio of fixed assets to total assets (Eric et al, 2013).

$$\text{Tangibility of asset} = \frac{\text{Fixed asset}}{\text{Total asset}}$$

Level of equity – it is the claim of owners up on the assets of the firm and it's determined by natural logarithm of share holders equity.

Level of equity = Nat log of shareholders equity

2.3.2 Macroeconomics determinants (External Factor)

Market Share – is measured by dividing the total asset of each firm with the total asset of the industry in general (Teklit & Jasmindeep, 2016). In this research market share is calculated by dividing each insurance company's gross premium with the total gross premium of the industry because, market share is best explained by the percentage of sales that is shared by the entity from the industry (Behailu, 2017).

$$\text{Market share} = \frac{\text{Gross premium of each firm}}{\text{Gross premium of industry}}$$

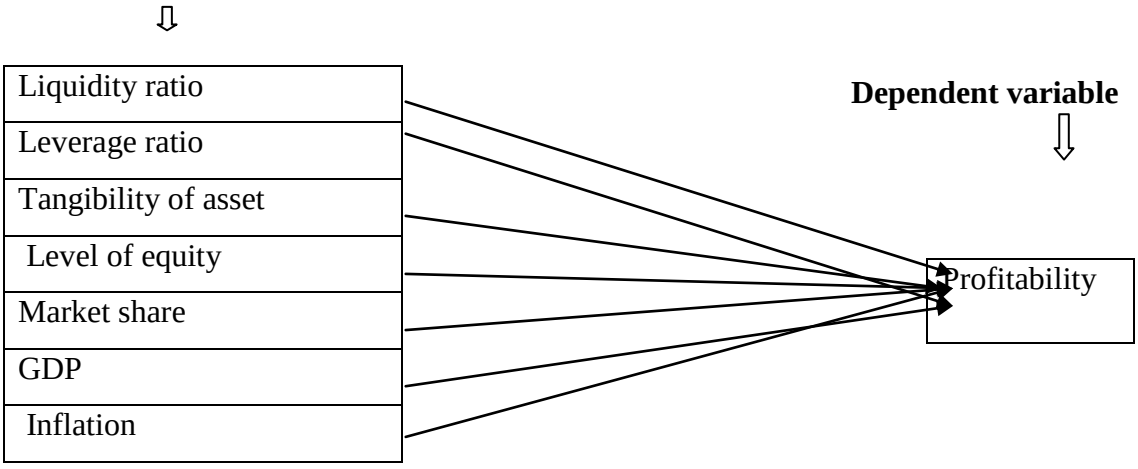
Growth rate of GDP - GDP is the indicator of economic development in one's country (state). One's country GDP may growth as such in the level of economic activities this growth of GDP leads the total value of goods and services produced in one year.

$$\text{Growth Rates of GDP} = \frac{(GDP(t) - GDP(t-1))}{GDP(t-1)}$$

Inflation - Inflation is a general rise in the prices of services and goods in a particular country, security in a fall in the value of money. If one's country inflation rate in significantly increased the total services and goods of the country is also significantly fall (Suheyli 2015).

$$\text{Inflation rates} = \frac{(I(t) - I(t-1))}{I(t-1)}$$

Figure 2.1: Theoretical research models investigating seven types of determinants that affecting the profitability of insurance companies in Ethiopia.



CHAPTER THREE

METHODOLOGY

This section discusses the research methodology applied for the study. The methodology of this research is constructed based on the objectives of the study. The section is organized under sub-sections which are namely: research approach, research design, source of data, data collection instrument and method of data analysis the process of constructing empirical model.

3.1 Research Approach

In line with the objective of the study the researcher used quantitative research approach. Quantitative research is a means for testing objective theories by examining the relationship among variables (Creswell, 2009). And according to Kothari (2004) Quantitative research is based on the measurement of quantity or amount. It is applicable to phenomena that can be expressed in terms of quantity.

3.2 Research Design

In order to show the casual relationship of the variables the researcher used explanatory research design. If the objective is to determine which variable might be causing a certain behavior, i.e. whether there is a cause and effect relationship between variables, explanatory research must be undertaken (Shields; 2013).

3.3 Sources of Data

In line with the objective of the study and type of analysis techniques, the researcher mainly used secondary sources of data. Accordingly, the researcher used audited annual financial statements of Ethiopian insurance companies.

3.4 Data Collection Instruments

In the data collection process different data collection instruments can be used. According to the source of data that have to be collected to conduct the study, the researchers used secondary data by reviewing the annual audited financial statements of Ethiopian insurance companies from year 2006 to 2015. On the other hand, in order to analyze the relationship that exists between profitability and macro-economic variables, macroeconomic data are gathered from the records held by NBE and MoFED through structured document review.

3.5 Population and Sampling Techniques

The target populations of the study are all insurance companies registered by NBE and under operation in Ethiopia. Currently, seventeen insurance companies are working in Ethiopia. As they are already few in numbers and in order to minimize a sapling risk there is no need to sample from the seventeen insurance companies, But, because of lack of 10 years data in most of the newly established insurance companies, the number of sample is reduced to nine by using non probability purposive sampling. 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.

3.6 Method of Data Analysis

Once the data is collected, it is analyzed by using descriptive 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 2006 to 2015 based on the sector sample of 9 insurance companies and a correlation matrix is also used to examine the relationship between the dependent variable and explanatory variables. In addition, ordinary least square (OLS) is conducted using statistical package "EVIEWS -9" to determine the most significant and influential explanatory variables affecting the profitability of the insurance industry in Ethiopia.

3.7 Hypotheses of the Study

Based on review of relevant and related literatures, it is hypothesized that liquidity ratio, leverage ratio, tangibility of asset, level of equity, market share, GDP and inflation are expected to influence firms' profitability as measured by Return on Assets (ROA). Accordingly, the following hypotheses were formulated in this study:

As far as ***leverage ratio*** is concerned most of the studies conducted in this area come up with similar conclusion; for instance Hafiza (2011), Suheyli (2015), Meaza (2014), Charumathi B. (2012), Mirie M. & Jane W (2015), Andres & Stephen (2013) and Nikhel B. et al. (2015) showed leverage ratio is negatively related to profitability which means when the company is more financed with debt than equity the profit of the firm will decline. On the other hand Erick et al. (2011) and Behaylu (2017) come up with different conclusion with the other studies; they concluded leverage ratio and profitability of the firm have a positive relationship.

H1. ***Leverage ratio*** has a negative and significant effect on profitability of Ethiopian insurance companies.

With regard to ***liquidity ratio***, the study conducted by Suheyli (2015), Meaza (2014), Abate and Yuveraj (2013), Edlira et al, (2016), Abate (2013) and Andres & Stephen (2013) concluded liquidity of insurance companies have a negative significant relationship with their profitability. In the contrary to this findings Erick k. Et al. (2011), Behaylu (2017) and Charumathi B. (2012), showed liquidity ratio have a positive relationship with profitability this means when the liquidity of the firm improved the profitability will also improve. On the other hand the study conducted in Kenya by Mirie M. & Jane W (2015), and the study conducted in India by Nikhel B. et al. (2015) showed liquidity ratio and the profitability of the firm have no statistically significant relationship at all.

H2. ***Liquidity ratio*** has a negative and significant impact on profitability of insurance companies in Ethiopia.

In relation to ***tangibility of asset*** the study conducted by Meaza (2014) and Kalkidan (2016), come up with the conclusion that tangibility of asset has a positive significant effect on the profitability of insurance companies. In the contrary to this finding Erick et al. (2011) concluded tangability has negative significant effect on the profitability of those firms. In addition to the above results Abate and Yuveraj (2013), Nikhel B. et al. (2015) and Abate (2013) showed tangibility of asset has negative but in significant relationship with profitability.

H3. ***Tangibility of Asset*** has a negative and significant impact on profitability of insurance companies in Ethiopia.

As far as ***level of equity*** is concerned as per the researchers review the only study that tried to test the effect of level of equity on profitability of insurance companies is (Charumathi, 2016). The regression result of the study revealed level of equity capital has a significant negative relationship with profitability, which means as the level of equity increase the profitability of insurance companies will decrease.

H4. ***Level of equity*** has a negative and significant impact on profitability of insurance companies in Ethiopia.

The industry specific factor which is ***market share*** studied by Teklit & Jasmindeep (2016) and Behaylu (2017) both of the studies concluded market share doesn't have a significant effect on the profitability of insurance companies.

H5. ***Market share*** has a positive and significant impact on profitability of insurance companies in Ethiopia.

As far as economic growth is concerned several studies triad to measure its influence on the insurance companies profitability for instance, Meaza (2014), Teklit & Jasmindeep (2016) showed GDP haven't have a significant relationship with profitability. But studies conducted by Kalkidan (2016), Behaylu (2017) and Andres & Stephen (2013) concluded GDP has a negative significant influence on the performance of insurance companies, which means as the rate of GDP increases profitability of insurance companies will decrease. In the contrary to this findings Kazimierz (2016) and Asrat and Tesfahun (2016) showed GDP has a positive impact on proftablity of the firm, which means as GDP increase profitability of insurance companies will also increase.

H6. ***Economic growth*** has positive and significant impact on profitability of insurance companies in Ethiopia.

The other external or macroeconomic factor that expected to effect the profitability of the firm is ***inflation*** according to Meaza (2014), Teklit & Jasmindeep (2016), Asrat and Tesfahun (2016) and Behaylu (2017) inflation have no significant relationship with profitability of insurance companies.

H7. ***Inflation*** has negative and significant impact on profitability of insurance companies in Ethiopia.

3.8 Model Specification and Measurement

The following regression equation is estimated as follow:

$$ROA_{i,t} = \alpha + \beta_1 Levi_{,t} + \beta_2 LQi_{,t} + \beta_3 Tanass_{,t} + \beta_4 Ln\_of\ Eq_{,t} + \beta_5 Ms_{,t} + \beta_6 EGdp_{,t} + \beta_7 IRi_{,t}\ \varepsilon i_{,t}$$

Where:

- **ROAi,t:** the profitability in insurance company i at time t (dependent variable) in this study return on assets (The return on assets (ROA) defined as the insurance companies before tax profit over total assets) is used to measure profitability.

- **Lev:** Leverage;
- **LQ:** Liquidity;
- **LN_of_Eq= level of equity**
- **TANASS= Tangibility of asset**
- **MS= market share**
- **GDP**: growth domestic product
- **IR**: Inflation rate
- **β1**… **β7**: coefficient of independent variables
- **ε** is error term.
- **i** is insurance companies 1 to 9

In this model, all independent variables enter the regression equation at once to examine the relationship between the whole set of predictor and dependent variable. The aim of this analysis is to determine which independent variables are highly significant to determine the company's profitability.

Dependent Variable	**Symbol**	**Measurement**
Profitability	ROA	Net income/Total asset

- **Independent Variables**

Variables	**Symbol**	**Measurement**
Leverage	LV	Total debt/ Total asset
Liquidity	CR	Current Ratio=Current asset/current liability
Tangibility	TANASS	Total fixed asset /total asset
Level of equity	LN of EQ	Natural log of equity
Market share	MS	Gross premium of each firms/ total GP
Economic growth	GDP	$GDP = \frac{(GDP\ (t) - GDP\ (t-1))}{GDP\ (t-1)}$
Inflation	IFLN	$IR = \frac{(I\ (t) - I(t-1))}{\mathbf{I\ (t-1)}}$

3.9 Diagnostic Analysis

Diagnostic checking will be used to test whether the sample is consistent with these assumptions:

There is no relationship between independent variables (No multicollinearity).

There is no relationship among the error term at the period t and the error term at period before t (No autocorrelation problem)

The error term is constant across the number of observations (Homoscedasticity).

The error term is normally distributed.

If all the above assumptions are not violated accordingly the regression will be conducted as we are sure of it is accuracy and reliability of our estimates.

3.10 Data Analysis

3.10.1 Descriptive Test

According to El-Gammal (2012), descriptive analysis was conducted by using means, standard deviation and Mann-Whitney U test. Besides, according to Mohammad Hassan et al. (2013), descriptive analysis about continuous variables was conducted by using mean, median and standard deviation, whereas discontinuous variables were using frequency and percentage.

3.10.2 Scale Measurements

The scale measurements consist of reliability test and normality test. According to Dabor and Adeyemi (2009), data collected from the published annual reports are credible, believable, and reliable.

3.10.3 Inferential Analysis

Multiple Regression Analysis

Multiple regression analysis is conducted in this study to estimate the variation (Pal & Bhattacharya, 2013) in the profitability accounted by the independent variables and also acts as a statistical tool to investigate the linear relationship between various variables. It is also useful in terms of predicting the effects of a set of predictors on profitability within a time period (Tonidandel & LeBreton, 2011). The equation is described as below:

The following regression equation is estimated as follow:

The following regression equation is estimated as follow:

$$ROAi,t = \alpha + \beta 1Levi,t + \beta 2LQi,t + \beta 3Tanass,t + \beta 4Ln\_of\ Eq,t + \beta 5Ms,t + \beta 6EGdp,t + \beta 7IRi,t\ \varepsilon i,t$$

Where:

- **ROAi,t:** the profitability in insurance company i at time t (dependent variable) in this study return on assets (The return on assets (ROA) defined as the insurance companies before tax profit over total assets) is used to measure profitability.
- **Lev:** Leverage;

- **LQ:** Liquidity;
- **LN_of_Eq= level of equity**
- **TANASS= Tangibility of asset**
- **MS= market share**
- **GDP**: growth domestic product
- **IR**: Inflation rate
- **β1**… **β7**: coefficient of independent variables
- **ε** is error term.
- **i** is insurance companies 1 to 9

3.11 Diagnostic Analysis

3.11.1 Multicolinearity

According to Chris (2008), Multicolinearity will occur when some or all of the independent variables are highly correlated with one another. If the multicolinearity occurs, the regression model is unable to tell which independent variables are influencing the dependent variable. The consequences of Multicolinearity are OLS estimators still Best, Linear and Unbiased, large variances and covariance of OLS estimators, wider confidence interval, and insignificant ratio. In this case, this study chooses to use high pair-wise correlation coefficients method because it can see the correlation of independent variables between each other one by one. If the correlation coefficient will be higher than 0.8, the model will be considered as it consists of serious Multicollinearity problem.

3.11.2 Autocorrelation

According to Chris (2008), when the error term for any observation is related to the error term of other observation, it indicate that autocorrelation problem exist in this model. In the case of autocorrelation problem, the estimated parameters can still remain unbiased and consistent, but it is inefficient. The result of T-test, F-test or the confidence interval will become invalid due to the variances of estimators tend to be underestimated or overestimated. Due to the invalid hypothesis testing, it may lead to misleading results on the significance of parameters in the model. Durban-Watson Test will be used to detect Autocorrelation problem.

H0: There is no autocorrelation problem in the model.

H1: There is autocorrelation problem in the model.

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

3.11.3 Heteroscedasticity

According to Chris (2008), Heteroscedasticity means that error terms do not have a constant variance. If heteroscedasticity occur, the estimators of the ordinary least square method are inefficient and hypothesis testing is no longer reliable or valid as it will under estimate the variances and standard errors. There are several tests to detect the Heteroscedasticity problem, which are Park Test, Glesjer Test, Breusch-Pagan-Goldfrey Test, White's Test and Autoregressive Conditional Heteroscedasticity (ARCH) test. In this case, this study chooses to use White test to detect Heteroscedasticity.

H0: There is no Heteroscedasticity problem in the model.

H1: There is Heteroscedasticity problem in the model.

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

3.11.4 Normality

Normality tests are used to determine if a data set is well-modeled by a normal distribution. With the normality assumption, ordinary least square estimation can be easily derived and would be much more valid and straight forward. This study will use Jarque-Bera Test (JB test) to find out whether the error term is normally distributed or not.

H0: Error term is normally distributed

H1: Error term is not normally distributed

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

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION

In the previous chapter detail insight was given concerning the research methodology followed in this study, this chapter presents the results of documentary reviews and the different tests made to ascertain the fulfillment of classical linear regression model assumptions.

4.1 Documentary Analysis

It is clear that the objective of this study is to identify the determinants of profitability in Ethiopian private and stately owned insurance companies. The secondary data for the analysis purpose are collected through structured documentary review from performance analysis report published by NBE. The following discussion presents respectively the tests for the classical linear regression model assumptions, the descriptive statistics, the correlation analysis among the dependent and independent variables and the outcomes of the panel data regression analysis.

4.1.1. Test results for the classical linear regression model assumptions

As it is mentioned in methodology part, diagnostic tests were carried out to confirm that the data fits the basic assumptions of classical linear regression model. Hence, the results for model misspecification tests are presented as follows:

A. Test for Hetroscedasticity

One of the CLRM assumptions says that the variance of the errors is constant. This is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be heteroscedastic (Brooks, 2008, p 132). 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 or 5%.

Table 4.1: Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.623297	Prob. F(7,82)	0.7353
Obs*R-squared	4.546817	Prob. Chi-Square(7)	0.7151
Scaled explained SS	5.557798	Prob. Chi-Square(7)	0.5922

Source: Each Insurance companies, NBE and own computation via E-views 9

B. Test for Autocorrelation

To identify determinants of profitability in insurance companies 90(9*10) observations were used in the model. The researcher tested the autocorrelation assumptions that imply zero covariance or error terms. That means errors associated with one observation are uncorrelated with the errors of any other observation. As noted in Brooks (2008), the best well-known test for detecting serial correlation is the Durbin Watson test. Accordingly, as it is shown in table 4.2 the Durbin Watson test statistic value for this study was 2.60, which it is clearly greater than 4-DL= 2.259 and 4-DU= 2.634 Hence, there is no evidence for the presence of autocorrelation.

Table 4.2 Autocorrelation test:

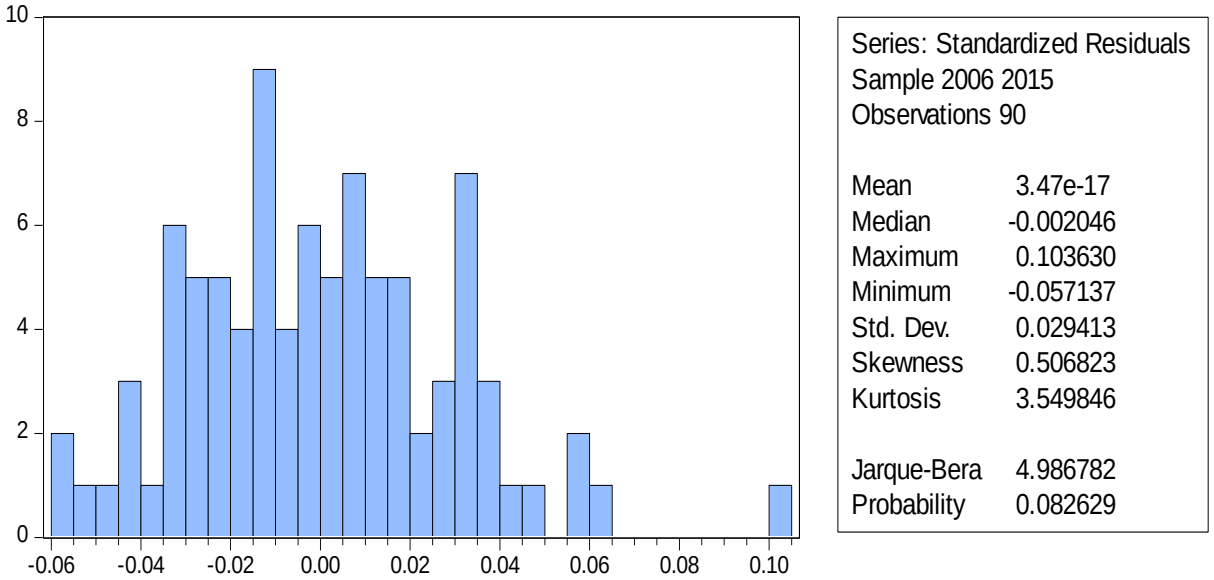
Variables	DW test statistics result
All specific and macroeconomic factors	2.60

Source: Each Insurance companies, NBE and own computation via E-views 9

C. Test for Normality

The normality test for this study is shown in figure 4.1 below. If the residuals are normally distributed, the histogram should be bell-shaped and the Bera-Jarque statistic would not be significant meaning disturbance to be normally distributed around the mean. This means that the *p*-value given at the bottom of the normality test screen should be bigger than 0.05 to not reject the null of normality at the 5% level. A normal distribution is not skewed and is defined to have a coefficient of kurtosis of 3 (Brooks, 2008).Therefore, the normality tests for this study the coefficient of kurtosis was 3, and the Bera-Jarque statistic has a P-value of 0.08 implies that the p-value for the Jarque-Bera test for models is greater than 0.05 which indicates that the errors are normally distributed. Based on the statistical result, the study failed to reject the null hypothesis of normality at the 5% significance level this implying that the data were normally distributed.

Figure 4.1 Normality Test:



Source: Each Insurance companies, NBE and own computation via E-views 9

D. Test for Multicollinearity

An implicit assumption that is made when using the panel LS estimation method is that the explanatory variables (independent variable) are not correlated with one another. If there is no relationship between the explanatory variables (independent variable), they would be said to be orthogonal to one another. If the explanatory variables were orthogonal to one another, adding or removing a variable from a regression equation would not cause the values of the coefficients on the other variables to change (Brooks, 2008). According to Gujarati, (2004) multicollinearity could only be a problem if the pair-wise correlation coefficient among regressors is above 0.90 (Hailer et al, 2006)*cited in* Birhanu, (2012) which is not more or less the case in the study variables.

Table 4.3 Multicolliniearity test

	CR	GDP	INFL	MS	LV	TANASS
CR	1.000000	0.148734	-0.04093	0.059025	-0.29128	-0.354661
GDP	0.148734	1.000000	-0.10955	0.017091	-0.13326	-0.064098
INFL	-0.04093	-0.10955	1.000000	0.002747	0.028050	0.033433
MS	0.059025	0.017091	0.002747	1.000000	0.247144	-0.416634
LV	-0.29128	-0.13326	0.028050	0.247144	1.000000	-0.128519
TANASS	-0.35466	-0.0641	0.033433	-0.41663	-0.12852	1.000000

Source: Each Insurance companies, NBE and own computation via E-views 9

4.1.2 Model selection

Random effect versus Fixed effect models

Econometrics model used to examine the impact of liquidity, market share, GDP, inflation, equity and tangibility of asset on profitablity of insurance companies in Ethiopia was panel data regression model which is either fixed-effect or random-effect model. The appropriate test used to decide whether fixed effect or random effect model is appropriate was Hausman Specification Test. Thus. Hausman Specification Test identifies whether fixed-effect or random-effect model is most appropriate under the null hypothesis that unobservable individual effects (u_i) are uncorrelated with one or more of explanatory variables *(Xi). As* noted by Gujarati (2004). Fixed effect model is most appropriate when null hypothesis is rejected whereas random effect is appropriate when null hypothesis is not rejected. For Hausman test, the null and alternative hypotheses are as follows:

Ho: $u_i$is not correlated with *Xi* (random - effects model appropriate)

HI: $u_i$is correlated with *Xi* (fixed-effects model appropriate)

Thus, to test the null hypothesis, it requires comparing the estimates from the random-effects and the fixed-effects estimator. Random-effect estimator is consistent under the null hypothesis, but inconsistent under the alternative hypothesis whereas fixed-effect estimator is consistent under both the null and alternative hypothesis. If the estimates for the random-effects estimators are not significantly different from the estimates for the fixed-effects estimator, then the null hypotheses are accepted and conclude that it is not correlated with Xi, and therefore the random-effect model is the appropriate model, as a result the random-effect model is used for this study.

Table 4.4 Hausman Test

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

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	7	1.0000

Variable	Fixed	Random	Var(Diff.)	Prob.
CR	0.022708	0.038803	0.000544	0.4901
GDP	-0.026195	-0.026933	0.000008	0.7891
INFL	-0.002571	-0.002644	0.000000	0.7300
LN_OF_EQ	0.014561	0.011953	0.000056	0.7266
LV	-0.311335	-0.295750	0.004468	0.8156
MS	0.143929	0.029309	0.014144	0.3352
TANASS	-0.083975	-0.039481	0.003410	0.4461

Cross-section random effects test equation:
Dependent Variable: ROA
Method: Panel Least Squares
Date: 01/14/18 Time: 08:41
Sample: 2006 2015
Periods included: 10
Cross-sections included: 9
Total panel (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.343536	0.239063	1.437007	0.1549
CR	0.022708	0.028630	0.793174	0.4302
GDP	-0.026195	0.004754	-5.509509	0.0000
INFL	-0.002571	0.000421	-6.105571	0.0000
LN_OF_EQ	0.014561	0.009982	1.458659	0.1489
LV	-0.311335	0.086565	-3.596533	0.0006
MS	0.143929	0.125512	1.146734	0.2552
TANASS	-0.083975	0.068627	-1.223654	0.2250

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.756660	Mean dependent var	0.101300
Adjusted R-squared	0.707335	S.D. dependent var	0.058604
S.E. of regression	0.031704	Akaike info criterion	-3.904933
Sum squared resid	0.074381	Schwarz criterion	-3.460522
Log likelihood	191.7220	Hannan-Quinn criter.	-3.725721
F-statistic	15.34011	Durbin-Watson stat	2.618374
Prob(F-statistic)	0.000000		

Correlated Random
Effects - Hausman
Test

Equation: Untitled

Source: Each Insurance companies, NBE and own computation via E-views 9

4.2 Descriptive statistics

This section presents the outcomes of the descriptive statistics for main variables involved in the regression model. Key figures, including mean, median, standard deviation, minimum and maximum value were reported. This was generated to give overall description about data used in the model and served as data screening tool to spot unreasonable figure.

As it is shown table below, profitability of insurance companies in Ethiopia measured in terms of ROA or by dividing net income by total asset for the total 90 observations during the study period (2006-2015).

Table 4.5 Descriptive statistics

	ROA	CR	GDP	INFL	MS	TANASS	LV	LN_OF_EQ
Mean	0.101300	1.015889	10.23200	17.15000	0.104256	0.183111	0.697111	18.14600
Median	0.084500	0.990000	10.37500	14.65000	0.070000	0.155000	0.690000	18.08500
Maximum	0.270000	2.310000	11.80000	36.40000	0.530000	0.540000	0.830000	19.87000
Minimum	-0.015	0.360000	8.000000	2.800000	0.000000	0.040000	0.530000	16.12000
Std. Dev.	0.058604	0.236870	1.120205	10.89103	0.130428	0.112756	0.070396	0.882939
Observations	90	90	90	90	90	90	90	90

Source: Each Insurance companies, NBE and own computation via E-views 9

Where: ROA is net income to total asset, CR is current ratio or current asset to current liability, GDP is gross domestic product, INFL is inflation rate, MS is market share of each insurance companies, LV leverage which is expressed by total liability to total asset and LN_OF _EQ is natural logarithm of equity capital.

Current ratio (CR) is measured by dividing current asset to current liability. As clearly shown in the above table CR resulted a maximum of 2.31 and minimum of 0.36. The mean value of the companies CR is 1.02 this implies in average the companies have br. 1.02 current assets to pay every 1 br. Current liability and standard deviation is 1.555. This asset huge gap comes from their operational success and history of their existence.

Market share (MS) has lowest value of 0.0001% and with the maximum value of 53% (this means that in the period a specific firm has generated 53 birr of gross premium from every 100 br. generated by the industry in general. The deviation of each

Insurance Company's market share i.e. standard deviation is equal to 0.13 This implies that market share of Ethiopian insurance companies deviate from period to period.

Leverage ratio (LR) shows the long term solvency position of a company and it has a lowest value of 0.53 (this shows that from every 1 br. Invested in the total asset 0.53 br. (53 cents) are financed thorough liability. while maximum leverage ratio is 0.83 (this shows that 83% of the total assets are financed through liability. On average, companies have leverage ratio of 67%, which means their 67% total assets are financed through liability.

Level of equity capital (LN_ OF EQ) measures the level of equity capital. It has a lowest level of 16.12 and a maximum level of 19.87. The mean level of Ethiopian insurance company's equity which is expressed by natural logarithm equity capital was 18.14.

Tangibility of assets (TANASS) which is measured by dividing fixed asset by total asset shows the composition of the total asset with regards to current and fixed asset. It has shows that, the maximum and minimum values of 0.54 (for every Br. 1 of total asset there 0.54 fixed asset) and 0.04 (for every Br. 1 of total asset there is Br. 0.04 fixed asset), respectively. The average amount of TANASS 0.183 (18.3 % of the total asset is composed by fixed asset) and standard deviation of 0.112. This implies that, insurance companies are highly composed of current assets which may lead them to liquidity.

Gross Domestic Product (GDP) measures the level of economic growth of the country in general. As clearly shown in the above table GDP showed a maximum growth of 11.9 % and a lowest growth of 8% in the study period and the overall level of the country's GDP showed 10.3% average growth. This implies the country's economy was grown by two digits in average which may favor the insurance companies profitability.

Inflation rate (INFL) measures the growth in selling price of products in the country. As clearly shown in the above table INFL showed a maximum growth of 36.4 % and a lowest growth of 2.8% in the study period and the overall level of the country's INFL showed 17.15% average growth. This implies as of GDP inflation is grown

two digits in average which may negatively affect the insurance companies profitability.

Return on assets (ROA) measure the profitability of the companies and how efficiently use the asset in order to earn income. It has shows a minimum value of -0.015(for every Br. 1 of asset there is Br. 0.015 of loss) and maximum of 0.27(for every Br. 1 of asset there is Br. 0.27 of return). The mean value of ROA is 0.10 which means that on average each company has a return on assets of 10.13pecent. The standard deviation is equal to 0.058.

4.3 Finding of the Regression

This section presents the regression result of Cross-section random effects that was made to examine the determinants of profitability in Insurance Companies in Ethiopia. Accordingly, the regression result was made and coefficients of the variables were estimated via E-views 9 software package. As stated above, Cross-section random effects is an appropriate model used in this study. Thus, the model used to examine the determinants of profitability in Insurance Companies in Ethiopia was:

$$ROA_{i,t} = \alpha + \beta_1 Lev_{i,t} + \beta_2 LQ_{i,t} + \beta_3 Tanass_{,t} + \beta_4 Ln\_of\ Eq_{,t} + \beta_5 Ms_{,t} + \beta_6 EGdp_{,t} + \beta_7 IRi_{,t}\ \varepsilon i_{,t}$$

Table 4.6: Regression Results

Dependent Variable: ROA
Method: Panel EGLS (Cross-section random effects)
Date: 01/14/18 Time: 08:40
Sample: 2006 2015
Periods included: 10
Cross-sections included: 9
Total panel (balanced) observations: 90
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.376258	0.169661	2.217702	0.0293
CR	0.038803	0.016608	2.336359	0.0219
GDP	-0.026933	0.003871	-6.958170	0.0000
INFL	-0.002644	0.000364	-7.262797	0.0000
LN_OF_EQ	0.011953	0.006634	1.801671	0.0753
LV	-0.295750	0.055002	-5.377048	0.0000
MS	0.029309	0.040115	0.730612	0.4671
TANASS	-0.039481	0.036056	-1.095004	0.2767

Weighted Statistics			
R-squared	0.748104	Mean dependent var	0.101300
Adjusted R-squared	0.726601	S.D. dependent var	0.058604
S.E. of regression	0.030643	Sum squared resid	0.076996
F-statistic	34.79020	Durbin-Watson stat	2.600464
Prob(F-statistic)	0.000000		

Source: Each insurance companies, NBE and own computation via E-views 9

4.4 Discussion of the Results

Based on the regression result, the R^2 value is 0.748 (74.8 %) which implies that 74.8% of fitness can be observed in the sample regression line. This can be further explained as, 74.8% of the total variation in profitability is explained by the independent variables (liquidity, leverage, tangibility, level of equity, market share, GDP and inflation) jointly. The remaining 25.2% of change is explained by other factors which are not included in the model. The Prob (F-statistic) value is 0.000 which indicates strong statistical significance, which enhanced the reliability and validity of the model. Each variable is described in detail under the following sections.

A. Liquidity

Liquidity is measured by Current Ratio (CR). The coefficient of Current Ratio (CR) is positive (0.038) and statistically significant with p-value of 0.0219 which is lower than 0.05. The positive relationship between CR and profitability shows that there is positive relationship between liquidity and profitability. This positive relationship is not expected but the result is in consistence with previous studies which found a positive relationship between the variable and profitability, for instance, Suheyli (2015), Nikhel et al. (2015), Charumathi B. (2012) and Qamar (2014). The higher the firm's liquidity the higher will be its profitability as well.

B. Leverage

Leverage is measured by debt ratio (LV). The coefficient of leverage ratio (LV) is negative (-0.295) and statistically significant with p-value of 0.000 which is lower than 0.05. The negative result shows that there is negative relationship between leverage and profitability. This negative relationship is expected and the result is in consistence with previous studies which found a negative relationship between the variable and profitability, for instance Suheyli (2015), Abate (2012) , Meaza (2014), Abate and Yuveraj (2013), Nikhel B. et al. (2015), Andres & Stephen (2013) and several others . This shows higher the firm's assets financed through debt the lower will be its profitability.

C. Level of Equity

Level of equity is measured by natural logarithm of equity capital (LN_OF EQ). The coefficient of LN_OF EQ is positive (0.0119) and statistically insignificant with p-value of 0.0753 which is above the significance level 0.05. The positive result shows that there is positive relationship between level of equity and profitability. The result contradicts with previous studies Charumathi B. (2012). This shows higher the firm's assets financed through equity the higher will be its profitability.

D. Tangibility of Assets

Tangibility of asset is measured by dividing fixed asset by the total asset (TANASS). The coefficient of TANASS is negative (-0.04) and statistically insignificant with p-value of 0.27 which is above 0.05. The negative result shows that there is negative relationship between tangibility of asset and profitability. The result is in consistence with previous studies which found a negative relationship between the variable and profitability, for instance Abate (2012) , Meaza (2014), Abate and Yuveraj (2013) and Edlira et al, (2016). This shows higher the firm's total assets are composed of fixed asset the lower will be its profitability.

E. Market Share

Market share is measured by the growth in gross premium written by the insurance companies (MS). The coefficient of MS is positive (0.03) and statistically

insignificant with p-value of 0.46 which is above 0.05. The positive relationship between MS and profitability shows that there is positive relationship between market share and profitability. This positive relationship is expected and the result is in consistence with previous studies which found a positive relationship between the variable and profitability, for instance Edlira Luçi et al, (2016). The higher the firm has a maximum market share the higher will be its profitability.

F. Gross Domestic Product

GDP is measured by the growth in gross domestic products of the country. The coefficient of GDP is negative (-0.27) and statistically significant with p-value of 0.000 which is lower than 0.05. The result is in consistence with previous studies which found a negative relationship between the variable and profitability, for instance Kalkidan (2016), Behailu (2017) and Andres & Stephen (2013). The higher the growth rate of the country the lower will be the insurance industries profitability.

G. Inflation

Inflation (INFL) is measured by the growth in selling price of products in the country. The coefficient of INFL is negative (-0.026) and statistically significant with p-value of 0.000 which is lower than 0.05. . This negative relationship is expected and the result is in consistence with previous studies which found a negative relationship between the variable and profitability, for instance Behailu (2017). The higher the inflation rate of the country the lower will be the insurance industries profitability.

Chapter Five

Conclusion and Recommendation

This chapter mainly presents the conclusion and recommendations of the results. It has three sections: the first part presents conclusion of the findings presented in the previous chapter, the second part presents recommendation and lastly the chapter will end up by giving a direction for future researchers.

5.1 Conclusion

The study's main objective was to determine whether the determinants of profitability from prior research findings will be relevant and applicable to the determination of the profitability charged in insurance companies in Ethiopia. The study used data from 9 insurance companies and for which their financial reports were available through 2006 to 2015, the study investigated the research hypotheses. The linear regression model was used to analyze data. Linear regression was chosen because it was found to be the most suitable tool to explain the relationships between the dependent variables and the independent variables of the study. The findings of the study give the overall picture of how profitability is determined in insurance companies in Ethiopia.

The following statements are some concluding remark based on the analysis of the study:

- There is a direct and significant relationship between liquidity and profitability among insurance companies in Ethiopia. This is inconsistent with the researcher's hypothesis and but consistence with prior studies.
- There is indirect and significant relationship between leverage and profitability among insurance companies in Ethiopia. This is consistent with the researcher's hypothesis and with prior studies.
- There is a direct and insignificant relationship between market share and profitability among insurance companies in Ethiopia. This is consistent with the researcher's hypothesis and with prior studies.
- There is a direct and insignificant relationship between level of equity and profitability among insurance companies in Ethiopia. This is inconsistent with the researcher's hypothesis and with prior studies.

- There is indirect and insignificant relationship between tangibility of asset and profitability among insurance companies in Ethiopia. This is consistent with the researcher's hypothesis and with prior studies.
- There is a indirect and significant relationship between GDP and profitability among insurance companies in Ethiopia. This is inconsistent with the researcher's hypothesis and but consistence with prior studies.
- There is indirect and significant relationship between inflation and profitability among insurance companies in Ethiopia. This is consistent with the researcher's hypothesis and consistence with prior studies.

5.2 Recommendation

Based the aforementioned findings, the researcher recommends the following:

- As the finding shows liquidity will maximize profitability. The sector was operating at low liquidity position; therefore the insurers' should closely review liquidity risk and device the strategy like liquidity management and preparing cash and other current assets forecast and they should hold short term marketable securities.
- Because of the absence of secondary market in Ethiopia, several types of investments in Ethiopia has too risky so insurance companies should provide new product lines.
- Leverage and equity ratio results show the higher the total asset financed through liability the lower will be the profitability. So, companies should try to issue common stock and other equity share to increase total equity composition of the firm.
- Even though, there is no significant relationship between market share and profitability but there is a direct relationship so if insurance companies increase their market share by opening branches in rural and urban locations and by providing new product lines they can maximize their profit.
- Even though, macroeconomic factors are not controlled by the management, companies should prepare themselves for the change in GDP and Inflation by preparing financial plans like cash budget, and pro-forma balance sheet and income statement.
- Because there is indirect relationship between tangibility and profitability, companies should decide the composition of total asset, companies should buy long-term assets after following lease or buy decisions because sometimes lease and short term rent is better than purchasing fixed assets.

5.3 Issues for Further Research

This study examined only limited variables by using 10 years' data. There are other variables which are not included in this study like, number of branch, retention ratio, investment ratio, return on investment, etc. Having further investigation with the inclusion of the above variables might have a better role in identifying other factors which contribute for the profitability of Ethiopian insurance companies and also this paper focuses only on insurance companies in Ethiopia and it doesn't include life insurance so if other researchers include life insurance they may come up with other findings. This study focused only by secondary data but other researchers can include primary data like management opinion. Last but not the least this study focused only in one of the service business which is insurance industry other researchers. However, other sectors are ignored like manufacturing, merchandising, etc. So, others can focus and add some ideas of profitability on these sectors.

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