

Factors influencing profitability in the Ethiopian private insurance companies

Advisor

Dr. Abebaw Kassie

**A thesis submitted to Addis Ababa University Faculty of Business and
Economics department of accounting and finance in partial fulfillment of the
requirements for the degree of masters of Science in accounting and finance**

June, 2017

Addis Ababa, Ethiopia

Declaration

I, Adenew Teshome, hereby declare that the thesis work entitled “Factors influencing profitability in the Ethiopian private insurance companies” submitted by me for the award of the degree of Master of Accounting and Finance of Addis Ababa University at Addis Ababa Ethiopia, is original work and it hasn’t been presented for the award of any other Degree, Diploma, Fellowship or other similar titles of any other university or institution.

Name **Adenew Teshome**

Advisor’s Name **Dr. Abebaw Kassie**

Signature: _____

Signature: _____

Certification
Addis Ababa University
School of graduate studies

This is to certify that the thesis prepared by Adenew Teshome entitles: *Factors influencing profitability in Ethiopian private insurance companies* and submitted in partial fulfillment of the requirements for the degree of masters of Science in accounting and finance complies with the regulations of the university and meets the accepted standards with respect to originality and quality.

Approved by:

Examiner _____ Signature _____ Date _____

Examiner _____ Signature _____ Date _____

Advisor **Dr. Abebaw Kassie** Signature _____ Date _____

Chair of Department or Graduate Program Coordinator

Abstract

Factors influencing profitability in the Ethiopian private insurance companies

Adenew Teshome

Addis Ababa University, 2017

Profitability is one of the most important determinants of insurers' performance and healthiness. This paper empirically investigates the link between the micro and macroeconomic environment determinants of profitability of private insurance companies for the period 2005-2015. In light of prior literature, key explanatory variables were identified to disclose their relationship and influence on profitability. These variables are liquidity, leverage, firm's size, firm growth, risk, tangibility of asset, economic growth, inflation, trade openness and urbanization. The assumptions needed to be fulfilled for OLS were tested; the data was found homoscedastic, free of multicollinearity, free of autocorrelation and normally distributed. Results using panel least square regression exhibited that leverage, firm growth, inflation growth, risk and urbanization has a significant relationship with profitability. Also, the study found that liquidity, firm size, tangibility of asset and trade openness were found to be insignificant in profitability of Ethiopian insurance companies. Board of directors and managers of insurance companies need to consider these variables while designing their strategic plan. The conducted empirical analysis allows regulators to better understand and roughly quantify those effects which might support discussion with insurers resulting in some mitigating actions. Further research needs to be done to develop top-down stress test methodologies to fully assess the impact of the low yield environment in combination with a sharp increase of other macro-economic factors, on insurers' profitability as well as solvency positions.

Key Words: Return on Asset, profitability; insurance companies

Acknowledgements

First of all, I am heartily thankful to my advisor, Dr. Abebaw Kassie, whose encouragement, guidance, and support from the initial to the final level enabled me to develop an understanding of the subject and complete the thesis. Secondly, I would like to extend grateful acknowledgement to the National Bank of Ethiopia for their understanding and for providing me with all the necessary information and documents required to carry out this study. Thirdly, I would like to thank for the management of Vétérinaires Sans Frontières Switzerland (VSF Suisse) for financial support for my studies by Lastly, I am also indebted for my family and friend Omer Mohamed who helped me for the accomplishment of my study with passion.

List of acronyms

CLRM -	Classical Linear Regression Model
DW -	Dublin Watson
EIC -	Ethiopian Insurance Corporation
ROA -	Return on Asset
LOG -	Logarithm
FEM -	Fixed Effect Model
GRO -	Firm Growth
GDP-	Economic Growth
HP -	Hypothesis
ISD -	Insurance Supervision Directorate
LEV -	Leverage
LIQ -	Liquidity
NBE -	National Bank of Ethiopia
NPV -	Net Present Value
OLS -	Ordinary List Square
PRO -	Profitability
REM -	Random Effect Model
RISK -	Business Risk
ROE-	Return on Equity
RQ -	Research Question
SIZE-	Firm's Size
TRO-	Trade openness
UR-	Urbanization
INF-	Inflation
SSA -	Sub Saharan African

CHAPTER ONE

Introduction

1. 1. Background to the Study

Insurance companies play a vital role to the growth and development of every economy. Specialized financial services provided by insurances range from the underwriting of risks inherent in economic entities and the mobilization of large number of funds through premiums for long term investments. The risk absorption role of insurers promotes financial stability and provides a sense of peace to economic entities. A well developed and evolved insurance industry is a boon for economic development as it provides long- term funds for development. Assessing the determinants of performance of insurers has gained the importance in the corporate finance literature because as intermediaries, these companies are not only providing the mechanism of risk transfer, but also helps to channelize the funds in an appropriate way to support the business activities in the economy. However, it has received little attention particularly in developing economies (Ahmed et al, 2011).

Profitability is one of the most important objectives of financial management since one goal of financial manager is to maximize the owners “wealth, and, profitability is very important determinant of performance. Hifza Malik (2011). In addition, insurance companies provide benefit to individuals, businesses and economy by channeling funds, prevention of losses, reduction in anxiousness, fear and increasing employment. Insurance companies being one of the financial institutions can affect the growth of economy favorably or unfavorably as a whole.

The Ethiopian private insurance industry does not have a long history of development despite the country’s long history of civilization. A number of private insurance companies emerged after the issuance of the proclamation for the licensing and supervision of insurance business No. 86/1994 by pooling funds from the society who have little or no experience in investment decisions.

Therefore, it requires empirical investigation so as to sort out what are the important factors affecting profitability of insurance companies and this will help concerned bodies to focus on the relevant factors.

Hence the efficient performance of the institutions has become important and investigations by different researchers focus on what factors determine the performance especially the financial performance of insurance sector.

1.2. Statement of the Problem:

A well-functioning financial system is very important for a country's economic growth. The insurance industry as part of the entire financial system has a big role in the development of an economy Ward & Zurbruegg (2000). As such, their success means the success of the economy; their failure means failure to the economy.

In other words, their contribution to the economic development of a given country is articulated by reducing the impact of large losses as a result encouraging new investments and healthy competition. The insurance industry in particular is part of immune and repair system of an economy and successful operation of the industry can set energy for other industries and development of an economy. 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 clear insight about factors affecting financial performance in the industry is then the problem to be investigated. Therefore, the determinants of insurance company's performance have attracted the interest of academicians, practitioners and institutional supervisors.

A lot of studies conducted in the area of insurance profitability and its determinant by considering the importance of the area at international level. They verified that there is a direct association between profitability of insurance industries and its both internal and external determinants(eg. Rajan & Zingales, 1998; Eichengreen & Gibson, 2001; Bourke, 1989). Even though, all these and other researchers conducted study on this area, the determinants of profitability have been

debated for many years and still unsolved issues in the corporate finance literature. Specifically, in Ethiopia few studies have been conducted on factors influencing Ethiopian insurance industry profitability. Meaza Melese(2014) uses a secondary data of insurance companies and MOFED to analyze firm specific factors that influence insurance profitability. 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. Suheyli Reshid (2015) tries to analyze macro and micro economic firm specific influencing factors using secondary data. The findings of his 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 risk, technical provision and liquidity are the most important factors that affect profitability of insurance companies in Ethiopia.

However, the above recent studies couldn't assess the effect of trade openness and urbanization which assumed to be factors of profit on Ethiopian insurance companies. Hence, this research incorporates these variables.

Therefore, the aim of this study will be to fill this research gap by incorporating a more complete list of variables in determining the factors that affect profitability.

1.3. Objectives of the Study

1.4.1 General Objective

The general objective of the study is to establish the determinants of profitability of insurances companies in Ethiopia.

1.4.2 Specific Objectives

- ✓ To examine the impact of liquidity on share prices of Ethiopian insurance companies.
- ✓ To examine the impact of leverage on profitability of Ethiopian insurance companies.
- ✓ To examine the impact of firm growth opportunity on profitability of Ethiopian insurance companies.
- ✓ To examine the impact of firm's size on profitability of Ethiopian insurance companies.
- ✓ To examine the impact of tangibility of asset share on profitability of Ethiopian insurance companies.
- ✓ To examine the impact of business risk on profitability of Ethiopian insurance companies.
- ✓ To examine the impact of inflation on profitability of Ethiopian insurance companies
- ✓ To examine the impact of trade openness on profitability of Ethiopian insurance companies
- ✓ To examine the impact of Urbanization on profitability of Ethiopian insurance companies

1.4. Significance of the Research

This study has ultimate significance to show the degree of the micro and macro-economic determinants in what extent it affects the profitability of insurances in

Ethiopia, by identifying and showing the main determinants of profitability and to suggest policy implications after critical examination insurance industry of Ethiopia. To this end, particularly this study has importance for the following body.

- The findings of this research will assist the investors to understand and provide them with information on additional influencing factors of profitability to maximize wealth.
- It will provide a road map for managers and the shareholders to evaluate their profitability in the future with respect to the internal and external determinants
- The study will serve as reference material to future researchers on factors influencing share prices.
- Government interested in knowing which companies operate successfully or failed to take the necessary measures to avoid crises of the bankruptcy in these companies

1.5. Scope and limitation of the study

- The aim of this study is to assess the influence of (liquidity, leverage, growth opportunity, firm's size, business risk, inflation, trade openness, and urbanization) on profitability private Ethiopian insurance companies.
- Secondary data for eleven years (2005-2015) collected from purposively selected eight companies. In addition, the study focus on firm specific variables only, the industry specific as well as macroeconomic variables are included under this study. Thus, the primary limitations are the scope and sample size.
- Due to the nature of dependent and independent variables used in the study, the analysis and its derived conclusions based on the secondary data sources (i.e. mainly on published annual reports), both the dependent and independent variables proxied by numbers from this past data sources. Hence, the historical data may not reflect the current and future economic situation.
- Financial reports within eleven years may affected by different non-modeled variables in the state of the economy. The period of 2005 –2015 was selected because, in Ethiopia, large numbers of private insurance established following 1994 financial liberalization and the period has significant structural change in

profitability in Ethiopian insurance industry. In addition, eleven years is assumed to be relevant because five years and above is the recommended length of data to use in most finance literatures. This is the reason to start the investigation of this research from 2005 until 2015 year. This might fail to measure the actual effects of the internal and external determinants on profitability of the insurance.

1. 6. Outline of the study

The study is organized in five chapters, chapter one discussed the introduction part Chapter two contains conceptual and theoretical framework and detailed discussions of empirical studies on dividend. Chapter three discussed about the research methodology adopted in this study; Chapter four discussed about the data analysis and interpretation of the out puts. The final chapter (chapter five) discussed about the discussions of the data analysis, conclusion and recommendations.

CHAPTER TWO

Literature review

2.1 Introduction

This chapter deals with the concept of insurance companies, insurance companies in Ethiopia, literature on profitability and related aspects will reviewed. The first part discusses concept of insurance, profitability related theories are presented. Theoretical framework and empirical studies will follow in the next part so as to have greater understanding on aspects of profitability. Existing research gaps in Ethiopia and the conceptual framework pictorially depicted in the final part.

2.1.2 Concept of insurance

According to Bologi (2014), the notion of insurance can be designated “as a contract between two parties (the insurer and the insured) whereby the insurer undertakes to cover the insured or assured against risk of loss, risk of damage and risk of liability which may arise upon the uncertain occurrence of some specified event, or upon the occurrence of a certain event (death) at an uncertain time.”

The history of insurance service is as far back as modern form of banking service in Ethiopia which was introduced in 1905. At the time, an agreement was reached between Emperor Menelik II and a representative of the British owned National Bank of Egypt to open a new bank in Ethiopia. Similarly, development of modern institutionalized financial system in Ethiopia begun in 1905 next to the establishment of Bank of Abyssinia. The bank began to transact fire and marine insurance as an agent of a foreign insurance company” (Schaefer, 1992, cited in (Nuredin, 2012).

According to Hailu Zeleke (2007), the initial major event that the Ethiopian insurance market observation was the issuance of proclamation No. 281/1970 and this proclamation was issued for the control & regulation of insurance business in Ethiopia. Accordingly, 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 & 11 assessors in accordance with the provisions of the proclamation immediately in the year after the issuance of the law. As stated by the above office, the law prerequisite

an insurer to be a domestic company whose share capital not to be less than Ethiopian Birr 400,000 for a general insurance business, Birr 600,000 in the case of long-term insurance business and Birr 1,000,000 to do both long-term & general insurance businesses. The proclamation defined 'domestic company' as a share company having its head office in Ethiopia and in the case of a company transacting a general insurance business at least 51% and in the case of a company transacting life insurance business, at least 30% of the paid-up capital must be held by Ethiopian nationals or national companies. Following to the change in the political environment in 1991, the proclamation for the licensing and supervision of insurance business No. 86/1994 heralded the beginning of a new era. Immediately after the enactment of the proclamation private insurance companies began to flourish. According to the directive of ISB/34/2014, any insurance company required to be a domestic company whose share capital (fully subscribed) not less than Ethiopian Birr 60 million for a general insurance business and Ethiopian Birr 15 million in the case of long term (life) insurance business and Ethiopian Birr 75 million to do both long term & general insurance businesses.

Table 2.1 Insurance Companies in Ethiopia

S/N	Name	Established Date	Type	Ownership
1	Ethiopian Insurance Corporation	1975	General	Governmental
2	Africa Insurance company S.C	01-12-94	General	Private
3	Awash insurance company S.C	01-10-94	General	>>
4	National Insurance co. of Ethiopia S.C	23-09-94	General	>>
5	Nyala Insurance company S.C	06-01-95	General	>>
6	Nile Insurance company S.C	11-04-95	General	>>
7	The United Insurance S.C	01-04-97	General	>>
8	Global Insurance Company S.C	11-01-97	General	>>
9	Nib Insurance Company S.C	01-05-02	General	>>
10	Lion Insurance Company S.C	01-07-07	General	>>
11	Oromia Insurance Company S.C	26-01-09	General	>>
12	Abay Insurance Company S.C	06-07-10	General	>>
13	Berhan Insurance Company S.C	24-05-11	General	>>
14	Tsehay Insurance Company S.C	08-03-12	General	>>
15	Ethio life & General Insurance Co. S.C	23-10-08	life & General	>>
16	Lucy Insurance Company S.C	01-10-12	General	>>
17	Bunna Insurance Company S.C	21-05-13	General	>>

Source: <http://www.nbe.gov.et/financial/insurer.htm> accessed May 6, 2015

The insurance industry of Ethiopia signaled the increasing trends of competitiveness of the private sector over the recent years. The gross premium of sector reached 5 billion in 2014, which is increasing 8% from previous year total premium of the sector i.e. 4.6 billion and also total number of branches also reached to 332. Moreover, in which non-life business represents 95% of the total size of capital as at June 30 2014, reached Birr 8.1 billion showed a 32% growth rate over the preceding year owing to considerable improvements in capital injections and investment returns (NBE, 2015).

2.1.3 Profitability

The term profit can take either its economic meaning or accounting concept which shows the excess of income over expenditure viewed during a specified period of time and it is one of the main reasons for the continued existence of every business organization. On the other hand, profit is expected so as to meet the required return by owners and other outsiders. John J. Hampton (2009) clarified profitability ratio as a class of financial metrics that are used to assess a business's ability to generate earnings as compared to its expenses.

According to Kaguri (2013), profitability is the ability of a given investment to earn a return from its use. 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 which in turn indicates better financial performance. According to Hafiz Malik (2011) insurance plays a crucial role in fostering commercial and infrastructural businesses. Therefore, 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.

According to Hamdan Ahmed Ali Al-Shami (2008) there are different ways to measure profitability such as: ROA, return on equity (ROE) and return on invested capital (ROIC). ROA is an indicator of how profitable a company is relative to its total assets. It gives us an idea as to how efficient management is in using its assets

to generate earnings whereas ROE measures a company's profitability which reveals how much profit a company generates with the money shareholders have invested. ROIC is a measure used to assess a company's efficiency in allocating the capital under its control in profitable investments. This measure gives a sense of how well a company is in using its money to generate returns. Comparing a company's ROIC with its weighted average cost of capital (WACC) reveals whether invested capital is used efficiently or not. In contrast, William H. Greene and Dam Segal (2004) argued that the performance of insurance companies in financial terms is normally expressed in net premium earned, profitability from underwriting activities, annual turnover, return on investment, return on equity. These measures could be classified as profit performance measures and investment performance measures. However, most researchers in the field of insurance and their profitability stated that the key indicator of a firm's profitability is ROA defined as the before tax profits divided by total assets. Philip Hardwick and Mike Adams (1999), Hafiz Malik (2011) are among others, who have suggested that although there are different ways to measure profitability it is better to use ROA.

Therefore, being profitable means that insurance companies are earning more revenues than being disbursed as expenses. As explained above just to analyze the drivers of profitability, it is useful to decompose either the return on asset ROA or ROE into their main components. According to 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 and other relevant costs incurred during a specific period of time. Accordingly, the term 'profitability' is a relative measure where profit is expressed as a ratio, generally as a percentage. Profitability depicts the relationship

of the absolute amount of profit with various other factors. Similarly, Michael Koller (2011) argued that profitability is the most important and reliable indicator as it gives a broad indicator of the ability of an insurance company to raise its income level. In practice, executives define profits as the difference between total earnings from all earning assets and total expenditure on managing entire asset-liabilities portfolio Kaur and Kapoor, (2007).

The variation of profit among insurance companies over the years in a given country would result to suggest that internal factors or firm specific factors play a crucial role in influencing their profitability. It is therefore imperative to identify what are these factors as it can help insurance companies to take action on what will increase their profitability and investors to forecast the profitability of insurance companies in Ethiopia. To do so, it is better to see what factors were considered in previous times by different individuals.

2.2 Review of Empirical studies

Insurers' profitability is influenced by both internal and external factors. Whereas internal factors focus on an insurer's specific characteristic, the external factors concern both industry features and macroeconomic variables. The relevant literature may be categorized as: the effects of firm specific factors on profitability and the effects of macroeconomics variables on profitability.

According to Yuqi Li (2007) financial institutions' non-financial statements variables are classified as management quality, efficiency and productivity, age and number of branches. Most researches concerning insurance companies are conducted with respect to only financial statement variables. Hence, newly established banks are not particularly profitable in their first years of operation, as they place greater emphasis on increasing their market share, rather than on improving profitability Athanasoglou et al., (2005). Similarly, Yuqi li (2007) indicate that older banks expected to be more profitable due to their longer tradition and the fact that they could build up a good reputation. Obviously, the above empirical studies those include age as one of their explanatory determinant indicates a positive relationship between age and profitability.

According to Athanasoglou et al., (2005) the effect of a growing size of a bank on profitability has been proved to be positive to a certain extent. Consequently, a positive relationship is expected between size and profitability by many insurance area researchers. However, for firms that become extremely large, the effect of size could be negative due to bureaucratic and other reasons Yuqi Li (2007). Hence, the size-profitability relationship may be expected to be non-linear. Therefore, most studies use the real assets in logarithm and their square in order to capture the possible non-linear relationship.

Renbao Chen and Rie Ann Wong (2004) stated that leverage beyond the optimum level could result in higher risk and low value of the firm. Empirical evidences with regard to leverage found to be statistically significant relationship but negative. The relationship between leverage and profitability has been studied extensively to support the theories of capital structure and argued also that insurance companies with lower leverage will generally report higher ROA, but lower ROE. Since an analysis for Return on Equity (ROE) pays no attention to the risk associated with high leverage.

2.2 Profitability Determinants

2.2.1 Specific determinants (internal factors)

Profitability in insurance companies could be affected by a number of determining factors. These factors, as explained above could be further classified as internal, industry, and macroeconomic factors. However, as will be discussed in the coming consecutive sections of the review, in most literatures, profitability with regard to insurance companies usually expressed in as a function of internal determinants. Rather, most researches concerning determinants of profitability in insurance companies are divided in to two, such as determinants of profitability in property/liability or general insurance companies and in life/health insurance companies.

The major empirical findings of the previous studies are reviewed in the below section. Moreover, Key concepts and variables used in the conceptual frame work are discussed.

Studies dealing with internal determinants employ variables such as firm Size, liquidity, leverage, tangibility of asset, risk / loss ratio, firm growth, and Managerial efficiency. The details of internal variable are discussed in this section.

a) Liquidity

Liquidity is the ability to cover or to meet the current liability, for of an insurer to pay liabilities which include operating expenses and payments for losses/benefits under insurance policies, when due then shows us that more current assets are held and idle if the ratio becomes more which could be invested in profitable investments. For an insurer, cash flow (mainly premium and investment income) and liquidation of assets are the main sources of liquidity (Chen and Wong 2004).

(Ho, 2003), (Al-Najjar & Hussainey, 2009), (Ahmed and Javid, 2009), (Gupta & Banga 2010), (Kinfe, 2011), (Trang, 2012), (Nuredin, 2012), (Saeed et. al, 2014) and (Christopher, 2014) found in their study that, liquidity is one of the major influential factor of profitability.

According to Daneiel and Tilahun (2013) companies with more liquid assets are less likely to fail because they can realize cash even in very difficult situations. It is therefore expected that insurance companies with more liquid assets will outperform those with less liquid assets.

On the contrary, Abate (2012) reported negative but significant relation between liquidity ratios with profitability.

(Suheyli Reshid, 2015) Asserts that liquidity position is an important determinant of profitability, Firms with more liquidity are likely to pay liability as compared to the firms that have liquidity problems.

The researcher expects a positive relationship between liquidity and profitability. That is, as supported by above relationship, in this study, the researcher is claiming that profitable companies will be more liquid than unprofitable companies.

b) Leverage

The trade of theory suggests a positive relationship between profitability and leverage ratio and justified by taxes, agency costs and bankruptcy costs push more profitable firms towards higher leverage. Hence more profitable firms should prefer debt financing to get benefit from tax shield.

A growing number of studies have found that the level of financial leverage negatively affects profitability; Lang et al. (1996) were one of the first authors to empirically examine the relationship between leverage profitability controlling for growth opportunities at the firm level.

Renbao Chen and Rie Ann Wong (2004) stated that leverage beyond the optimum level could result in higher risk and low value of the firm. Empirical evidences with regard to leverage found to be statistically significant relationship but negative. Renbao Chen and Rie Ann Wong (2004) stated that leverage beyond the optimum level could result in higher risk and low value of the firm. Empirical evidences with regard to leverage found to be statistically significant relationship but negative.

Arditti (1967) define returns as the geometric mean of returns. He finds a negative though insignificant relation between leverage and stock returns. Hall et al (1967) define returns as profits after tax and ratio of book value of equity to assets as an indicator for leverage. His results indicate that leverage has a negative relation with returns.

Following to the above empirical studies the researcher assumes leverage has negative relationship with profitability of Ethiopian insurance companies. As profitability increases debt decreases.

c) Firm's size

Firm size is the volume of capital employed to in a specified period. It measures as the difference between total assets and total liabilities and in some cases it is measured by the ratio of equity capital to total asset. Insurance companies' equity capital can be seen in two ways. Narrowly, as stated by Uhomoihi T. Aburime (2008), it can be seen as the amount contributed by the owners of an insurance (paid-up share capital) that gives them the right to enjoy all the future earnings.

Studies conducted on determinants of bank profitability took bank size variable, as considered to an important determinant of bank performance Kosmidou (2008). If the relative size of a firm expands its market power and profits increases, this is the Market-Power (MP) hypothesis.

Chandra P., (1978) Studied the impact of growth, Dividend, Leverage, Size and risk on the profitability. By using linear regression, he concluded that growth and size showed a positive relationship while risk and leverage does not influence the market process of shares. The hypothesis also referred to as the Structure-Conduct-Performance (SCP) hypothesis (Athanasoglou et al., 2005).

According to Belayneh (2011) research conducted on the determinants of commercial banks profitability during the period 2001 – 2010 concluded that the size of all Ethiopian commercial banks which is measured by log of total asset is increased for the last 10 years. In case of Ethiopian commercial banks, as the result implies that larger banks enjoy the higher profit than smaller banks in Ethiopia banking sector because they are exploiting the benefit of economies of scale.

d) Growth opportunities

Also the significant effect of profitability in profitability-payout ratio decisions evident by previous research works of (Chandra P., 1978) Studied the impact of growth, Dividend, Leverage, Size and risk on the market prices of shares. By using linear regression, it is concluded that growth and size showed a positive relationship while risk and leverage does not influence the market process of shares.

Dixit, 1986) Studied 43 sample companies equity profitability-behavior and found that Dividend Per share, Earnings per Share, Book value per share, Size and return on investment is significant while leverage and Growth are insignificant.

(Shukla & Jeenal, 2011) tried to analyses the interrelationship between equity share prices and dividend per share, Earnings per share, Price earnings, Dividend yield and Dividend Cover among the sample companies during 2005-2009 and concluded that all the selected explanatory variables showed a significant influence on the equity share prices except growth variable.

e) Business risk

The research results of (Chandra P., 1978) Studied the impact of growth, dividend, Leverage, Size and risk on the market prices of shares. By using linear regression, it is concluded that risk does not influence the market process of profitability.

In contrast, according to (Jensen M. C., 1986), the greater the systematic risk for any company, the greater the level of uncertainty between the current and expected future profits. Thus, firms tend to avoid as their profit uncertainty increases. This shows that an inverse relationship exists between business risk and profitability. Empirical studies showed a negative relationship between risk and profitability (Ho, 2003) and (Trang, 2012).

All of the available previous research works on profitability characteristics in Ethiopia i.e. (Dagnaw, 2009), (Kinfе, 2011), (Nuredin, 2012) and (Simegn, 2013) couldn't include business risk variable. However, as (Taher, 2012) findings from several empirical studies suggests that risk is among the most influential factor in determination of profitability for firms. Therefore, this study included the business risk variable proxied by earning volatility, so as to look its influence on profitability of Ethiopian insurance companies.

2.2.2 Macroeconomics variables (External Factor)

f) Inflation

Inflation is represented by the average annual change in the consumer price index. It plays a role in insurance and has adverse impact on many aspects of insurance operations, such as claims, other expenses and salary expenses. Inflation particularly affects the profitability of insurance products because it alters consumption patterns. Hence, insurance companies may not adequately serve the interests of individuals or business.

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) paper investigates the impact of bank's characteristics, financial structure and macroeconomic indicators on bank's net interest margins and profitability in the Tunisian banking industry for the 1980-2000 period. The paper finds that the macro-economic indicators such inflation and growth rates have no impact on bank's interest margins and profitability. Amdemikael Abera (2012) in his study also the relationship inflation and profitability is found to be statistically

insignificant. As for the impact of the macroeconomic indicators, Ayadi and Boujelbene (2012) also conclude that the macroeconomic variables, GDP growth and inflation, do not have a significant effect on bank profitability.

g) Growth rate of GDP

Economic growth (GDP) is among the most commonly used macroeconomic indicators, as it is a measure of total economic activity within an economy. The gross domestic product growth (GDPGR), calculated as the annual change of the GDP, used as a measure of the macroeconomic conditions. GDPGR expected to have an effect on numerous factors related to the supply and demand for loans and deposits Kosmidou(2008). The GDP per capita growth is expected to have a positive impact on insurance performance, according to the well-documented literature on the association between economic growth and financial sector performance. Some important findings of the study are that the economic growth positively and significantly affects financial institutions profits Athanasoglou (2005).

Vejzagic (2011) made analysis of macroeconomic determinants of commercial banks profitability in Malaysia and found that real GDP is significant and have positive relationship with Banks' profitability. Murungi (2014) GDP growth positively affects insurers profitability that is, growth of overall economic activity encourage demand for insurers services and indirectly result in higher insurers income.

h) Trade openness

Trade openness is a result of import and export of a country. Only few empirical studies coping with firm trade and profitability have been included to the firm heterogeneity literature. By and large, the relationship between international trader and profitability at the establishment level is still not well-documented, especially for those of developing countries. The assumption of firm profit maximization is often the core of rudimentary economic theory. While the perception of international firms being more productive than domestic firms is generally well-documented, empirical evidence concerning the subject whether this productive advantage transforms into higher profitability is much less conclusive (Wagner, 2012). Specifically, the combination of higher revenues associated with access to the international market and higher costs in international trading firms renders the net effect on firm-level profitability unclear. The lack of empirical studies on the relationship between

firm profitability and trade activities usually stems from data limitations. To date, little research has been conducted for this topic.

Otuori (2013) in his study concluded that exports and imports are positively associated with profitability of commercial banks and if the level of these two factors are raised the profitability of banks is likely to go up. This study used a sample of 27 banks from Kenya. Significance of the factors is estimated using the regression analysis technique. Both the variables proved significant at 5% level in affecting the bank profitability in Kenya. The study results are consistent with the study of Solnik (2000) who concluded if the cost of exports is raised by lower rate in comparison with imports the currency depreciation is likely to happen as compared to the business partner. The study of Otuori (2013) gave some recommendations to the government of Kenya that they must come up with a plan that to raise the level of exports and imports of the country and by doing this the commercial banking industry in Kenya can receive higher profits. Knight (1988). The study estimated the impact of the

Greek trade that was due to the European Union The main objective of his study was to estimate the effects of the Greek trade balance that were caused by the EU accretion. The study used three stage least square models for estimation of the business model. The results obtained from the model provided the long term exports elasticity to imports value as 0.78, hence showed statistical significance.

Irاندoust and Ericsson (2004) studied the performance of business flows in developed countries including US, UK, Italy, France, Sweden etc. the study used Johansen test for estimating the long term convergence between the two macroeconomic factors i.e. exports and imports. The study revealed that the three countries USA, Sweden and Germany have very effective financial policies and in the long term the policies were proving beneficial and profitable. Interestingly for UK the study concluded that the macroeconomic policies regarding imports and exports are not fruitful and efficient in the long term for UK. Sadia (2006) tested the hypothesis “imports of intermediate and capital goods are critical inputs in the export production of the country”. The study used a sample of yearly data from 1973 to 2005. OLS statistical technique is applied for analysis. The results obtained from the study tell that for Pakistan long term relation exist between exports and imports.

Shaheen (2013) examined the relationship of exchange rate and its consequences on the macroeconomic performance of Pakistan. For the study annual data from 2000 to 2010 is

used. The study found significant relationship between exchange rate and imports while the association between exchange rate and exports is found statistically insignificant.

i) Urbanization

Urbanization is defined as “the demographic process whereby an increasing share of the national population lives within urban settlements. Global insurers know: emerging markets matter. Indeed, over the next five years, emerging markets are expected to be the main drivers of premium growth in both life and non-life insurance markets.

Beck & Webb (2003) analyze effect of urbanization on life insurance demand with expectation of positive sign. Namely, urbanization implies geographic concentration of people and thus lower costs of distribution of life insurance. Since distribution cost share among the highest costs of insurance companies, their lowering positively contributes to life insurance supply and consequently, demand. Additionally, urban individuals are in average more familiar with risk and risk management compared to those who live in rural areas, implying positive effect of urbanization on life insurance demand. However, findings of Beck & Webb (2003) do not confirm statistically significant impact of urbanization on life insurance demand.

Higher concentration of population simplifies the provision of life insurance products and information about them to the potential consumers, as it reduces costs for the companies. Therefore, countries with higher share of urban population are expected to have higher demand for life insurance products.

2.3 Gaps in literature

There exist enormous verge of research on influential factors of profitability in developed countries and emerging market countries (Lee, 2009), (Victor A. Puleo Jr, 2009), (Gupta and Banga, 2010), (Amarjit et. al., 2010), (Shubiri, 2011), (Rehman and Takumi, 2012), (Trang, 2012), (Saeed et al, 2014), (Christopher and Rim, 2014) and (Khan & Asharaf, 2014) are among others. However, their corporate characteristic is quite different from developing countries. As far as the researcher knowledge is concerned, Hanna Mariam Dejene (2015) and Suheyli Reshid(2014), (Abate,2012) , Abdelkader, D. (2014), Abdelkader Derbali (2014) are some of recent conducted on the determinants of profitability of insurance companies in Ethiopia. This shows that the research conducted in the topic of influential factors of profitability is very limited in Ethiopia. However, the above studies did not include trade

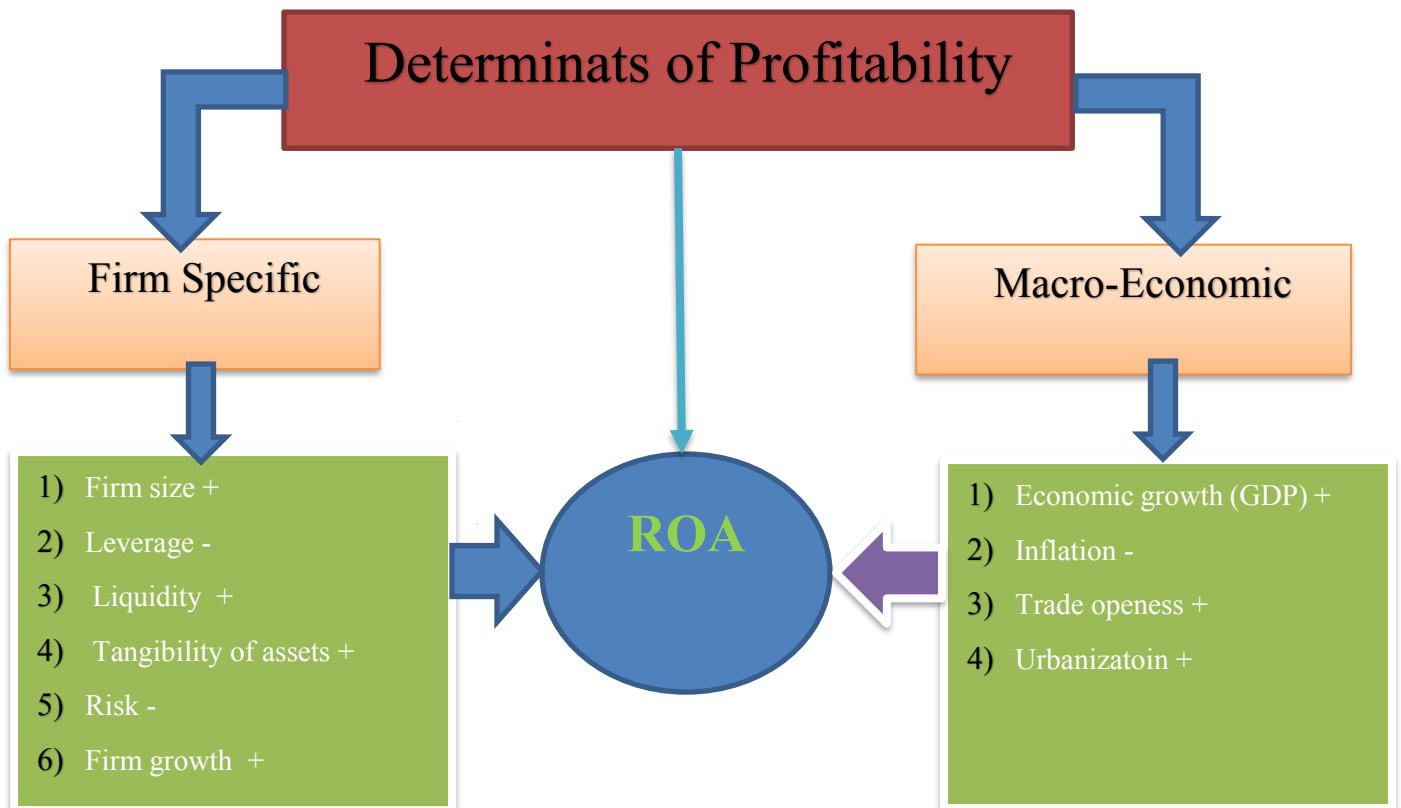
openness and urbanization variables on their study, which plays vital role on insurance profitability by increasing the premium revenue.

This study used panel data regression technique to analyze the data. Panel data involves the pooling of observations on a cross section of units over several time periods and provides results that are simply not detectable in pure cross sections or pure time series studies (Brooks, 2008).

2.4 Conceptual Frame Work/Model of the Study

The conceptual framework is developed to explain the determinants of profitability. By summarizing previous studies, firm size, leverage, liquidity, tangibility of assets, risk, firm growth, economic growth, inflation, trade openness and Urbanization are selected to be included as independent variables that expected to influence insurance companies' profitability as measured by ROA

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



Source: - Compiled by the researcher

CHAPTER THREE

3.1 Introduction

In the previous chapter the researcher discussed about the theoretical and empirical facts regarding dependent and independent variables. While, in this chapter design and population, sampling and sampling techniques of the study, instruments of the data collection and the data type as well as dependent and independent variables and method of data analysis will be described.

3.2 Study design

This study present an empirical analysis of influential factors of profitability for Ethiopian insurance companies based on cross sectional data. Hence, an explanatory research design will be implemented to carry out this study; since it is used in determining the relationship between dependent variable (Profitability) with independent variables i.e.; firm (firm size, leverage, liquidity, tangibility of assets, risk, firm growth, economic growth, inflation, trade openness and urbanization). The study will also explain the outcome by comparing with empirical evidences. Therefore, to obtain the outcome of independent variable on dependent one hypothesis will be formulated and tested on the basis of empirical reviews.

3.3 Data Type

According to Book (2008) the Panel data involves the combining of observations on a cross section of units over several time periods and provides results that are simply not detectable in pure cross sections or pure time series studies (Brooks, 2008). Hence; the type of data used

in this study will be secondary in nature and can be best fit to the panel data analysis. Since panel data set has two major advantages;

First, it can address a broader range of issue and tackle more complex problem than pure time series or pure cross-sectional data alone, and by structuring the model in appropriate way, the researcher will remove the impact of certain forms of omitted variable bias in the regression result.

Second, it is often examined how the relationships between variables change. Hence, by combining cross-sectional data and time series data, the researcher will increase the number of degree of freedom, and thus the power of test, by employing information on the dynamic behavior of a large number of entities at same time.

3.4 Data collection and sampling technique

3.4.1 Data collection

Secondary data from National bank of Ethiopia and published annual reports of eight Ethiopian insurance companies included in the sample for the period of eleven years (2005-2015) will be reviewed and collected. Observations will also be held. Hence; there are total number of observation 77 (11*7) will be implemented.

3.4.2 Population, Sampling and Sampling technique

The population of this study is assumed to be all seventeen insurance companies in Ethiopia (NBE, 2015).

3.4.2.1 Sampling and Sampling technique

Among seventeen insurance companies in the country only seven of them are experienced in operating both macro and micro environment. But some of the insurance companies like Berhan Insurance Share Company in the year 2011, Tsehay Insurance Share Company in the year 2012, Lucy Insurance Share Company in the year 2012 and Bunna Insurance Share Company in the year 2013)started operation recently. Hence, eight insurance companies will be included in the study using availability sampling and based on the listed criteria's below;

- ❖ Sample size: The researcher believes that the sample size is sufficient to make sound conclusion about the population as far as it covers more than 50% of the total population,
- ❖ Ownership: government owned insurance company is found to be outlier for this study because it financed by the government for any macro and micro variable. Due to this only private insurance companies are included under this study
- ❖ Operation period: Only insurances' those operational for more than the past eleven years

Therefore, insurance companies' those satisfy the above criteria are;

1. Africa Insurance Company share company;
2. Nyala Insurance Company share company;
3. Nile Insurance Company share company;
4. United Insurance Company Share Company;
5. Global Insurance Company Share Company and
6. Nib Insurance Company Share Company.

3.5 Method of Data analysis

To meet the objective of the study, econometric model will implement to identify and measure the factors influence Profitability of Ethiopian insurance companies. Hence; due to the presence of more independent variables multiple linear regressions will be implemented to identify and measure possible factors that could affect the share price. Furthermore, descriptive analysis, diagnostics test, the Pearson correlation matrix analysis, F-test and the regression analysis will be employed.

Moreover, according to (Brooks, 2008), the general multivariate regression model with K independent variables can be written as follows;

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki} + \varepsilon_i \quad (i=1,2,3,\dots,n)$$

Where Y_i is the i^{th} observation of the dependent variable, X_{1i}, \dots, X_{ki} are the i^{th} observation of the independent variables, β_0, \dots, β_k are the regression coefficients, ε_i is the i^{th} observation of the stochastic error term, and n is the number of observations. Hence, the determinant of Profitability(PR) will be modeled as;

$$ROA = \beta_0 + \beta_1 TA_{i,t} + \beta_2 LIQ_{i,t} + \beta_3 LEV_{i,t} + \beta_4 FGR_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 RISK_{i,t} + C_{i,t}$$

Source: developed by researcher by reviewing previous research works.

Where;-

ROA = Return on Asset

TA = tangibility of Asset

LIQ = Liquidity

LEV = Financial Leverage

FGR = Firm Growth

INF= Inflation

GDP = Economic growth

TO = Trade Openness

UR = Urbanization

SIZE = Firm's Size

RISK = Business Risk

R = Business Risk

β_0 = Constant term, $\beta_1, 2, 3, \dots, 7$ are parameters to be estimated;

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

i = Insurance company $i = 1, \dots, 10$; and

t = the index of time periods and $t = 1, \dots, 10$.

3.6 Variables definition and Hypothesis development

According to (Creswell, 2009), in quantitative researches to make it clear to the readers what groups will be receiving the experimental treatment and what outcomes are being measured, the variables need to be defined. The following section will present dependent and independent variables clearly.

3.6.1 Dependent variable (Christopher and Rim, 2014)

In line with previous studies that examined the main determinants of profitability, the dependent variable used in this study will be the profitability (PR), Profitability, in this study, is measured as on one commonly used measure of performance as well as profitability, which as returned on total assets (ROA). Return on total assets (ROA) is calculated as net profit after tax by total assets. It was developed in 1919 by Dupont and it emphasizes the company's ability to efficiently use its assets (Maria, 2014). 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. This is probably the most important single ratio in comparing the efficiency and financial performance of insurance companies as it indicates the returns generated from the assets that Insurers owns. The formula for the profitability measure is given as follows:

Profitability (ROA) = Net income / total asset.

3.7 Model Specification

According to Brooks (2008), Specification error occurs when omitting a relevant independent variable, including unnecessary variable or choosing the wrong functional form, so that regression model will be wrongly predicted. If the omitted variable is correlated with the included variable, the estimators are biased and inconsistent. If the omitted variable is not correlated with the included variable, the estimators are unbiased and consistent. Ramsey RESET test was used to see whether the developed model is correctly regressing.

H₀: the model is correctly specified

H₁: the model is not correctly specified

$\alpha=0.05$

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

Independent variables

Among numerous potential determinants of dividend decisions identified in previous similar studies; profitability, liquidity, leverage, growth opportunity, firm size, lagged dividend per share and business risk will be included in this study.

a) Liquidity

Liquidity measures the extent to which a firm is able to meet its payment obligations (Rozeff, 1982). Measured by the current ratio (Al-Malkawi et al., 2007). Firm's liquidity is an

important factor that affects the firm decision to pay cash dividends those who seeks return on their investment (Christopher and Rim, 2014). Liquidity arises when companies earn high profit as a result firms pay higher dividends to shareholders than those with insufficient cash (Al-Malkawi et al., 2007). This positive association between liquidity and Profitability is supported by prior literature (Al-Najjar and Hussainey, 2009),(Kinfe, 2011), (Trang, 2012), (Nuredin, 2012), and (Christopher, 2014).According to the signaling theory, firms with higher cash accessibility are able to pay higher dividends than firms with insufficient cash (Gupta & Banga, 2010). As a result, the researcher will formulate its HP 1 as follows;

H₀ 1: Liquidity has a positive and significant impact on Profitability of insurance companies in Ethiopia.

b) Leverage

To analyze the extent to which debt can affect profit, the ratio of deposits (both short-term and long term deposits) to total assets will be used as a proxy for leverage. The empirical evidence regarding the effect of leverage on Profitability is mixed. Some studies found that firms with high debt ratios are will have low RoA (Jensen M. S., 1992).

As a result, the researcher will formulate its HP as follows;

H₀ 2: Leverage has a negative and significant impact on Profitability of insurance companies in Ethiopia.

c) Firm Growth

The change in revenues (interest and non-interest revenues) will be used as a proxy for growth opportunities. If a firm is growing rapidly, the more is the need for funds to finance the expansion, and the more likely the firm is to get high earning rather than to pay them as dividends (Chang & Rhee, 2003). Consequently, firms with higher growth opportunities are likely to generate high revenue (Rozeff, 1982); (Jensen, 1992); (Alli et al, 1993). The findings of these studies support the negative association between profitability and growth opportunities. As a result, the researcher will formulate its HP 3 as follows;

H₀ 3: Growth opportunity has a positive and significant impact on Profitability of insurance companies in Ethiopia.

d) Firm size

The size of the firms is measured by the natural logarithm of total assets as used by (Christopher, 2014) and is included to account for size variability. Large companies tend to be more competitive, with access to capital, better credit rating, and more customers, which will enhance their profitability and increase their ability to earn higher profitability (Dickens et al., 2002). Supporting this logic, (Lloyd, 1985), (Jensen, 1992) and (Fama, E., & French, K, 2001), found a positive relationship between Profitability and firm size. As a result, the researcher will formulate its HP 5 as follows;

H₀ 4: Firm size has a positive and significant impact on Profitability of insurance companies in Ethiopia.

e) Tangibility of Asset

It measures the extent to which fixed assets are financed with owners' equity capital. Tangibility of assets in insurance companies in most studies is measured by fixed assets over total assets.

H₀ 5: Tangibility of asset has a positive and significant impact on Profitability of insurance companies in Ethiopia.

f) Business risk

Basil Al-Najjar & Khaled Hussainey (2009) defined business risk as the probability of decrease in returns on investment owing to exceptional circumstances. Under transaction cost theory, (Rozeff, 1982) suggested that the transaction costs of external financing will be higher when the firm has higher operating and financial leverage. Thus, a higher profitability seems to be applied to riskier companies in order to lessen the transaction expenses from outside finance. Additionally, (Chang & Rhee, 2003) suggested the reason for this negative relationship is that a firm with lower risk or more stability of earnings has more capacity for remaining or paying more dividends in the future. (Li, K. and Zhao, X., 2008), suggest that the lower the business risk the greater the dividends shelled out. As a result, the researcher will formulate its HP 6 as follows;

H₀ 6: Business Risk has a negative and significant impact on Profitability of insurance companies in Ethiopia.

g) Inflation

refers to the sustained rate of depreciation of the purchasing power of a unit of local currency over time or simply, it is the rate at which the general level of prices for goods and services is rising, and, subsequently, purchasing power is falling. Will be measured by the annual percentage changes in the consumer price index (CPI). As a result, the researcher will formulate its HP 6 as follows;

H₀ 7: Inflation has a negative and significant impact on Profitability of insurance companies in Ethiopia.

h) Economic Growth

It is one the primary indicators used to gauge the health of a country's economy. It represents the total dollar value of all goods and services produced over a specific time period. Usually, GDP measured as change in total economic activity within an economy i.e. Measure of the final output of goods and services.. As a result, the researcher will formulate its HP 8 as follows;

H₀ 8: Economic growth has a positive and significant impact on Profitability of insurance companies in Ethiopia.

i) Trade Openness

Exports and imports are positively associated with profitability of insurance companies and if the level of these two factors are raised the profitability of insurances likely to go up. It is one the primary indicators used to gauge the health of a country's economy. It represents the

total dollar value of all goods and services produced over a specific time period. As a result, the researcher will formulate its HP 8 as follows;

H₀ 9: Trade Openness has a positive and significant impact on Profitability of insurance companies in Ethiopia.

j) Urbanization

Emerging markets are expected to be the main drivers of premium growth in both life and non-life insurance markets. Urbanization on life insurance demand with expectation of positive sign. Namely, urbanization implies geographic concentration of people and thus lower costs of distribution of life insurance. Since distribution cost share among the highest costs of insurance companies, their lowering positively contributes to life insurance supply and consequently, demand.. As a result, the researcher will formulate its HP 9 as follows;

H₀ 10: Trade Openness has a positive and significant impact on Profitability of insurance companies in Ethiopia.

3.8 Operation of the study variables

The relation of the independent variables with the corresponding dependent variable with the assumed sign is presented in the table below.

Table 3.1 Definition, notation and expected sign of the study variables

	Variables	Notation	Measure	Expected Result
Dependent Variables	Profitability (Return on Asset)	ROA	Net Profit / Shareholder's equity	
Independent Variables	Liquidity	LIQ	Current Assets/ Current Liability	+
	Leverage	LEV	Total Debt/ Total assets	-
	Firm Growth	FGR	(Current Revenue - previous Revenue)/ previous sales	+
	Firm Size	Size	Natural logarithm of total assets	+
	Tangibility of Asset	TAS	fixed assets/ total assets	+
	Business Risk	RISK	Natural logarithmic of the standard deviation of revenue	-
	Economic Growth	GDP	$GDP=100\%(GDP-GDP(-1))/GDP(-1)$	+
	Inflation	INF	$INF= 100*(CPI-CPI (-1))/CPI (-1)$	+
	Trade Openness	TRO	$TRO= (Import +Export)/Reel GDP$	+
	Urbanization	UR	$UR= 100*(Urban pop-Urban pop (-1))/ Urban pop (-1)$	+

Source: Compiled by researcher

3.9 Hypothesis of the Study

The study will be done based on the following research hypotheses which are derived from the specific objectives and tested throughout the analysis of the study:

H0 1: *Liquidity has a positive impact on profitability of Ethiopian insurance companies.*

H0 2: *Leverage has a negative impact on profitability of Ethiopian insurance companies.*

H0 3: *Firm growth opportunity has a positive impact on profitability of Ethiopian insurance companies.*

H0 4: *Firm size has a positive impact on profitability of Ethiopian insurance companies.*

H0 5: *Business risk has a negative impact on profitability of Ethiopian insurance companies.*

H0 6: *Tangibility of asset has a positive impact on profitability of Ethiopian insurance companies.*

H0 7: *Inflation size has a positive impact on profitability of Ethiopian insurance companies.*

H0 8: *Economic growth has a positive impact on profitability of Ethiopian insurance companies.*

H0 9: *Trade openness a negative impact on profitability of Ethiopian insurance companies.*

H0 10: *Urbanization has a positive impact on profitability of Ethiopian insurance companies.*

CHAPTER FOUR

Data analysis and interpretation

4.1 Introduction

This chapter presents the results and analysis of data of selected Insurance Companies in Ethiopia. The chapter is organized into four sections. The first section presents structured review of financial statements; the second section presents tests for Classical Linear Regression Model Assumptions. Section three presents Panel Data Regression Analysis with three models, the Pooled OLS, the fixed effect and random effect models and it's followed by estimation model selection in section four and five present the modified Wald group wise heteroscedasticity test for robustness. The last two sections presents the result of robust standard error fixed effect regression model and the results are discussed in depth against each of the hypotheses of this study.

4.2 Structured Review of Financial Records

To empirically investigate on the determinants of profitability and achieve the objectives stated in the previous chapter, all insurance companies in Ethiopia, their year of service greater than seven years, were included. Based on the stated year of service, seven Ethiopian insurance companies' financial data over the consecutive period of 2005-2015 was collected. Therefore, seventy-seven (7*11) observations were used to empirically analyze the capital structure determinants of the insurance industry in Ethiopian. Balance sheet and income statement were predominantly used in this regard. Based on the above data source, the following discussions present the results of the financial statement analysis. Accordingly, the result of descriptive statistics, correlation analysis, the test of CLRM assumption and result of the regression analysis are presented in the following sub-sections.

4.3 Descriptive statistics

Table 4.1 provides a summary of the descriptive statistics of the dependent and independent variables for eight insurance companies from the year 2005 to 2015 with a total of 77 observations. The table shows the mean, minimum, maximum, standard deviation and number of observations for the dependent variable Profitability (ROA) and independent variables

liquidity (LIQ), leverage (LEV), Firm growth (GRO), firm size (SIZE), tangibility of asset(TA), openness of trade(TO), urbanization (UR), economic growth(GDP), inflation a (INF) and business risk (RISK). It shows the average indicators of variables computed from the financial statements and the standard deviation that shows how much dispersion exists from the average value. According to (Brooks, 2008), a low standard deviation indicates that the data point tend to be very close to the mean, whereas high standard deviation indicates that the data point are spread out over a large range of values.

Table 4.1 Descriptive statistics

	Minimum	Mean	Maximum	Std. Dev.	Observations
ROA	-0.027	0.084	0.182	0.046	77.000
LIQ	0.365	1.027	2.306	0.285	77.000
LEV	0.453	0.659	0.822	0.086	77.000
RISK	12.025	16.004	17.817	1.330	77.000
SIZE	16.954	19.155	20.966	0.845	77.000
GRO	-0.797	0.544	6.383	1.226	77.000
INF	-0.923	0.626	5.464	1.637	77.000
GDP	0.076	0.104	0.130	0.016	77.000
TA	0.026	0.209	0.654	0.116	77.000
TRO	0.028	0.271	0.412	0.107	77.000
UR	0.041	0.048	0.052	0.004	77.000

Source: EViews output

As can be presented in the above table 4.1 that the mean values of all the variables ranges from minimum of -0.08 for urbanization (UR) measured by percentage of change import and export to a maximum of 19.155 for SIZE measured by natural logarithmic of total asset. Also, the table shows that the mean value for ROA is 0.084 indicating that on average Ethiopian insurance companies earn 8% on their asset before tax. The standard deviation is 0.046 This implies that profitability of insurance varies from the mean by 4.6%.

It is believed a company is solvent if it has a minimum of one to one proportion between current asset and current liability (Brealey and Myers, 2005). The average liquidity position of Ethiopian insurance companies' as shown in table 4.1 is 103% as measured by current

asset divided by current liability. This implied that for a one birr current liability there is an available 1.03 birr on average on current assets, a maximum liquidity position of 2.31birr and minimum of 0.37 birr with a dispersion of 29%. Thus, it can be said that, Ethiopian insurance companies are solvent.

Ethiopian insurance companies have on average 66% leverage ratio, in this study leverage proxied by debt ratio (total debt divided by total asset) in their asset composition, mainly from provision for unearned premiums and outstanding claims, with 9% variability.

The average value of growth is 0.544 with a standard deviation of 12.26%. This implies that on average, the insurance companies' asset increased by 12.26% over the study period. This result indicates that on average Ethiopian insurance industry is in a rapid growth stage in terms of asset. The maximum value of growth for the study period was 63.83% percent and a minimum value of -8%.

4.4 Correlation Analysis

As noted in Brooks (2008), Correlation between two variables measures the degree of linear association between them. The most widely-used type of correlation coefficient is Pearson r , also called linear or product-moment correlation. The significance level calculated for each correlation is a primary source of information about the reliability of the correlation. The significance of a correlation coefficient of a particular magnitude will change depending on the size of the sample from which it was computed. The values of the correlation coefficient are always between -1 and +1. A correlation coefficient of +1 indicates that the two variables are perfectly related positively; while a correlation coefficient of -1 indicates that two variables are perfectly related in a negative linear sense. A correlation coefficient of 0, on the other hand indicates that there is no linear relationship between two variables (Gujarati, 2004).

Table 4.2 Correlation Analysis of Variables

	ROA	GDP	GRO	INF	LEV	LIQ	RISK	SIZE	TA	TRO	UR
ROA	1.0000										
GDP	0.1380	1.0000									
GRO	0.2870	0.1798	1.0000								
INF	0.0205	0.3582	0.2063	1.0000							
LEV	-0.2759	0.0554	-0.1337	0.0039	1.0000						
LIQ	0.1356	0.0361	0.0267	-0.0598	-0.6207	1.0000					
RISK	0.4152	-0.5644	-0.2985	-0.6925	0.1421	-0.1830	1.0000				
SIZE	0.3294	-0.2715	-0.0995	-0.0436	0.5389	-0.4264	0.5706	1.0000			
TA	-0.0566	-0.0793	-0.1259	0.0704	-0.2409	-0.2744	-0.1907	-0.1974	1.0000		
TRO	-0.0671	-0.2204	-0.0779	0.1666	-0.0086	-0.1308	-0.0356	-0.0615	0.1084	1.0000	
UR	0.2895	-0.1493	-0.2864	0.0555	0.3669	-0.4003	0.1932	0.4829	0.2536	0.1106	1.0000

Source: EViews output

The correlation result in Table 4.2 shows that leverage (LEV), trade openness(TO) and tangibility of asset (TA) are negatively related to profitability of Ethiopian insurance companies. Meaning that when the increase in these factors leads in the decrease in return on asset. Moreover, the coefficient estimates of correlation in the above table shows -0.2759, -0.0566 and -0.0671 for leverage (LEV), trade openness(TO) and tangibility of asset (TA) respectively. These implies that the correlation in these independent variables with the dependent variable is low. While other independent variables are positively related with profitability. Meaning that when the increase in these factors also leads to an increase in profitability of private Ethiopian insurance companies in this study.

As recalled from the chapter three, there are ten research hypotheses that postulate the relationship between the dependent variable of profitability and the independent variables. The research hypothesis predicts that there is a positive correlation between profitability and liquidity, GDP, trade openness, Inflation, urbanization, firm growth and firm's size. At the same time the hypothesis anticipates a negative relationship with the rest variables i.e. leverage, and business risk.

In line with the research hypothesis, the correlation matrix in Table 4.2 produced statistical evidence that profitability is positively correlated with liquidity, inflation, urbanization, risk,

GDP and firm size. Also in contrary to the research hypothesis, the result of the correlation matrix in Table 4.2 above indicates that profitability is negative correlation with leverage, trade openness, and tangibility of asset.

In general, even though the correlation analysis shows the direction and degree of associations between variables, it does not allow the researcher to make cause and effect inferences regarding the relationship between the identified variables. Thus, in examining the effects of selected independent variables on profitability, the econometric regression analysis which is discussed in the forthcoming section of the paper gives assurance to overcome the shortcomings of correlation analysis.

4.5 Regression model tests

Most statistical tests rely upon certain assumptions about the variables used in the analysis. For valid hypothesis testing and to make data available for reliable results, the test of assumption of regression model is required. Accordingly, the study has gone through the most critical regression diagnostic tests consisting of Normality, Multicollinearity, heteroskedasticity, autocorrelation and model specification accordingly.

4.5.1 CLRM assumptions

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

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

The condition of classic linear regression model implies that there should be homoscedasticity between variables. This means that the variance should be constant and same. Variance of residuals should be constant otherwise, the condition for existence of regression, homoscedasticity, would be violated and the data would be heteroskedastic

(Brooks C. , 2008). To check for this, Breusch-Pagan-Godfrey test were applied. The Breusch-pagan tests of the null hypothesis that the error variances are all equal versus the alternative that the error variance are a multiplicative function of one or more variables.

Hence, following the general null hypothesis of Breusch-pagan tests, the researcher develops the following hypothesis to check the presence of heteroskedasticity:

- *H0: homoskedastic error term*
- *H1: heteroskedasticity error term*

Table 4.3: Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.801045	Prob. F(10,66)	0.6281
Obs*R-squared	8.334025	Prob. Chi-Square(10)	0.5962
Scaled explained SS	8.001296	Prob. Chi-Square(10)	0.6287

Source: EViews output

Both F-statistic and chi-square (χ^2) tests statistic were used. As can be presented in the above heteroskedasticity test both the *F*- and χ^2 -test statistic give the same conclusion that there is no significant evidence for the presence of Heteroskedasticity. Since the *p*-values in all of the cases were above 0.05, the null hypothesis of homoskedasticity is failed to reject at 5 percent of significant level. This implying that there is no significant evidence for the presence of heteroskedasticity in these research models. 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 give the same conclusion. (See Appendix A for detail).

4.5.1.2 Test for absence of autocorrelation assumption

$$\underline{(\text{cov}(u_i, u_j) = 0 \text{ for } i \neq j)}$$

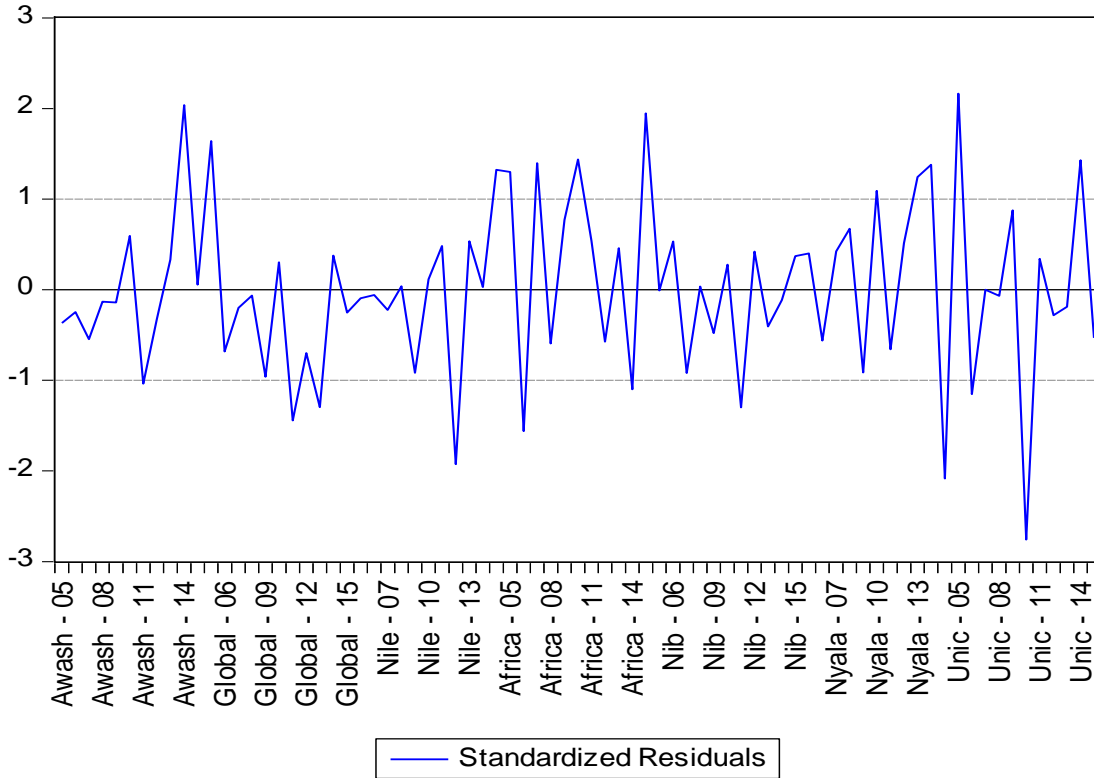
Another basic assumption of regression model says that the covariance between error terms should be zero. As noted in Brooks (2008) this is an assumption that the covariance between

the error terms over time (or cross-sectionally, for that type of data) is zero. In other words, it is assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are „auto correlated“ or that they are serially correlated. This means that error term should be random and it should not exhibit any kind of pattern. If there exists covariance between the residuals and it is non-zero, this phenomenon is called autocorrelation. To test for autocorrelation, three methods can be used. The researcher applies all here.

A. Graphical Method

The following graph clearly implies that the residuals show a random behavior. Thus implying absence of covariance and hence autocorrelation.

Figure 2 Residual graph



B. Durbin Watson Stat

The test for autocorrelation was made by using (Durbin and Watson, 1951). Durbin-Watson (DW) is a test for first order autocorrelation i.e. it tests only for a relationship between an error and its immediately previous value. The null hypothesis for the DW test is no autocorrelation between the error term and its lag. According to (Brooks C. , 2008), DW has 2 critical values: an upper critical value (dU) and a lower critical value (dL), and there is also an intermediate region where the null hypothesis of no autocorrelation can neither be rejected nor not rejected. The rejection, non-rejection, and inconclusive regions are shown on the number line in figure 4.2 bellow.

Figure 4.2 Rejection and Non-Rejection Regions for DW Test

Reject H ₀ : Positive H ₀ : Autocorrelation	Do not reject No evidence of of Autocorrelation	Reject H ₀ : Negative Auto-correlation
Inconclusive	Inconclusive	

0 dL dU 2 4-dU 4-dL 4

Source: (Brooks C. , 2008)

The Durbin-Watson Statistics (D-W stat.) from the weighted statistics regression result before analysis shows that 2.02601 which is close to 2. Hence, again proving absence of autocorrelation and the residuals to be random.

C. Breusch–Godfrey Serial Correlation LM test

Finally, the Breusch–Godfrey Serial Correlation LM test was run. Breusch–Godfrey tests area joint test for autocorrelation that will allow examination of the relationship between \hat{u}_t and several of its lagged values at the same time. The Breusch--Godfrey test is a more general test for autocorrelation up to the r^{th} order (Brooks C. , 2008).

Hypothesis of this test are:-

Hence, following the general null hypothesis of Breusch–Godfrey Serial Correlation LM test, the researcher develops the following hypothesis to check the absence of autocorrelation:

$$H_0 = \text{No autocorrelations errors}$$

$$H_1 = \text{Autocorrelations errors}$$

Table 4.4: Correlations matrix of explanatory variables

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.613533	Prob. F(2,64)	0.2072
Obs*R-squared	3.696191	Prob. Chi-Square(2)	0.1575

Source: EViews output

As can be seen in the above table 4.4, F test result and the P value of F-statistic 0.2072 which is way beyond the significance level of 5%. Hence, the null hypothesis of no autocorrelation is failed to reject at 5 percent of significant level. This implying that there is no significant

evidence for the presence of autocorrelation in this model. The Chi-Square P-value of the model also support the absence of autocorrelation. (See Appendix B for detail).

Therefore, can be concluded that, the covariance between residuals is zero, data is normal and absence of autocorrelation problem was found conclusively from all three tests.

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

An assessment of the normality of data is a prerequisite for many statistical tests because normal data is an underlying assumption in parametric testing. Normality tests are used to determine if a data set is well-modelled by a normal distribution and to compute how likely it is for a random variable underlying the data set to be normally distributed. As stated in Brooks (2008), one of the most commonly applied tests for normality is the Bera-Jarque (BJ) test. Jarque-Bera test is a goodness-of-fit test of whether sample data have the skewness and kurtosis matching a normal distribution.

Normality test was applied to determine whether a data is well-modelled by a normal distribution or not, and to compute how likely an underlying random variable is to be normally distributed. If the residuals are normally distributed, the histogram should be bell-shaped and the Jarque-Bera 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.

Theoretically, if the test is not significant, then the data are normal, so any value above 0.05 indicates normality. Jarque-Bera formalizes this by testing the residuals for normality and testing whether the coefficient of skewness and kurtosis close are zero and three respectively. Skewness refers to how symmetric the residuals are around zero. Perfectly symmetric residuals will have a skewness of zero.

Skewness measures the extent to which a distribution is not symmetric about its mean value. Kurtosis refers to the “peakedness” of the distribution. For a normal distribution the kurtosis value is 3. Kurtosis measures how fat the tails of the distribution are, the Jarque–Bera test for normality is based on two measures, skewness and kurtosis. The Jarque-Bera probability

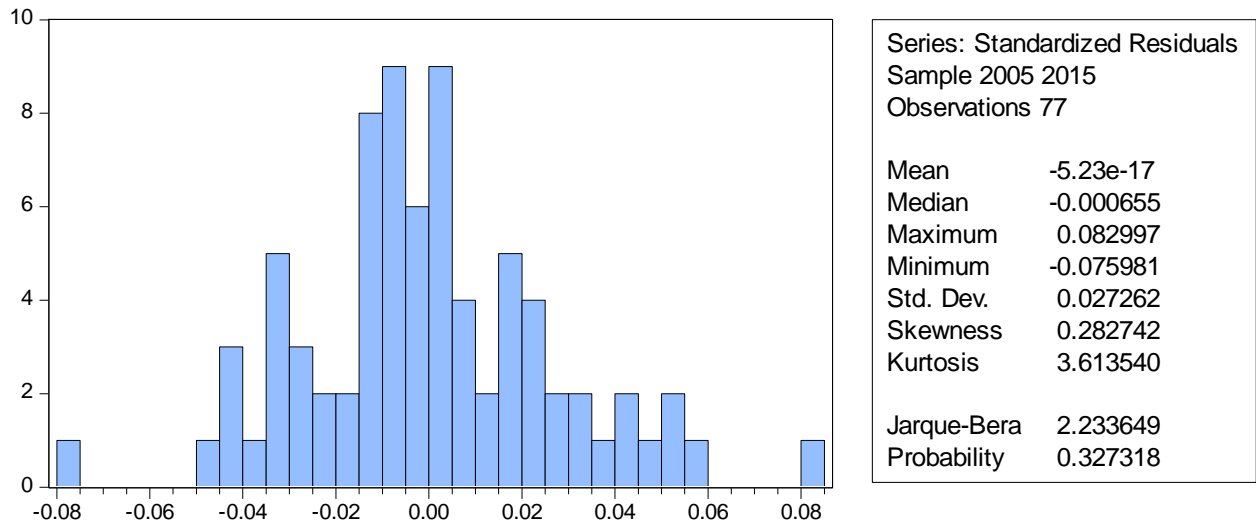
statistics/P-value is also expected not to be significant even at 10% significant level (Brooks 2008).

The hypothesis of normality distribution is:

$H_0 = residuals\ follows\ a\ normal\ distribution$

$H_1 = residuals\ do\ not\ follows\ a\ normal\ distribution$

Figure 4.1 Normality test for residuals



Source: EViews output

As shown in the histogram above in the figure 4.3 kurtosis close to 3 (i.e. 3.61354) and skewness approaches to 0 (i.e.0.282742). The Jarque-Bera statistics was not significant even at 10% level of significance as per the P-values shown in the histogram (i.e. 0.327318). Hence, null hypothesis of the residuals follows a normal distribution is failed to reject at 5 percent of significant level. Hence, it seems that the error term in all of the cases follows the normal distribution and it implies that the inferences made about the population parameters from the samples tend to be valid.

4.5.1.4 Test for multicollinearity

Multicollinearity indicates a linear relationship between explanatory variables which may cause the regression model biased (Gujarati, 2004). If an independent variable is an exact linear combination of the other independent variables, then we say the model suffers from

perfect collinearity, and it cannot be estimated by OLS (Brooks 2008). When independent variables are multicollinear, there is overlap or sharing of predictive power. This may lead to the paradoxical effect, whereby the regression model fits the data well, but none of the explanatory variables (individually) has a significant impact in predicting the dependent variable (Gujarati, 2004). According to (Lewis-Beck, 1993) suggestion in order to find out the multicollinearity problem, the bivariate correlations among the independent variables should be examined and the existence of correlation of about 0.8 or larger indicates a problem of multicollinearity. Also, (Cooper and Schendlar, 2003) suggested that a correlation above 0.8 should be corrected.

4.1.1 Choosing Random effect (RE) Vs. fixed effect (FE) models

The results so far indicate that all CRLM assumptions are not violated, so the ordinary least square regression can be safely applied. However, since this study uses a panel data, there are two types of panel estimator approaches that can be employed, namely: fixed effects models (FEM) and random effects models (REM) (Brooks C. , 2008).

The simplest types of fixed effects models allow the intercept in the regression model to differ cross-sectionally but not over time, while all of the slope estimates are fixed both cross-sectionally and over time. The random effects approach proposes different intercept terms for each entity and again these intercepts are constant over time, with the relationships between the explanatory and explained variables assumed to be the same both cross-sectionally and temporally (Brooks C. , 2008)

To examine whether individual effects are fixed or random, a Hausman specification test was conducted providing evidence in favor of the REM model (Baltagi, 2005). The null hypothesis for this test is that unobservable heterogeneity term is not correlated or random effect model is appropriate, with the independent variables. If the null hypothesis is rejected then we employ Fixed Effects method. (Brooks C. , 2008).

The Hausman test hypothesis is

H₀ = Random effect model is appropriate

H₁ = Fixed effect model is appropriate

Table 4.6 Hausman test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	7.485127	6	0.2783

Source: EViews output

Table 4.6 above shows Hausman specification test, the P-value of a models is 0.2783, which is above 5% level of significance. Hence, fails to reject the null hypothesis of the random effect model at 5 percent of significant level. This implying that, random effect model is more appropriate than fixed effect model and gives more comfort that random effects model results are valid (see Appendix C for detail).

4.1.2 Wald Test

The Wald test is a coefficient restrictions test that asks whether the regression estimation coefficients jointly explain any of the variation in the dependent variable. It tests the central question of this paper, what explains the profitability in Ethiopia over the period 2005-2015. The null hypothesis is that all coefficients for explanatory variables are equal to zero. The Wald Test reports two test statistics, the F-Statistic and the Chi² Statistic, both based on an estimation of the unrestricted regression and measuring how close the unrestricted estimation results are to the restricted estimation results. If the restrictions are true (i.e., all coefficients are equal to zero), unrestricted estimations should be close to restricted estimations. If the probability is less than the significance level being tested (e.g., 1% or 5% or 10%), the null hypothesis that all independent variable coefficients are jointly equal to zero is rejected. (Brooks C. , 2008).

Hypotheses for this test are:-

$$H_0 = \beta_1=0, \beta_2=0, \beta_3=0, \beta_4=0, \beta_5=0, \beta_6=0, \beta_7=0, \beta_8=0, \beta_9=0, \beta_{10}=0$$

$$H_1 = \beta_1 \neq 0, \beta_2 \neq 0, \beta_3 \neq 0, \beta_4 \neq 0, \beta_5 \neq 0, \beta_6 \neq 0, \beta_7 \neq 0, \beta_8 \neq 0, \beta_9 \neq 0, \beta_{10} \neq 0$$

roa c gdp gro inf lev liq risk size ta tro ur

Table 4.7 Wald Test

Wald Test:
Equation: Untitled

Test Statistic	Value	df	Probability
F-statistic	11.37597	(10, 66)	0.0000
Chi-square	113.7597	10	0.0000

Null Hypothesis: C(1)=0, C(2)=0, C(3)=0, C(4)=0, C(5)=0,
C(6)=0, C(7)=0, C(8)=0, C(9)=0, C(10)=0

Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(1)	-0.474943	0.144169
C(2)	0.687146	0.284600
C(3)	0.007956	0.003344
C(4)	0.013010	0.004226
C(5)	-0.336961	0.079866
C(6)	0.007391	0.021885
C(7)	0.025177	0.007534
C(8)	0.007999	0.008536
C(9)	-0.055418	0.046167
C(10)	-0.040742	0.034626

Restrictions are linear in coefficients.

Source: EViews output

Table 4.7 above shows, the P-value of a models is 0.0000, which is less than 1% of significance level. Hence, can concluded that, he null hypothesis all of the coefficient except the intercepts of coefficients are equals to zero would be rejected at 1% of significance level. This implies that, all independent variables in the models were able to explain the variation in dependent variable.

4.6 Regression results

This section presents the regression result of random effect model used to examine the determinants of profitability of the private commercial banks in Ethiopia. Accordingly, the regression result was done and coefficients of the variables were estimated via EVIEWS 8 software. The regression output is divided into three panels. The top panel summarizes the input to the regression, the middle panel gives information about each regression coefficient, and the bottom panel provides summary statistics about the whole regression equation. The two most important numbers, “R-squared” (the one who answered how much percent of the variance in the dependent variable in the regression accounted for) and “S.E. of regression.” and the one that shows how far is the estimated standard deviation of the error term. Five other elements, “Sum squared residuals,” “Log likelihood,” “Akaike info criterion,” “Schwarz criterion,” and “Hannan-Quinn criter.” are used for making statistical comparisons between two different regressions. The next two numbers, “Mean dependent var” and “S.D. dependent var,” report the sample mean and standard deviation of the left hand side variable (Brooks C. , 2008).

“F-statistic” and “Prob (F-statistic)” come as a pair and are used to test the hypothesis that none of the explanatory variables actually explain anything. Put more formally, the “*F*-statistic” computes the standard *F*-test of the joint hypothesis that all the coefficients, except the intercept, equal zero. “Prob (F-statistic)” displays the *p*-value corresponding to the reported *F*-statistic.

“Adjusted R-squared” makes an adjustment to the plain-old to take account of the number of right hand side variables in the regression. Measures what fraction of the variation in the left hand side variable is explained by the regression. The adjusted, sometimes written, subtracts a small penalty for each additional variable added.

The final summary statistic is the “Durbin-Watson,” the classic test statistic for serial correlation. A Durbin-Watson close to 2.0 is consistent with no serial correlation, while a number closer to 0 means there probably is serial correlation (Brooks C. , 2008). Hence, as concluded in the Hausman test (Table 4.6) above the random effects model is appropriate regression analysis to this study.

4.6.1 Operational model

The operational panel regression model used to find the significant factors of dividend payout of Ethiopian insurance companies measured by profitability (EPS) was:

$$ROA = \beta_0 + \beta_1 GDP_{i,t} + \beta_2 LIQ_{i,t} + \beta_3 LEV_{i,t} + \beta_4 GRO_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 TA_{i,t} + \beta_7 RISK_{i,t} + \beta_8 INF_{i,t} + \beta_9 TRO_{i,t} + \beta_{10} UR_{i,t} + \epsilon_{i,t}$$

Table 4.7. The result of Random effects model for regression results

Dependent Variable: ROA
 Method: Panel EGLS (Period random effects)
 Date: 05/29/17 Time: 03:02
 Sample: 2005 2015
 Periods included: 11
 Cross-sections included: 7
 Total panel (balanced) observations: 77
 Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.474943	0.144169	-3.294341	0.0016
LIQ	0.007391	0.021885	0.337695	0.7367
LEV	-0.336961	0.079866	-4.219078	0.0001
RISK	0.025177	0.007534	3.341836	0.0014
SIZE	0.007999	0.008536	0.937082	0.3521
GRO	0.007956	0.003344	2.378829	0.0203
INF	0.013010	0.004226	3.078825	0.0030
GDP	0.687146	0.284600	2.414426	0.0185
TA	-0.055418	0.046167	-1.200390	0.2343
TRO	-0.040742	0.034626	-1.176643	0.2436
UR	3.419152	1.018509	3.357017	0.0013

Effects Specification		S.D.	Rho
Period random		0.000000	0.0000
Idiosyncratic random		0.028930	1.0000

Weighted Statistics			
R-squared	0.653073	Mean dependent var	0.084069
Adjusted R-squared	0.600508	S.D. dependent var	0.046284
S.E. of regression	0.029254	Sum squared resid	0.056483
F-statistic	12.42417	Durbin-Watson stat	1.660070
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.653073	Mean dependent var	0.084069
Sum squared resid	0.056483	Durbin-Watson stat	1.660070

*correlation coefficient significant at 5% and ** correlation coefficient significant at 1% significance level respectively.

Source: EViews output

$$ROA = -0.474943 + 0.007391 * LIQ - 0.336961 * LEV - 0.025177 * RISK + 0.007999 * SIZE + 0.007956 * GRO + 0.013010 * INF + 0.687146 * GDP - 0.055418 * TA - 0.040742 * TRO + 3.419152 * UR$$

4.6.2 Interpretations of the results

This section tries to analyse the results for each explanatory variable and their effect on profitability in Ethiopian insurance companies.

The estimation results reported in Table 4.7 also depicted that, The R-squared and Adjusted R-squared values of 0.65 and 0.60 respectively is an indication that the model is a good fit. This means more than 60% of variations in profitability of Ethiopian insurance companies were explained by independent variables included in the model. However, the remaining 40% changes in profitability of Ethiopian insurance companies are caused by other factors that are not included in the model. Furthermore, the F-statistic is 12.42417 and the probability of not rejecting the null hypothesis that there is no statistically significant relationship existing between the dependent variable (ROA) and the independent variables, is 0.000000 indicates that the overall model is highly significant at 1% and that all the independent variables are jointly significant in causing variation in ROA.

4.6.2.1 Liquidity (LIQ) and Return on asset(ROA)

Table 4.7 also presented that, the coefficient of liquidity (LIQ) measured by current ratio is 0.007391 and its P-value is 0.7367. Holding other independent variables constant at their average value, when liquidity (LIQ) increased by one percent, profitability (ROA) of sampled Ethiopian insurance companies would be decreased by one percent and statistically insignificant at 5% level of significant. Therefore, the researcher rejects the null hypothesis that there is positive relationship between liquidity and return on asset. The sign is same as the initial assumption.

4.6.2.2 Leverage (LEV) and Return on Asset(RoA)

As can be seen in the above table 4.7, the coefficient of leverage (LEV) measured by debt to total asset ratio is -0.336961 and its P-value is 0.0001. Holding other independent variables constant at their average value, when leverage (LEV) increased by one percent, profitability (RoA) of sampled Ethiopian insurance companies will decrease by 34% and statistically significant at 5% level of significance. Therefore, the researcher fail to reject the null hypothesis and there is negative relationship between profitability(RoA) and leverage. This means, there is sufficient evidence to support the negative relationship between profitability and leverage.

Ethiopian insurance companies not allowed to hold long term debt so as to avoid insolvency problem upon claim settlement. Most previous studies with regard to leverage also found statistically significant relationship but negative. For instance, in the study of Malik (2011); B. Charumathi (2012); and Abate Gashaw (2012) leverage have negatively and significantly influence on insurance company profitability.

Nuredin (2012) highly leveraged firms depend on external financing to a greater extent than the one with lower leverage ratios, because leverage produces fixed charge requirements.

4.6.2.3 Business risk (RISK) and Return on Asset (RoA)

Table 4.7 above depicted that, the coefficient of business risk (RISK) measured natural logarithmic of the standard deviation of revenue is 0.025177 and its P-value is 0.0014. Holding other independent variables constant at their average value, when business risk (RISK) increased by 1%, profitability(RoA) of sampled Ethiopian insurance companies would be increased by 3% and statistically significant at 1% of significance level. Therefore, the researcher fail to rejects the null hypothesis that there is positive relationship between business risk and profitability.

Against all odds, risk displays a positive sign. This positive association between business risk and profitability could be high risk business reward high returns and some investors are willing to invest in high business risk to get high return.

4.6.2.4 Firm's size (SIZE) and Return on Asset(RoA)

Table 4.7 above depicted that, the coefficient of firm's size (SIZE) measured by natural logarithmic of total asset is 0.007956 and its P-value is 0.3521. Holding other independent variables constant at their average value, when firm's size (SIZE) increased by one birr, profitability (RoA) of sampled Ethiopian insurance companies would be increase by 1%, but statistically insignificant at 5% of significance level. In other words, there is insignificant positive relationship between firm's size and profitability of Ethiopian insurance companies. Therefore, the researcher reject the null hypothesis that there is positive relationship between firm's size and profitability.

However as expected there is a positive relationship between firm size and profitability.

The positive association between firm's size and profitability could be attributed to the fact that, Ethiopian insurance industry is in growth stage are tend to invest their profit on expansion to increase their market share or to maintain their current status. The significant relationship also attributable to the fact that, there exist a high relationship in their size, whereas there is relatively closeness in profitability of Ethiopia insurance companies.

Such as; Lee (2014) from Taiwan found positive but insignificant relationship between profitability and company size. This finding is consistent with the study of Lee, which is indicated in the regression result in table. As many literatures indicated it is expected that larger firms can obtain lower unit cost and higher profit through economies of scale, but the largest insurance company in Ethiopia which is Ethiopian Insurance Corporation has similar ROA with the smaller insurance companies.

4.6.2.5 Firm Growth (GRO) and Return on Asset (RoA)

As it presented Table 4.7 above, the coefficient of growth opportunity (GRO) measured by change in revenue is 0.007956 and its P-value is 0.0203. Holding other independent variables constant at their average value, when Growth opportunity (GRO) increased by one birr, profitability (RoA) of sampled Ethiopian insurance companies would be increased by 1% and statistically significant at 5% level of significance. The sign is same as the initial assumption.

Therefore, the researcher fail to reject the null hypothesis that there is positive relationship between growth opportunity and profitability (RoA). As expected, the relationship between growth and profitability of Ethiopian insurance companies is positive. In contrary to the research findings by (Kinfе, 2011), who stated that, growth opportunity is relevant factor in profitability of Ethiopian banks and this applies to Ethiopian insurance companies' profitability.

4.6.2.6 Inflation(INF) and Return on Asset(RoA)

As it presented Table 4.7 above, the coefficient of inflation (INF) measured by change in inflation is 0.013010 and its P-value is 0.003. Holding other independent variables constant at their average value, when inflation (INF) increased by one birr, profitability (RoA)of sampled Ethiopian insurance companies would be increased by 1% and statistically significant at 5% level of significant. The sign is same as the initial assumption. Therefore, the researcher fail to reject the null hypothesis that there is positive relationship between inflation and profitability (RoA). As expected, the relationship between growth and profitability of Ethiopian insurance companies is positive.

As it is known inflation has effects on reducing performance by increasing the price of labor and increase in the price. The positive relation result of inflation and return on asset implies that insurance companies adjust their price in conjunction with inflation.

4.6.2.7 Economic Growth (GDP) and Return on Asset(RoA)

As it presented Table 4.7 above, the coefficient of Economic Growth (GDP) measured by change in real GDP is 0.687146 and its P-value is 0.0185. Holding other independent variables constant at their average value, when Economic Growth (GDP) increased by one birr, profitability (RoA)of sampled Ethiopian insurance companies would be increased by 2% and statistically significant at 5% level of significant. The sign is same as the initial assumption. The researcher fail to reject the null hypothesis that there is positive relationship

between Economic Growth (GDP) and profitability (RoA). As expected, the relationship between growth and profitability of Ethiopian insurance companies is positive.

Theoretically GDP has positive and significant influence on profitability of insurance companies. Murungi (2014), GDP growth positively affects insurers profitability that is, growth of overall economic activity encourages demand for insurers services and indirectly result in higher insurers income.

The positive relationship implies the insurance companies profit is growing in accordance with growth of the economy and society getting knowledgeable in covering risks through insurance companies.

4.6.2.8 Tangibility of Asset (TA) and Return on Asset(RoA)

As can be seen in the above table 4.7, the coefficient of Tangibility of Asset (TA) measured by debt to total asset ratio is -0.055418 and its P-value is 0.2343. Holding other independent variables constant at their average value, when Tangibility of Asset (TA) increased by one percent, profitability (RoA) of sampled Ethiopian insurance companies will decrease by 6% and statistically insignificant at 5% level of significance. Therefore, the researcher reject the null hypothesis and there is negative relationship between profitability(RoA) and tangibility of asset(TA). This means, there is no sufficient evidence to support the positive relationship between profitability and Tangibility of Asset (TA). This indicates that tangible assets are recorded at historical costs and during inflationary conditions the reported amount becomes small even if the replacement cost is high (Hanna Mairam(2015).

4.6.2.9 Trade openness (TRO) and Return on Asset(RoA)

As can be seen in the above table 4.7, the coefficient of Trade openness (TRO) measured by debt to total asset ratio is -0.040742 and its P-value is 0.2436. Holding other independent variables constant at their average value, when Trade openness (TRO) increased by one percent, profitability (RoA) of sampled Ethiopian insurance companies will decrease by 4% and statistically insignificant at 5% level of significance. Therefore, the researcher reject the null hypothesis and there is positive relationship between profitability(RoA) and trade openness. This means, there is no sufficient evidence to support the positive relationship between profitability and Trade openness (TRO).

4.6.2.10 Urbanization(UR) and Return on Asset(RoA)

As can be seen in the above table 4.7, the coefficient of 4.6.2.10 Urbanization(UR) measured by debt to total asset ratio is 3.419152 and its P-value is 0.0013. Holding other independent variables constant at their average value, when Urbanization(UR) increased by one percent, profitability (RoA) of sampled Ethiopian insurance companies will increase 341% and statistically significant at 5% level of significance. Therefore, the researcher fail to reject the null hypothesis and there is positive relationship between profitability(RoA) and urbanization(UR). This means, there is sufficient evidence to support the positive relationship between profitability and urbanization(UR).

As expected, the relationship between urbanization and profitability of Ethiopian insurance companies is positive and most relevant factor for profitability.

The positive relationship between urbanization and profit indicates that Ethiopian insurance companies expand their branch and type of insurance coverage in accordance to the newly emerged cities, population growth and related macro economic variable to urbanization.

Table 4.9 Comparison of the Test Result with the Expectation

Independent Variables	Expected Relationships with ROA	Actual result	Statistical Significance test	Hypothesis Status
Liquidity	+	+	insignificant	Reject
Leverage	-	-	significant	Failed to Reject
Firm Size	+	+	insignificant	Reject
Risk	-	+	Significant	Failed to Reject
Growth	+	+	significant	Failed to Reject
Inflation	+	+	Significant	Failed to Reject
Economic Growth	+	+	Significant	Failed to Reject
Tangibility of Asset	+	-	insignificant	Reject
Trade openness	+	-	insignificant	Reject
Urbanization	+	+	Significant	Failed to reject

4.1.1 Ramsey RESET Test

Model specification error occurs when omitting a relevant independent variable, including unnecessary variable or choosing the wrong functional form. When the omitted variable is correlated with the variable which included, the estimators will be biased and inconsistent and model specification error will tends to occur. If the omitted variable is not correlated with the included variable, the estimators are unbiased and consistent and model specification error will not occur. Therefore, in order to select a correct estimated model, the researcher had carry out the Ramsey-RESET Test to check on the model specification. The hypothesis for the model specification test was formulated as follow;

H0: The model specification is correct.

H1: The model specification is incorrect

Ramsey RESET Test
Equation: UNTITLED
Specification: ROA C LIQ LEV RISK SIZE GRO INF GDP TA TRO UR
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	1.055814	65	0.2950
F-statistic	1.114743	(1, 65)	0.2950
Likelihood ratio	1.309346	1	0.2525

Since the p value is beyond 5% rejection accept the null hypothesis accept the model specification.

CHAPTER FIVE

Conclusion and recommendation

5.1 Introduction

The basic intent of this chapter is to present the overall overviews of the research by summing the main findings of the analysis part and give future research directions. Accordingly, the chapter starts with its discussion by briefly sum up the overviews of the study and its main findings.

5.2 Conclusion

Following to the regression analysis findings explained in the previous sections, the researcher concludes with some recommendations to provide insight on influential factors of profitability/ROA/ in Ethiopian insurance companies. However, it should be emphasized again that the limited research on this specific topic in addition to the absence of active efficient market in the country limit the scope of the study. Therefore, as the concept of profitability is a relatively broad and one of controversial area in finance, the research finding in somehow different from other developed and emerging market countries case.

This study has explored the influential factors of profitability proxied by return on asset of insurance companies in Ethiopia over the period 2005 to 2015. The aim was to identify influential factors that significantly influence profitability. There existed the knowledge gap that was not reached by other researchers in the country. Empirical literature identified many variables as an influential factor of profitability. Against this background, this study test the relationship and their relative importance in profit making decisions of Ethiopian insurance companies. The researcher purposively selected seven insurance companies out of currently operational seventeen companies and collected secondary data from National Bank of Ethiopian, central statistic agency and annual published report of Ethiopian insurance companies.

The study variables included in this study are liquidity, financial leverage, firm growth, firm's size, risk, inflation, economic growth, tangibility of asset, trade openness and urbanization as an independent variable and profitability as dependent variable. The analysis was

conducted using panel data estimation technique of common, fixed and random effect model using EViews 8 statistical software. The study goes through all diagnostic test, including multicollinearity, heteroscedasticity, normality and autocorrelation. Some important factors but impractical here in Ethiopia, such as the book to market ratio and market risk, found as a significant determinant in other similar studies were not included in this study.

Regression Analysis was identified as the most appropriate tool for econometric analysis of the data. The descriptive statistics revealed the data to be normal. Also, the assumptions needed to be fulfilled for OLS were tested, the data was found to be homoskedastic, free of autocorrelation free of Multi-collinearity and normally distributed. Results shows that leverage, risk, firm growth, inflation, economic growth and urbanization a significant relationship with return on asset /profitability/. The rests three explanatory variables i.e. Liquidity, firm's size, tangibility of asset and trade openness were found to be insignificant in context of Ethiopian insurance companies. In addition, the study has showed positive coefficient for risk. While tangibility of asset, has negative coefficient. Also the coefficient of determination (R^2) is 0.600508 which indicates that the explanatory variables were able to account 60% of the total variations of the dependent variable profitability. The value of Durbin-Watson statistics (DW) shows that there was no presence of auto correlation; hence, the model produced a generous result.

Leverage is also found to have significant and negative relationship with profitability in Ethiopian insurance companies. The increase or decrease in leverage has significant impact on dividend payout in Ethiopian insurance companies. Insurance companies by their very nature are highly levered firms. They extend liability mainly from the insure they collected from the public.

Risk found to have significant and positive relationship with profitability of Ethiopian insurance companies. The finding showed that the increase in risk will lead to the increase in profitability the significance of this results suggested that, high risk companies tend to have high profitability.

The firm size is positive and insignificant relationship with profitability and it contradict the idea that larger firms have high profitability than smaller firms. The results also suggest that large insurance companies has same profitability as small companies.

Growth has shown a significant and positive relationship with profitability. This finding supports the pecking order theory which says that the companies should use first internal sources to fund different projects and to keep the company growth. Therefore, firms with high growth or investment opportunities tend to retain their income to finance their investments. Insurance companies in this study is in growth stage and insurance companies require further investments to fund the growth. This implies that growth and profitability has a direct relationship.

Inflation has a significant and positive impact on profitability. This is due to the price adjustment for every decrease purchasing power of money. Inflation has a significant and positive impact on profitability. This is due to the price adjustment for every decrease purchasing power of money.

5.3 Recommendation

Based on the research findings conclusions above, the following are recommended for investors;

- The implications for Ethiopian government from this study is that, should foster urbanization give supports through positive appreciations for insurance companies to expend business in a newly emerged market
- For the managers, it's a serious implication that, Managers of Ethiopian insurance companies should give consideration to urbanization for newly emerging market and other macro economic variables which are most significant variables that affect profitability of insurance companies. This will help them in the long run will help them to achieve their objective of maximizing shareholders wealth.
- For researchers, the research works on Ethiopian insurance companies and urbanization and other macroeconomic variables that are a forgotten phenomenon as it compared to other countries. Therefore, further related research would be desirable; further study

including financial and non-financial variables using other appropriate regression techniques to determine the influential variables of dividend payment decisions of the industry.

5.4 Farther research suggestion

This research is an important contribution to the literature on top of its findings of value to managers and another stakeholder. However, the study isn't beyond limitations, the first limitation is a short time frame. Second, although we have cross sectional time series data, some of the financial data collected were missing resulting in an unbalanced data. Third, only seven insurance selected factors were included in the research. It is possible that other factors might have a greater impact on the profitability than the ones included in the research. Due to its conflicting research findings, profitability determinant is one of the controversial area of researches in finance. Therefore, other researchers are suggested to assess the influential factors of profitability by broadening its base and updated situations. It is possible that other factors might have a greater impact on the profitability than the ones included in the research. Furthermore, the application of macroeconomic variables is another potential extension of the present research.

References

- Ahmed A. and Javid H., (2009).** Dynamics and determinants of dividend policy in Pakistan: Evidence from Karachi stock exchange non-financial listed firms. *International Research Journal of Finance and Economics*, 29, 110-125.
- Abdelkader, D. (2014),** determinants of performance of insurance companies in Tunisia, *International Journal of Innovation and Applied Studies*
- Abebaw, Y. (2014),** determinants of financial performance: a study on selected microfinance institutions in Ethiopia, Jimma University
- Adams, M. & Buckle, M. (2000),** the determinants of operational performance in the Bermuda insurance market, Working Paper, European Business
- Allahawiah, S., & Al Amro, S. (2012).** Factors affecting stock market prices in Amman Stock Exchange: A survey study. *European Journal of Business and Management*, 4(8), 236-245
- Altai, Y. (2005),** Bank Ownership and Efficiency, *Journal of Money, Credit and Banking* Amal,
- Amal, A. (2012),** Factors Affecting the Financial Performance of Jordanian Insurance Companies Listed at Amman Stock Exchange, *Journal of Management Research* Vol.4
- Made Mikael, A. (2012),** factors affecting profitability: An empirical study on Ethiopian Banking Industry, MSc thesis, Addis Ababa University.
- Ana, M. & Ghiorghe, B. (2014),** determinants of Financial Performance in the Romanian Insurance Market, *International Journal of Academic Research in Accounting, Finance and Management Sciences* Vol. 4
- Anderson, D. and Williams, T. (2008),** *Statistics for business and economics*, Thomson South-Western
- Barth, M. & Eckles, L. (2009),** an empirical investigation of the effect of growth on short term changes in loss ratios. *Journal of Risk and Insurance*
- Belayneh, H. (2011),** Determinants of Commercial Banks Profitability: An Empirical Study on Ethiopian Commercial Banks, AAU
- Boadi, A. & Victor, C. (2013),** determinants of profitability of insurance firms in Ghana, *International Journal of Business and Social Research (IJBSR)*, Volume -3,

Boadi, Antwi and Lartey, 2013, ‘Determinants of profitability of insurance firms in Ghana’, International Journal of Business and Social Research, vol. 3, no. 3, p. 43-50

Bodla, B. and Garg, P. (2003), Insurance Fundamentals, Environment and Procedures, Deep & Deep Publications Pvt. Ltd

Bologi, C. A. (2014). The reform of insurance companies and its transformation of Nigeria’s financial sector. Available on: <http://thelawyerschronicle.com/the-reform-of-insurance-companies-and-its-transformation-of-nigerias-financial-sector/>

Brennan, M., (1970). Taxes, Market Valuation and Financial Policy. National Tax Journal, 19-32.

Brigham & Houston., (2004). Fundamental of financial management. (10th, Ed.) New York: McGraw-Hill.

Brooks, C (2008), Introductory Econometrics for Finance, 2nd edn, Cambridge University Press, New York.

Brooks, C. (2008). Introductory Econometrics for Finance (2nd ed.). Cambridge University Press.

Browne, M. & Hoyt, R. (1999), Economic and market predictors of insolvencies in the life-health insurance industry, The Journal of Risk and Insurance

Charumathi (2012), Determinants of Profitability of Indian Life Insurers, Proceedings of the World Congress on Engineering Vol I

Chen, L. (2014), effects of firm specific factors and macroeconomics on profitability of property-liability insurance industry in Taiwan, Asian Economic and Financial Review

Chen, R., & Wong, K., (2004), the determinants of financial health of Asian insurance companies. Journal of Risk and Insurance

Cooper C. and Schendlar D., (2003). Business Research Methods. (8th, Ed.) New York: McGraw-Hill/Irwin.

Creswell, W. (2003), Research design, qualitative, quantitative and mixed methods approaches, 2nd edn, Sage Publications, California.

Creswell, W. (2009), Research design: quantitative, qualitative and mixed methods approaches, 3rd edn, Sage Publications, California.

Cummins, D. (1994), Capital structure and the cost of equity capital in the property liability insurance industry Curak M., Pervan, M. & Poposki, K. (2012), how well insurance companies in

Cummins, J. Dionne, G., Gagne, R., & Nourira, A. (2008), the costs and benefits of reinsurance, Working Paper, Temple University

Curak M., Pervan, M. & Poposki, K. (2012), how well insurance companies in Macedonia perform? Researches in Applied Economics and Management

Daniel M. & Tilahun A (2013), firm specific factors that determine insurance companies' performance in Ethiopia, European Scientific Journal vol.9

Daniel Mehari & Tilahun Aemiro. (2013). Firm specific factors that determine insurance companies' performance in Ethiopia. European Scientific Journal, 245-255.

Das. S., Nigel D. and Richard P., (2003), Insurance and Issues in Financial Soundness, International Monetary Fund

Dickens, R. and N. (2002). Bank dividend policy: Explanatory factors. Journal of Business and Economics, 41, 3–12.

Dixit, R. (1986), Behavior of share prices and Investment in India. New Delhi: Deep and Deep Publications.

Durinck E., Laveren E. and Lybaert N. (1997), the impact of sales growth above a sustainable level on the financing choice of Belgian Industrial

Easterby, M. Thorpe, R. and Lowe, A. (1991), Management Research, an Introduction, London, Sage Publications Incorporation

Edwin, J., Martin J., Stephen J. and William N. (1997), Modern portfolio theory, Journal of Banking & Finance

Eldabi, T. (2002), Quantitative and qualitative Decision-Making Methods in Simulation Modeling, Management Decision, 40(1):64-73

Eriotis, N. (2005). The Effect Of Distributed Earnings And Size Of The Firm To Its Dividend Policy: Some Greek Data. International Business & Economics Journal, 4(1), 45–51.

Ernst & Young (2010), analysis and valuation of insurance companies

Ezirim, C. (2002), Contending with the Challenges and Imperatives of Marketing Insurance Services in a Sub-Sahara African Country: The case of Nigeria". Journal of Economics and Business Sciences, Vol. No

Fama, F. and Jensen, C. (1983), Agency problems and residual claims, Journal of Law and Economics

Fowler, FJ. (1986), Survey research methods, 3rd edn, Sage Publications, USA

Frankfurter, G. K., (2004). A comparative analysis of perception of. Research in International Business and Finance, 18(1), 73-

Frederic, S. Stanley, G. and Eakins,(2009),financial Markets and Institutions, 7th edition Gill,

A. and Mathur, N. (2011), factors that affect potential growth of Canadian firms, journal of applied finance & banking

Grose, V. (1992) ,Risk Management from a technical Perceptive: The Geneva Papers onRisk Insurance Vol. 12

Gujarat, N. (2003) ,Basic Econometric, 4th edn, USA: McGraw–Hill

Hailu Z., (2007). Insurance in Ethiopia: Historical Development, Present Status and Future Challenges. Addis Ababa.

Hair, J. and Black, W. (2006), Multivariate data analysis, New York, Prentice Hall

Haiss, P. and Sumegi, K. (2008), The Relationship of Insurance and Economic Growth in Europe, A Theoretical and Empirical Analysis

Hanna Mariam Dejen(2015): Determinants of insurance companies’ profitability in Ethiopia AAU

Hansen, M. T. (1999). Administrative Science Quarterly: The Role of Weak ties in Sharing Knowledge Across Organizational Sub Units. Journal of Financial Management, 44(6), 82-111.

Hifza, M. (2011), determinants of insurance companies’ profitability: an analysis of insurance sector of Pakistan, Academic Research International, Volume 1

Holzheu, T. (2006), Measuring Underwriting Profitability of the Non-Life Insurance Industry, Swiss RE Sigma, No.3 12.

Hoyt, R. and Powell, S. (2006), Assessing Financial Performance in Medical Professional Liability Insurance, Journal of Insurance Regulation

Irukwu J.O (1994) Insurance Management in Africa Cayton press (W.A) ltd, Ibadan, Nigeria

Ivamy (1993) General Principles of Insurance Law; Butter Worths London, Dublin and Edenborough , 6th Edition.

Johnson, R. B., (2004). Mixed methods research: A paradigm whose time has come. (7, Ed.) Educational Researcher, 33, 14–26.

Karthik, M. & Balamurugan, M. (2011) ,Performance of Insurance Industry in India

Kearney, S. (2010), Measuring Insurer Profitability, the Institutes, American Institute for Chartered Property Casualty Underwriters

Kerchar, M. (2008), Philosophical paradigms, inquiry strategies and knowledge claims: applying the principles of research design and conduct to taxation', E-Journal of Tax Research,

Khan, S, Bilal, J. and Tufail, S. (2013), Determinants of profitability panel data evidence from insurance sector of Pakistan, Elixir Fin. Mgmt.(Elixir International Journal)

Kihara, M. (2012), the Importance of Insurance its challenges and solutions

Appendices

Appendix A

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.801045	Prob. F(10,66)	0.6281
Obs*R-squared	8.334025	Prob. Chi-Square(10)	0.5962
Scaled explained SS	8.001296	Prob. Chi-Square(10)	0.6287

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 05/29/17 Time: 03:06

Sample: 1 77

Included observations: 77

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006456	0.006028	1.071065	0.2880
LIQ	-0.000290	0.000915	-0.316847	0.7524
LEV	0.000214	0.003339	0.064202	0.9490
RISK	6.85E-06	0.000315	0.021743	0.9827
SIZE	-0.000477	0.000357	-1.335906	0.1862
GRO	4.22E-05	0.000140	0.302073	0.7635
INF	7.32E-06	0.000177	0.041456	0.9671
GDP	-0.011113	0.011899	-0.933924	0.3537
TA	-0.001831	0.001930	-0.948614	0.3463
TRO	-0.000488	0.001448	-0.337165	0.7371
UR	0.106256	0.042584	2.495192	0.0151

R-squared	0.108234	Mean dependent var	0.000734
Adjusted R-squared	-0.026882	S.D. dependent var	0.001194
S.E. of regression	0.001210	Akaike info criterion	-10.46550
Sum squared resid	9.66E-05	Schwarz criterion	-10.13067
Log likelihood	413.9217	Hannan-Quinn criter.	-10.33157
F-statistic	0.801045	Durbin-Watson stat	1.793798
Prob(F-statistic)	0.628086		

Appendix B

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.613533	Prob. F(2,64)	0.2072
Obs*R-squared	3.696191	Prob. Chi-Square(2)	0.1575

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 05/29/17 Time: 03:05

Sample: 1 77

Included observations: 77

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.013072	0.149143	-0.087648	0.9304
LIQ	-0.000654	0.022334	-0.029297	0.9767
LEV	-0.005736	0.080622	-0.071150	0.9435
RISK	-0.002514	0.007684	-0.327185	0.7446
SIZE	0.003394	0.008823	0.384612	0.7018
GRO	0.001185	0.003429	0.345603	0.7308
INF	-0.001079	0.004276	-0.252228	0.8017
GDP	-0.021802	0.285423	-0.076383	0.9394
TA	0.000520	0.046671	0.011152	0.9911
TRO	0.009285	0.035181	0.263922	0.7927
UR	-0.157665	1.025518	-0.153742	0.8783
RESID(-1)	0.212721	0.131669	1.615573	0.1111
RESID(-2)	-0.147258	0.133703	-1.101387	0.2749

R-squared	0.048002	Mean dependent var	-1.59E-16
Adjusted R-squared	-0.130497	S.D. dependent var	0.027262
S.E. of regression	0.028986	Akaike info criterion	-4.091276
Sum squared resid	0.053772	Schwarz criterion	-3.695568
Log likelihood	170.5141	Hannan-Quinn criter.	-3.932996
F-statistic	0.268922	Durbin-Watson stat	2.003213
Prob(F-statistic)	0.992117		

Appendix C

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.613533	Prob. F(2,64)	0.2072
Obs*R-squared	3.696191	Prob. Chi-Square(2)	0.1575

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 05/29/17 Time: 03:05

Sample: 1 77

Included observations: 77

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.013072	0.149143	-0.087648	0.9304
LIQ	-0.000654	0.022334	-0.029297	0.9767
LEV	-0.005736	0.080622	-0.071150	0.9435
RISK	-0.002514	0.007684	-0.327185	0.7446
SIZE	0.003394	0.008823	0.384612	0.7018
GRO	0.001185	0.003429	0.345603	0.7308
INF	-0.001079	0.004276	-0.252228	0.8017
GDP	-0.021802	0.285423	-0.076383	0.9394
TA	0.000520	0.046671	0.011152	0.9911
TRO	0.009285	0.035181	0.263922	0.7927
UR	-0.157665	1.025518	-0.153742	0.8783
RESID(-1)	0.212721	0.131669	1.615573	0.1111
RESID(-2)	-0.147258	0.133703	-1.101387	0.2749

R-squared	0.048002	Mean dependent var	-1.59E-16
Adjusted R-squared	-0.130497	S.D. dependent var	0.027262
S.E. of regression	0.028986	Akaike info criterion	-4.091276
Sum squared resid	0.053772	Schwarz criterion	-3.695568
Log likelihood	170.5141	Hannan-Quinn criter.	-3.932996
F-statistic	0.268922	Durbin-Watson stat	2.003213
Prob(F-statistic)	0.992117		