



Determinants of insurance companies' profitability in Ethiopia

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Student declaration

I declare that the thesis for the M.Sc. degree in accounting and finance at the University of Addis Ababa, hereby submitted by me, is my original work and have not previously been submitted for a degree at this or any other University, and that all references materials contained therein have been duly acknowledged.

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Abstract

Determinants of Insurance Companies' Profitability in Ethiopia

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This paper examined the effects of firm specific factors (size of company, leverage ratio, liquidity ratio, loss ratio/ risk, tangibility of assets, growth and managerial efficiency) and macroeconomic factors (economic growth and inflation) on profitability peroxide by ROA. The sample in this study includes ten insurance companies for six years (2008-2013). Secondary data obtained from the financial statements (Balance sheet and Profit/Loss account) of insurance companies, and financial publications of MOFED are analyzed. 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. Accordingly the insurance managers and policy makers should give high concern to firm-specific determinants of profitability. Moreover, it is better to use longer period of observation to adequately investigate the effects of macroeconomic variables on profitability of insurance companies and further research should investigate based on insurance type (life and non life) that would provide better insight for determinants of insurance company profitability.

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List of Abbreviations

BJ: Bera-Jarque test

CLRM: Classical linear regression models

CPI: Consumer price index

D-W stat: Durbin-Watson Statistics

DW: Durbin–Watson

EG: Economic growth

GDP: Growth domestic product

GR: Firm growth

IR: Inflation rate

Lev: Leverage

Los: Loss ratio

LQ: Liquidity

MGE: Management efficiency

MOFED: Ministry of finance and economic development

NBE: National bank of Ethiopia

ROA: Return on assets

ROE: Return on owner's equity

ROI: Return on investment

ROIC: Return on invested capital

SWOT: Strength, weakness, opportunity and threat

TOA: Tangibility of asset

Chapter one

Introduction

This chapter deals with introduction of the study which consists of background of the study, background of insurance companies in Ethiopia, statement of the problem, the objectives of the study, methods adopted, hypothesis of the study, significance of the study, scope of the study, limitations of the study, and organization of the paper.

1.1 Background of the study

The performance of any firm not only plays the role to increase the market value of that specific firm but also leads towards the growth of the whole industry which ultimately leads towards the overall prosperity of the economy. The financial system comprises of financial institutions, financial instruments and financial markets that provide an effective payment, credit system and risk transfer and thereby facilitate channelizing of funds from savers to the investors of the economy. According to Mishkin and Stanley (2009), financial markets and institutions not only affect our everyday life but also involve huge flows of funds – trillions of dollars-throughout our economy, which in turn affect business profits, the production of goods and services, and even the economic well-being of countries other than the United States. Indeed, a well-functioning financial markets and institutions like insurance companies are one of the most important key factors in producing high economic growth, and poorly performing financial markets and institutions are one of the reasons that many countries in the world remain desperately poor.

Insurance companies are not only providing the mechanism of risk transfer but also helps to channelizing the funds in an appropriate way to support the business activities in the economy. Insurance companies have importance both for businesses and individuals as they indemnify the

losses and put them in the same positions as they were before the occurrence of the loss. In addition, insurers provide economic and social benefits in the society i.e. prevention of losses, reduction in anxiousness, fear and increasing employment. Therefore, the current business world without insurance companies is unsustainable because risky businesses have not a capacity to retain all types of risk in current extremely uncertain environment.

Every firm is most concerned with its profitability. One of the most frequently used tools of financial ratio analysis is profitability ratios which are used to determine the company's bottom line. Profitability measures are important to company managers and owners alike. If a small business has outside investors who have put their own money into the company, the primary owner certainly has to show profitability to those equity investors. There has been a growing number of studies recently that test for measures and determinants of firm profitability. Financial industry's profitability has attracted scholarly attention in recent studies due to its importance in performance measurement. However, in the context of the Insurance sector particularly in developing countries or emerging markets, based on literature reviews, it has received little attention and also the existing studies consider only firm specific factors they ignored the effects of macroeconomic factors.

1.2 Background of insurance companies in Ethiopia

Financial institutions are the most important engines of economic growth for any economy in the world. In Ethiopia the major financial institutions operating are banks, insurance companies and micro-finance institutions. For the last decade, the Ethiopian financial institutions in general and insurance companies in particular have shown the impressive progress in terms of number and

service which not only creates the employment opportunities but also enhances the business activities in the Ethiopian economy.

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, modern insurance service, which were introduced in Ethiopia by foreigners, mark out their origin as far back as 1905 when the bank of Abyssinia began to transact fire and marine insurance as an agent of a foreign insurance company. According to a survey made in 1954, there were nine insurance companies that were providing insurance service in the country. With the exception of Imperial Insurance Company that was established in 1951, all the remaining of the insurance companies were either branches or agents of foreign companies. In 1960, the number of insurance companies increased considerably and reached 33. At that time insurance business like any business undertaking was classified as trade and was administered by the provisions of the commercial code (Hailu Zeleke 2007).

According to Hailu Zeleke (2007), the first significant event that the Ethiopian insurance market observation was the issuance of proclamation No. 281/1970 and this proclamation was issued to provide for the control and regulation of insurance business in Ethiopia. Consequently, it created an insurance council and an insurance controller's office, it's strange impact in the sector. The controller of insurance licensed 15 domestic insurance companies, 36 agents, 7 brokers, 3 actuaries and 11 assessors in accordance with the provisions of the proclamation immediately in the year after the issuance of the law.

Accordingly as stated by the office mentioned above, the law required an insurer to be a domestic company whose share capital (fully subscribed) not to be less than Ethiopian Birr 400,000 for a general insurance business, Birr 600,000 in the case of long-term insurance business and Birr 1,000,000 to do both long-term and general insurance business. The proclamation defined 'domestic company' as a share company having its head office in Ethiopia and in the case of a company transacting a general insurance business at least 51% and in the case of a company transacting life insurance business, at least 30% of the paid-up capital must be held by Ethiopian nationals or national companies.

After four years that is after the enactment of the proclamation, the military government that came to power in 1974 put an end to all private enterprises. Then all insurance companies operating were nationalized and from January 1, 1975 onwards the government took over the ownership and control of these companies and merged them into a single unit called Ethiopian Insurance Corporation. In the years following nationalization, Ethiopian Insurance Corporation became the sole operator. After the change in the political environment in 1991, the proclamation for the licensing and supervision of insurance business heralded the beginning of a new era. Immediately after the enactment of the proclamation in the 1994, private insurance companies began to increase. As of January, 2014 there are 17 public and private owned insurance companies operate in Ethiopia (National bank of Ethiopia 2014). The list of those insurance companies is stated on table 1.1.

Table 1.1 List of insurance companies operating in Ethiopia as on January 2014

S/N	Name	Type	Establishment year
1	Ethiopian Insurance Corporation	General	1975
2	Africa Insurance company S.C	General	1994
3	Awash insurance company S.C	General	1994
4	National Insurance company of Ethiopia S.C	General	1994
5	Nyala Insurance company S.C	General	1995
6	Nile Insurance company S.C	General	1995
7	The United Insurance S.C	General	1997
8	Global Insurance Company S.C	General	1997
9	NIB insurance company	General	2002
10	Lion Insurance Company S.C	General	2007
11	Ethio-Life and General Insurance S.C	Life and General	2008
12	Oromia Insurance Company S.C	General	2009
13	Abay Insurance Company	General	2010
14	Birhan Insurance company S.C	General	2011
15	Tsehay Insurance S.C.	General	2012
16	Lucy insurance share company	General	2012
17	Buna insurance company	General	2013

Source: National bank of Ethiopia, 2014

1.3 Statement of the problem

The best performance of any industry in general and any firm in particular plays the role of increasing the market value of that specific firm coupled with the role of leading towards the growth of the whole industry which ultimately leads to the overall success of the economy. 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 determinants that determine profitability in the industry is then the problem to be investigated. Therefore, the determinants of insurance company's profitability have attracted the interest of academicians, practitioners and institutional supervisors.

Literature shows that most of the studies conducted on the banking sectors. However few studies are conducted on the insurance sector. Also in Ethiopia, to the best of the researcher knowledge, there are few studies which examined profitability of insurance company's determinants. Additionally most of the studies focused only on firm specific factors. Indicating that factors affect the financial performance of insurance companies has not been adequately investigated. While taking in to consideration the inadequacy of empirical investigation into the determinants of insurance company's profitability, the researcher attempts to fill such gaps in empirical evidence, in addition to firm specific factors, by including macroeconomic factors that determine profitability of insurance companies in Ethiopia.

1.4 Objective of the study

In this section the general and specific objective of the study are discussed.

1.4.1 General Objective of the study

The main objective of the study is to identify and compare the determinants of insurance companies' profitability in Ethiopian for the period of 2008 to 2013.

1.4.2 Specific objectives

- i. To identify the firm specific and macroeconomic factors that determines the profitability of insurance companies in Ethiopia.
- ii. To find out the relationship between the profitability of insurance companies and firm specific and macroeconomic determinants.
- iii. To rank the determinants according to their degree of influence on insurance companies profitability.

1.5 Research hypothesis

In many quantitative studies, writers use research questions. However, a more formal statement of research employs hypotheses. These hypotheses are predictions about the outcome of the results, and they may be written as alternative hypotheses specifying the exact results to be expected (more or less, higher or lower of something). They also may be stated in the null form, indicating no expected difference or no relationship between groups on a dependent variable (Creswell 2009). Therefore, in order to achieve the objective of the study, the following hypotheses were developed regarding the determinants of profitability in Ethiopia insurance companies based on different empirical research and theoretical reviewed made.

- H1.** Size has a positive and significant effect on profitability of insurance companies in Ethiopia.
- H2.** Leverage has a negative and significant effect on profitability of Ethiopian insurance companies.
- H3.** Tangibility of assets of insurance companies has negative and significant impact on their profitability
- H4.** Liquidity ratio has a negative and significant impact on profitability of insurance companies in Ethiopia.
- H5.** Loss ratio has a negative and significant impact on profitability of insurance companies in Ethiopia.
- H6.** There is a positive and significant impact of firm growth on profitability of Insurance companies in Ethiopia
- H7.** Managerial efficiency has positive and significant impact on profitability of insurance companies in Ethiopia.
- H8.** Economic growth has positive and significant impact on profitability of insurance companies in Ethiopia.
- H9.** Inflation has negative and significant impact on profitability of insurance companies in Ethiopia.

1.6 Significance and expected outcome of the study

The main reason for this study is that the researchers have not paid enough attention to this subject in Ethiopia. Most of the studies previously focused on banks not on insurance companies as well as

some focused on only analysis of financial performance not on factors affecting financial performance. Despite there are some studies that examine factors that affect the profitability of insurance companies in Ethiopia but they focused only on firm specific factors. Therefore, this study drops light on the scarcity of these types of study in Ethiopia.

Government interested in knowing which companies operate successfully or failed to take the necessary measures to avoid crises of the bankruptcy in these companies. Administration interested in identifying indicators of success and failure to take the necessary actions to improve the performance of the company and choose the right decisions. Investors interested in such studies in order to protect their investment, and directing it to the best investment. Customers interested in knowing the ability of insurance companies to pay their obligations based on the indicators of success of the companies. Accordingly government, management, investor and customer benefit from the result that emerged from this study.

This research also have significant role to better understand what determines financial institution's such as insurance companies profitability in Ethiopia. Moreover, the researcher also contributes that this study can potentially serve as a stepping stone for further research in the area.

1.7 Scope and limitation of the study

Even though there are other formal, semiformal and informal financial institutions, the study focused only on the determinants of profitability of insurance companies in Ethiopia and also the scope of the study confined merely on the quantitative measure of determinates of insurance companies profitability in Ethiopia without any overall performance measurement tool.

Financial statement presentation of the studied insurance companies were different each other, even in a single company different financial statement format used over the year. It makes difficult

to take the intended data but the researcher unravel this difficulties by contacting respective insurance companies department which is responsible for issuing financial statement.

1.8 Organization of the paper

The reminder of this paper is organized as follows: chapter two deals with review of related literatures. The third chapter is about methodology of the study and the forth chapter includes data analysis and interpretations. Finally, the last chapter presents the conclusion and recommendations of the paper.

Chapter two

Literature review

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

2.1 Theoretical review

In this section concept of insurance companies, definition and measurement of profitability and profitability related theories are presented.

2.1.1 Concept of insurance companies

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

Insurance serves a number of valuable economic functions that are similar and largely distinct from other types of financial intermediaries. According to Malik (2011) insurance plays a crucial role in development commercial and infrastructural businesses. From the latter perspective, it promotes financial and social stability; mobilizes and channels savings; supports trade, commerce and entrepreneurial activity and improves the quality of the lives of individuals and the overall wellbeing in a country. Michael Koller (as cited in Abate 2012) suggests that insurance companies are playing the role of transferring risk and channeling funds from one unit to the other (financial intermediation). This implies that insurance companies are helping the economy of a country one way by transferring and sharing of risk which can create confidence over the occurrences of uncertain event and in another way insurance companies like other financial institutions plays the role of financial intermediation so as to channel financial resources from one to the other.

Even if there are numerous type of insurances it can be divide in to two broad categories based on their role to the economy. Those are general insurance companies and life insurance companies. General insurance companies and life insurance companies are different each other in terms of operation, investment activities, vulnerability and duration of liabilities. Life insurers are said to function as financial intermediaries while general insurers function as risk takers (Chen and Wong 2004).

2.1.2 Profitability

Profit is what is left over from income earned after you have deducted all costs and expenses related to earning the income and it is one of the main reasons for the continued existence of every business organization and also it is expected so as to meet the required return by owners and other outsiders. Profitability means ability to make profit from all the business activities of an

organization, company, firm, or an enterprise. It shows how efficiently the management can make profit by using all the resources available in the market. 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 is very important determinants of performance (Malik 2011).

Profitability ratios are an indicator for the firm's overall efficiency (Kabajeh and et al 2012). It's usually used as a measure for earnings generated by the company during a period of time based on its level of sales, assets, capital employed, net worth and earnings per share. Profitability ratios measures earning capacity of the firm, and it is considered as an indicator for its growth, success and control. Accordingly, the term 'profitability' is a relative measure where profit is expressed as a ratio, generally as a percentage.

According to Kabajeh and et al (2012) there are different ways to measure profitability such as: Return on assets (ROA) ratio, Return on owner's equity (ROE) ratio and return on investment (ROI). ROA ratio is calculated as net profit after tax divided by the total assets. This ratio measure for the operating efficiency for the company based on the firm's generated profits from its total assets whereas ROE ratio is calculated as net profit after tax divided by the total shareholders' equity. This ratio measures the shareholders rate of return on their investment in the company. Activity ratios are another group of ratios; it's usually used to measure the ability to optimize the use of the available resources. These ratios are other measures of operational efficiency and performance. Among this group of ratios is the turnover to capital employed or return on investment (ROI) ratio. ROI ratio is calculated as net profit after tax divided by the total paid in

capital. It measures the firm's efficiency in utilizing invested capital. In other words this ratio expresses company's ability to generate the required return (expected return) based in using and managing the invested resources by the shareholders. Kabajeh and et al (2012) also suggest that ROA and ROE are the most used profitability ratios in the analysis.

Al-Shami (2008) similarly argued that ROA, return on equity (ROE) and return on invested capital (ROIC) are measurement of profitability. 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. Hardwick and Adams (1999) and Malik (2011) are among others, who have suggested that although there are different ways to measure profitability it is better to use ROA.

According to the study by Swiss Re (2008), Profits are determined first by underwriting performance (losses and expenses, which are affected by product pricing, risk selection, claims management, and marketing and administrative expenses); and second, by investment performance, which is a function of asset allocation and asset management as well as asset leverage. The first division of the decomposition shows that an insurer's ROE is determined by earnings after taxes realized for each unit of net premiums (or profit margin) and by the amount of capital funds used to finance and secure the risk exposure of each premium unit (solvency). That is why most researchers use ROA as a measure of profitability in financial institutions.

2.1.3 Profitability related theories

There is no universal theory on the determinants of profitability. There are several useful conditional theories that attempt to approach the determination of profitability, each from different aspect. This section discussed those theories.

2.1.3.1 Traditional theory

This theory suggests that minimizing the cost of capital when the optimal level of debt capital is employed maximizes the value of the firm (Brealey and Myer as cited in Kaguri 2013). It's based on the argument that at low levels of debt, increased leverage doesn't increase the cost of debt hence; the replacement of an expensive source of capital (equity) with a cheaper source (debt) translates to an increase in the value of the firm. This creates borrowing incentives to firms. The main reasons behind this are: first, investors who hold debt are informed of the increased risk at 'moderate' debt levels and will continue demanding the same return on debt. They argue that it's only at 'excessive' debt levels that they demand a higher return. The Second reason is that debt funds are cheaper than equity funds carries it implies that the cost of debt plus the cost of equity together on weighted basis will be less than the cost of equity, which existed on equity before debt financing; that's the weighted average costs of capital will decrease with the use of debt (Brealey and Myers and Alexander as cited in Kaguri 2013).

The validity of the traditional view is questioned on the ground that the market value of the firm depends upon its net operating income and risk attached to it. The form of financing doesn't change net operating income nor the risk attached to it but simply the way in which the income is distributed between equity holders and debt holders (Brealey and Myers as cited in Kaguri 2013). Modigliani and Miller criticize the traditional view on the ground that the assumption that the cost

of equity remains unaffected leverage up to some reasonable limit does not provide sufficient justification for such an assumption. They do not really add very much to the riskiness of the share (Kaguri 2013).

2.1.3.2 Resource based theory

This theory addresses performance differences between firms using asymmetries in knowledge (Chen as cited in Kaguri 2013). At the corporate strategy level, theoretical interest in economies of scope and transaction costs focus on the role of corporate resources in determining the industrial and geographical boundaries of the firms' activities. At the business strategy level, explorations of the relationships between resources, competition and profitability include the analysis of competitive imitation, the appropriability of returns to innovations, and the role of imperfect information in creating profitability differences between competing firms.

A firm's ability to earn a rate of profit in excess of its cost of capital depends upon the attractiveness of the industry in which it is located and its establishment of competitive advantage over rivals. Industrial organization economics emphasizes industry attractiveness as the primary basis for superior profitability, the implication being that strategic management is concerned primarily with seeking favorable industry environments, locating attractive segments and strategic groups within industries and moderating competitive pressures by influencing industry structure and competitors behavior. Thus, a resource based theory of the firm entails a knowledge based perspective.

2.1.3.3 Pecking order theory

Pecking order refers to a hierarchy of financing beginning with retained earnings followed by debt financing and finally external equity financing. The theory basically suggests that companies with high profitability may use less debt than other companies because they have less need to raise funds externally and because debt is the 'cheapest' and most 'attractive' external option when compared to other methods of capital raising (Kaguri 2013). Donaldson followed by Myers suggests that management follows a preference ordering when it comes to financing.

First, internal financing of investment opportunities is preferred because it avoids the outside scrutiny of suppliers of capital and also there no floatation costs associated with the use of retained earnings. Secondly, straight debt is preferred. Not only does debt result in less intrusion in management by suppliers of capital, but floatation costs are less than with other types of external financing. Also asymmetric information and financial signaling considerations come into play. The third in order of preference is preferred stock, which carries some features of debt. This is followed by various hybrid securities such as convertible bonds. Finally the least desirable security to issue is straight equity. The investors are the most intrusive, floatation costs are highest and there's likelihood to be an adverse signaling effect (Kaguri 2013).

2.1.3.4 Agency theory

Agency theory states that management and owners have different interests (Jensen and Meckling as cited in Kaguri 2013). According to this theory agency costs arise from conflicts of interest between shareholders and managers of the company. Agency costs are defined as the sum of monitoring costs incurred by the principal, bonding costs incurred by the agent, and residual loss.

Lower agency costs are associated with better performances and thus higher firm values, all other things being equal.

Companies that separate the functions of management and ownership will be susceptible to agency conflicts (Lambert as cited in Kaguri 2013). They show that regardless of who makes the monitoring expenditures, the cost is borne by stake holders. Debt holders, anticipating monitoring costs, charge higher interest. The higher the probable monitoring costs, the higher the interest rate and the lower the value of the firm to its shareholders all other things being the same.

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 and also it is generally agreed the influence of macroeconomic factor on insurance companies' profitability. It is therefore very important to identify what are these factors as it can facilitate management, government, investor and customer. To do so, it is better to see what factors were considered in previous times by different individuals. The following points are some of the work of others among many others.

2.2 Empirical literature review

Insurance 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. However, in most literatures, profitability with regard to insurance companies frequently expressed in as a function of internal determinants. Besides internal determinants, in this research the researcher was included a set of macroeconomic determinants. The relevant literature may be categorized as: the effects of firm specific factors on profitability

and the effects of macroeconomics factors on profitability. The following are the variables used in researches concerning profitability of insurance companies and related financial institutions.

2.2.1 The effects of firm specific factors on profitability

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.

2.2.1.1 Firm size

Several studies have been conducted to examine the effect of firm size on firm profitability. Malik (2011); Abate Gashaw (2012); Daneiel and Tilahun (2013); and Sumaira and Amjad (2013) are among other researchers who investigate effect of size on firm profitability. However, the results are inconsistency.

In many literatures, it has been suggested that company size is positively related to financial performance. For instance, B. Charumathi (2012) examined the factors determining the profitability of life insurers operating in India taking return on asset as dependent variable and the results of the study indicate that profitability of life insurers is positively and significantly influenced by size. Almajali and et al (2012) conducts a study with the aim of investigating the factors that mostly affect financial performance of Jordanian Insurance Companies. Similarly the results showed a positive statistical effect of Size on the financial performance of Jordanian Insurance Companies. Malik (2011) also find significantly positive association between size of the company and profitability. In Sumaira and Amjad (2013) study also suggests size as significant determinants of profitability. Additionally, Abate Gashaw (2012) and Daneiel and Tilahun (2013)

in their study from the regression results identified size as most important determinant factors of profitability and it is positively related.

The main reasons behind this summarized as follows. First, large insurance companies normally have greater capacity for dealing with adverse market fluctuations than small insurance companies. Second, large insurance companies usually can relatively easily recruit able employees with professional knowledge compared with small insurance companies. Third, large insurance companies have economies of scale in terms of the labor cost, which is the most significant production factor for delivering insurance services.

However, by drawing a framework from the financial economics literature and utilizing a dynamic panel data design covering 2004-2009 Olaosebikan (2012) examines the profitability of micro-life insurers in Nigeria. The results indicate that the profitability of micro-life insurers is not influenced by factors such as size of firms.

2.2.1.2 Liquidity

Liquidity from the context of insurance companies is the probability 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).

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. However, according to the theory of agency costs, high liquidity of assets could increase agency

costs for owners because managers might take advantage of the benefits of liquid assets (Adams and Buckle 2000). In addition, liquid assets imply high reinvestment risk since the proceeds from liquid assets would have to be reinvested after a relatively short period of time. Unquestionably, reinvestment risk would put injure on the profitability of a company. In this case, it is, therefore, likely that insurance companies with less liquid assets outperform those with more liquid assets.

Empirical evidences with regard to liquidity revealed almost inconsistent results. For instance, B. Charumathi (2012) examined the factors determining the profitability of life insurers operating in India taking return on asset as dependent variable. Their results indicate that profitability of life insurers is positively and significantly influenced by liquidity. Almajali and et al (2012) conducts a study with the aim of investigating the factors that mostly affect financial performance of Jordanian Insurance Companies and results showed that liquidity have a positive statistical effect on the financial performance of Jordanian Insurance Companies. Boadi and et al (2013) study also find a positive relationship between liquidity and profitability of insurance firms in Ghana.

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

2.2.1.3 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. In contrast to this pecking order theory of capital structure is designed to minimize the inefficiencies in the firms' investment decisions. Due to asymmetric information cost, firms prefer

internal finance to external finance and, when outside financing is necessary, firms prefer debt to equity because of the lower information costs. The pecking order theory states that there is no optimal capital structure since debt ratio occurs as a result of cumulative external financing requirements. Insurance leverage could be defined as reserves to surplus or debt to equity.

Naveed and et al (2011) examines the impact of firm level characteristics (size, leverage, tangibility, risk, growth, liquidity and age) on performance of listed life insurance companies of Pakistan over seven years from 2001 to 2007. The results of Ordinary Least Square (OLS) regression analysis indicate, in addition to size and risk, leverage are important determinants of performance of insurance companies of Pakistan. In addition to Naveed and et al (2011) study several studies have been conducted to examine the effect of leverage on firm profitability. However, the results are inconsistency.

In the study of B. Charumathi (2012); Malik (2011) and Abate Gashaw (2012) leverage have negatively and significantly influence the insurance companies profitability. But in the study of Almajali and et al (2012); Boadi and et al (2013) and Daneiel and Tilahun (2013) leverage have positively and significantly influence the insurance company profitability. Although, the results of Olaosebikan (2012) study regard to leverage indicates that the profitability of micro-life insurers is not influenced by leverage.

2.2.1.4 Tangibility of asset

Tangibility has two conflicting effects on profitability. On the one hand, according to Himmelberg and et al. (1999) tangibility of asset has positive effect on profitability and they show that tangible assets are easily monitored and provide good collateral and thus they tend to mitigate agency conflicts between shareholders and creditors. On the other hand, tangibility of asset may have a

negative correlation, because firms with high levels of tangible assets tend to be less profitable. Firms with high levels of intangible assets (in form of liquidity) have more investment opportunities in the long term, innovation and research and development (Deloof 2003, and Nucci and et al. 2005).

Some studies have been conducted to examine the effects of Tangibility of asset on insurance companies profitability, however, the result are conflicting. The general objective of the Boadi and et al (2013) study was to find out the determinants of the profitability of insurance firms in Ghana by using Secondary data on financial reports collected from sixteen insurance firms in Ghana for the period 2005 to 2010. This study discovered negative relationship between tangibility and profitability. On the other hand, Daneiel and Tilahun (2013) conduct a study to investigate the impact of firm level characteristics on performance of insurance companies in Ethiopia and its result show statistically significant and positively relation of tangibility with return on total asset. In the study of Abate Gashaw (2012) tangibility of assets is not significantly related with profitability.

2.2.1.5 Risk/ loss ratio

Organizations that engage in risky activities are likely to have more volatile cash flows than entities whose management is more averse to risk-taking. As a consequence, insurers that underwrite risky business will need to ensure that good standards of management are applied to mitigate their exposure to underwriting losses ex-ante and maximize returns on invested assets ex-post. This could improve annual operational performance by encouraging managers to increase cash flows through risk taking. On the other hand, excessive risk-taking could adversely affect the annual performance of insurers and reinsurance companies. Furthermore, higher annual insurance

losses will tend to increase the level of corporate management expenses ex-post (e.g., claims investigation and loss adjustment costs) that could further exacerbate a decline in reported operational performance. In contrast, insurers and reinsurance companies with lower than expected annual losses are likely to have better operational performance because, for example, they do not incur such high monitoring and claims handling costs (Daniel and Tilahun 2013).

Most researches which investigate effect of risk on profitability have the same opinion with negative and significant effect of risk on profitability. Jian-Shen and et al (2006) provide evidence regarding the influence of capital structure and operational risk on profitability of life insurance industry in Taiwan. The finding shows that the operational risk exerts a negative and significant effect on profitability. Malik (2011) investigated firm specific factors (age of company, size of company, volume of capital, leverage ratio and loss ratio) determinants of profitability in insurance companies of Pakistan. Regarding to Loss ratio it also find negative but significant relationship with profitability. The results of Daneiel and Tilahun (2013) study also revealed that Loss ratio (risk) is important determinants of performance of insurance companies in Ethiopia and it has statistically significant and negatively related with ROA.

In the study of Abdelkader Derbali (2014) which examines the impact of firm-specific characteristics (size, leverage, tangibility, risk, growth, liquidity and age) on the performance of eight insurance companies in Tunisia a period of 8 years (2005-2012). In contrast to the above researchers it finds statistically insignificant relationship between risk and profitability.

2.2.1.6 Firm growth

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

Abdelkader Derbali (2014) examines the impact of firm-specific characteristics (size, leverage, tangibility, risk, growth, liquidity and age) on the performance of eight insurance companies in Tunisia a period of 8 years (2005-2012). The analysis of the results from a regression on panel data indicates that the variables size, age and premium growth are the most important determinants of the performance of insurance companies measured by ROA ratio. Abate Gashaw (2012) examined the effects of firm specific factors (age of company, size of company, volume of capital, leverage ratio, liquidity ratio, growth and tangibility of assets) on profitability proxied by ROA in Ethiopia. Similar with the study of Abdelkader Derbali (2014), in Abate Gashaw study from the regression results also growth identified as most important determinant factors of profitability and positively related with profitability.

2.2.1.7 Managerial efficiency

Almajali (2012) study aimed at investigating the factors that mostly affect financial performance of Jordanian Insurance Companies. The study population consisted of all insurance companies' enlisted at Amman stock Exchange during the period (2002-2007) which count (25) insurance company. The results showed that the Management competence index have a positive statistical effect on the financial performance of Jordanian Insurance Companies. The researcher

recommended that there must be a significant need to have highly qualified employees in the top managerial staff. Similar to Almajali (2012), Habtamu Negussie (2012) in his study empirical results shows that managerial efficiency have a strong influence on the profitability of private commercial banks in Ethiopia.

2.2.2 The effects of macroeconomics variables on profitability: - Economic growth and Inflation

Turning to the external determinants, several factors have been suggested as impacting on profitability and these factors include macroeconomic environment such as economic growth and inflation. The effect of economic growth and inflation on the profitability of insurance company is not adequately investigated, Olaosebikan (2012); Poposki and et al (2012); Hussain (2012) and Chen-Ying Lee (2014) are among other investigate the effects of economic growth and inflation on insurance company profitability. There are more empirical evidences on the effects of economic growth and inflation on banking sector profitability compared to insurance company profitability.

Poposki and et al (2012) provides an overview of performances of insurance sector in the Republic of Macedonia, including SWOT analysis, as well as analysis of determinants of the insurance companies' profitability for the period from 2002 to 2011. Findings of the profitability analysis confirm that in addition to expense ratio and claims ratio, economic growth and inflation as important factors that determine Macedonian insurance companies' profitability.

Hussain (2012) in his study uses firm level data of 39 companies of insurance industry of Pakistan for the period 2006-11. Findings of this study suggest that based on overall regression results, macroeconomic environment and inflation significant impact on profitability of insurance companies in Pakistan.

The study by Vong and Chan (2005) examines the impact of bank characteristics as well as macroeconomic and financial structure variables on the performance of the Macao banking industry. Their results show that rate of inflation exhibits a significant relationship with banks' performance.

Kozak (2011) conclude that increases of the GDP growth positively impact profitability of non-life insurance companies during the integration period. Habtamu Negussie (2012) study empirical results show that levels of GDP have a strong influence on the profitability of private commercial banks in Ethiopia. On the study of Birhanu Tsehay (2012) also GDP has positive and significant effect on both asset return and interest margin of the bank.

Chen-Ying Lee (2014) investigates the relationship between firm specific factors and macroeconomics on profitability in Taiwanese property-liability insurance industry using the panel data over the 1999 through 2009 time period. By using operating ratio and return on assets (ROA) for the two kinds of profitability indicators to measure insurers' profitability. With related to economic growth rate the results show that it has significant influence on profitability in operating ratio model but insignificant influence on profitability in ROA model.

Sufian and Chong (2008) study suggests that inflation has a negative impact on bank profitability, while the impacts of economic growth have not significantly explained the variations in the profitability of the Philippines banks. Naceur (2003) 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.

2.3 Conclusion and Knowledge gap

For the reason that its importance in performance measurement financial industry's profitability has attracted scholarly attention in recent studies and there has been a growing number of studies recently that test for measures and determinants of insurance companies profitability. Liao and Chen (2006); Boadi and et al (2011); Malik (2011); Kozak (2011); Charumathi (2012); Al-Soub and et al (2012); Abate Gashaw (2012); Olaosebikan (2012); Hussain (2012); Poposki and et al (2012); Boadi Sumaira and Amjad (2013); Daneiel and Tilahun (2013); and Chen-Ying Lee (2014) are some of researchers who conduct about the determinants of insurance companies profitability. The results found by the researchers mentioned above in the empirical revealed inconsistencies according to the country and the type of insurance company in which the research is conducted regarding selected variables.

Moreover, as it can see in empirical evidences, most literatures focus on factors affecting profitability of banks rather than insurance companies. Therefore, there are fewer literatures concerning insurance companies as compared to banks and most of them focus on firm specific factors. As per knowledge of the researcher there are few researches which considered the effects of macroeconomic factors on the profitability of insurance companies such as Kozak (2011); Hussain 2012; Poposki and et al (2012) and Chen-Ying Lee (2014). And also in Ethiopia it has received little attention. Accordingly, this research includes both firm specific and macroeconomic factors of insurance companies' profitability and adds literature on determinants' of profitability of insurance companies in Ethiopia.

Chapter three

Research design and methodology

This chapter provides the detail steps and procedures used to conduct the analysis of determinants of insurance companies' profitability in Ethiopia. It includes the approach adopted to examine the effect of main determinants on profitability, the type of data used and the techniques employed to collect the data, the sampling mechanism including sample size, the methods utilized to manage and analyze the data, and the process of constructing empirical model with identification and measurement of its components, measurement and selection of variables, expected relations between the dependent and independent variables.

3.1 Research approach

In terms of investigative study there are two common approaches to business and social research: deductive, which idea is to create theory on the basis of the available literature, as well as existing findings and test it through observation and inductive, where first you make the observation, then devise theory as a result of the data analysis. These studies examine the previous findings in the literature and apply the model in Ethiopian insurance companies. Therefore, the methodological approach that the researcher used in order to achieve the objective of this research was deductive research method.

3.2 Research method

The methodology of carrying out this research is based on the objectives of the paper and the availability of relevant information. The decision to choose a specific methodology should be based on its suitability to achieve research objective (Bryman, 1988). Denzin and Lincoln (1998)

asserted that qualitative research emphasizes the process of discovering how the social meaning is constructed and stresses the relationship between the investigator and the topic studied. Conversely, quantitative research is based on the measurement and the analysis of causal relationships between variables. Therefore to comply with the objective of this research, the paper is primarily based on quantitative research, which constructed an econometric model to identify and measure the determinants of profitability.

3.3 Conceptual framework

The conceptual framework is developed to explain the determinants of profitability. By summarizing previous studies, firm size, leverage, liquidity, tangibility of assets, loss ratio (risk), firm growth rate, managerial efficiency, economic growth and inflation are selected to be included as independent variables that expected to influence insurance companies' profitability as measured by ROA. Accordingly, the following hypotheses are tested by the study.

- H1.** Size has a positive and significant effect on profitability of insurance companies in Ethiopia.
- H2.** Leverage has a negative and significant effect on profitability of Ethiopian insurance companies.
- H3.** Tangibility of assets of insurance companies has negative and significant impact on their profitability
- H4.** Liquidity ratio has a negative and significant impact on profitability of insurance companies in Ethiopia.
- H5.** Loss ratio has a negative and significant impact on profitability of insurance companies in Ethiopia.

H6. There is a positive and significant impact of firm growth on profitability of Insurance companies in Ethiopia

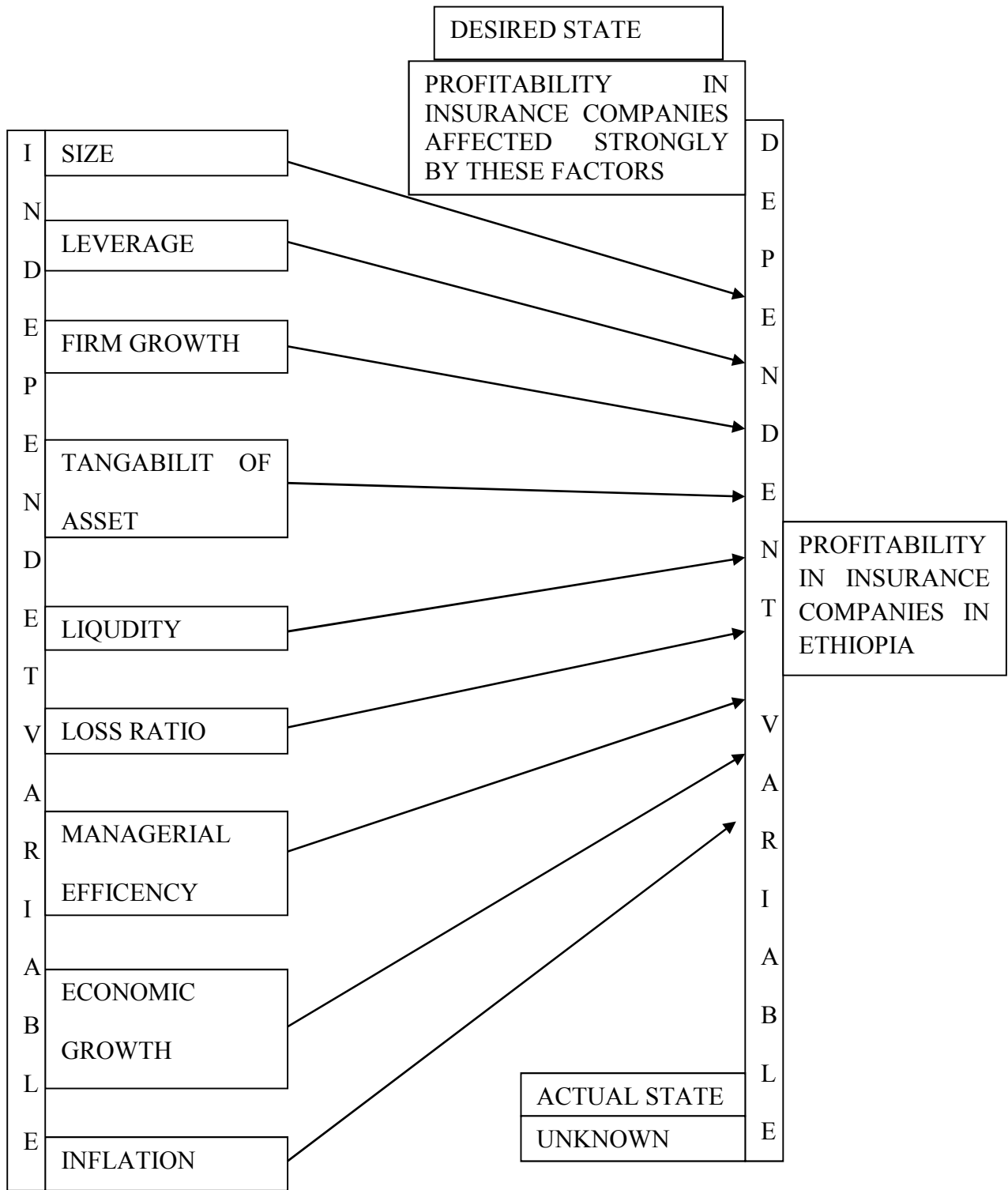
H7. Managerial efficiency has positive and significant impact on profitability of insurance companies in Ethiopia.

H8. Economic growth has positive and significant impact on profitability of insurance companies in Ethiopia.

H9. Inflation has negative and significant impact on profitability of insurance companies in Ethiopia.

The model of the study and expected relation between profitability of insurance companies and determinants are shown in Figure 3.1 and Table 3.1 respectively.

Figure 3.1: Model of study



Source: Self developed (2014)

Table 3.1 Expected relation between profitability in insurance companies and determinants

Determinants	Expected relation
Firm Size	+
Leverage	-
Firm Growth	+
Tangibility of asset	-
Liquidity	-
Loss ratio	-
Managerial efficiency	+
Economic growth	+
Inflation	-

Source: Self developed (2014)

3.4 Data and data sources

To comply with the research objectives, the researcher focused on secondary data, which are obtained from financial statement of individual insurance companies and financial publication of Ministry of Finance and Economic Development (MOFED). And this is because the advantage of using secondary data includes the higher quality data compared with primary data collected by researchers themselves; the feasibility to conduct panel evidence, which is the case in this study; and the permanence of data, which means secondary data generally provide a source of data that is both permanent and available in a form that may be checked relatively easily by others.

The data collected and analyzed is a balanced panel of ten insurance companies in Ethiopia operating over the last six years. Panel data selected by the researcher in order to meet the research

objectives as it best fits better than the single time series or cross-sectional alone. Panel data analysis is a method of studying a particular subject within multiple sites, periodically observed over a defined time frame.

Chris Brookes (2008) in his book clearly presents the advantage of using panel data in the following way. First, and perhaps most importantly, we can address a broader range of issues and tackle more complex problems with panel data than would be possible with pure time-series or pure cross-sectional data alone. Second, it is often of interest to examine how variables, or the relationships between them, change dynamically (over time). To do this using panel data by combining cross-sectional and time series data, one can increase the number of degrees of freedom, and thus the power of the test, by employing information on the dynamic behavior of a large number of entities at the same time and combining the data in this way can also help to mitigate problems of multi-co linearity that may arise if time series are modeled individually. Third, structuring the model in an appropriate way, we can remove the impact of certain forms of omitted variables bias in regression results. Therefore the combination of time series with cross-sections can enhance the quality and quantity of data in ways that would be impossible using only one of these two dimensions.

3.5 Sampling mechanism

To achieve the research objectives purposive sampling was used so as to include all insurance companies established and serving with in the specified period of time from June 2008 to June 2013 as show in table 3.2. In order to that the size for sample was ten insurance companies operating over the period of six years. The rest of insurance companies were not having a chance

to be included. Six years is assumed to be relevant because five years and above is the recommended length of data to use in most finance literatures (Abate 2012).

Table 3.2 List of insurance companies established and serving from June 2008 to June 2013 as per the year of their establishment

No	Insurance companies	Type	Date of establishment
1	Ethiopian Insurance Corporation	General	1975
2	National Insurance Company of Ethiopia S.C	General	23/09/1994
3	Awash Insurance Company S.C	General	1/10/1994
4	Africa Insurance Company S.C	General	1/12/1994
5	Nyala Insurance Company S.C	General	6/1/1995
6	Nile Insurance Company S.C	General	11/4/1995
7	Global Insurance Company S.C.	General	11/1/1997
8	The United Insurance S.C	General	1/4/1997
9	NIB Insurance Company	General	1/5/2002
10	Lion Insurance Company S.C	General	1/7/2007

Source: - National bank of Ethiopia (2014)

3.6 Data analysis

The collected data was analyzed by using descriptive statistics, correlations, and multiple linear regression analysis. The collected data were analyzed by using E-views 6.

3.6.1 Descriptive analysis

This descriptive study was produced mean, minimum, maximum and standard deviation for each variable for Ethiopian insurance companies during 2008- 2013.

3.6.2 Correlation analysis

This study shows how variables are related with each other. The results of this analysis represent the nature, direction and significant of the correlation of the variables considered under this study.

3.6.3 Multiple regression analysis

The Multiple regression analysis is used to examine the relationship between the profitability of Ethiopian insurance companies and independent variables such firm size, leverage, liquidity, tangibility of assets, loss ratio (risk), growth rate, managerial efficiency , economic growth and inflation. This method is used when independent variables are correlated with one another and with the dependent variable (Al-shami 2008). The result of a regression analysis is an equation that represents the best prediction of a dependent variable from several other independent variables.

The following regression equation is estimated as follow:

$$ROA_{i,t} = \alpha + \beta_1 Size_{i,t} + \beta_2 Lev_{i,t} + \beta_3 ToA_{i,t} + \beta_4 LQ_{i,t} + \beta_5 Los_{i,t} + \beta_6 GR_{i,t} + \beta_7 MGE_{i,t} + \beta_8 IR_{i,t} + \beta_9 EG_{i,t} + \epsilon_{i,t}$$

Where:

- **ROA_{i,t}**: the profitability in insurance company *i* at time *t* (dependent variable) in this study return on assets (The return on assets (ROA) defined as the insurance companies before tax profit over total assets) is used to measure profitability.
- **Size**: Size of companies;
- **Lev**: Leverage;
- **TOA**: Tangibility of assets;
- **LQ**: Liquidity;
- **Los**: Loss ratio
- **GR**: Firm Growth
- **MGE**: Managerial efficiency
- **IR**: Inflation rate
- **EG**: Economic growth
- **β₁... β₉**: coefficient of independent variables
- **ε** is error term.
- **i** is insurance companies 1 to 10

In this model, all independent variables enter the regression equation at once to examine the relationship between the whole set of predictor and dependent variable. The aim of this analysis is

to determine which independent variables are highly significant to determine the company's profitability.

3.7 Measurement of variable

According to Al-Shami (2008) there are three important measures of firm's performance that are profitability, size and survivorship. Profitability indicates the firm's ability to achievement of the rate of return on a company's assets and investment funds. With regard to size, it is a firm's ability to expand its size could be a reflection of its success as earnings are reinvested and external funding could be easily found. Whereas survivorship indicates the ability to earn sustainable development concerning competitive advantages beyond initial opportunities like an economic upturn or the early growth stage of an industry.

This research concerned only on profitability of insurance companies in Ethiopia as a financial performance and the internal and external factors that determine profitability. In line with earlier studies that examined the determinants of insurance companies' profitability, accounting ratios are used as measurement of individual variables. In order to select the determinants as independent variables in the model, previous studies are reviewed and this reviewed study suggests that the following nine factors exert strong impact on insurance companies' profitability as internal and external determinants as a result they are adopted in the model. The following is the information of variables selected:

Profitability

There are many different ways to measure profitability, as shown in previous studies. In this study net income before tax to total assets (ROA) was used to measure profitability, because most of the studies regarding the subject used this ratio to determine the profitability of insurance companies.

Firm size

In this study company size was measured by total asset in the log value. Company Size = Natural log of total assets

Leverage

Leverage is the amount of debt used to finance a company's assets. A company with significantly more debt than equity is considered to be highly leveraged. The leverage in this study was measured by total debt to total equity value of the company.

Loss ratio

This variable measured as the ratio of incurred claims to earned premiums. It is measured as: Loss ratio = Net claims incurred / Net earned premiums

Tangibility of asset

Tangibility is defined in respect to this study as the ratio of fixed assets to total assets. Tangibility= Fixed assets divided by total assets.

Liquidity

Liquidity of the insurance companies in this study was measured by the ratio of current assets to current liabilities. Liquidity = Current Assets/Current Liabilities.

Firm growth

In this study growth of the insurance companies is measured by the percentage change in total assets of insurance companies

Managerial efficiency

The ratio of operating expense to operating income was used to measure managerial efficiency and the higher the ratio the lower the managerial efficiency. $\text{Managerial efficiency} = \frac{\text{Operating Expense}}{\text{Operating Income}}$

Economic growth: The yearly real Gross Domestic Product (GDP) growth rate was used.

Inflation rates (IR): The annual inflation rate was used.

In this chapter the detail steps and procedures used to conduct the analysis of determinants that determine profitability of insurance companies in Ethiopia was provided. In the following chapter results of the study and its interpretation will be presented.

Chapter four

Data analysis and interpretations

This chapter deals with the results of the study which include descriptive statistics of variables, correlation results for dependent and explanatory variables, diagnosis test for the regression models, and regression analysis for profitability measures, ROA. The data analysis was done by using E-views 6 software.

4.1 Descriptive statistics

In this section descriptive statistics for the dependent; Return on Asset (ROA) and explanatory variables; size, leverage, liquidity, tangibility of asset, loss ratio/risk, firm growth, managerial efficiency, inflation and economic growth involved in the regression model are presented. Mean, maximum, minimum and standard deviation values are included in the table 4.1 below. These figures are gives overall description about data used in the regression models.

Table 4.1 Descriptive statistics of variables

Dependent variables	Mean	Max	Min	Std. Dev	Observations
ROA	0.071955	0.189324	-0.278876	0.065121	60
Independent variables	Mean	Max	Min	Std. Dev	Observations
SIZE	8.369861	9.344042	7.366159	0.417162	60
LEV	1.612448	4.543566	0.108408	1.003954	60
LQ	2.121867	7.109860	0.541078	1.461902	60
TOA	0.134414	0.361466	0.029675	0.075338	60
LOS	0.368313	0.821892	-0.840000	0.478899	60
GR	0.269812	0.671372	0.013337	0.153129	60
MGE	0.492046	1.477481	-1.507376	0.330853	60
IR	0.209580	0.443913	0.081000	0.142101	60
EG	0.103500	0.114000	0.085000	0.009598	60

Source: - E-views output from financial statement of insurance companies and annual report of MOFED (2014)

The above table indicates that the mean values of all the variables ranges from minimum of 0.07 for ROA to a maximum of 8.4 for size. The average profitability as measured by ROA for Ethiopian insurance companies during the study period is about 0.07 and the value of the standard deviation for ROA is 0.06 which implies the presence of good variations among the profitability across the insurance companies included for this study. The maximum and minimum values of ROA were 0.19 and -0.28 respectively. That means the most profitable insurance earned 0.19 of net income from a single birr of asset investment. And the maximum losses incurred by insurance are a loss of 0.28 cents on each birr of asset investment.

With regard to size as shown in the table above, the average size is 234,347,864.31 and there exists significant variation across the sample insurance companies for the reason that the mean value of size is 8.37 and the value of the standard deviation is 0.42. Hence the varieties of size among insurance companies might have significant impact on profitability of insurance companies. The maximum and minimum values of size were 9.34 and 7.37 respectively.

The mean value and standard deviation of leverage is 1.62 and 1.004 respectively. This implies that there were large differences among leveraged level as measured by debt to equity ratio across the sample insurance companies under this study and it also indicates those insurance companies are leveraged because they used debt than equity for financing purpose. The trade of theory suggests a positive relationship between profitability and leverage ratio. It says more profitable firms should prefer debt financing to get benefit from tax shield. In contrast to this, pecking order theory implies due to asymmetric information cost, firms prefer internal finance to external finance and, when outside financing is necessary, firms prefer debt to equity because of the lower information costs. This theory states that there is no optimal capital structure since debt ratio

occurs as a result of increasing external financing requirements. The maximum value of leverage was 4.54 and the minimum was 0.11.

The mean value of liquidity ratio is 2.122 and the value of standard deviation is 1.46 with 7.11 maximum and 0.54 minimum values. This result shows that Ethiopian insurance companies are liquid and also shows the existence of large variation among the liquidity level for insurance companies under consideration. According to the theory of agency costs, high liquidity of assets could increase agency costs and reinvestment risk. Unquestionably, agency cost and reinvestment risk would put injure on the profitability of a company. In this case, it is, therefore, likely that insurance companies with less liquid assets outperform those with more liquid assets (Adams and Buckle 2000). However, 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. Therefore it is expected that insurance companies with more liquid assets will outperform those with less liquid assets.

The mean value of fixed asset to total asset ratio for Ethiopian insurance companies during the study period is about 0.13 and the value of the standard deviation is 0.075 which implies 13.44 percent of total asset of insurance company is fixed asset and the presence of good variations among the tangibility of asset across the insurance companies included for this study. According to Himmelberg and et al. (1999) tangibility of asset has positive effect on profitability because tangible assets are easily monitored and provide good collateral and thus they tend to mitigate agency conflicts between shareholders and creditors. However, according to Deloof (2003) and Nucci and et al. (2005) tangibility of asset may have a negative correlation, because firms with high levels of intangible assets (in form of liquidity) have more investment opportunities in the

long term, innovation and research and development. The maximum and minimum values were 36.15 and 2.97 percent respectively.

The average value of loss ratio/ risk as measured by the ratio of incurred claims to earned premiums is 0.37 with a standard deviation of 0.48. Therefore, it indicates that, the Ethiopian insurance companies are low risky because they incurred an average 0.37cents of claim from a single birr of premium earned and there exists moderate variation among the level of riskiness across those insurance company included in this study. The maximum and minimum values were 0.82 and -0.84 respectively.

Table 4.1 shows the average growth of Ethiopian insurance companies' were 26.98 percent over studied period and the value of standard deviation of growth is 0.15 which shows that there were no important variations among the level of growth as measured by the change in total assets over the years across the Ethiopian insurance companies. The maximum growth was 67.14 percent and the minimum growth was 1.33 percent.

The average value for managerial efficiency (MGE) has become 0.49 with a standard deviation of 0.331. Therefore, there exists significance variation among the managerial efficiency across the sample insurance company included in this study. The mean value 0.49 indicates that insurance companies are efficient because their operating expense per unit of operating return is low, which means for 0.49 birr operating expense there is one birr operating income. The maximum and minimum managerial efficiency were -1.51 and 1.48 respectively.

The average inflation that occurred over the years is 20.94 percent with the standard deviation of 0.14. This indicates that there was no significant variation in inflation within the study period

cover. The maximum and minimum inflation over the year were 44.39 and 8.1 percent respectively.

Table 4.1 shows the average real Gross Domestic Product (GDP) growth rate in Ethiopia over the year is 10.35 with standard deviation of 0.0096. It indicates that there was very low variation in economic growth. Within the studied year the maximum real GDP growth rate was 11.4 and the minimum real GDP growth rate was 8.5.

4.2 Correlation analysis

The correlation coefficient represents the linear relationship between two variables. A correlation matrix is used to ensure the correlation between explanatory variables. Dancey and Reidy's (2004) categorize value of the correlation coefficient and strength of correlation like 1 value of correlation coefficient means perfect, 0.7-0.9 value of correlation coefficient means strong, 0.4-0.6 value of correlation coefficient means moderate and 0.1-0.3 value of correlation coefficient means weak.

Cooper and Schindler, Mashotra, and Hair and *et al.* (as cited in Habtamu 2012) suggested that the correlation coefficient can be 0.75 but a correlation coefficient above 0.8 between independent variables should be corrected for because it is a sign for multicollinearity problem. They also argued that correlation coefficient below 0.9 may not cause serious multicollinearity problem.

4.2.1 Correlation analysis between return on asset and independent variables

The ROA reflects the ability of an insurance management to generate profits from the insurance assets and this profitability measure is correlated with other independent variables either positively or negatively. In table 4.2 below, the correlation analysis was undertaken between profitability measure; ROA and explanatory variables; size, leverage, tangibility of asset, liquidity, loss ratio/ risk, firm growth, managerial efficiency, inflation rate and economic growth.

As it can be seen from the table below, there was a positive correlation between ROA and size, tangibility of asset, firm growth, managerial efficiency and economic growth. While, there is a negative correlation between ROA and leverage, liquidity, loss ratio/ risk and inflation rate.

Table 4.2 Correlation matrix between ROA and independent variables

	ROA	SIZE	LEV	TOA	LQ	LOS	GR	MGE	IR	EG
ROA	1									
SIZE	0.475985	1								
LEV	-0.38853	-0.18032	1							
TOA	0.34789	-0.13739	0.343836	1						
LQ	-0.18441	0.017803	-0.16582	-0.39081	1					
LOS	-0.39352	-0.1198	0.513667	0.15968	0.046975	1				
GR	0.341133	-0.18706	-0.24236	-0.5458	0.337109	-0.01276	1			
MGE	0.756493	0.117223	-0.15507	-0.21035	0.320016	-0.21934	0.287882	1		
IR	-0.16353	-0.15583	0.08387	0.24628	-0.07735	0.057842	-0.31926	-0.2584	1	
EG	0.23328	-0.18993	0.026188	0.058036	-0.07978	-0.04105	-0.10067	-0.1496	0.357321	1

Source: E-views output from financial statement of insurance companies and annual report of MOFED (2014)

As per the table above, the correlation coefficient between ROA and inflation rate was -0.164 which is the smallest correlation coefficient as compared to other variables, this mean that inflation

rate has small association with profitability which is opposite to previous study's findings. But, managerial efficiency and ROA and size and ROA have highest positive correlation coefficient compared to other variables which is 0.76 and 0.48 respectively. This result shows that the managerial efficiency and size of insurance companies is highly correlated with the profitability measured by return on asset. This means that as these variables increase ROA also will increase.

4.2.2 Correlation analysis between independent variables

The correlation between explanatory variables; size, leverage, liquidity, tangibility of asset, loss ratio/ risk, firm growth, managerial efficiency, inflation and economic growth included in this study are presented and analyzed.

According to table 4.3 below, the growth of insurance companies with tangibility of asset and loss ratio/ risk with leverage is highly correlated as compared to other independent variables included in this study with the coefficient of -0.546 and 0.514 respectively. Since their coefficient is less than 0.70 we can conclude there is no serious multicollinearity problem as supported with empirical evidence.

Table 4.3 Correlation matrix between explanatory variables

	SIZE	LEV	LQ	TOA	LOS	GR	MGE	IR	EG
SIZE	1								
LEV	-0.18032	1							
LQ	0.017803	-0.16582	1						
TOA	-0.13739	0.343836	-0.39081	1					
LOS	-0.1198	0.513667	0.046975	0.15968	1				
GR	-0.18706	-0.24236	0.337109	-0.5458	-0.01276	1			
MGE	0.117223	-0.15507	0.320016	-0.21035	-0.21934	0.287882	1		
IR	-0.15583	0.08387	-0.07735	0.24628	0.057842	-0.31926	-0.2584	1	
EG	-0.18993	0.026188	-0.07978	0.058036	-0.04105	-0.10067	-0.1496	0.357321	1

Source: E-views output from financial statement of insurance companies and annual report of MOFED (2014)

As per the above table, the size of insurance company is negative related with all independent variables except liquidity and managerial efficiency. Leverage has a positive correlation coefficient value with tangibility of asset, loss ratio/risk, inflation rate and economic growth and a negative correlation coefficient value with size, liquidity, growth and managerial efficiency. Liquidity is negatively correlated with leverage, tangibility of asset, inflation rate and economic growth, but it is positively correlated with size, loss ratio/ risk, growth, and managerial efficiency.

Tangibility of asset has a positive correlation coefficient with leverage, loss ratio/risk inflation rate and economic growth. But, with the other independent variables it is negatively correlated. The loss ratio/risk of insurance company is positively related with all independent variables except size, growth and managerial efficiency. The growth of insurance company is negative related with all independent variables except liquidity and managerial efficiency. Managerial efficiency has a negative correlation coefficient with all independent variables except with size, liquidity and growth. Inflation rate has a positive correlation coefficient with leverage, tangibility of asset loss ratio/risk and economic growth. But, it has a negative correlation coefficient value other explanatory variables. Economic growth has a positive correlation coefficient with leverage, tangibility of asset and inflation rate. But, with the other independent variables it is negatively correlated.

4.3 Regression analysis results and discussions

In this section regression analysis for insurance profitability measures: ROA have been undertaken to understand the relationship between insurance profitability and determinants of insurance profitability. There are broadly two classes of panel data estimator approaches that can be employed in empirical research: fixed effects models and random effects models. This requires the high concern when the researcher employed the panel data approaches. Therefore; the first issue is the choice between fixed effects and a random effects model based on the Hausman test. Since the p-value is insignificant at 5% level of significance (see Appendix II) random effect was selected.

4.3.1 Diagnosis tests

The study was testing the Classical Linear Regression Models (CLRM) assumptions. The researcher finds that the characteristics of the model and proposed variables of this research are not violating the classical assumptions. These are checked by testing each assumption.

Heteroskedasticity: white test

The assumption of homoscedasticity stated that the variance of the errors is constant. If the residuals of the regression have systematically changing variability over the sample, that is a sign of heteroscedasticity. White test was used for general test of heteroscedasticity. Since, table 4.4 below, shows that the test result for regression analysis's p -values are considerably in excess of 0.05, it indicates that there is no evidence for the presence of heteroscedasticity in this study.

Table 4.4 Heteroskedasticity Test: White

F-statistic	1.417671	Prob. F(53,6)	0.3534
Obs*R-squared	55.56304	Prob. Chi-Square(53)	0.3784
Scaled explained SS	79.85368	Prob. Chi-Square(53)	0.0700

Source: E-views output from financial statement of insurance companies and annual report of MOFED (2014)

Autocorrelation: Durbin- Watson (DW) test

According to Chris brooks (2008), assumption three said that the CLRM's disturbance terms are the covariance between the error terms over time 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 "autocorrelated" or that they are "serially correlated". To test this assumption the Durbin-Watson (DW) statistical test was applied. The Durbin-Watson Statistics

(D-W stat.) from the table 4.5 below indicates that the DW test result was 1.94 which is approaching to 2 and hence no evidence for the presence of autocorrelation.

Table 4.5 Durbin–Watson statistical test

Model	Durbin-Watson stat
ROA	1.940133

Source: E-views output from financial statement of insurance companies and annual report of MOFED (2014)

Additionally, in Lower and upper 1% critical values for Durbin–Watson for this study the value of dl and du is 1.25 and 1.60 respectively. Based on those, the table 4.6 below shows that Durbin-Watson stat fail between du and 4-du. This indicates that there is no autocorrelation in this study.

Table 4.6 Test of autocorrelation

Model	DW stat	dl	Du	4-du	4-dl
ROA	1.940133	1.25	1.6	2.4	2.75

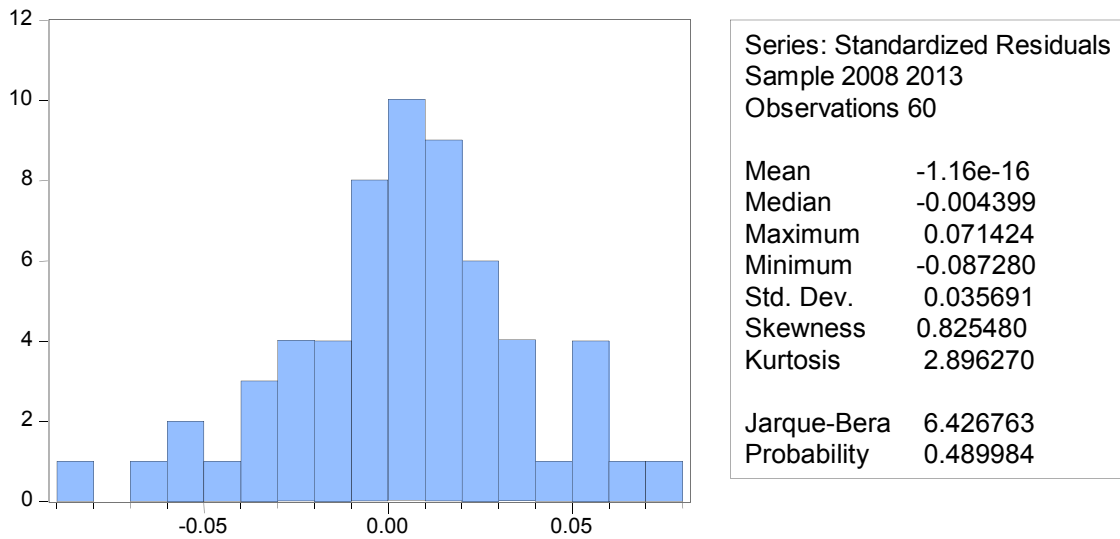
Source: - Chris Brooks (2008)

Normality test

Chris Brooks (2008) noted that in order to conduct hypothesis test about the model parameter, the normality assumption must be fulfilled. The normality assumption is about the mean of the residuals is zero. According Chris Brooks (2008) one of the most commonly applied tests for normality is the Bera-Jarque (BJ) test. BJ uses the property of a normally distributed random variable that the entire distribution is characterized by the first two moments, the mean and the variance. If the residuals are normally distributed, the histogram should be bell-shaped and the

Bera-Jarque statistic would not be significant. This means that the p -value given at the bottom of the normality test screen should be bigger than 0.05 to not reject the null of normality at the 5% level.

Figure 4.1 Normality test



Source: E-views output from financial statement of insurance companies and annual report of MOFED (2014)

Thus, the study were test for this assumption and as it can be seen from the above figure, the histogram is bell-shaped, the Bera-Jarque result was a probability of 0.48 and the kurtosis is approach to 3, this implies that the residuals are normally distributed in this study.

4.3.2 Summary of findings

This section presents over all the empirical results of the regressions. To examine the relationship between ROA and independent variables regression analysis was undertaken. This regression model was applied:

$$ROA_{i,t} = -0.68 + 0.082Size_{i,t} - 0.035Lev_{i,t} + 0.19ToA_{i,t} - 0.0009LQ_{i,t} - 0.056Los_{i,t} + 0.036GR_{i,t} + 0.13MGE_{i,t} - 0.0007IR_{i,t} + 0.29EG_{i,t} + \epsilon_{i,t}$$

In the following table coefficients, standard errors, t-values, and p-values for explanatory variables, and R-squared, Adjusted R-squared, Standard Error of regression, F-statistic, Prob (F-statistic) for the regression, and number of observations included in the study are presented.

Table 4.7 Regression analysis result between ROA and explanatory variables

Dependent Variable: ROA01

Method: Panel EGLS (Cross-section random effects)

Date: 10/26/14 Time: 13:57

Sample: 2008 2013

Periods included: 6

Cross-sections included: 10

Total panel (balanced) observations: 60

Swamy and Arora estimator of component variances

Variable	Coefficit	Std. Error	t-Statistic	Prob.
C	-0.681655	0.166134	-4.103051	0.0002
SIZE	0.081569	0.017247	4.729489	0.0000
LEV	-0.035034	0.010876	-3.221308	0.0022
LQ	-0.000906	0.003721	-0.243410	0.8087
TOA	0.190280	0.066105	2.878423	0.0462
LOS	-0.057750	0.019686	-2.933542	0.0327
GR	0.035671	0.012576	2.836341	0.0469
MGE	0.126611	0.012023	10.53095	0.0000
IR	-0.000712	0.024827	-0.028676	0.9772
EG	0.288140	0.361864	0.796265	0.4296
R-squared	0.855571	Mean dependent var	0.0162	
Adjusted R-squared	0.829574	S.D. dependent var	0.0554	
S.E. of regression	0.022841	Sum squared resid	0.0261	
F-statistic	32.91006	Durbin-Watson stat	1.9868	
Prob(F-statistic)	0.000000			

Source: E-views output from financial statement of insurance companies and annual report of MOFED (2014)

Adjusted R-squared is measured the goodness of fit of the independent variables in explaining the variations in insurance companies profitability measure ROA. As clearly described in Table 4.7 Adjusted R-squared value for the regression model was 0.83. This indicates the independent variables in this study jointly explain about 83 percent of the variation in the profitability of insurance companies' measure, ROA. The remaining 17 percent of the variation in the profitability of insurance companies explained by other variables which are not included in the model this research. Therefore, these independent variables together, are good independent variables of the profitability of insurance companies in Ethiopia. Beside this F-statistics (32.91) which is the used to measure the overall test of significance of the model was presented, and null hypothesis can be clearly rejected since the p-value is 0.0000 which is sufficiently low, the model is well fitted at 1 percent level of significance.

Size

The panel random effect estimation result of the study revealed that there exist a significant and positive relationship between size and profitability of insurance companies in Ethiopia with a regression coefficient of 0.082, t-statistics of 4.729 and p-value of 0.000. Thus the result of the regression output is consistent with the hypothesis of the study.

The regression result of this study is similar with the finding of different researchers. For instance, Malik (2011) finds significantly positive association between size of the company and profitability of insurance companies. Sumaira and Amjad (2013) study also suggests size as significant determinants of profitability. Additionally, in Abate Gashaw (2012) and Daneiel and Tilahun (2013) study from the regression results identified size as most important determinant factors of profitability and it is positively related.

Leverage

With a regression coefficient of -0.035, t-statistics of -3.221 and p-value of 0.0022 the regression results of the study show that there is a statistically significant negative relationship between leverage ratio of insurance companies and their profitability in Ethiopia at 1% significant level. For this reason, the results are reliable with the hypothesis of the study. Literatures in capital structure confirm that a firm's value will increase up to optimum point as leverage increases and then declines if leverage is further increased beyond that optimum level. 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.

Tangibility of assets

The regression results relating to tangibility of assets show that there is positive and statistically significant relationship between tangibility of assets and profitability of insurance companies in Ethiopia at 5% significant level. The regression coefficient is 0.19, t-statistics 2.878 and p-value of 0.0468. But the result is inconsistent with the hypothesis of the study. The regression result of this study regarding the effect of tangibility of assets of insurance companies on their profitability is similar with empirical evidences by Daneiel and Tilahun (2013) in Ethiopia. It revealed that there exists a positive and significant relationship between tangibility of assets and profitability of insurance companies in Ethiopia.

Liquidity

The results of the random effect regression regarding liquidity show that there is no significant relationship between liquidity ratio of insurance companies and their profitability in Ethiopia. As shown above in table 4.8, the regression coefficient of liquidity is -0.00091 with a t-statistics of -0.243 and significance value of 0.809. Thus from the results it can be conclude that there exists no relationship between liquidity and profitability of insurance companies in Ethiopia. Hence this result is not consistent with the hypothesis of the study. The result is similar with the finding of Daneiel and Tilahun (2013) and Sumaira and Amjad (2013) study which revealed that liquidity has statistically insignificant relationship with ROA. Although the results show no statistical significance between these variables, it can be concluded that the liquidity ratio of a firm still explains the variation in profitability of insurance companies negatively.

Loss ratio/ risk

The regression results of the study show that there is a statistically significant negative relationship between loss ratio/ risk of insurance companies and their profitability in Ethiopia at 5% significant level with a regression coefficient of -0.058, t-statistics of -2.934 and p-value of 0.0327. Therefore, the results are consistent with the hypothesis of the study. Empirical evidences with regard to loss ratio/ risk indicates statistically significant but negative relationship between Loss ratio/ risk and profitability of insurance companies. For instance Liao and Chen (2006); Malik (2011) and Daneiel and Tilahun (2013) found Loss ratio (risk) as important determinant of profitability of insurance companies and it having statistically significant and negatively related with ROA.

Firm growth

The results of the random effect regression analysis show that there is a positive and statistically significant relationship between firm growth rate and profitability of insurance companies in Ethiopia at 5% significant level with a regression coefficient of 0.036, t-statistics of 2.84 and p-value of 0.0469. For this reason the results are consistent with the hypothesis of the study. Insurance companies having more and more assets over the years have also better chance of being profitable for the reason that they do have internal capacity though it depends on their ability to exploit external opportunities. Abdelkader Derbali (2014) and Abate Gashaw (2012) in their study, similar with this study, they found a positive and statistically significant relationship between growth and profitability of insurance companies.

Managerial efficiency

As it can be seen from table 4.7, managerial efficiency as measured by the ratio of operating expense to operating income is statistically significant at 1 percent significant level with ROA. Which means management of operating expenses to income, have great contribution to improve profitability of insurance companies in Ethiopia. The regression coefficient is 0.127, t-statistics 10.531 and p-value of 0.0000. For this reason, the results are reliable with the hypothesis of the study. The result is similar with the findings of Almajali (2012) and Habtamu Negussie (2012) they conclude managerial efficiency has a strong influence on the profitability.

Economic growth and inflation

Regarding external variables table 4.7 show economic growths and inflation rate of the country has no significant effect on profitability of insurance companies in Ethiopia. As shown above in the regression result, the regression coefficient, t-statistics and significance value of economic growth is 0.288, 0.796 and 0.43 respectively and coefficient of inflation rate is -0.0007 with a t-statistics of -0.029 including significance value of 0.98. Thus from the results it can be concluded that there exists no relationship between economic growth and inflation rate with profitability of insurance companies in Ethiopia. It is inconsistency with the hypothesis of the study. The result of previous studies was also inconsistent. Some indicated that economic growth and inflation have significant relationship with insurance company's profitability with positive and negative effect respectively. For instance Vong and Chan (2005); Poposki and et al (2012); Hussain (2012); Habtamu Negussie (2012); and Birhanu Tsehay (2012) suggested economic growth and inflation as important factors that determine insurance companies' profitability and those have positive and negative effect on insurance companies' profitability respectively.

In contrast, similarly with the finding of this research, Naceur (2003) and Ayadi and Boujelbene (2012) concluded that the macroeconomic variables, economic growth and inflation, do not have a significant effect on profitability. Sufian and Chong (2008) study results suggest that inflation has a negative impact on profitability, while the impacts of economic growth have not significantly explained the variations in profitability. Amdemikael Abera (2012) in his study the relationship of inflation and profitability is found to be statistically insignificant. In the study of Chen-Ying Lee (2014) with related to economic growth rate the results show that it has significant influence on profitability in operating ratio model but insignificant influence on profitability in ROA model. Although the results show no statistical significance between these variables, it can be concluded

that the economic growth and inflation rate still explains the variation in profitability of insurance companies positively and negatively respectively.

- Regression coefficient of size at 0.082 indicates that when firm size increases by 1% the ROA will increase by 8.2%.
- Regression coefficient of Lev at -0.035 indicates that when leverage increases by 1% the ROA will decrease by 3.5%.
- Regression results of tangibility of asset indicate that as tangibility of asset increase by 1% ROA will also increase by 19%.
- The regression coefficient of LOS at -0.056 indicates that when loss ratio/ risk increases by 1% the ROA will decrease by 5.6%.
- Regression coefficient of GR at 0.036 indicates that when firm growth by 1% the ROA will increase by 3.6%.
- The regression coefficient of MGE at 0.13 indicates that when management efficiency increases by 1% the ROA will increase by 13%.

This chapter was all about the data analysis and interpretation of the study and the following chapter deals about the conclusion and recommendation of the overall study.

Chapter five

Conclusion and recommendation

A strong and healthy financial system is a precondition for sustainable economic growth of a given country. In order to survive negative shocks and maintain a good financial stability, the financial managers and policy makers should identify the key performance determinants of insurance companies. Because of this, the current study specified an empirical framework to examine the firm specific and macroeconomic factors affecting profitability of insurance companies as measured by ROA. This study used secondary data during the period 2008-2013 and the sample of 10 insurance companies. Descriptive statistics and regression analysis were performed to describe the profitability of insurance companies among insurance companies. The following sections discussed about the final conclusion remarks of the study and applicable recommendations.

5.1 Summary and Conclusion

- i. Descriptive analysis revealed the presence of good variations of profitability across the insurance companies included for this study and the mean value of size is 8.37 it implies that the average size (total asset) is 234,347,864.31. The leveraged mean value results suggest Ethiopian insurance companies are leveraged and also there were large differences among leveraged level across the sample insurance companies under this study. The mean value of liquidity ratio indicates that investigated insurance companies are liquid. The mean value of tangibility of asset implies 13.44 percent of total asset of considered insurance companies is fixed asset. The loss ratio/ risk mean value results shows Ethiopian insurance companies are low risky. The average growth of Ethiopian insurance companies were 26.98 percent over studied period. The mean value of managerial efficiency indicates that

insurance companies are efficient because their operating expense per unit of operating return is low.

- ii. The adjusted value of R square (0.83) indicates the independent variables in this study i.e. size, leverage, liquidity, tangibility of asset, loss ratio/ risk, firm growth, managerial efficiency, economic growth and inflation rate jointly explain about 83 percent of the variation in the profitability of insurance companies.
- iii. The coefficient of the size and managerial efficiency is positive and they are statistically highly significant determinants of profitability at 1% significance level. It reflecting that performance of large size insurance companies is better than small size companies and efficient managers have important effect on profitability of insurance companies in Ethiopia.
- iv. This study confirms a negative and highly significant relationship between leverage ratio and profitability in Ethiopia insurance companies at 1% significance level. This result implies that, insurers those uses less debt earned higher profitable than insurers those have high debt in Ethiopia. Thus, from the result it is obvious that highly profitable insurance companies are more likely relied on internally generated funds and equity capital than debt capital as the source of financing. The finding of this study also shows the negative and statistically significant relationship between loss ratio/ risk and profitability in Ethiopia insurance companies at 5% significance level.
- v. The analysis suggest that a positive and significant relationship between tangibility of asset and growth as independent variable and profitability of insurance companies in Ethiopia. It implies that insurance companies with high rate of fixed asset and growth in terms of their total assets are in a better position of being profitable.

vi. The beta values of explanatory variables liquidity and inflation are with a negative coefficient sign and the beta values of economic growth is a positive coefficient sign. However, liquidity, inflation, and economic growth are not statistically significant with the large p-values. Therefore, liquidity, inflation, and economic growth are not considered as powerful explanatory variables to define the profitability of insurance companies in Ethiopia.

5.2 Recommendations and future research

- i. Overall these empirical results provide evidence that the profitability of Ethiopian insurance companies is shaped by firm-specific factors that are affected by firm-level management. However, macroeconomic variables do not seem to significantly affect. So, the insurance managers and policy makers should give high concern to firm-specific determinants of profitability.
- ii. Management bodies of insurance companies should strive to give an emphasis to firm specific factors like size, leverage ratio, loss ratio/ risk, tangibility of asset, growth and managerial efficiency. Because, those firm specific factors have significant effect on profitability of the company.
- iii. The objective of this study was to examine the internal and external factors affecting profitability of insurance companies as measured by ROA for the period of 2008-2013. The study finds insignificant effect of macroeconomic factors. The studied period is considered as inflated period so further research on profitability in insurance companies, it is better to use longer period of observation to adequately investigate the effects of macroeconomic variables on profitability of insurance companies and further research should investigate based on insurance type (life and non-life) that would provide better insight for determinants of insurance company profitability.

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Appendix I: variables description

		Variables	Notations	Measurements	Hypothesized relationship
Dependent variable		profitability	ROA	Before tax profit/ Total assets	NA
Independent variable	Firm specific determinants	Size of companies	Size	Total asset in the log value	+
		Leverage	Lev	Debt to total equity value	-
		Tangibility of assets	TOA	Fixed assets / total assets	-
		Liquidity	LQ	Current Assets/Current Liabilities	-
		Loss ratio	Los	Net claims incurred / Net earned premiums	-
		Firm Growth	GR	percentage change in total assets of insurance companies	+
		Managerial efficiency	MGE	Operating Expense/ Operating Income	+
	Macroeconomic determinants	Inflation rate	IR	Annual inflation rate	-
		Economic growth	EG	The yearly real Gross Domestic Product (GDP) growth rate	-

Appendix II: Hausman Test for panel regression

Correlated Random Effects - Hausman Test

Equation: MAZ

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.639047	8	0.9998

Appendix III: Random Effects Regression result for the determinants of insurance companies profitability

Dependent Variable: ROA
 Method: Panel EGLS (Cross-section random effects)
 Date: 10/26/14 Time: 13:57
 Sample: 2008 2013
 Periods included: 6
 Cross-sections included: 10
 Total panel (balanced) observations: 60
 Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.68165	0.166134	-4.103051	0.0002
SIZE	0.081569	0.017247	4.729489	0.0000
LEV	-0.03503	0.010876	-3.221308	0.0022
LQ	-0.00090	0.003721	-0.243410	0.8087
TOA	0.190280	0.066105	2.878423	0.0462
LOS	-0.05775	0.019686	-2.933542	0.0327
GR	0.035671	0.012576	2.836341	0.0469
MGE	0.126611	0.012023	10.53095	0.0000
IR	-0.00071	0.024827	-0.028676	0.9772
EG	0.288140	0.361864	0.796265	0.4296

R-squared	0.855571	Mean dependent var	0.016108
Adjusted R-squared	0.829574	S.D. dependent var	0.055329
S.E. of regression	0.022841	Sum squared resid	0.026086
F-statistic	32.91006	Durbin-Watson stat	1.986775
Prob(F-statistic)	0.000000		