FACTORS AFFECTING PERFORMANCE OF ETHIOPIAN INSURANCE COMPANY

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Abstract

Insurance is one of the major risks mitigating mechanism in modern economy. The existence and survival of financially strong Insurance Companies is therefore inevitable. For Insurers to be reliable and financially sound, their profitability and most importantly knowingly what factors makes them profitable is very crucial objective. In order to achieve this objective, this study used quantitative research approach using Panel data covering eight year period from 2010–2017 for seven insurance companies. The study uses linear regression model to see the effect of independent variables, which were the factors under study, on dependent variable profitability proxied by ROA. Data was analyzed with a software Eviws8.The findings of the study showed that, inflation and leverage have statistically significant relationship with insurers' profitability. However, On the other hand, variables like Motor insurance, market share have positive and statistically insignificant relationship with insurers' profitability. Motor insurance is the other most important factor affecting profitability In addition, economic growth rate and inflation have negative and insignificant influence on profitability. The study provides evidence that, inflation and Leverage are most important factors affecting profitability of insurance companies Ethiopia.

Key Words: Ethiopian Insurance Companies, Insurance, Profitability

ACRONYMS/ABBREVIATIONS

GDP	Gross Domestic Products
INF	Inflation
LEV	Leverage
LOR	Loss Ratio
PBIT	Profit Before Interest and Tax
PBT	Profit Before Tax
MKS	Market Share
MOFEC	Ministry of Finance and Economic Cooperation
MOI	Motor insurance
NBE	National Bank of Ethiopia
NW	Net worth
OLS	Ordinary Least Square
REM	Random Effects Models
ROA	Return On Assets
ROE	Return on equity
ROTA	Return on total assets
TA	Total Assets
SIZ	Size
VOC	Volume of capital

Table of Contents

CHAPTER-ONE

INTRODUCTION

1.1. Background of the Study

A modern economy, the importance of financial institutions such as Banks, Insurance, saving and credit unions, Cooperatives and the likes is certain or clearly true and not open to doubt or argument. These institutions crucial role in facilitating and to make (something) smooth or slippery the economy of nations. Saunders and M.M Cornett (2012)the institutions perform essential function of channeling funds from those with surplus (supplier of funds) to those with shortage of funds (user of funds) Frederic & Eakins (2011) financial institutions not only affect our everyday life but also involve huge flows of , which in turn affect business profits, the production of goods and services, and even the well-being of country Dereje Workie (2016) stated that financial institutions serve as medium of exchange and facilitate business activities, support mobilization of resources savings and allocate resources to activities with highest returns, follow up investments exert corporate governance, and offer a diversity of financial instruments.

Abate (2016) stated that financial institutions such as insurance companies play in insuring economic activity and contribute to the stability of the financial system in particular and the economy of concerned country in general. Nerved et at (2017) the efficiency of financial intermediation and transfer of risk can affect economic growth while at the same time insolvencies can result in systemic crises which have unfavorable consequences for economy as a whole. part of the important segment of the financial sector Hails and Sumegi(2016) , the insurance plays an important role in the economy of most developed and developing countries contributing to economic growth, efficient resource allocation, reduction of transaction costs, of liquidity, facilitation of economics of scale in investment, and spread of financial losses .

Insurance companies has 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 losses. In addition insurers provide economic and social benefits in the society, that is, prevention of losses reduction in anxiousness, fear and increasing employment. Insurance is a financial product

that legally binds the insurance company to pay losses of the policy holder when a specific event occurs. The insurer accepts the risk that the event will occur in exchange for a fee, the premium. The insurer, in turn, may pass on some of that risk to other insurers or reinsurers. Insurance makes possible ventures that would otherwise be prohibitively expensive if one party had to absorb all the risk.

According to Haifa Malik (2012) profitability is one of the most important objectives of financial management since one goal of financial management to maximize the owners 'wealth. Profitability is very important measure of performance. A business that is not profitable cannot survive. Conversely, a business that is highly profitable has the ability to reward its owners with large return on their investment. Hence, the ultimate goal of a business entity is to earn profit order to make sure the sustainability of the business in prevailing market conditions. Pandey (1980) defined the profitability as the ability of a business, whereas he interprets the term profit in relation to other elements. A financial benefit is realized when the amount of revenue gained a business activity exceeds the expenses, costs and taxes needed to sustain the activity Although there are numerous approaches, generally, insurers' profitability is estimated through the examination of premium and investment income and of the underwriting results or of the overall operating performance.

In General important role that insurance companies play in an economy entails their financial strength and exist especially in spite of difficult. To keep track of this financial in good condition: solid and reliability knowing the affect insurers' profitability and identifying them clearly is important job for and strong financial objective of this study will be to assess the factors affecting insurance companies eight purposively selected insurance companies are taken as a sample from a total of 17 insurance companies in Ethiopia. Quantitative research approach will be financial statements of the companies were used as sources of secondary data.

The role of financial institutions in the economy of a country in general and insurance in particular and their efficient and effective financial system through mobilization, risk transfer and intermediation. Therefore, financial institutions, funds and transfers risks from one economic unit to another economic units so as to trade and resources Arrangement. The efficiency of

financial intermediation and transfer of risk can affect growth while at the same time institutional insolvencies can result in systemic which have expressing disapproval consequences for the economy as a whole. Hence, the role that financial institutions such as insurance companies remain in financing and economic activity and contribute to the stability of the financial system in particular the stability of the economy of concerned country in general is part of not able to do something: having the qualities or abilities that are needed to do something and repair of the economy. Therefore it requires empirical investigation so as to sort out what are the important factors affecting profitability of insurance companies and this will help bodies to focus on the relevant factors. Hence the efficient performance of the institutions has become important and investigations by different proposal focus on what determine the performance especially the financial performance of the sector.

1.2. Statement of the Problem

Profitability is one of the major objectives of business companies. Profit is an essential Prerequisite for an increasing competitiveness of a company. Besides, profit attracts investors and improves the level of solvency and thus strengthens consumers' confidence. The financial Analysis of insurance companies serves as an important tool used by actuaries in the process of decision -making on underwriting and investment activities undertaken by them. Their financial Performance is also relevant within the macroeconomic context since the insurance industry is of the financial system components fostering economic growth and stability. Insurance companies contribute significantly to financial intermediation of the economy. Their success means the success of the economy; their failure means failure to the economy Ansah and Abor (2012); and Agobenebo and Ezirim, (2011).Insurance companies have the ability to remedy socioeconomic crashes stemming from the failure of enterprises due to economic disasters in addition to securing funds and reinvesting in the national economy (Gulsun&Umit, 2010). Insurance companies provide unique financial services to the growth and development of every economy. Therefore, the determinants of an insurance company's performance have attracted the interest of academicians, practitioners, managers, regulatory body, and policymakers.

The scholars have been doing empirical investigation on the determinants of insurer's profitability and arrived at different conclusions. Swiss (2012) insurers' profitability is first by underwriting performance (losses and expenses, which are affected by product pricing, risk selection, claims management, and marketing and administrative expenses) and second, by investment performance, which is a function of asset allocation and asset management as well as asset leverage. Khan (2015) revealed that leverage, size, earnings and age of the firm are significant determinants of profitability while growth opportunities and liquidity are not significant determinants of profitability.

The absence of comprehensive empirical evidences in Ethiopia concerning determinants of insurance company's profitability on the one hand, and the lack of consistency of the findings on the other, is then what motivated the researcher to put forward possible contribution in this study.

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1.3. Objectives of the study

1.3.1. General objective

general objective of the study would to identify and compare the factors affecting profitability of insurance companies in Ethiopia for the period of 2010 to 2017

1.3.2. Specific Objectives

Based on the above general objective, the research explicates the following specific objectives

- To explore the major factors of insurance companies profitability.
- To examine the level of significance of these factors on profitability.
- To measure the degree of relationship of the factors with profitability.

1.4. Significance of the study

The fundamental reason of this study would that previous studies on determinants of financial performance of insurance companies in Ethiopia have been in-sufficient. Most of the studies

previously focused on banks not on insurance companies. Furthermore, concerned parties would benefit from the results that emerged from the study. The parties may include regulatory authorities, Insurance Companies, Customers, employees, Investors, Policy makers, scholars, proposal and others who are interested in the area. Also, the study tried to provide additional input to the literature and sort out the important factors (firm-specific, industry specific and macro-economic) affecting profitability of insurance companies and serve as a reference for other studies to be conducted in the future. Therefore this study attempted to provide additional empirical evidence on financial performance of insurance companies in Ethiopia.

1.5. Scope of the study (Delimitation)

The study mainly focused on identifying the main determinants of insurance companies' profitability in Ethiopia. The study would limited to examination of the internal and external factors affecting insurers' profitability of purposively selected insurance companies which are registered by the NBE and that have at least ten years data i.e. 2010 to 2017. This period has selected because, five years and above is the recommended length time in most finance literatures. In addition, all private insurance companies will be established following 1994 financial liberalization and the period has significant structural change in profitability in Ethiopian insurance industry. Also, in order to get an accurate picture of insurers' profitability determinants; the research believed that it is important to consider at least ten years quantitative data. However, insurance companies operating for less than eight years are excluded in this study because they do not have full data for the study purpose.

The study would conducted based on secondary data that would collected from the audited financial statements of those general insurance companies in Ethiopia specifically from balance sheet, revenue account, and income statement for the period. Profitability is influenced by variables such as industry dynamics and competitive market position, the perspective of the study encompasses company specific factors such as leverage, motor insurance, market share and macro-economic variables-gross domestic product and inflation, which are potentially liable for being determinants of insurers' profitability. of the unique accounting system used by life assurance business and not all insurance render life assurance services, the secondary data

collection from income statement, sheet and revenue account will only limited to general insurance business, because statement of life assurance business is not prepared at the end of each year. It is prepared time in ten years for established companies, those that has operating for more than years, or after seventh years for newly established companies.

1.6. Limitations of the study

The study focused on the factors mentioned in the scope of the study section however; there are variables that have been used in literatures as determinant of insurance profitability like of capital, earning volatility, tangibility, age, retention ratio, expense ratio, asset quality so on. Some variable like expense ratio would considered to be included in the study, but due to time and accessibility of the required financial information, the research proposal would obliged not to include the factor as a study variable. The study confined merely on the quantitative measure of insurance companies financial performance in Ethiopia without any overall performance measurement tool, which means that there are other qualitatively expressed factors such as attitude of customers towards insurance, opinion of the experts the industry about what qualitative factors could affect insurers performance that could have been captured through interview or questionnaire and strengthened the output of this study.

1.7. Organization of the study

The study will be organized into three chapters. Chapter one is introduction, will back ground of study, statement of the problem, objectives of the study, significance the study, scope/delimitation of the study, limitations of the study, and finally how the study organized. Chapter two will be review of literature in which theories, empirical evidence and conceptual frame work will be framed out. Chapter three will be statement of the research proposal methodology employed in the study.

CHAPTER TWO

LITERATURE REVIEW

This chapter deals with theoretical and empirical literature reviews. Section1 definition and concepts of Insurance, historical highlights of insurance in Ethiopia, The role of Insurance in the

economy, and theories of profitability and factors affecting profitability of insurance companies.Section2 emphasize empirical literature review on insurance profitability Section 3.Generalize the whole review with conceptual framework and formulate Conclusion and knowledge gap.

2.1 Theoretical Review

2.1.1 Concepts of Insurance and Its Role in the Economy

Insurance is the pooling of fortuitous losses by transfer of such risks to insures, who agree to indemnify insured for such losses, to provide other pecuniary benefits on their occurrence, or to render services connected with the risk E.Rejda (2008). According to the author concepts within the definitions are explained as follows. *Pooling* is the spread of losses incurred by the few over the entire group, so that in the process, average loss is substituted for actual loss, fortuitous loss is one that is unforeseen and unexpected and occurs as a result of chance. Risk transfer on the other hand means that the pure risk is transferred from the insured to the insurer, who typically is in a stronger financial position to pay the loss than the insured.

Insurance is an important and growing part of financial sector in virtually all developed and developing countries. A resilient and well regulated insurance industry can significantly contribute to economic growth through transfer of risk and mobilization of savings. In addition, it enhances financial system efficiency by reducing transaction cost, creating liquidity, and facilitating economies of scales in investment. The insurance industry is different from other financial services in that its main role is to spread financial loss. Policy- holders buy protection against the occurrence of defined events and insurers set reserves against the estimated total cost of claims. Insurance is founded on probability theory, where the price (insurance premium) is set before knowing the exact cost of the product (insurance contract, or policy). In line with financial stability forum (2006), we can classify insurance in to three major categories (i) life insurance (ii) non-life insurance and (iii) reinsurance.

Life insurance offers a variety of products with different degree of protection and investment components, including pensions, savings, permanent health and term assurance policies. In some developed markets, life insurance offers variety of products functions as contractual savings

similar to deposits and in that respect the life insurance industry is concerned with asset accumulation in addition to risk transfer.

Non-life insurance is also called property and casualty insurance, property and liability insurance or general insurance. In buying non-life insurance, the customer is buying financial protection against specific insurable events, such as industrial injury. Policies are typically short-term (one year) indemnity contracts and normally there is no investment element or expectation of financial returns. Nevertheless, the liabilities arising from such contracts can continue for many years (e.g. an industrial injury or disease or a manufacturers liability to customers).

Reinsurance is insurance for insurers. Reinsurance protects against peak exposures and the volatility of underwriting results. They provide both expertise and underwriting capacity to the primary market and are often systematically important to the primary insurance market. There exist four broad categories of reinsurance - proportional, non-proportional, facultative, and financial.

2.1.2 Role of insurance in the Economy

As Banks and Security firms, insurance companies are financial intermediaries. It is therefore appropriate to view the insurance sector simply as pass-through mechanisms for diversifying risk, under which the unfortunate few who suffer losses are compensated from funds collected from many policy holders. Insurance is an essential element in the operation of sophisticated national economies throughout the world today. Without insurance coverage, the private commercial sector would be unable to function (Peter R. Haiss and K.Sumegi, 2008). Carmichael and Pomerleano (2002) identified several main contribution of insurance that for instance, insurance promotes financial stability among households and firms by transferring risks to an entity better equipped to withstand them; it encourages individuals and firms to specialize, create wealth and undertake beneficial projects they would not be otherwise prepared to consider. Haifa Malik (2011) insurance plays a crucial role in fostering 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. This enables life insurers to play a large role in the long- term bond market. At the same time, life insurer's portfolios are typically

more equipped than those of banks, which make them less prone to bank liquidity crises. A strong insurance industry can relieve pressure on government budget to the extent that provide private insurance reduces the demands on government social security programs and life insurance can be an important part of personal retirement planning program.

Insurance supports trade, commerce and entrepreneurial activity in general. Many sectors are heavily reliant on insurance; for example, manufacturing, shipping, aviation, the medical, legal, and accounting professions and (increasingly) banking through credit risk transfer. Insurance may actually lower total risk the economy faces since insurers have incentives to measure and manage the risks to which they are exposed, as well as promote risk mitigation activities. A number of empirical studies show evidence that the development of financial intermediaries, including insurance, has a strong correlation with economic growth. Patrick (1966) suggests that financial sector can have either a supply- leading or demand following relationship with economic growth. In the supply-leading view, economic growth can be induced through supply of financial services, while in the demand following view; the demand for financial services can induce growth of financial institutions and their assets.

The insurance sector can also contribute to the development of capital markets by making a pool of funds accessible to both borrowers and issuers of securities. This is due to the fact that insurance companies have longer term liabilities than banks. Catalan, Impavido, and Muslim (2000) study the relationship between the development of contractual savings (assets of pension funds and life insurance companies) and capital markets. The insurance industry has traditionally been regarded as a relatively stable segment of the financial system. Considerably lower liquidity of liabilities has prevented contagions run on insurance companies that have been seen in the banking sector. Nevertheless, insurance companies are not necessarily immune to crises particularly when they assimilate banking-type activities and /or have close business relationship with banks, including cross- shareholding, placement of deposits, and credit risk transfer. According to Balino, T., J and T.V. Sundararajan (1991) define financial crises in general as a situation in which a significant group of financial institutions have liabilities exceeding the market value of their assets, leading to runs and other portfolio shifts, collapse of some financial firms and government interventions.

2.1.3 The concept of profit

From the above quote we understand that mere turnover is not enough for companies to be successful and financially strong. It conveys a message that profit is more than turnover. Profit entails the management's effort of utilizing all resources efficiently and the ability of its cost management. If we are simply proud of selling voluminous items without effective cost management, it is a loss. What matters is the bottom line.

The term Profit, from accounting point of view, a residual left after deducting from total revenue of an enterprise all amount expended in earning that income. Profit is the surplus remaining after total costs are deducted from total revenue, and the basis on which tax is computed and dividend is paid. It is the best known measure of success in an enterprise. Profit is reflected in reduction in liabilities, increase in assets, and/or increase in owners' equity. It furnishes resources for investing in future operations, and its absence may result in the extinction of a company (www.businessdictinary.com, as read on April 2016). Profit is the money a business makes after accounting for all the expenses. Regardless of whether the business is a couple of kids running lemonade stand or publicly traded multinational company, consistently earning profit is every company's goal. Profit is not related to any useful specific function. Thus monopoly profit is not functional reward. Profit may sometime be in the nature of windfall. It is an unexpected reward earned by a firm just by mere chance, an inflationary boom. Profit is the earning of entrepreneur.

2.1.4 The concept of profitability

Profitability means the ability to make profit from all the business activities of an organization. It shows how efficiently the management can make profit by using all the resources available in the market. According to Hayward & Upton (1961), profitability is the ability of a given investment to earn a return from its use. The term Profitability however is not synonymous with the term "Efficiency". Profitability is a measure of efficiency; and is regarded as a measure of efficiency and management guide to greater efficiency. Profitability is one of the most important objectives of financial management because one goal of financial management is to maximize the owner`s wealth and profitability which in turn indicates better financial performance. Though,

profitability is an important yardstick for measuring the efficiency, the degree of profitability cannot be taken as a final proof or indicator of efficiency. At times satisfactory profits can mark inefficiency and conversely, a proper degree of efficiency can be accompanied by an absence of profit. Sometimes people use the term Profit and Profitability interchangeably, but in real sense, there is a difference between the two. Profit is an absolute term, whereas, profitability is a relative concept or meaning. However, they are closely related and mutually interdependent, having distinct roles in business. Profit refers to the total income earned by the firm during the specified period of time, while profitability refers to the operating efficiency of the firm. It is the ability of the firm to make profit on sales. It is the ability of firm to get sufficient return on the capital and employees used in the business operation *ibid*.

William H. Greene & Dam Segal (2004) argued that the performance of insurance companies in financial terms is normally expressed in net premium earned, profitability from underwriting activities, annual turnover, return on investment, return on equity. These measures could be classified as underwriting performance (losses and expenses, which are affected by product pricing, risk selection, claims management, and marketing and administrative expenses) measures and investment performance (which is a function of asset allocation and asset management as well as asset leverage) measures (M. Adams, 1999). Hafiz Malik (2011) is among others, who have suggested that although there are different ways to measure profitability, it is better to use ROA. Walsh (1996) states that performance is measured by establishing relationship between balance sheet and profit and loss statement values. Profit before interest and tax (PBIT) could be measured against total assets or capital employed or net worth. We could do likewise with profit before tax and profit after tax and gives us nine possible measures of performance. However, in most finance literatures profitability is measured by ROA (return on assets) which is defined as the profits before tax divided by total assets. Profit before interest and tax (PBIT) could be measured against total assets or capital employed or net worth. We could do likewise with profit before tax and profit after tax and gives us nine possible measures of performance through extortion, because of its monopoly power in the market.

Profitability consists of two words profit and ability. While the term Profitability is defined as the ability of a given investment to earn a return from its use. Profitability is one of the most

important objectives of financial management because one goal of financial management is to maximize the owner`s wealth and profitability which in turn indicates better financial performance.

Sometimes Profit before interest tax (PBIT) is also referred as operating income, operating profit or even operating earnings. Normally inventory will see profit before interest and taxes (PBIT) in income statement. And profit before Tax (PBT) is a measure that looks at an insurance company profit before the insurance company has to pay corporate income tax.it deducts all expense from revenue including interest expense and operating expense except for income tax. Net profit of an insurance company is what comes after operating expense and all other charges including taxes, interest, depreciation and Amortization has been deducted from total revenue. Also called profit After Tax (PAT) Total Assets (TA) refers to the total Amount of asset owned by a person or entity. And capital employed (CE) is total Amount of equity invested in an insurance company. The Amount of capital employed can be derived in several ways, some of which yield differing results. And Net worth (NW) is the value of all the non-financial and financial assets owned by an institution.

Return on total assets (ROTA) looks at the operating efficiency of the total enterprise while return on equity (ROE) considers how that operating efficiency is translated in to benefits to the owners. Return on total assets provides the foundation necessary for company to deliver a good return on equity. A company without a good ROTA finds it almost impossible to generate a satisfactory ROE. The ratio of return gives the value or the earnings being driven by total assets. Therefore this ratio measures how well management uses the assets in the business to generate an operating surplus. Whichever method of calculation is adopted ROA uses three main operating variables of the business, *total revenues, total cost,* and *asset employed.* It is therefore the most comprehensive measure of total management performance available to us.(ibid 1996).

They measure the management's ability to control expenses in relation to sales and reflect a firm's operating performance, riskiness, and leverage. Therefore from the above statements we can infer that return on asset is the safest and comprehensive measure of performance and serves as proxy to insurance companies' performance for this study.

2.1.5 Firm-specific, industry related, and Macro-economic factors of Profitability

2.1.5.1 Volume of Capital

Volume of capital is also known as capital adequacy and is a measure of insurers' financial strength or financial soundness in terms of its ability to withstand operational and abnormal losses. Capital is seen as a cushion to protect insured and promote the stability and efficiency of financial system, it also indicates whether the insurance company has the finical strength to absorb losses arising from claims. Volume of capital indicates the availability of capital contributed by owners of insurance companies which is known as the amount of owners' funds available to generate future income. As the volume of capital increases, the capability of insurance companies' to involve in a wider variety of business also increases. Gashaw (2012) stated that insurance companies' equity capital can be seen in two ways, one it can be seen as the amount contributed by owners of an insurance (paid-up share capital) that gives them the right to enjoy all the future returns, in other way it can be seen as the amount of owners' funds available to support a business. There are studies conducted by including volume of capital as a determinant of profitability of insurance companies and the outcome is controversial, Malik (2011) from Pakistan and Sambasivam and Gashaw (2013) from Ethiopia conducted a research to get major factors affecting the profitability of insurance companies by including volume of capital and get positive and significant relationship between volume of capital and profitability of insurance companies. Whereas, Bawa and Chattha (2013) conducted a research on financial performance of life insurers in Indian insurance industry and Charumathi (2012) also conducted on the determinants of profitability of Indian life insurers, both found negative and significant relationship between volume of capital and insurers profitability. Since the result is controversial it is necessary to include the variable as a determining factor.

2.1.5.2 Leverage

In finance leverage may be divided in to, *operating leverage* and *financial leverage*. Business risk depends in part on (F.Bringham, 1995) the extent to which a firm's costs are fixed. If fixed cost is high, even a small decline in sales can lead to a large decline in operating profits and ROE. Therefore, other things remain constant, the higher the fixed cost, the higher the business risk. Financial leverage refers to the use of fixed-income securities- debt and preferred stock- and financial risk is the additional risk placed on common stock holders as a result of financial leverage. Leverage (also called solvency) considers the capital structure of the firm and the evaluation of the relative risk and return associated with liabilities especially (long term debt) and equity or ownership (Giroux, 2003). The debt to equity ratio is one of the most fundamental measures in corporate finance. The purpose of this ratio (D/E ratio) is to measure the mix of funds in the balance sheet and to make a comparison between funds that have been supplied by the owners (equity) and those which have been borrowed (debt). Why the ratio is important?

When a company raises its debt, it takes commitments to substantial fixed cash out flows for some times in to the future. The company doesn't have guaranteed cash inflows over the same period. The inflow may be most uncertain. The fixed cash outflow combined with an uncertain cash inflows give rise to financial risk. It follows that the grater the loan, the greater the risk. The question is why do then companies take this risk. The answer lies in the relative costs. Debt costs less than equity funds. By adding debt to its balance sheet, a company can generally improve its profitability, increase its share price, increase the wealth of its shareholders and develop greater potential for growth. Debt increase both profit and raise the job of the manager to maintain a proper balance between the two. Walsh (1996) Gearing is a comparison of the company's debt (borrowing) and its equity (Ramseden, 2002) to determine who is really financing the company's operations- the shareholders or the bank. Higher ratio indicates high debt and high amount of interest expense which in turn downs the profit. If the ratio is more than 60%, it is regarded as high, above 100% is very high. Less than 20% could be taken as low. 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. Insurance leverage could be defined as reserves to surplus or debt to equity. The risk of an insurer may

increase when it increases its leverage. 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.

From the above theoretical discussions we can understand that leverage, financial or operating does have an impact on profitability of firms. Higher debt to finance the operation of the firm means that the firm is incurring more debt and brings more financial risk to the company. Besides more interest expense would be incurred in relation with the loan, which in turn reduces the profit of the business. If income declines, the return on equity (ROE) gets declined which in effect reduces the ROA (profitability).

2.1.5.3 Motor Insurance

Motor insurance is the most prevalent insurance line in the world, and in Ethiopia, the largest sector in non-life insurance. In 2009/10 Ethiopian insurance industry generated a total income close to 41USD or 49% of all general insurance premiums collected from all class of businesses. Despite the large portion that motor insurance constitutes, it is reported that it is a loss leader for most insurance companies. The economic health of the motor insurance industry will affect both its attractiveness to investors and the likelihood of investment in road safety activities. Unfortunately, the motor insurance industry too often appears to be loss making business in both high income countries and low income countries. In India recent loss ratios has been reported to be 180%, According to the study conducted in Cyprus, motor insurance is the largest class of non-life business mainly because of its compulsion by law. However the finding of the study revealed that motor class of business are consistently recorded negative results. The main cause of the negative result has been identified as low premium charge, high acquisition and administrative costs, inadequate investment income.

The study of World Health Organization (WHO) estimated that 1.17 million deaths occur each year worldwide due to road traffic accident. A breakdown of the figures indicates that more than 70% of the deaths occurred in developing countries. The increased rate of traffic accident has been attributed to population explosion and increased motorization. Increased motorization may

be characterized briefly as the “automotive revolution”, that is the motorization of urban population especially in developing countries. Traffic crashes also has an impact on the economy of developing countries at an estimated cost of 1-2 percent of country’s GNP per annum. Causes of motor vehicle crashes are multi- factorial and involve the interaction of a number of pre-crash factors that include people, vehicles and road environment. Human error is estimated to account for between 62% and 97% of all causes of traffic crashes in developing countries. A high prevalence of old vehicles that often carry many more people than they are designed to carry lack of safety belt, and helmet use, poor road design and maintenance and the traffic mix on roads are other factors that contribute to the high rate of crashes in less developing countries. Similarly in Ethiopia, as a study conducted by NUECA, 2009 indicated that more than 90% of the traffic accidents were caused by human errors, about which almost all 89% of the causes are drivers.

Factors that may contribute to the costliness of motor insurance are: - premium charged is based on unhealthy competition of insurers and the absence of statistical information and qualified personnel forces companies to charge a premium even if it is not profitable, rather it is just to take the customer. It is more of traditional practice. As indicated above the prevalence of traffic accident every day put the insurance companies in expensive claim costs of motor insurance, the other important factor is most motor insurance business has been generated by insurance brokers and or agents. As a result, the cost of business acquisition/commission payments and administration would be high.

Motor insurance is the biggest and fastest growing general insurance portfolio in the Indian market. It accounts for more than 42% of the cash flow of general insurers (Shri VinayVerma, 2003).Underwriters are scrutinizing their accounts more closely than any other time in recent past to drive their auto insurance portfolio in right direction towards profitability.

2.1.5.4 Market share

Market share is the percentage share of an industry’s or markets total sales that are earned by a particular company over a specified time period. Market share is calculated by taking a company’s sales over the period and dividing it by the total sales of the industry over the same period. Investors look at market share increase or decrease carefully because they can be a sign the relative competitiveness of the company’s product or services. As the total market for a

product service grows, a company that maintains its market share is growing revenues at the same rate as that total market. A company that is growing its market share will be growing its revenue faster than its competitors. Market share increase can allow a company to achieve greater scale in operations and improve profitability.

Companies are always looking to expand their share of market, in addition to trying to grow the size of the market by appealing to larger demographics, lowering prices, or through advertising. There are several key advantages to building market share. One advantage is increased bargaining power. Top companies with the largest market shares may get special deals on products, as their buying power is likely greater than smaller companies'. The bigger company sells more products, which leads to bigger orders from their suppliers, conversely smaller may lose its higher profit margin by increasing market share too drastically. (www.investopedia.com)

Companies increase market share through innovation, strengthen customer relationship, smart hiring practices and acquiring competitors. High marker share puts companies at a competitive advantage. Companies with better market share often receive better price from suppliers, as their larger order increase their buying power. Innovation is one method by which a company may increase market share. When a firm brings new technology to a market its competitors have yet to offer, customers become loyal which adds to the company's market. Also by strengthening customer relationship by keeping current customers from jumping to other competitors. Companies with the highest market share in their industries almost invariably have the most skilled and dedicated employees. Bringing the best employees on board reduces expense related to turnover and training, and enables companies to devote more resources to focusing on their core competencies. (www.investopedia.com).

2.1.5.5 Gross Domestic Product (GDP)

GDP is one the primary indicators used to gauge the health of a country's economy. It represents the total dollar value of all goods and services produced over a specific time period. Usually, GDP is expressed as a comparison to the previous quarter or year. Growth rate of GDP reflects economic activity as well as level of economic development and as such affect the various

factors related to the supply and demand for insurance products and services. GDP is the most informative single indicator of progress in economic development. Poor economic conditions can worsen the quality of the finance portfolio, thereby reducing profitability. If GDP grows, the likelihood of selling insurance policies also grows and insurers are likely to benefit from that in the form of higher profits. Outreville (1990) investigated the economic significance of insurance in developing countries. He compares 45 developed and developing countries and concludes that there is a positive but non-linear relationship between general insurance premiums and GDP per capita. Maja (2012) also examined that GDP growth positively affects insurers profitability i.e. growth of overall economic activity encourage demand for insurers services and indirectly resul0t in higher.

Therefore; the growth of GDP measures the economic growth of a particular country. When the GDP affected positively or when economic activities grow, so is the financial sector and as insurance is one of the major financial industries, it is positively affected by the boom of economy and there by enhances the profit of insurers.

2.1.5.6 Inflation

Inflation is defined as a sustained increase in the general level of prices for goods and services. It is measured as an annual percentage increase. Inflation certainly plays a role in insurance and has adverse impact on many aspects of insurance operations, such as claims, expenses and technical provisions (DaykinP, &Pesonen1999).

Expected inflation is taken into account when actuaries set actuarially fair premiums, inflation itself is unlikely to seriously impact on the performance of insurance companies. Nevertheless, if inflation is significantly greater than expected, it could cause insurance companies financial difficulty. For instance, unexpected inflation makes real returns on fixed-rate bonds lower than expected. As a consequence, profit margins of insurance companies are compressed and financial performance is accordingly impaired (Browne, Carson & Hoyt, 1999). The inflation could affect insurance companies' profitability influencing both their liabilities and assets. In expectation of inflation claim payments increases as well as reserves that are required in anticipation of the higher claims, consequently reducing technical result and profitability. Taking into consideration that inflation affects assets side of the balance sheet, as the bond markets adjust to the higher

level of inflation, interest rates begin to rise. This result in bond prices fall, negatively affecting value of investment portfolio. Given the negative relationship between inflation and returns on both fixed-income securities and equities, it is expected that the relationship between profitability and inflation will be negative.

2.2 EMPIRICAL REVIEW

In this part of the study the research looked at the studies conducted by other research egarding insurer's profitability in Ethiopia or outside Ethiopia.

2.2.1 Leverage

Leverage (also called solvency) considers the capital structure of the firm and the evaluation of the relative risk and return associated with liabilities especially (long term debt) and equity or ownership (Giroux, 2003). The debt to equity ratio is one of the most fundamental measures in corporate finance.

Nino Datu (2016) examined the association between Insurer-specific indicators and macroeconomics on profitability in Philippine non-life insurance market utilizing the panel data over the period of 2008 through 2012. Return on assets (ROA) and operating ratio were used for profitability. The study found out that that financial leverage significantly affects profitability both in ROA and operating ratio.

The study conducted by Yuvaraj and Abate Gashaw (2013) studied determinant factors of profitability and found in their study that leverage is negatively but significantly related with profitability. Abate Gashaw (2012) studied factors affecting insurers' profitability in Ethiopia sampling nine of insurance companies for nine years (2003-2011) and found out that leverage is

the most important determinant factors of profitability that it significantly but negatively related with profitability.

The study used secondary data for the period of 2004-2007. The study revealed that Leverage ratio significantly and oppositely related to profitability. Also Bilal Javaria *et al*. (2013) investigated on the determinants of profitability in insurance sector of Pakistan with a panel data set of 31 insurance firms (life insurance sector and no-life Insurance) of Pakistan from 2006-2011 the study suggests an opposite and significant relationship between leverage ratio as independent variables and profitability. Besides Shami and Ahmed (2008) explore on determinants of Insurance Companies' Profitability in UAE using 5 firm specific variables and they found that an opposite and significant relationship between leverage ratio as independent variables and profitability. Hen-Ying Lee (2014) also estimated the effects of firm specific factors and macroeconomic factors on profitability (measured by operating ratio and ROA) of property liability insurance industry in Taiwan and he found that financial leverage is significantly and negatively correlated with profitability .AnilaÇekrezi (2015) investigated factors that affect financial performance of Albanian Insurance Companies the study population consisted of 5 insurance companies with private capital, for the period 2008-2013 with a total of 30 data. The results showed that leverage has negative impact on the financial performance (ROA) of these companies.

2.2.2 Motor Insurance

Despite the large portion that motor insurance constitutes, it is reported that it is a loss leader for most insurance companies .Kozak(2011) examined determinants of profitability of non-life insurance companies in Poland during integration with the European financial system for the period of 2002–2009. The results indicated that the reduction in the share of motor insurance in the portfolio, with simultaneous increase of other types of insurance has a positive impact on profitability and cost-efficiency of insurance companies. According to the study it is expected that there is a reverse relationship between the share of motor insurance in the insurance

portfolio of a company and the company's profitability. As stated in Ermine Öner Kaya (2015) Motor insurance, which has a significant share in the nonlife premium portfolio of the Turkish insurance industry, appears as an insurance in which competition is intense worldwide and insurance companies find it difficult to gain profit from this portfolio.

In this study, motor insurance was found to be positively correlated with profitability. other studies as shown above suggested that motor insurance has negative correlations with profitability, however in this study it is found to be positively related with profitability and insignificant effect.

2.2.3 Market share

Market share is calculated by taking a company's sales over the period and dividing it by the total sales of the industry over the same period. Chen-Ying Lee (2014) also estimated the effects of firm specific factors and macroeconomic factors on profitability (measured by operating ratio and ROA) of property-liability insurance industry in Taiwan and he found those market shares are positively correlated with ROA. Kozak (2011) examined determinants of profitability of non-life insurance companies in Poland during integration with the European financial system for the period of 2002–2009 and suggested that Companies improve profitability and cost efficiency with an increase of their gross premiums and decrease of total operation expenses. Additionally increases of the GDP growth and the market share of foreign owned companies positively impact profitability of nonlife insurance companies during the integration period.

Cassandra R. Cole et al (2015) in their multivariate analysis, they find evidence that market concentration and insurers' underwriting profits are positively related. More specifically, insurers in states with greater market concentration are more profitable than insurers in states with lower levels of market concentration

Besides as stated in Öner Kaya (2015) Pervan et al. [2010] have investigated the determinants of profitability in the Bosnia and Herzegovina insurance industry between the years of 2005– 2010. According to their results, age of company, market share, and past performance are positively and significantly related with current profitability they have also found that foreign owned companies perform better than domestically owned companies; and there is no significant

relationship between diversification and profitability. In this study also, it was found that market share correlates positively wit profitability and had insignificant effect, which is consistent to the above studies.

2.2.4 Gross Domestic Product (GDP)

2.2.5 Inflation

Inflation is defined as a sustaine

Gross domestic product represents the total dollar value of all goods and services produced over a specific time period. Usually, GDP is expressed as a comparison to the previous quarter or year. A study conducted in Kenya by D.Umotho Murungim (2013) on relationship of firm specific and macroeconomic variables with financial performance of insurance companies. According to the study it was implied that GDP has negative relationship with profitability.

Chen-Ying Lee (2014) also estimated the effects of firm specific factors and macroeconomic factors on profitability (measured by operating ratio and ROA. He found that economic growth ratio (GDP) and inflation rates exhibit negative correlation with ROA, but are not significantly different from zero. Michael Doumpos et al (2012) Using a sample of over 2000 nonlife insurance firms operating in 91 countries between 2005 and 2009,they found that macroeconomic indicators such as real GDP growth, Kozak (2011) examined determinants of profitability of non-life insurance companies in Poland and according to the study of the GDP growth and the market share of foreign owned companies positively impact profitability of non-life insurance inflation, and income inequality influence the overall performance of firms and a statistically significant effect on the overall performance of insurers companies. Suheyli Reshid (2015) found that economic growth rate has significant influence on profitability. To the contrary, Mister (2015) found that economic growth is not significant determinants of profitability. On other hand, Hadush (2015) found that GDP is negatively but significantly related with profitability. GDP growth shows positive but insignificant relationship with insurers' profitability.

Nino Datu (2016) examined the association between Insurer-specific indicators and macroeconomics on profitability in Philippine non-life insurance market utilizing the panel data

over the period of 2008 through 2012. Return on assets (ROA) and operating ratio were used for profitability.

According to the study there was no evidence found in the Gross Domestic Product (GDP) on profitability in both ROA and operating ratio. In this study, GDP was found to be negatively related with profitability and it has insignificant effect on profitability. Therefore the studies were found to be contradictory.

d increase in the general level of prices for goods and services. It is measured as an annual percentage increase. A study conducted by Chen-Ying Lee (2014) found that inflation rates exhibit negative correlation with ROA, but is not significantly different from zero. Curak et al. (2012) examined the determinants of the profitability of the Croatian composite insurers' between 2004 and 2009.The finding showed that inflation and return on equity have a significant influence on insurers' profitability. Michael Doumpos et al (2012) Using a sample of over 2000 nonlife insurance firms operating in 91 countries between 2005 and 2009,they found that macroeconomic inflation influence the overall performance of firms and a statistically significant effect on the overall performance of insurers. (, 2015) examines determinants of firm performance of Indonesian and Dutch firms over the period of 2009-2013. The study found that Inflation, which is high in Indonesia, has a negative influence. The more moderate inflation rate of the Netherlands leads to a positive, although not significant effect.

Other studies in Ethiopia (SuheyliReshid, 2015), (Mistere, 2015) (Hadush, 2015*)* found out that inflation has insignificant influence on insurers' profitability, whereas (Hana mariam, 2015) found that inflation has a negative and significant impact on insurers' profitability. Nino Datu (2016) examined the association between Insurer-specific indicators and macroeconomics on profitability in Philippine non-life insurance market utilizing the panel data over the period of 2008 through 2012. Return on assets (ROA) and operating ratio were used for profitability. According to the study there was no evidence found that inflation has effect on profitability in both ROA and operating ratio. In this study, inflation has negative relationship with profitability and it affects profitability insignificantly. So it was consistent with more of the studies in Ethiopia.

2.3 CONCEPTUAL FRAMEWORK

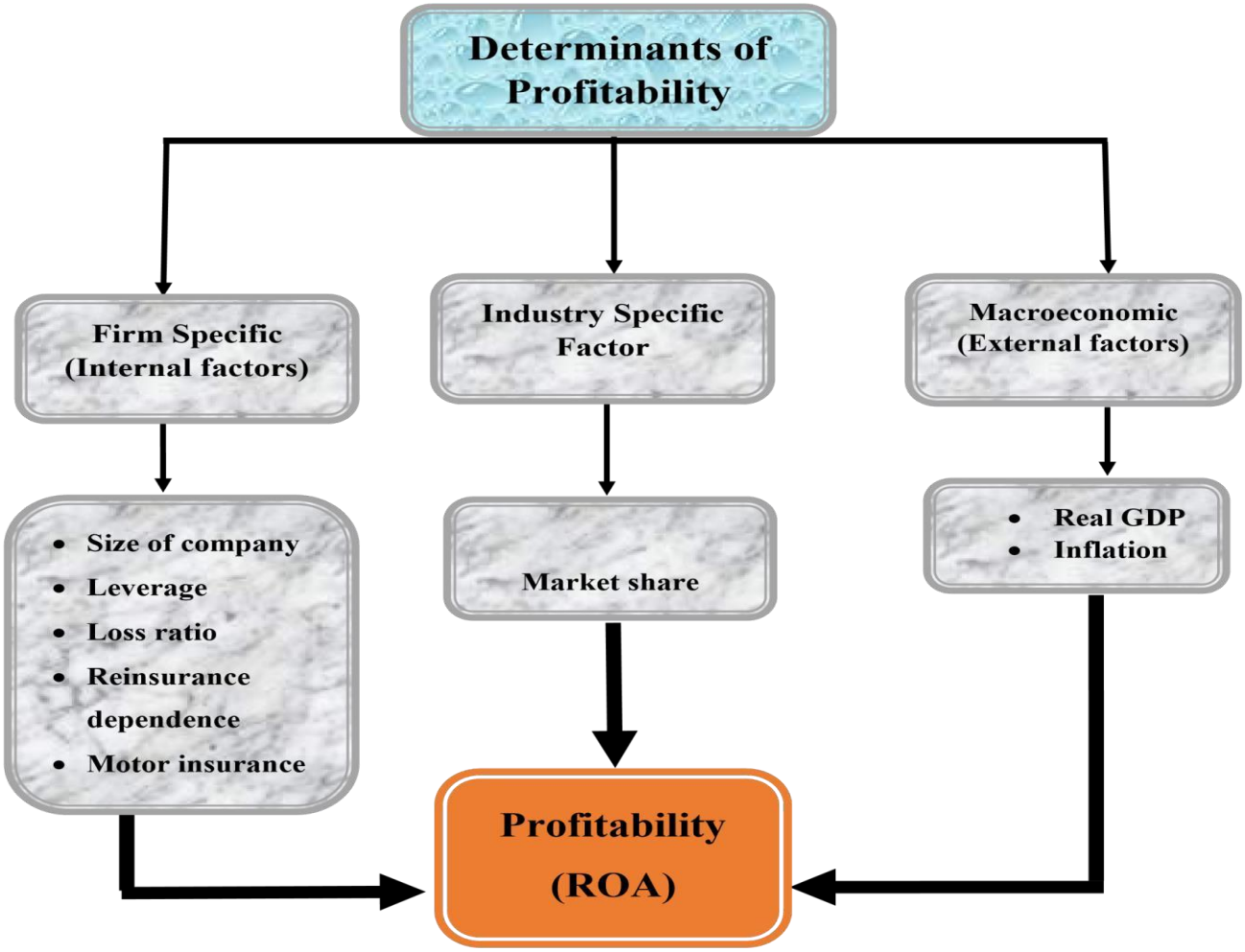
Many empirical works has been done regarding determinants of insurer's profitability. Review of literatures showed that research on the determinants of profitability have been comprehensively studied in developed countries around the world and in some emerging countries like Pakistan, India and Taiwan. Besides, in Ethiopia most of the research focused on banks and other non-financial sectors rather than insurance companies. Different scholars come up with different conclusions on the determinants of profitability as shown in the above empirical reviews and inconsistency of the findings was observed. The empirical evidences regarding determinants of insurance companies' profitability, as tried to review in this study, focused mainly on factors such as leverage, motor insurance, market share, GDP, and inflation. Moreover this study tried to extend the previous studies by incorporating other factors. To the research knowledge factors like *motor insurance* and *market share* have not been adequately addressed by previous studies. Therefore, the study attempted to fill this gap and augment its own possible contribution to the existing literature.

2.3.1 Conceptual Framework

A conceptual framework is an analytical tool with several variations and contexts. It is used to make conceptual distinctions and organize ideas. Strong conceptual framework captures something real and does this in a way that is easy to remember and apply (www.wikipdia.org, as read on April, 2016).

Below the diagram shows the relationship between determinants of profitability and profitability as measured by ROA

Fig 2.1.*Conceptual framework: Relationship between determinants of Profitability and Profitability*



*(*ROA) This Conceptual framework or model of the study source: Theoretical Review of concept of Profitability www.wikipdia.org, as read on April, 2016).and developed by researcher

CHAPTER THREE-

RESEARCH DESIGN AND METHODOLOGY

This chapter dealt with the explanations of the research design, research approach, target population, sampling technique, sample size, methods of data collection, data analysis techniques and also definitions and measurement of variables and model specifications.

This chapter discussed the methodology that was used in gathering data, processing the data and translating the collected data into meaningful information. It provides the steps and procedures of the study that were used to find out the determinants of profitability of general insurance companies in Ethiopia. The chapter explains about the research design, data type and source, research approaches, population and sample size, sampling technique, data collection instrument, data analysis techniques, variable definitions which encompasses choice of dependent variable and independent variables, and model specification.

3.1 RESEARCH DESIGN

A research design is a plan that specifies the methods and procedures for collecting analyzing the needed information (William G.Zikmund, et al 2016).The research design constitutes the blue print for collection, measurement, and analysis of data.

Accordingly in this study, the researcher conducted the research using quantitative approach and data was collected from purposefully selected insurance companies in Ethiopia using ten years data (2010 to 2017). Secondary source of data included Balance Sheet, Income statements, and Revenue Account, of the insurance companies obtained from the NBE and other data that couldn’t be directly obtained from financial statements were collected from the insurance companies themselves. Secondary sources are the most reliable one, as these financial statements are already audited by independent auditors and accepted by the users of the information. Other macro level data are also obtained from the NBE (Research directorate) as reported to them by MoFEC.

3.2 RESEARCH APPROACH

There are three approaches to conduct any research: Qualitative, Quantitative and Mixed approaches (Creswell 2010). Quantitative research is a means for testing objective theories by examining the relationship among variables. On the other hand, qualitative research approach is a means for exploring and understanding the meaning individuals or groups ascribe to a human or social problem with intent of developing a theory or pattern inductively. Finally, mixed methods approach is an approach in which the researchers emphasize the research problem and use all approaches available to understand it.

Quantitative research which means constructed an econometric model to identify and measure the determinants of profitability. Specifically, multiple regression analysis is adopted to measure the effect of determinants on profitability. The use of multiple regressions considers the simultaneous relationships amongst the multiple numbers of independent and dependent variables found across the regression model, therefore suited to the nature of the study.

Therefore to comply with the objective of this research the study is solely based on quantitative data, which constructed an econometric model to identify and measure the determinants of profitability and their level of significance.

3.3 SAMPLING TECHNIQUE

There are several available alternative ways to take a sample. The main alternative sampling plans may be grouped in to two categories; probability technique and non-probability technique (William G. Zikmund, *et al* 2014). The probability sampling is a sample procedure which gives each one in the population non-zero probability of selection or it's about giving every element in the population the same opportunity to be selected. On the other hand non-probability sample involves the selection of a sample on the basis of personal judgment or convenience. According to Singh (2010) when the subjects used in the sample is homogeneous, using purposive sampling technique is appropriate.

Accordingly, this study applied Purposive/Non-probability/ sampling technique, because the study did not include all insurance companies to have an equal chance to be selected as a

sample. The total population of the study was all insurance companies registered by NBE and under operation in Ethiopia. Currently, 17 insurance companies are working in Ethiopia. In order to reach meaningful conclusion, there was a need to sample from the seventeen insurance companies, by using quantitative data over the period of 2010-2017. But, because of lack of 8 years data in companies established after 2010, the number of sample companies was reduced to seven

Besides, ten years data is taken by the researcher to meet the objective of this study. Accordingly, available audited financial statements of ten consecutive years from 2010-2017 of the 8 sample insurance companies were included in the sample frame made up 48 observations. Thus, to make the panel data structured, i.e. every cross-section followed the same regular frequency with the same start and end dates. The procedure used for drawing the sample from the available lists is the insurance service year profile, for the reason that the study intend to use document sources. Therefore, sample size is decided based on the availability of operating data in the insurance operating in Ethiopia. Insurance companies sampled in the study are:- Ethiopian Insurance Corporation, African Insurance Company, Awash Insurance Company, NIB Insurance Company, Nile Insurance Company, Nyala Insurance Company,

3.4 DATA SOURCES AND COLLECTION INSTRUMENT

Consistent and reliable research indicates that research conducted by using appropriate data collection instruments increases the credibility and value of the research findings Accordingly, document review was used for this study to collect the required data which is relevant for addressing the objectives of the study from audited financial statements of each insurance company included in the sample size. The necessary data that are used in this study was obtained from secondary sources. Moreover, in order to analyze the relationship that exists between profitability and macroeconomic variables, macro-economic data are collected for the same years. The advantage of using secondary data includes higher quality of data compared with primary data collected by researchers themselves. Stewart and Kaman's, (1993) as cited by Yaqui Li (2007); 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, i.e. more open to public enquiry therefore, enhance the reliability of the data. The principal secondary data sources for this paper were individual insurance companies annual reports that contain detailed consolidated balance sheets and income statements and revenue accounts.

3.5 VARIABLE DEFINITION AND MEASURMENTS

3.5.1 Dependent and Independent variables

3.5.1.1 Dependent variable

Dependent variable is the regressed, effect variable, or explained variable; where as Independent variable is the regress or, causal variable, or explanatory variable (Chris Brook 2008). The most commonly used profitability ratios are net profit margin, return on assets (ROA) and return on equity. The return on total assets ratio represents one of the most used methods of quantifying financial performance. ROA reflects the ability of insurance's management to generate profits from the insurances 'assets, although it may be biased due to off-balance-sheet activities. In most of the previous studies on insurance sector, return on assets (ROA) is being used as a proxy of profitability (Ahmed, 2011); (Al-Shami, 2008); (Malik, 2011); (Lee, 2014). Therefore this study has attempted to measure profitability by using ROA similar to most of the aforementioned researchers. ROA= Net profit before tax / Total Assets. In this study, therefore, profitability as peroxide by ROA (return on assets) is the dependent variable.

3.5.1.2 Independent variables

This subsection describes the independent variables that are used in the econometric model to estimate the dependent variable. To measure the predictor variables of insurance companies' profitability, five measures are used as independent variables which were identified by the researcher. The variables are; Leverage, Motor insurance, Market share, Inflation and GDP.

- **Leverage (LEV**):-The leverage ratio is calculated as total debt to total equity and represents a key indicator of the insurer's financial stability.

- **Motor Insurance (MOI):-**Motor insurance is the lion share of insurer's business portfolio. It is one of the classes of businesses in insurance activity that generates the largest volume of premium collection over specified period of time. It also involves high claim cost, marketing expenses in the form of commission payments to insurance agents and brokers. That is why the study tried to see its impact on profitability. It is measured as the ratio of total premium collected of motor insurance premium to gross written premium written of the company by all class of businesses.

- **Market Share (MKS):-**Market share of a company is the share of its business activity when compared to other similar companies in the industry. It is measured as the total premium collected by a company to total premium collected in the industry as a whole over a given period of time.

- **Growth of real GDP:-**growth domestic product is a macroeconomic variable, and tells the total value of goods and services produced in a given nation over a specified period of time usually a year. It is expected to have a negative influence on the insurers' financial performance, since economic growth improves the living standards and the levels of income, increasing the purchasing power of population.

- **Inflation (INF):-**inflation is a general increase in the pattern of price level of goods and services. It occurs when the prices of goods and services increase over time. Inflation cannot be measured by an increase in the cost of one product or service, or even several products or services. Rather, inflation is a general increase in the overall price level of the goods and services in the economy

3.6 Measurement of Variables

Table 3 .1 *Measurement of Variables*

Determinants	Measurements	Remark

1.Dependent Variable Profitability (ROA)	Net profit before tax/Total Asset	Explained Variable
2.Independent Variable		
Leverage	[Total Debt/Total Equity]*100	Explanatory Variable
Motor Insurance	[Total Premium written by motor/Gross Written Premium by all class of businesses]*100	Explanatory Variable
Market share	[GWP of the company/GWP of the industry]*100	Explanatory Variable
Real GDP	$[[GDP_t-GDP_{t-1}]/GDP_{t-1}]*100$	Explanatory Variable
Inflation	$[[Inf_t - Inf_{t-1}]/Inf_{t-1}]*100$	Explanatory Variable

Source: Compiled by researcher, 2013

3.7 Data analysis techniques and model specification

Model building involves specifying relationships between two or more variables; perhaps extending to the development of descriptive or predictive equations (William 2010). In order to achieve the objectives of this research study, the panel data regression model is used to identify the relationship between the profitability of insurance companies and explanatory variables. Panel data comprises of both *time series* and *cross-sectional elements*, and such a dataset would be known as a panel of data or longitudinal data Thus, the collected panel data is analyzed

using descriptive statistics, correlations, multiple linear regression analysis and inferential statistics.

Mean values and standard deviations are used to analyze the general trends of the data from 2010 to 2017based on the sample of 8 insurance companies and a correlation matrix is also used to examine the relationship between the dependent variable and explanatory variables. In addition, ordinary least square (OLS) is conducted using statistical package "Eviws8" to determine the most significant and influential explanatory variables affecting the profitability of the insurance industry in Ethiopia. Modeling is based on panel data techniques. In light of the above, to investigate the effect of insurance specific, industry specific, and macro-economic determinants of insurers profitability. When hypotheses involve the distinction between independent and dependent variables, dependence techniques are needed. Predicting the dependent variable "profitability" on the basis of numerous independent variables is a problem frequently investigated with dependence techniques. Multiple regression improves the prediction of dependent variable, as more number of independent variables are expected to explain the dependent variable better than if only one independent variable was used. It involves the estimation of the effect of individual independent variables on dependent variable.

Where;

ROA it = dependent variable profitability; LEV=Leverage; MOI= Motor Insurance; MKS=Market Share GDP = Gross domestic products, and; INF = inflation

The issue that may arise from the use of panel data is whether the individual effect is considered to be fixed or random. While random effects estimation addresses the endogenity issue by incrementing potentially endogenous variables, it also assumes that the individual firm effects are uncorrelated with the exogenous variables. On the other hand, the fixed effect estimation deals successfully with the correlated effects problem.

Therefore a fixed cross-sectional effect is specified in the estimation so as to capture unobserved idiosyncratic effects of different insurance companies. In addition, as noted in Gujarati (2004) if T (the number of time series data) is large and N (the number of cross-sectional units) is small, there is likely to be little difference in the values of the parameters

estimated by fixed effect model and random effect model. Hence, the choice here is based on computational convenience. On this score, fixed effect model may be preferable than random effect model (Gujarati 2003). Since the number of time series N (N=10 year) is greater than the number of cross-sectional units (i.e.= 8 insurance companies) and adjusted R2 value and Durbin-Watson stat value increases with the use of cross-sectional fixed effect model, fixed effect model was preferable than random effect model in this study.

3.8 MODEL VALIDITY ASSUMPTIONS

As mentioned in Chris Brookes (2008), there are basic assumptions required to show that the estimation technique, OLS has a number of desirable properties, and also that hypothesis tests regarding the coefficient estimates could validly be conducted. If these Classical Linear Regression Model (CLRM) assumptions hold, then the estimators determined by OLS will have a number of desirable properties, and are known as Best Linear Unbiased Estimators. Therefore, for the purpose of this study, diagnostic tests are performed to ensure whether the assumptions of the CLRM are true or not in the model.

Consequently, the basic CLRM assumption tests in this study were errors have zero mean, heteroskedasticity, autocorrelation, normality and Muliticollinearity

Second assumption is heteroskedasticity. The assumption of homoscedasticity is that the variance of the errors is constant or equal. If the variance of the errors is not constant, this would be known as heteroskedasticity (Guajarati, 2004). In order to test homoscedasticity the white test was used.

The third assumption is the autocorrelation assumption that the covariance between the error terms over time is zero. If the errors are correlated with one another, it would be stated that they are serially correlated. Usually, Durbin-Watson (DW) value in the main regression table is considered and used to test the presence of autocorrelation. According to Brooks (2008), DW has 2 critical values: an upper critical value (DU) and a lower critical value (DL), and there is

also an intermediate region where the null hypothesis of no autocorrelation can either be rejected or not rejected.

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

Finally the fifth assumption is Muliticollinearity assumption which refers to the situation in which the independent variables are highly correlated. When independent variables are multicollinearity, there is overlap or sharing of predictive power. This may lead to the paradoxical effect, whereby the regression model fit the data well, but none of the explanatory variables (individually) has a significant impact in predicting the dependent variable (Gujarati, 2004). A Pearson correlation was used for the purpose of testing Muliticollinearity in this study. The Pearson correlation matrix is a technique of testing Muliticollinearity of explanatory variables by investigating the relationship of bivariate variables (Wooldridge, 2010).

Table 3.2 summary of hypothesized expected sign for the relationship between the explanatory variables (independent variables) and insurance profitability (dependent variable).

Variables	***Description***	***Definitions/measures***	***Expected sign***
Dependent **Independent**	Profitability(ROA)	Net profit before tax/Total Assets	NA
1	Leverage	Total Debt/Total Equity	
2	Motor Insurance	Motor premium/Gross premium	+
3	Market share	Company total premium/Industry premium	+

4	Real GDP	$[(GDP_t - GDP_{t-1})/GDP_{t-1}]*100$	+
5	Inflation	$I = [(Inf_t - Inf_{t-1})/Inf_{t-1}]*100$	

Source: Compiled by researcher, 2013

3.9 Hypotheses of the study Variables

According to Junker and Penn ink (2010) a hypothesis is an educated and testable –guess about the answer to your research question. It is often described as an attempt by the researcher to explain the phenomenon of interest. Hypothesis can be of null hypotheses or alternative hypotheses. A null hypothesis predicts that there will be no differences between variables or groups being studied. Alternative variable, on the other hand, predicts that there will be a difference between groups or variables. Therefore, based on the literature reviews in the previous chapter, the researcher put forward the following hypotheses.

HH1. Leverage has a positive and statistically significant effect on profitability of insurers in Ethiopia.

H2.Motor Insurance has a negative and statistically significant effect on Performance of insurance company's in Ethiopia.

H3. Market Share has a positive and statistically insignificant effect on Performance of insurance companies in Ethiopia.

H4. GDP growth has a negative and statistically significant effect on performance of insurance companies in Ethiopia.

H5. Inflation has positive and statistically significant effect on performance of Insurance companies in Ethiopia

CHAPTER FOUR

RESULTS AND DISCUSSIONS

This chapter is organized into four sections. Section one presents model specification and tests for the classical linear regression model assumptions. Section two discusses descriptive statistics and correlation analysis. Section three presents discussion of results and finally, section four is about summary of the main findings.

In the previous chapter the research approach adopted, data sources, and sampling techniques, variable definitions, data analysis techniques, and model specification of the study were presented. This chapter analyzes the determinants of insurance company's profitability, using the annual balanced panel data, where all the variables are observed for each cross-section and each time period. The study has a time series segment covering from the period 2010 up to 2017 and a cross section segment which considered seven Ethiopian insurance companies. The chapter is organized into four sections. Section one presents model specification and tests for the classical linear regression model assumptions. Section two discusses descriptive statistics and correlation analysis. Section three presents discussion of results and finally, section four is about summary of the main findings.

4.1 MODEL SPECIFICATION TEST (FIXED EFFECT VS RANDOM EFFECT)

There are broadly two classes of panel estimator approaches that can be employed in financial research: fixed effects models (FEM) and random effects models (REM) (Brooks, 2008). Therefore a fixed cross-sectional effect is specified in the estimation so as to capture

unobserved idiosyncratic effects of different insurance companies. In addition, as noted in Gujarati (2003) if T (the number of time series data) is large and N (the number of cross-sectional units) is small, there is likely to be little difference in the values of the constant estimated by fixed effect model and random effect model. Hence, the choice here is based on calculation convenience.

4.2 TESTS FOR THE CLASSICAL LINEAR REGRESSION MODEL (CLRM)

ASSUMPTIONS

This section presents the test for the assumptions of classical linear regression model(CLRM) namely, the error have zero mean, heteroskedasticity, autocorrelation, Muliticollinearity and, normality.

4.2.1 Constant term assumption

According to Brooks (2008), if a constant term is included in the regression equation, this assumption will never be violated. Thus, since the regression model used in this study included a constant term, this assumption was not violated.

4.2.2 Test for Heteroskedasticity

Homoscedasticity (variance of the errors is constant (Vary (ut) = $\sigma 2 < \infty$). This assumption requires that the variance of the errors to be constant. If the errors do not have a constant variance, it is said that the assumption of homoscedasticity has been violated. This violation is termed as heteroskedasticity. In this study white test was used for existence of heteroskedasticity across the range of explanatory variables. The table below shows test result of heteroskedasticity test result

Heteroskedasticity

Heteroskedasticity Test: White

F-statistic	3.241992	Prob. F(17,30)	0.0024
Obs*R-squared	31.08149	Prob. Chi-Square(17)	0.0195
Scaled explained SS	27.64484	Prob. Chi-Square(17)	0.0493

Source; Eviews 8 out put

In this study as shown above, both the F-statistic and Chi-Square versions of the test statistic gave the same conclusion that there is no evidence for the presence of heteroskedasticity, since the p-values were in of unfilled 0.05. The third version of the test statistic, 'Scaled explained SS', which as the name suggests is based on a normalized version of the explained sum of squares from the auxiliary regression, also gave the same conclusion that there is evidence for the presence of heteroskedasticity problem, since the p-value was considerably in unfilled of 0.05.

4.2.3 Test for Autocorrelation

This assumption requires that the errors are linearly independent of one another (uncorrelated with one another). (Cov (ui, uj) = 0.) Covariance between the error terms over time is zero. If the errors are correlated with one another, it is stated that they are auto correlated. Brooks (2008) noted that the test for the existence of autocorrelation is made using the Breusch-Godfrey test.

Breusch-Godfrey Serial Correlation LM Test:

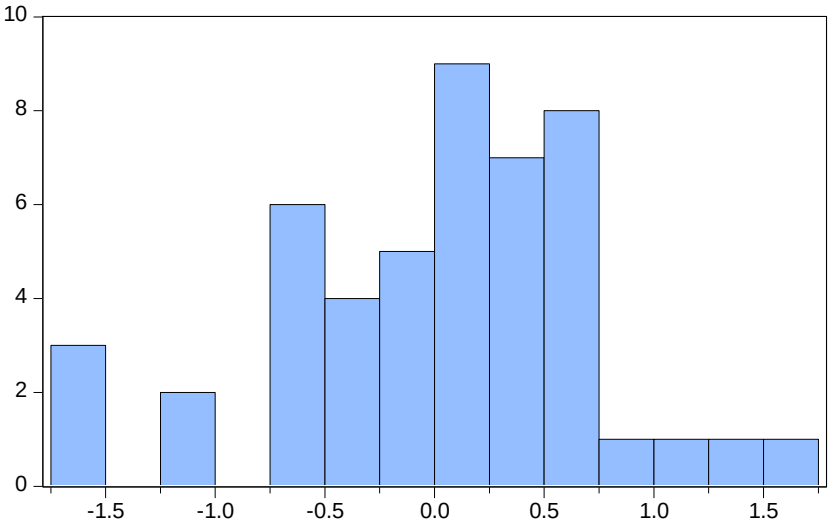
F-statistic	1.167076	Prob. F(2,40)	0.3216
Obs*R-squared	2.646547	Prob. Chi-Square(2)	0.2663

In order to do a general test for autocorrelation the Breusch-Pagan-Godfrey test was conducted. The 5^{th} order autocorrelation is found out to be insignificant therefore the statistical insignificance imply absence of autocorrelation

4.2.4. Test for Normality

According to Brooks (2008), if the residuals are normally distributed, the histogram should be bell-shaped and the Bera-Jarque statistic would not be significant. This means that the p-value

given at the bottom of the normality test screen should be greater than 0.05. For normality test to be valid the value of skinless



Series: Standardized Residuals
Sample 2010 2017
Observations 48

Mean	-4.78e-15
Median	0.061988
Maximum	1.597736
Minimum	-1.592905
Std. Dev.	0.705516
Skewness	-0.329192
Kurtosis	3.323411
Jarque-Bera	1.076129
Probability	0.583877

Source; Eviews 8 out put

Figure 4.1*:* Normality Test Result

The above diagram witnesses that normality assumption holds, i.e., the coefficient of kurtosis was close to 3.32 and the jarque-Bera statistic has a P-value of greater than 5% implying that the data were consistent with a normal distribution assumption.

4.2.5 Test for Mulitico‌llinearity

Mulitico‌llinearity in the regression model suggests substantial correlations among independent variables. This phenomenon introduces a problem because the estimates of the sample parameters become inefficient and entail large standard errors, which makes the coefficient values and signs unreliable. In addition, multiple independent variables with high correlation add no additional information to the model. It also conceals the real impact of each variable on the dependent variable.

*

	MRS	MOI	LVR	INFR	GDP
MRS	1				
MOI	0.1074937833311683	1			
LVR	-0.01655534653955097	0.498859175857651	1		
INFR	-0.0693846199010362	-0.3153316169001197	-0.4040363882853482	1	
GDP	0.001035135510250364	0.846093351738868	0.4896635804356362	-0.363498047019316	1

Source; Eviews 8 out put

According to Brooks (2008), if it is stated that y and x are correlated, it means that y and x are being treated in a completely symmetrical way. Thus, it is not implied that changes in x cause changes in y, or indeed that changes in y cause changes in x rather, it is simply stated that there is evidence for a linear relationship between the two variables, and that movements in the two are on average related to an extent given by the correlation coefficient.

4.3. CORRELATION BETWEEN VARIABLES

Correlation is a way to index the degree to which two or more variables are associated with or related to each other. The most widely used bi-variant correlation statistics is the Pearson product-movement coefficient, commonly called the Pearson correlation which is used in this study.

	ROA	MRS	MOI	LVR	INFR	GDP
ROA	1					
MRS	0.9026599616332706	1				

MOI	-0.0976720509448692 9	0.1074937833311683	1			
LVR	-0.0339428359390824	-0.0165553465395509 7	0.4988591 75857651	1		
INFR	0.1000477 162914152	-0.0693846 199010362	-0.3153316 169001197	-0.4040363 882853482	1	
GDP	-0.2154436 076380705	0.0010351 355102503 64	0.8460933 51738868	0.4896635 804356362	-0.3634980 47019316	1

Source; Eviews 8 out put

4.3.1 DESCRIPTIVE STATISTICS

The summary of the descriptive statistics of the dependent and independent variables for five insurance companies for a period of eight years from 2010-2017 with a total of 48 observations. Key figures, including mean, maximum, minimum and standard deviation value were reported.

Table4.2 Descriptive Statistics of the Variables

	ROA	MRS	MOI	LVR	INFR	GDP
Mean	3.316276	1.015896	18.58688	59.42381	13.59375	793175.5
Median	3.024931	1.000000	18.63500	59.46220	8.650000	597704.5
Maximum	16.65000	1.575000	23.96000	73.80083	38.00000	1596482.
Minimum	0.020000	0.958000	12.89100	45.06000	7.300000	419218.0

Std. Dev.	2.119391	0.085198	3.159598	7.137803	10.24080	434840.9
Skewness	5.246272	6.105315	-0.112901	0.125093	1.672774	1.064786
Kurtosis	1596 34	40.34609	2.579611	2.312365	4.305725	2.336706
Jarque-Bera	2166.444	3087.660	0.455427	1.070870	25.79522	9.950067
Probability	0.000000	0.000000	0.796353	0.585415	0.000003	0.006908
Sum	159.1812	48.76300	892.1700	2852.343	652.5000	38072424
Sum Sq. Dev.	211.1155	0.341160	469.2039	2394.567	4929.073	8.89E+12
Observations	48	48	48	48	48	48

Source; Eviews; 8 out put

The profitability measures (ROA) shows that Ethiopian insurance company achieved on average a positive before tax profit over the last eight years. For the total sample, the mean of ROA was 3% with a maximum of 16% and a minimum of 2%. That means the most profitable insurance company among the sampled earned 61cents of profit before tax for a 1birr invested in the assets of the firm. On the other hand, unprofitable insurance company of the sampled lost 3cents of profit before tax for 1birr invested in the assets of the firm.

Regarding GDP, the mean value of real GDP growth rate was 11% indicating the average real growth rate of the country's economy over the past 8 years. The maximum growth of the economy was recorded in the year 2010 (i.e. 13%) and the minimum was in the year 2013 (i.e. 9.8%).

The country has been recording double digit growth rate with little dispersion towards the average over the period under study with the standard deviation of 1%. This indicates that economic growth in Ethiopia during the period of 2010 to 2017 remains stable.

Finally, other variable employed in this study, general inflation had rate (i.e. 16.2%) of the country on average over the past eight years was more than the average GDP. The maximum inflation was recorded in the year 2009 (i.e. 36.4%) and the minimum was in the year 2010 (i.e.

4.3.2 REGRESSION RESULTS AND DISCUSSION

This sub section presents the empirical findings from the econometric output on determinants of the sample insurance companies' profitability in Ethiopia. Table 4.3 below reports regression results between the dependent variable (ROA) and explanatory variables. Under the following regression outputs the beta coefficient may be negative or positive; beta indicates that each variable's level of influence on the dependent variable. P-value indicates at what percentage or precession level of each variable is significant.

Dependent Variable: ROA

Method: Panel EGLS (Cross-section random effects)
Date: 12/20/20 Time: 00:19
Sample: 2010 2017
Periods included: 8
Cross-sections included: 6
Total panel (balanced) observations: 48
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MRS	23.02754	1.333020	17.27472	0.0000
MOI	-0.064102	0.068377	-0.937482	0.3539
LVR	0.049759	0.018892	2.633832	0.0118
INFR	0.029272	0.012131	2.412929	0.0203
GDP	-8.10E-07	4.96E-07	-1.633611	0.1098
C	-21.59813	1.823097	-11.84695	0.0000

Effects Specification

		S.D.	Rho
Cross-section random		0.000000	0.0000
Idiosyncratic random		0.758312	1.0000
Weighted Statistics			
R-squared	0.889187	Mean dependent var	3.316276
Adjusted R-squared	0.875995	S.D. dependent var	2.119391
S.E. of regression	0.746330	Sum squared resid	23.39436
F-statistic	67.40332	Durbin-Watson stat	1.492573
Prob(F-statistic)	0.000000		

Source; Eviews 8 out put

Motor Insurance

Motor insurance is the most prevalent insurance line in the world, and in Ethiopia, the largest sector in non-life insurance. The coefficient of motor insurance which is measured by total premium collected of motor insurance premium to gross written premium of the company. In this study it was found that motor insurance has Negative coefficient of -0.064102 with a (p-value of 0.3539). As the regression results of the study shown above in the table, there is a statistically insignificant Negative relationship between motor insurance and profitability. Beside other studies such as Öner Kaya (2015) found out that the share of motor insurance in the companies' insurance portfolio is not important explanatory variable. On the other hand, S.Kozak (2011) found that the share of motor insurance in the company's insurance portfolio negatively impacts its profitability and efficiency, it means in a similar way as the level of operating costs.

Leverage

The coefficient of leverage which is measured by total debt to total equity was positive (p-value of 0.0118) the regression results of the study show that there is a statistically significant

positive relationship between leverage ratio of insurance companies and their profitability in Ethiopia at 5% significant level. . For instance, Yuvaraj and Abate Gashaw (2013), Shami and Ahmed (2008) Chen-Ying Lee (2014) Yana Safarova (2010), Anila Çekrezi (2015) investigated factors that affect financial performance of Albanian. In their studies all found that leverage have positive and significantly influence on insurance company profitability.

Gross Domestic product (GDP)

Gross domestic product is the market value of all finished goods and services produced in a country within a specified period, mostly one year However, result of this study shows that a negative coefficient of -8.10E07 and it was statistically insignificant (P-value 0.1098) indicating that growth in economic condition measured in terms of gross domestic product has negative impact on profitability of Ethiopian insurers for the study period. The finding of this study is congruent with (Naveed, 2008), (Maria, 2014), and Lee (2014).

Market share

The coefficient of market share which is measured as ratio of total written premium of the company to total gross written premium of the industry in this study was positive,(23.02754) but statistically insignificant even at 10% significance level (par value=0.0000) indicating that its impact is negligible. The insignificant parameter indicates that the market share does not significantly affect Ethiopian insurance profitability.

Inflation

The inflation could affect insurance companies' profitability influencing both their liabilities and assets. In expectation of inflation, claim payments increases as well as reserves that are required in anticipation of the higher claims, consequently higher technical result and profitability. The coefficient of inflation was positive, (0.029272) and it was statistical in significant (p-values 0.0203), and thus the effect of inflation on Ethiopian insurers' profitability is the result suggested that inflation is insurers' profitability in Ethiopia.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATION

This chapter presents conclusions and recommendations based on the analysis made in previous chapter. Accordingly this chapter is organized into two subsections. Section 5.1 presents the summary, 5.2 conclusion and 5.3 presents the recommendations.

5.1 SUMMARY

The objective of the study was to identify and compare the factors affecting profitability of insurance companies in Ethiopia for the period of 2010 to 2017 In addition, this study explicated the following specific objectives: to explore the major factors of insurance companies profitability, to examine the level of significance of these factors on profitability and to provide possible recommendations to interested users of the research outcome.

This study used to measure profitability by using ROA similar to most of the aforementioned researchers. ROA= Net profit before tax / Total Assets. In this study, therefore, profitability as peroxide by ROA (return on assets) is the dependent variable. To measure the predictor variables of insurance companies' profitability, five measures were used as independent variables which were identified by the researcher. The variables were, Leverage, Motor insurance, Market share, and GDP and inflation.

In this study it was found that Ethiopian insurers' profitability was affected by the independent variables included at different level of significance. Accordingly, the findings showed that and Leverage have statistically significant relationship with insurers' profitability. However, Motor Insurance, market share, GDP, and have insignificant relationship with profitability. Market share and motor insurance have positive but insignificant relationship with profitability. On the other hand, Leverage negative and statistically significant relationship with profitability, whereas GDP and inflation negative and insignificant in fluency on insurers' profitability.

5.2 CONCLUSION

Ethiopian insurer's profitability. Quantitative research approach was used to achieve the stated objective. More specifically, the analysis are performed using data derived from the financial statements of insurance companies in Ethiopia covering ten years period from 2010-2017 by descriptive statistics and multiple regressions using purposive sample of seven insurance companies from seventeen insurance companies currently operating in Ethiopia. Fixed effect model is used to estimate the regression equation. In the study Leverage ratio, Motor insurance, Market share, real GDP and inflation are considered as independent variables while profitability which was the peroxide by return on asset (ROA) is considered as dependent variables.

In this study it was found that motor insurance has positive relationship with profitability but statistically insignificant; however other studies Öner Kaya (2015) found out that the share of motor insurance in the companies' insurance portfolio is not important explanatory variable.

Besides S.Kozak (2011) found that the share of motor insurance in the company's insurance portfolio negatively impacts its profitability and efficiency, it means in a similar way as the level of operating costs. He stated that the analogy may come from the fact that motor insurance requires higher marketing expenses and creates higher values of compensations and gross claims paid by the company. Reduction of company's involvement in such insurance class results in lower operating expenses and has positive impact on the company's technical result and net financial profit and overall profitability. Therefore, the results of the effect of motor insurance on profitability are inconsistent.

The market share which is measured as ratio of total written premium of the company to total gross written premium of the industry in this study was positively affects profitability, but statistically insignificant level indicating that its impact is negligible. Reference to other studies for this study also suggested there is a positive relationship between market share and profitability of insurers. On the other hand, the findings of the macro variables GDP negatively affects profitability of insures in this study. However; both macro factors affect profit of insurers in Ethiopia statistically very insignificantly.

In general according to this study, Leverage, are significant key drivers of profitability of insurance companies in Ethiopia whereas motor insurance, market share, GDP and inflation insignificant determinant of insurance companies' profitability in Ethiopia.

5.3 RECOMMENDATIONS

On the basis of the findings of the study, the researcher has drawn the following recommendations: Though market share contributes positively to profitability, their statistical significance was found to be low according to this study. However insurers should work more to enhance the contribution of these two factors because, on the one hand, motor insurance is one of the largest business portfolios in insurance business mix in Ethiopian insurance industry, on the other hand motor insurance is a mandatory in Ethiopian law and insurers do not have discretionary power not to provide insurance coverage. Therefore, prudent underwriting activities are mandatory to get the best out of this big business portfolio. Regarding market share, insurers should not only increase their market share, but also they should have to excel their underwriting risk management capability so that they could harvest the fruit of market share.

Finally, this study attempted to look at some of the factors affecting insurer's profitability in Ethiopia. However, the variables used in the statistical analysis did not cover all factors that could affect insurers' profitability. Thus, future research should focus on some other dimensions of non-financial/qualitative aspects such as the effect of management quality, the quality of manpower, work ethics, effect of *morale hazard*(behavior of insured's after they get insured- insured may exhibit carelessness in their behavior because of holding insurance policy) and *moral hazards*(before or after insurance, insured's may conceal some important information to the insurer to win some unfair advantage), public attitude towards the concept of insurance in Ethiopia, government regulatory policy and directives, and other issues which the researcher is not knowledgeable with. Moreover, this study was conducted with non-life insurers only; future research should encompass the life insurance too.

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Appendix

Heteroscedasticity

Heteroskedasticity Test: White

F-statistic	3.241992	Prob. F(17,30)	0.0024
Obs*R-squared	31.08149	Prob. Chi-Square(17)	0.0195
Scaled explained SS	27.64484	Prob. Chi-Square(17)	0.0493

Source; Eviews 8 out put

Test for Auto correlation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.167076	Prob. F(2,40)	0.3216
Obs*R-squared	2.646547	Prob. Chi-Square(2)	0.2663

Test for Multicollinearity

	MRS	MOI	LVR	INFR	GDP
MRS	1				
MOI	0.1074937833311683	1			
LVR	-0.01655534653955097	0.498859175857651	1		
INFR	-0.0693846199010362	-0.3153316169001197	-0.4040363882853482	1	
GDP	0.001035135510250364	0.846093351738868	0.4896635804356362	-0.363498047019316	1

Source; Eviews 8 out put

Test for correlation

	ROA	MRS	MOI	LVR	INFR	GDP
ROA	1					
MRS	0.9026599616332706	1				
MOI	-0.0976720	0.1074937833311683	1			

	5094486929					
LVR	-0.033942835939082 4	-0.016555346539550 97	0.498859175857651	1		
INFR	0.100047716291415 2	-0.069384619901036 2	-0.315331616900119 7	-0.404036388285348 2	1	
GDP	-0.215443607638070 5	0.001035135510250364	0.846093351738868	0.489663580435636 2	-0.363498047019316	1

Source; Eviews 8 out put

Test for Regression and Discussion.

Dependent Variable: ROA

Method: Panel EGLS (Cross-section random effects)
Date: 12/20/20 Time: 00:19
Sample: 2010 2017
Periods included: 8
Cross-sections included: 6
Total panel (balanced) observations: 48
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MRS	23.02754	1.333020	17.27472	0.0000
MOI	-0.064102	0.068377	-0.937482	0.3539
LVR	0.049759	0.018892	2.633832	0.0118
INFR	0.029272	0.012131	2.412929	0.0203
GDP	-8.10E-07	4.96E-07	-1.633611	0.1098
C	-21.59813	1.823097	-11.84695	0.0000

Effects Specification

	S.D.	Rho

Cross-section random		0.000000	0.0000
Idiosyncratic random		0.758312	1.0000

Weighted Statistics			
R-squared	0.889187	Mean dependent var	3.316276
Adjusted R-squared	0.875995	S.D. dependent var	2.119391
S.E. of regression	0.746330	Sum squared resid	23.39436
F-statistic	67.40332	Durbin-Watson stat	1.492573
Prob(F-statistic)	0.000000		

Source; Eviews 8 out put