



INDIRA GANDHI NATIONAL OPEN UNIVERSITY (IGNOU)

SCHOOL OF MANAGEMENT STUDIES

**DETERMINANTS OF THE PROFITABILITY OF MOTOR INSURANCE
POLICY IN ETHIOPIA**

**THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTERS OF BUSINESS
ADMINISTRATION IN FINANCE**

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ETHIOPIA

CERTIFICATE OF ORIGINALITY

This is to certify that the project titled “Determinants of the profitability of motor insurance policy in Ethiopia” is an original work of the student and is being submitted in partial fulfillment for the award of the Master’s Degree in Business Administration of Indira Gandhi National Open University. This report has not been submitted earlier either to this University or to any other University/Institution for the fulfillment of the requirement of a course of study.

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ACRONYMS

APT	Arbitrage Pricing Theory
CSA	Central Statistics Authority
FEM	Fixed Effects Models
GDP	Gross Domestic product
GNP	Gross National Product
MST	Market Structure Theory
NICE	National Insurance Company of Ethiopia
NBE	National Bank of Ethiopia
POT	Pecking Order Theory
REM	Random Effects Models
ROA	Return on Assets
ROE	Return on Equity
WLS	Weight Least Square
WHO	World Health Organization

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ABSTRACT

The purpose of this study was to find out the determinants of insurance profitability in Ethiopia; In order to achieve this objective, this study used quantitative research approach using Panel data covering thirteen year period from 2005–2017 for six insurance companies. The study uses linear regression model to see the effect of independent variables, which were both OLS and Random Effect Model was employed to see the effect on profitability of motor insurance. Data was analyzed with software STATA 13. The findings of the study showed that Size of company and compulsory third party had a portative effect on ROA both on OLS and random effect model; number of car accident and inflation also show a negative and significant relationship with ROA both on OLS and random effect model. However, the variable GDP shows significant effect on OLS but not on random effect model. On the other hand, the variables age of the insurance company didn't show a significant association with return on asset both in OLS and random effect model. The study provides evidence that compulsory third party and number of car accident are most important factors affecting profitability of insurance companies Ethiopia. Therefore; the study recommends that Ethiopian insurance companies should give due consideration to these factors to appropriately address profitability issues.

Key words: Determinants, Profitability, Motor Insurance

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

In modern living insurance are the key tools which have a great role in reducing risks and providing financial and mental security which ultimately broaden for countries economic development (Derakhshideh & Jalae, 2014). According to Razak et al. (2014) investment is an intended to offer security to industries and people particularly eventualities. Insurance also enables parties to have protection of their livelihood and asset. Individual and a group of people now have the assurance in cases of injuries, damages and un timely deaths of the principal earner. Thus, insurance firms as financial intermediaries play a significant role within a nation's financial system by mobilizing funds from the surplus economic unit and channeling it to the deficit investment unit of the economy (Suleiman, 2015).

Insurance companies provide unique financial services for the growth and development of every economy. Such specialized financial services range from the underwriting of risks inherent in economic entities and the mobilization of large amount of funds through premiums for long term investments. The risk absorption role of insurers promotes financial stability in the financial markets and provides a "sense of peace" to economic entities. The business world without insurance is unsustainable since risky business may not have the capacity to retain all kinds of risks in this ever changing and uncertain global economy. Insurance companies' ability to continue to cover risks in the economy hinges on their capacity to create profit or value for their shareholders (Ahmed et al., 2010).

Insurance industry plays an important role in the economy of most developed and developing countries contributing to economic growth, efficient resource allocation, reduction of transaction costs, creation of liquidity, facilitation of economies of scale in investment, and spread of financial losses (Hails and Sumegi, 2008). Abate (2012) 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 stability of the economy of concerned country in general. Naveed et al(2011) the efficiency of financial intermediation and transfer of risk can affect economic growth while at the same time institutional insolvencies can result in systemic crises which have unfavorable consequences for the economy as a whole.

In a modern economy, the importance of financial institutions such as Banks, Insurance, saving and credit unions, Cooperatives and the likes is unarguable. These institutions play a great role in facilitating and lubricating the economy of nations. A. Saunders and M.M Cornett (2004) the financial institutions perform essential function of channeling funds from those with surplus funds (supplier of funds) to those with shortage of funds (user of funds) Frederic & Eakins (2009) financial institutions not only affect our everyday life but also involve huge flows of funds, which in turn affect business profits, the production of goods and services, and even the economic well-being of countries. Dereje Workie (2012) stated that financial institutions serve as a medium of exchange and facilitate business activities, support mobilization of resources through savings and allocate resources to activities with highest returns, follow up investments and exert corporate governance, and offer a diversity of financial instruments.

Profitability is a common aim of the financial management due to the ultimate goal of financial management is to maximize the owner's wealth, thus profitability appears as a key determinants of performance. The insurance regulation goal is often related to market imperfections such as

agency problems. Agency problems refer to the contradiction between the insurance company's owners on one hand and policyholders on the other hand. It was admitted that there are needs for a form of supervision to attempt to minimize the risk of a possible failure. The asymmetry between profitability as one of the main drivers for a company in insurance business and the solvency issue as a form of guarantee for the policyholders can be resolved by acquiring and distributing more information and regulation (Veleva, 2017).

According to Hifza Malik (2011) profitability is one of the most important objectives of financial management since one goal of financial management is to maximize the owners' wealth. Profitability is a 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 a large return on their investment. Hence, the ultimate goal of a business entity is to earn profit in 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 from a business activity exceeds the expenses, costs and taxes needed to sustain the activity.

Ethiopia's financial sector includes banks, insurance companies, microfinance institutions and pension funds, with banks dominating the sector (African Economic Outlook, 2016). Insurance company is also one of the financial institution sectors which provide a unique financial service by serving the societies in managing risk (Hanna, 2015). They offer financial protection to an individual or firm against the monetary losses which are suffered from unforeseen circumstances (Kihara, 2012). The indemnification and risk pooling properties of insurance facilitates

commercial transactions and provisions of credit by mitigating losses and management of non-diversifiable risk to promote economic activities (Nдалu, 2017).

Despite the long history of Ethiopian civilization the insurance industry does not have long history of development. From the measurement point of view of insurance premium market share, market penetration rate and insurance density Ethiopia is the lowest in Africa and world. The investment activities of insurance companies are highly constrained by the restrictive investment proclamation of National bank of Ethiopia. This causes insurance companies to invest majority of their capital in government securities and deposit in banks with negative real interest rate (Mezgebe, 2010). The insurance industry in Ethiopia is relatively under developed and it is demonstrated by low penetration rate of the sector (NBE, 2015). According to the report of National bank of Ethiopia, in Ethiopia there are 0.3 million estimated clients of insurance. There are 17 registered insurance companies in Ethiopia, of which, Ethiopian Insurance Corporation is state owned while the rest sixteen are private owned companies. In line with this context, this research will try to find out the determinants of profitability of motor insurance policy in selected insurance companies of Ethiopia.

1.2. Statement of the Problem

In the current era, strong financial institution systems such as banks and nonbank financial institutions and insurance companies are playing a vital role in the economic development of a given country (Daare, 2016). Financial institutions serve as the lifeblood of the economy by facilitating the flow of capital among an organization. Insurance firms, in particular, reinforce monetary and investment activities by providing long-term funds for physical and social infrastructure while simultaneously boosting risk-taking abilities (Cudiamat and Siy, 2017). In this context, it is crucial to know and insight the major drivers of insurance companies' profitability

instead of solely measuring the financial performance of insurers and showing by figurative numbers since the identification of factors that determine profitability in the industry is a major problem to be studied.

Profitability is one of the most important objectives of financial management because one goal of financial management is to maximize the owner's wealth and profitability is a very important determinant of performance (Malik, 2011) cited on Willy (2016). An investigation of major factors determines insurance company's profitability has always attracted the attention of academics, policy makers and practitioners. In this context, a lot of scholars have conducted studies on determinants of insurance companies' profitability and revealed in different conclusions. For instance, the insurance company's profitability can be affected by many exogenous factors including macroeconomic factors like real GDP growth rate and inflation (Doumposet.al.,2012), industry related factors like diversifications and industry concentration ratios (Hussain, 2015; Moro and Anderloni, 2014; Datu, 2016 and Lee, 2014) and other endogenous variable like actual mortality experience, investment earning, capital gains or losses, the scale of policyholder dividends, and federal and state taxes (Wright, 1992).

As per National Bank of Ethiopia report 2016), the Ethiopian insurance sectors growth rate of revenue from gross premium of insurance sector exhibits decline over time. Insurance Companies are also report low amount of profit on their policies underwritten by the non-life insurance business. But, few of them were profitable companies in the period of year-ago. As a whole the premium portfolio of insurance companies operating in Ethiopian were dominated by general

insurance line, but more revenues are collected from the policies written by long-term insurance companies (Debala, 2017).

Different scholars have been doing empirical investigation on the determinants of insurer's profitability and arrived at different conclusions. Swiss (2008) insurers' profitability is determined first by underwriting performance (losses and expenses, which are affected by product pricing, risk selection, claims management, and marketing and administrative expenses) and second, by investment performance, which is a function of asset allocation and asset management as well as asset leverage. Khan (2013) revealed that leverage, size, earnings volatility and age of the firm are significant determinants of profitability while growth opportunities and liquidity are not significant determinants of profitability. Ahmed (2008) examined the determinants of insurers' profitability that size, volume of capital, leverage & loss ratio are significant determinants of profitability. Abate (2012) studied company specific factors affecting insurance profitability in Ethiopia and found out that size, volume of capital are positively and significantly related with profitability; whereas liquidity, and leverage are negatively but significantly related.

Analysis of determinants of motor insurance companies' profitability in Ethiopia in particular according to the author's knowledge, has not been so far addressed in the economic literature. This paper is aimed to fill in this gap and to shed additional light on issues of financial integration of insurance sector in Ethiopia and effects of such process for the sector performance. The analysis is focused to recognize main factors which influence profitability of motor insurance. Therefore, in considering this, this research will try to address the issue through analyzing determinants of motor insurance in Ethiopia using a panel data.

1.3. Basic Research Questions

- To what extent Company Size determine insurance company profitability
- Does Number of Car accident have effect on insurance company profitability?
- To what extent Age of Company determine insurance company profitability?
- What is the effect of Inflation Rate on insurance company profitability?
- Does GDP have effect on insurance company profitability?

1.4. Objectives of the study

1.4.1. General objective

The general objective of the study is to investigate the determinants of the profitability of motor insurance policy

1.4.2. Specific objectives

- To identify to what extent Company Size determine insurance company profitability
- To determine the effect of Number of Car accident on insurance company profitability
- To determine to what extent Age of Company determine insurance company profitability
- To investigate the effect of Inflation Rate on insurance company profitability
- To identify the effect of GDP on insurance company profitability

1.5. Significance of the Study

First and for most the output of this study benefit companies who engaged in insurance business in a way of influencing policy at national level through sighting at least some of the influential factors of motor insurance growth. This study also serve as a benchmark for further researchers who would like to pursue, diversify and crystallize the subject; In addition, it provides updated information regarding insurance companies to those who would like to do similar studies at a larger scale. Therefore the results of this paper at least add a little knowledge in the area of motor insurance.

1.6. Scope of the Study

Although a number of scientific studies signifies there are much numbers of macroeconomic factors that are possibly determine the demands of motor insurance; however, in considering the available resources this study try to see the effect from the perspective of six different independent variables in which the researcher believes they are the basic factor in Ethiopian context. Furthermore, in terms of organization the research encompasses six insurance companies; these are Ethiopian Insurance Corporation, Awash Insurance Company, NIB Insurance Company, Nile Insurance Company, Nyala Insurance Company, and United Insurance Company.

1.7. Organization of the Study

This study organizes in five chapters. The first chapter covers the introductory part including statement of the problem, objective and significance of the study, and scope and limitation of the study. Chapter two will deals with a review of related literatures; Chapter three present a general background of methodology. Chapter four explains how the data analyzed and interpreted. The fifth and last chapter provides a conclusion and recommendations for the future.

CHAPTER TWO

LITERATURE REVIEW

2.1. Theoretical Review

2.1.1. The Concept of Insurance

The concept of insurance refers to Risk-transfer mechanism that ensures full or partial financial compensation for the loss or damage caused by event(s) beyond the control of the insured party. Under an insurance contract, a party (the insurer) indemnifies the other party (the insured) against a specified amount of loss, occurring from specified eventualities within a specified period, provided a fee called premium is paid. In general insurance, compensation is normally proportionate to the loss incurred, whereas in life insurance usually a fixed sum is paid. Some types of insurance are an essential component of risk management, and are mandatory in several countries. Insurance, however, provides protection only against tangible losses. It cannot ensure continuity of business, market share, or customer confidence, and cannot provide knowledge, skills, or resources to resume the operations after a disaster (BusinessDictionary, 2018).

Insurance is a means of protection from financial loss. It is a form of risk management, primarily used to hedge against the risk of a contingent or uncertain loss. An entity which provides insurance is known as an insurer, insurance company, insurance carrier or underwriter. A person or entity who buys insurance is known as an insured or as a policyholder. The insurance transaction involves the insured assuming a guaranteed and known relatively small loss in the form of payment to the insurer in exchange for the insurer's promise to compensate the insured in the event of a covered loss. The loss may or may not be financial, but it must be reducible to financial terms, and usually involves something in which the insured has an insurable interest established by ownership,

possession, or preexisting relationship. The insured receives a contract, called the insurance policy, which details the conditions and circumstances under which the insurer will compensate the insured. The amount of money charged by the insurer to the insured for the coverage set forth in the insurance policy is called the premium. If the insured experiences a loss which is potentially covered by the insurance policy, the insured submits a claim to the insurer for processing by a claims adjuster. The insurer may hedge its own risk by taking out reinsurance, whereby another insurance company agrees to carry some of the risk, especially if the primary insurer deems the risk too large for it to carry (Wikipedia, 2018).

Insurance is the most widely used risk management technique for both individuals and businesses. Insurance is a method for transferring from an individual or entity to an insurer the risk of financial loss from events such as accident, illness, or death, and the loss of property. The purpose of insurance is to compensate for financial loss, not to provide an opportunity for financial gain. Pure risk is the only kind of risk that can be insured; speculative risk cannot be insured (Jones and Silver, 2011). In general, individuals and businesses can purchase insurance policies to cover three types of risk: personal risk, property damage risk, and liability risk. Personal risk is the risk of economic loss associated with death, poor health, injury, and outliving one's economic resources. Life and health insurance companies issue and sell products that insure against financial losses that result from personal risks such as death, disability, illness, accident, and outliving one's savings (Ahmed, 2016).

Insurance is a way of plummeting uncertainty of occurrence of an event and is deriving plans to counteract the financial consequences of unfavorable events. It is basically a co-operative endeavor of a social device for eradicating the cost to society under the occurrence of certain types of risks (Sushma, 2012). Insurance is a contract under which one party accepts significant insurance risk

from another party by agreeing to compensate the policyholder if a specified uncertain future event (the insured event) adversely affects the policyholder. Insurance can be defined as a service provided as a financial benefit in favor of an individual, association or business in exchange for collected premiums that provides a benefit in case a risk occurs. It is an economic sector that includes the conception, production and marketing of this type of service (Berteji and Hammami, 2016). The insurance firms reinforce monetary and investment activities by providing long-term funds for physical and social infrastructure while simultaneously boosting risk-taking abilities (Cudiamat and Siy, 2017).

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2.1.2. The Concept of Profitability

Performance is the ability of an organization to gain and manage its resources in several different ways to develop competitive advantage (Iswatia and Anshoria, 2007). High performance reflects management effectiveness and efficiency in making the use of a company's resources and this contributes to the economy at large (Batra, 1999). Generally, the performance of insurance companies

can be estimated by measuring their profitability, which is a relative measure of success for a business and it acts as a proxy of financial performance. One of the objectives when managing insurance companies is to attain profit (Chen and Wong, 2004). In fact, it is an essential prerequisite for increasing the competitiveness of a company. In addition, profit attracts investors and improves the level of solvency, and thus, strengthens consumers' confidence. Without profits insurers cannot attract outside capital to meet their set objectives in this ever changing and competitive globalized environment. However, profits alone cannot be used to compare performance between different companies hence profitability is suitably measured by financial ratios (Abate, 2012). Al-Shami (2008) and Malik (2011) argued that return on assets (ROA) and return on equity (ROE) are the best measures of company performance.

The term profit can take either its economic meaning or accounting concept which shows the excess of income over expenditure viewed during a specified period of time. Michael Koller (2011) argued that profitability is the most important and reliable indicator as it gives a broad indicator of the ability of an insurance company to raise its income level (Kaur and Kapoor, 2007). According to Hamad Ahmed Ali Al-Shami (2008) there are different ways to measure profitability such as: return on asset (ROA), return on equity (ROE), and return on invested capital (ROIC). ROA is an indicator of how profitable a company is relative to its total assets. Whereas ROE measures a company's profitability which reveals how much profit a company generates with the money shareholders have invested. ROIC is a measure used to assess a company's efficiency in allocating the capital under its control in profitable investments. This measure gives a sense of how well a company is in using its money to generate returns. However, most researchers in the field of insurance and their profitability stated that the key indicator of a firm's profitability is ROA defined as the before tax profits divided by total assets. Philip Hardwick and Mike Adams (1999),

Hafiz Malik (2011) are among others, who have suggested that although there are different ways to measure profitability it is better to use ROA.

In the current complex world, the measuring business performance is ambiguous concept in terms of its definition and evaluation. It is measured through profitability which is attached with an overall firm business performance (Borlea and Achim, 2010). Profitability is one of the largest goals of financial management in maximizing the owner's wealth of the shareholders. It is an essential determinant of firm's financial performance (Malik, 2011). Profitability is defined as proxy of financial performance which are one of the main objectives of insurance company's management (Burca and Batrinca, 2014). It also measured by return on assets (ROA) which are a major indicator of how profitable a company is relative to its total assets (Malik, 2011). William H. Greene and Dam Segal (2004) argued that the performance of insurance companies in financial terms is normally expressed in net premium earned, profitability from underwriting activities, annual turnover, return on investment, return on equity. These measures could be classified as profit performance measures and investment performance measures. However, most researchers in the field of insurance and their profitability stated that the key indicator of a firm's profitability is ROA defined as the before tax profits divided by total assets. Philip Hardwick and Mike Adams (1999), Hafiz Malik (2011) are among others, who have suggested that although there are different ways to measure profitability it is better to use ROA.

In real world profitability for any business attached with the firm business performance. Performance is a difficult concept in terms of definition and evaluation. It is defined as an output, and the proper measure select to assess corporate performance is considered according to the organization type and objectives of evaluation. Researcher in strategic management has offered a variety of models that can be used to analyze financial performance. Profitability, defined as proxy

of financial performance, is one of the main objectives of insurance company's management (Burca & Batrinca, 2014). Profit is a crucial prerequisite for an increasing competitiveness of a company that operates in a market.

At microeconomic level, performance is the direct result of managing various economic resources and of their efficient use within operational, investment and financing activities. To optimize economic results, a special attention should be given to the proper grounding of managerial decisions (Malik 2011). These should be based on complex information regarding the evolution of all types of activities within the company. A synthetic picture of the company's financial position and its performance is found in the annual financial statements, which therefore become the main information sources that allow the qualitative analysis of how resources are used during the process of creating value. Profitability of private insurance companies was analyzed through micro and macroeconomic level, being determined both by internal factors represented by specific characteristics of the company which is totally under the hand of the corporate management system, and external factors regarding connected industry and macroeconomic environment in general which also not under the hand of the corporate management but identifying and knowing its directions and magnitude was helps to develop the strategy to get the opportunity or to minimize the treat.

In a competitive marketplace, private insurance companies essentially absorb to achieve a satisfactory level of profitability (Malik 2011). Increasing profitability involves determining which areas of operation and a financial strategy are working and which ones need improvement. Understanding the key factors and its magnitude determining profitability assists managers in developing an effective profitability strategy for their company. The insurance Profitability growth was fluctuated from time to time. For instance, the general insurance sector total profit of seventeen

insurance companies have been earned in thousands birr of 245,704 in 2010, 252,071 in 2011, 402,609 in 2012, 586,782 in 2013, 751,175 in 2014 and registered 85%, 3 %, 60 %, 46 %, 28 % net growth respectively (NBE, annual report 2015).

2.1.1. Motor Insurance

Motor insurance is mainly claim to cover losses to third party liability to person and property as well as accidental own damage to the same due to overturning or collision depending upon the type of cover. The subject matter in motor insurance is motor vehicle. A motor vehicle is defined by road traffic act of UK as a mechanically propelled vehicle intended or adapted for use on roads. Road means any highway and any other road to which the public has access and includes bridges over which a road passes (CII, 2011). Motor insurance is divided into two main category, the private motor insurance and commercial motor insurance that is given for private automobile and commercial vehicle cover respectively.

A vehicle is classified as private vehicle if it is used solely for social, domestic, pleasure and professional purposes or business calls of the insured. The term ‘private use’ does not include use in connection with the motor trade, racing, commercial travelling and hire and reward. On the other hand, commercial vehicles are goods carrying vehicles as well as passenger carrying vehicles. It is used to describe different types of vehicles that are intended or designed to carry goods and passengers. It ranges from trucks, busses to small goods caring delivery vans and small mini buses. Such vehicles can be used for carriage of goods and people for hire or reward and carriage of own goods pulse own service.

General cartage: these are types of vehicles that are intended or designed to carry goods. It ranges from trucks to small goods caring delivery vans. Such vehicles can be used for carriage of goods

for hire or reward and carriage of own goods. Passenger carrying vehicles: This group includes vehicles such as taxis, minibuses, buses, etc. Generally it is divided into public service vehicles and own service vehicles. Public service vehicles are vehicles used for the carriage of passengers for hire or reward. These include public hire vehicles, private hire vehicles and buses. On the other hand, own service vehicles are vehicles used for the carriage of passengers not for hire or reward. These include organizations employee transport services. Apart from the above listed vehicles there are other groups of vehicles which are under motor insurance. Vehicles of special construction: such vehicles are designed or constructed to perform specific purposes such as mobile cranes, fire trucks, mixers, breakdown vehicles, dumpers dozers graders etc. Agricultural and forestry vehicles: This group includes tractors, trailers, and balers and combined harvester. Motor cycles: This group is two or three wheeled vehicles used for personal or business purposes. Motor trade: This class of risk relates to vehicles used by dealers and repairers in during driving test, in custody and other related activities. Learners: such vehicles are designed with double clutch and brake pedals used for training drivers (EIC manual, 2011).

Motor insurance is the most prevalent insurance line in the world, and in Ethiopia, the largest sector in non-life insurance. In 2006/07 Ethiopian insurance industry generated a total income close to 44 USD or 46% 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 189%, 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 maybe 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 64% and 95% 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. As stated in Emine Öner Kaya (2015) Motor insurance, which has a significant share in then on life 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 (Özer 2015). It is possible to state that this situation arises from the high loss payments and marketing costs in motor insurance (Kozak 2015) and the fact that companies make pricing according to the prices of competitive companies with the concern that they could lose market share. Within this framework, 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. However, it is possible to make motor insurance profitable and sustainable with the correct pricing of risks and an effective damage and cost management. In a nut shell, though motor insurance business generates lion share of the business income/premiums to insurers in Ethiopia or across the world, due to reasons mentioned above, the claim cost incurred by this class of business and its acquisition cost (cost of commission) has been found to be very much significant throughout time. Therefore; the impact of motor insurance business on profitability is needless to say.

2.1.2. Agency Theory

According to Abdullah et al (2009), agency theory explains the relationship between the principals and agents. In this theory members who are the owners (principals) of the insurance firm hire by electing the management board as their agents (Mitnick 2006). Principals delegate the stewardship of the business to the management board which in turn hires and bestows authority upon managers (Clark 2004). The theory narrows the firm to two participants principals (owners) and agents (managers). In this regard shareholders anticipate the agents to act and make decisions in the best interest of the principals (Padilla 2002). However, the agent may yield to self-interest, opportunistic behavior and violate the contract between the interests of the principals and the agents" ends (Odhiambo 2012). Agents are likely to have different motives to principals. They may be influenced by factors such as financial rewards, labor market opportunities, and relationships with other parties that are not directly relevant to principals. This can, for instance, result in a tendency for agents to be more optimistic about economic performance of the insurance firm or their performance under contract than the reality would imply. Agents may also be more risk averse than principals and as a result of these differing interests, agents may have an incentive to bias information flows. Principals may also express concerns about information asymmetries where agents are in possession of information to which principals do not have access.

Implicit in this theory is that different motivations and information asymmetries lead to the reliability of information, which impacts on the level of trust that principals will have in their agents. The insurance firms have a variety of mechanisms that may be used to try to align the interests of the agents with the principals" and to allow the principals to measure and control the behavior of their agents and reinforce trust in agents. However, the less trust is in an agent the more likely it is that principals will opt for certain performance related pay measures and incentives

that will align interests. In such scenario, insurance firms are likely to set basic salary at a relatively low level but this would go hand in hand with a package of other benefits which might include bonuses and share options. Such mechanisms, however, create potential new agency problems related to the measurement of performance. These agency problems may conspire against the insurance firms' performance thereby warranting the need for structural transformation to reverse this trend. Duties can be captured in contracts and be made the subject of enforcement and penalties for any perceived deviation from the insurance firms' objectives (Institute Chartered Accountants 2005).

2.1.3. Pecking Order Theory

Pecking order refers to a hierarchy of financing beginning with retained earnings followed by debt financing and finally external equity financing. Myers et al (1984) assert that firms prefer internal sources of finance over external sources due to transaction cost, agency cost and information asymmetry. Donaldson (1961) claimed that firms decide to follow the "financing hierarchy" as posited by the pecking order theory (POT) due to the transaction cost and according to Zurigat (2009) this transaction cost includes compensation for the dealer placing the issue and other expense such as legal, accounting and printing cost as well as registration fees and taxes. Donaldson further explained firms that use internal finance experience less or no transaction cost as compared to the use of external funds POT explains that firms follow up the "hierarchical" ordering due to the existence of information asymmetry which arises out of the fact that management of the insurance firms have more knowledge regarding the investment opportunities and profitability of the business than investors in the firms. Myers et al (1984) posited that information symmetry would lead to mispricing of a firm's equity which would impact adversely

on the existing shareholders wealth. According to this theory insurance firms are not eager in external finance if they don't have sufficient internal finance. If the external funds are inevitable then the insurance firms like to make choice among external sources of funds, which has less cost of capital as well as cost of uneven information. POT model predicts that the optimal capital structure will not be achieved by insurance firms but they would follow a certain principle and select external financing when „debt capacity' is attained. The pecking order theory asserts that management will finance the activities of the firm without control restrictions if the firm doesn't possess adequate internal funds. Hence, short-term financing is acquired first because that does not warrant collateral, followed by long-term debt and then equity issuance (Karami et al 2014). POT further implies that outside investor is conscious about the debt and equity financing of the insurance firm. Thus insurance firms consider retained earnings as the better source of finance than outside financing. Retained earnings are utilized first when possible, but if the insurance firm does not possess sufficient amount of retained earnings then it will choose debt financing. A company finances overtime with the method providing the least resistance to management and there's little capital market discipline on management's behavior. The capital structure that results is a by-product and changes whenever there's an imbalance between cash flows and capital investments.

2.1.4. Trade-Off Theory

Trade-off theory claims that firms have an incentive to turn to debt as the generation of annual profits allows benefiting from the debt tax shields. A positive relationship is expected between the effective tax rate and debt (Mira, 2008). A firm with a high level of non-debt tax shields will probably have a lower level of debt than a firm with low non-debt tax shields. The Trade-off theory forecasts a negative relationship between non-debt tax shields and debt. The most profitable firms

have capacity for a higher level of debt, taking advantage of debt tax shields (Fama, French 2002). Highly profitable firms are likely more able to fulfill their responsibilities regarding the repayment of debt and interests, which contributes to a less likelihood of bankruptcy. There is a positive relationship between profitability and debt in insurance firms.

Myers (1984) states that as bankruptcy and agency costs are greater for firms with high expectations of growth opportunities, firms can be reluctant to use high amounts of debt so as not to increase their likelihood of bankruptcy. As a result, firms with high growth opportunities may not use debt as the first financing option. According to the trade-off theory, firms with greater growth opportunities have a lower level of debt, given that greater investment opportunities increase the possibility of agency problems between managers/owners and creditors, because the former have a great incentive to underinvest (Myers 1977). Tangible assets can be used as collaterals in the case of firm bankruptcy, protecting the creditors' interests. Michaelas *et al.* (1999) claim that firms, with valuable tangible assets, which can be used as collaterals, have easier access to external finance, and they have probably higher levels of debt than firms with low levels of tangible assets. Therefore, in the trade-off approach, a positive relationship is forecast between asset tangibility and firms' level of debt, and so the following hypothesis is formulated. Larger firms tend to have greater diversification of activities that implies less likelihood of bankruptcy (Titman, Wessels 1988). In addition, large firms with less volatile profits are more likely to take advantage of the debt tax shields, so increasing the potential benefits of debt (Smith, Stulz 1985). Therefore, according to the trade-off approach, large firms tend to increase their level of debt as a consequence of the lesser likelihood of bankruptcy, and also as a way to increase the debt tax shields.

2.1.5. Profitability Related Theories

Different researchers have been come up with different conclusions regarding the determinants of profitability. But, there is no single theory which gives a correct and comprehensive explanation on the nature and determinants of profit. It is familiar that without profitability, the business will not survive in the long-run since the profitability is the measure the goal of all business ventures and success of the business economic unit. Therefore, to achieve better profitability, the insurance firm should consider the theories which discussed in different finance literatures and they must relate those theories with their operational activities.

2.1.5.1. Market Structure Theories (MST)

Traditionally, the Market Structure Theory (MST) of the firm was assumed that a firm's objective is simply to maximize a profit. In the societies of modern industries, this theory is not applicable in practice, because most of the modern industries are involved in providing a variety of products/services, and they faced with much more complex decisions to be taken in a dynamic and uncertain business environment (Rasiah, 2010). The overall assumption of the market structure theory is focus on the consideration of industry structure (measured by market concentration level in term of market share ratio) which has an impact on profitability of insurance companies.

There are two theories that are proposed in MST. The first theory is structure-conduct-performance hypothesis (SCP) (also referred to as the Relative-market-power hypothesis (RMP)) states that a more concentrated sector favors high profitability and motivated by benefits of greater market power, which reflects the setting of prices that are less favorable to consumers (high policy holders, higher Gross Written Premium) as a result of competitive imperfections in markets (monopoly profits). Existence of superior management and high market share will lead the company to raise

their profit (Berger, 1995; Berger and Hannan,1989). Goddard *et.al.*, (2004) noted that, the relationship between market concentration and profitability is based on the SCP hypothesis and they have empirically positive relationship.

The second formulation of theoretical framework of Market Structure Theory is the efficient structure hypothesis (ESH). It states that efficient firms in the market lead to increase in the firms' size and market share due to the aggressive behavior. This will help the large firms to maintain high profits through low cost as a consequence of concentrated market structures and collusion occur among firms. The ESH theory also states a positive relationship between firm concentration and profitability as an indirect consequence of efficiency. Generally, Berger and Hannan (1989), states that ESH and SPC stand on similar observation on the relationship between concentration and performance (profitability). The findings of Lee and Lee (2012), Pervan and Kramaric (2012) and Jovovic *et.al.*, (2014) is also support this finding. However, the difference in two theories consisted mainly in ways of interpretation of the relationship. But, some empirical evidence on the relationship between firm concentration and profitability is not conclusive.

2.1.5.2. Modern Portfolio Theory (MPT) Approach

The Modern portfolio theory approach is the most relevant approach and it plays a vital role in financial institutions; particularly in bank, nonbank financial institutions and insurance (Nzongang and Atemnkeng, 2006). The theory was developed first by Markowitz in 1952. The major ideas of the modern portfolio theory are maximizing the expected portfolio returns for a given amount of minimum portfolio risk in a given level of return by carefully choosing the proportions of various assets. Markowitz explain the Modern portfolio theory as to which the investors should select a portfolio and make the highest possible return from a certain level of risk or get the lowest possible

risk for a certain level of return. There is a positive relationship between the risk and the expected return of a financial asset (Sadiye, 2014).

Two types of risks are considered under MPT to determine the rates of return of asset portfolio held by the firms. The first is the unsystematic risks which are effectively minimized and possible by diversifying portfolio risk. It related to the firm specific factors for individual firm. Further side, the systematic risks are affected by the macroeconomic factors and even cannot eliminate through diversification of the portfolios. Erdugan (2012) noted that the risk and return on firm's diversified portfolio is depending on domestic and foreign economic and financial variables for financial industry which are based on decisions taken by the financial manager. These are also real for the insurance companies in elsewhere. Since insurance firms are investments by themselves its standard practice for them to invest in a diversified portfolio to minimize risk and increase the returns through various investment options on offer. Thus, when choosing a portfolio, an insurance firm should maximize the discounted (or capitalized) value of future earnings (Suheyli, 2015). Further, the ability to obtain maximum profits depends on the feasible set of assets and liabilities determined by the management of the organizations and the unit costs incurred by the firm for producing each component of assets (Nzongang and Atemnkeng, 2006). Therefore, this theory is also important for the insurance companies operating in elsewhere and all over the world.

2.1.5.3. Arbitrage Pricing Theory (APT)

The Arbitrage Pricing Theory (APT) was introduced by Ross in 1976. The theory assumes a positive relationship between risk and expected return of the firm. The APT model is an expansion of the CAPM and describes returns as a linear function of several rather than of single variable. The APT theory is less restrictive in comparison to Capital Asset Pricing Model (CAPM). As noted by Ouma and Muriu (2014), the APT theories are based on two basic assumptions such as capital markets are perfectly competitive and investors always prefer more wealth to less wealth with certainty respectively. Furthermore, the APT agrees on the existence of many different specific forces those can influence the return obtained any individual firm. As noted by Suyehli (2015), the effect of these specific factors may consider the principle of diversification which has highly influence the activities undertaken on the field of insurance. Despite to that, the APT are also uses multiple variables and is a multi-beta model by its nature. Sadiye (2014) also noted that, the sensitivity of movements in each variable is represented with a beta coefficient to indicate the unique sensitivity of each particular variable.

The Arbitrage Pricing Theories connects several types of risk associated with firm securities such as changes in interest rates, inflation and productivity with the expected return of the same securities used by the entities through combining both systematic and unsystematic risk which attributes the expected return of a capital asset to multiple risk factors. Thus, an insurance company has no way of knowing whether any particular individual will become sick or will be involved risk. This shows that an insurance company is not entirely free of risk since the insurers is insures a large number of individuals (Ouma and Muriu, 2014). With reference to the APT model, insurance firm's profitability is also affected by several macro-economic factors such as inflations, interest rates, money supply and exchange rates like other firms. In context to this, even if there is

lack of the capital market in Ethiopia; some of the assumption of APT which discussed above is related to profitability of the insurance industry operating in our countries. Therefore, this study considers some of the factors which affect profitability of the selected firms and relates some assumption of this theory with the issues under investigation.

2.1.6. Determinants of Insurance Profitability

ROA measures the ability of an insurance company's management to generate income by utilizing company assets (Wen, 2010). It is a ratio that indicates profitability of an insurance company. An increasing trend of ROA indicates that the profitability of the company is improving. ROE is a financial ratio that measures the amount of profit a company earned relative to the total amount of shareholder equity invested. Thus, a higher ROE indicates that management is very effective in utilizing shareholders' capital (Krawish, 2011). In this study ROA was used as a measure for the performance of an insurance company. This ratio can be directly computed by dividing net income by average total assets (Kieso and Warfield, 2001).

Previous studies dwelling on determinants that affect insurance company performance have been documented in the academic literature. Adams and Buckle (2003) examined the factors affecting financial performance of insurance and reinsurance companies operating in Bermuda. They used panel data for the years 1993 to 1997. According to their results, financial performance is positively and significantly influenced by the leverage, type of company, and underwriting risk. In contrast, liquidity has a negative and significant impact on financial performance whilst company size and scope of operations have no effect on financial performance. Kozak (2011) analyzed the determinants of the profitability of 25 general insurance companies in Poland from 2002 to 2009. By applying a regression model the author identified the factors; reduction of motor insurance,

increase of other classes of insurance, growth of gross written premiums, operating costs reduction, gross domestic product (GDP) growth, and growth of BW Mazviona, M Dube and T Sakahuhwathe market share of the companies with foreign ownership, as having a positive impact on insurance companies' performance. In contrast, providing a wide range of insurance classes affects profitability negatively.

Almajali, Alamro and Al-Soub (2012) carried out a study to examine and identify the factors affecting the financial performance of Jordanian insurance companies during the period 2002 to 2007. ROA was used as the dependent variable while leverage, liquidity, age, size and management competence index were independent variables. The results of regression analysis revealed that liquidity, leverage, size of the company and management competence index have a significant and positive effect on the financial performance of Jordanian insurance companies. Results also suggest that there is no significant relationship between the age of the company and performance. Burca and Batrinca (2014) investigated the factors that affect the financial performance of 21 insurance companies operating in the Romanian insurance market during the period 2008-2012. For this purpose, the explanatory variables used were financial leverage in insurance, company size, number of years of operating in the Romanian market, growth of gross written premiums, equity, total market share, diversification, underwriting risk, investment ratio, reinsurance dependence, retained risk ratio, solvency margin, and growth of GDP per capita. ROA was utilized as an indicator of company performance. By applying panel data techniques, the authors showed that the major determinants of financial performance in the Romanian insurance market are financial leverage in insurance, company size, growth of gross written premiums, underwriting risk, risk retention ratio, and solvency margin.

It has been suggested that company size is positively related to profitability. The main reasons behind this can be summarized as follows. First, large insurance companies normally have greater capacity for dealing with adverse market fluctuations than small ones. Second, large firms usually can relatively easily recruit able employees with professional knowledge compared with small firms. Third, large insurance companies have economies of scale in terms of the labor cost, which is the most significant production factor for delivering insurance services (Shiu, 2014). Company size is computed as decimal logarithm of total assets of the insurance company. A positive linkage between company size and its profitability is expected, since larger firms have more resources, a better risk diversification, complex information systems and a better expenses management. In most literatures the effect of size on banks profitability are represented by total asset. Flaminius et.al (2009) indicated that size is used to capture the fact that larger firms are better placed than smaller firms in harnessing economies of scale in transactions and enjoy a higher level of profits. One of the most important questions underlying bank policy is which size optimizes bank profitability. According to Athanasoglou (2005), the effect of a growing size of a bank on profitability has been proved to be positive to a certain extent. Consequently, a positive relationship is expected between size and profitability by many insurance area researchers. However, for firms that become extremely large, the effect of size could be negative due to bureaucratic and other reasons Yuqi Li (2007). Hence, the size profitability relationship may be expected to be non-linear. Therefore most studies use the real assets in logarithm and their square in order to capture the possible non-linear relationship. As cited in Hana (2015) in general, majority of studies indicated that performance of large size insurance companies is better than small size companies. But the size growth should be limited to a certain stage, and that certain stage could be defined based on the ability of the management.

If the company size keeps on increasing above the optimal point it is obvious that the increase in insurance's size provides diseconomies of scale, therefore, up to the optimal point increase in size gives the above mentioned advantages to the firm. Hailegeorgis (2011) explained commercial banks profitability in Ethiopian Commercial Banks size represented by banks assets which increased significantly, this increase leads to the profitability of banks; the result implies that larger banks enjoy the higher profit than smaller banks in Ethiopian banking sector because they are exploiting the benefit of economies of scales. Therefore, from the above theoretical discussions it may be inferred that there is a positive relationship between size of a company and profitability as long as the size is manageable and to the optimum level. So size is one of the important factors of insurer's profitability.

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 financial strength to absorb losses arising from claims. Capital adequacy (volume of capital) also indicates the ability of insurers to undertake additional business (Tanveer Ahmad Darzi, 2004, p: 59). 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.

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 result 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.

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, &Pesonen1994). 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.

2.1. Insurance Companies In Ethiopia

The history of insurance service is as far back as modern form of banking service in Ethiopia which was introduced in 1905. At the time, an agreement was reached between Emperor Menelik II and a representative of the British owned National Bank of Egypt to open a new bank in Ethiopia. Similarly, modern insurance service, which were introduced in Ethiopia by foreigners, mark out their origin as far back as 1905 when the bank of Abyssinia began to transact fire and marine insurance as an agent of a foreign insurance company.

According to a survey made in 1954, there were nine insurance companies that were providing insurance service in the country. With the exception of Imperial Insurance Company that was established in 1951, all the remaining of the insurance companies were either branches or agents of foreign companies. In 1960, the number of insurance companies increased considerably and reached 33. At that time insurance business like any business undertaking was classified as trade and was administered by the provisions of the commercial code. According to Hailu Zeleke (2007), the first significant event that the Ethiopian insurance market observation was the issuance of proclamation No. 281/1970 and this proclamation was issued to provide for the control & regulation of insurance business in Ethiopia. Consequently, it created an insurance council and an insurance controller's office, its strange impact in the sector. The controller of insurance licensed 15 domestic insurance companies, 36 agents, 7 brokers, 3 actuaries & 11 assessors in accordance with the provisions of the proclamation immediately in the year after the issuance of the law.

Accordingly as stated by the office mentioned above, the law required an insurer to be a domestic company whose share capital (fully subscribed) not to be less than Ethiopian Birr 400,000 for a general insurance business, Birr 600,000 in the case of long-term insurance business and Birr 1,000,000 to do both long-term & general insurance business. The proclamation defined 'domestic

company' as a share company having its head office in Ethiopia and in the case of a company transacting a general insurance business at least 51% and in the case of a company transacting life insurance business, at least 30% of the paid-up capital must be held by Ethiopian nationals or national companies. After four years that is after the enactment of the proclamation, the military government that came to power in 1974 put an end to all private enterprises. Then all insurance companies operating were nationalized and from January 1, 1975 onwards the government took over the ownership and control of these companies & merged them into a single unit called Ethiopian Insurance Corporation. In the years following nationalization, Ethiopian Insurance Corporation became the sole operator. After the change in the political environment in 1991, the proclamation for the licensing and supervision of insurance business heralded the beginning of a new era. Immediately after the enactment of the proclamation in the 1994, private insurance companies began to increase.

2.2. Empirical review

Lire, Tegegn and Sodo (2016) study the determinant of profitability of private insurance company in Ethiopia over the period from 2005 to 2015 by using non probability judgment sampling design of eight private insurance companies' for the econometrics analysis of multiple regressions of fixed effect approach of panel data. The constituent of firm specific and macro variable (Underwriting risk, Reinsurance Dependence, Solvency Ratio, Premium growth, Company Size and macro factor Growth rate of GDP, Inflation and Interest Rate) analysis was made to investigate the determinants of private insurance company profitability. The fixed effect panel data model regression analysis shows that private insurers' profitability is statistically significantly affected by firm specific factor which is underwriting risk negatively, company size positively, premium growth positively, and

solvency ratio negatively and reinsurance dependency has no influence on profitability and statistically insignificant. The macroeconomic variable economic growth rate has significant influence on profitability and inflation has insignificant influence on insurers' profitability whereas interest rate which measured by time deposit weighted average was insignificant variable. The study recommended that private insurance companies should reduce the impact of underwriting risk by improving their underwriting performance through techniques like risk and product selections with geographical and different pricing strategy, private insurance company should improve underwriting in favor of economic growth of the country via identifying the potential and priority direction of the overall economic activity and growth of the country. Private insurance company should also increase their company asset.

Debala, (2017) investigate the determinants of profitability in the insurance sector in Ethiopia with reference to general (non-life) insurance companies on basis of data covers six years (2011-2016) period. The study selected sample of twelve (12) insurance companies to study them for a period of six years (2011-2016) with total of 72 observations through panel data. Accordingly, the study used documentary analysis of companies' audited financial statements of general insurers which obtained from NBE and head office of each insurance company. The key explanatory variables were selected to disclose their relationship and influence on profitability measured by return on asset (ROA) from the prominent previous studies. The results of panel least square regression analysis indicate that industry concentration ratio and leverage have statistically significant and positive relationship with Non-life insurance business profitability. On the other hand, diversification, underwriting risk and reinsurance dependence has a negative and statistically significant relationship with general insurance companies' profitability. Based on this finding, the study suggests that, the management bodies of the insurance companies should give high attention

on firm and industry related variables, particularly by adopting better risk management strategies and better internal control to achieve superior profitability.

Birhan, (2017) analyze Determinants of Insurance Company profitability in Ethiopia; every business organization faces a problem which hinders its objective for which it is established. So, like any business organization Nile Insurance Company faces many problems which affects its profitability and the main purpose of this study is to assess factors affecting profitability of Nile Insurance Dire Dawa branch. To do so, a descriptive research design together with primary and secondary data was applied and data were collected from 319 active customers in addition to the interview made with branch manager. The result shows size, leverage, tangibility of asset, loss ratio/ risk, firm growth and managerial efficiency are identified as significant determinants of profitability hence Liquidity and age of the company have medium significant determinants of profitability in addition to brand preference and perceived quality which have high impact on insurance selection process by customers.

Willy, (2016) assess the factors that affect profitability of insurance firms in Kenya, case of firms listed on the NSE. It evaluated the effect of firm size, effect of liquidity, effect of equity and also established the effect of debt on profitability of insurance firms in Kenya, case of firms listed on NSE. The target population was all the 6 insurance firms listed on the NSE and a census was done over a period of 5 years from 2010 to 2014. Secondary data was obtained from the annual published financial statements which were quantitatively analyzed using descriptive statistics like mean and percentages. The study found out that liquidity of insurance firms was one of the major determinants of Kenyan insurance firms' profitability. Equity has a direct influence on insurance firms' profitability. The study therefore recommends that insurance firms should maintain adequate liquidity levels though in the form of short term marketable securities in order to realize

profits for the insurance firms. The study also recommended that equity when not utilized becomes a liability to the insurance firm as interest paid on such is incurred; insurance firms therefore should aggressively identify viable investment opportunities and link such opportunities to their equity from clients.

Kozak, (2011) investigate the Determinants of Profitability of Non-Life Insurance Companies in Poland during Integration with the European financial system. The integration process of the Polish financial system with the European markets significantly affected profitability of the nonlife insurance sector in Poland. During this period, the level of invested capital and number of companies controlled by foreign investors has increased, as well as the share of premiums collected by these companies in the total premiums of the sector. The period of financial integration was characterized by a significant improvement of financial performance of the sector, as well as profitability of its insurance and investment activities. To check determinants of the profitability tests, were conducted on a panel of 25 non-life insurance companies for the period of 2002–2009. For estimation a regression model with elimination of the impact of heteroscedasticity and autocorrelation in the analyzed sample was used. The results indicate 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. However, offering too broad spectrum of classes of insurance negatively impacts its profitability and cost efficiency. Companies improve profitability and cost efficiency with an increase of their gross premiums and decrease of total operating expenses. Additionally increases of the GDP growth and the market share of foreign owned companies positively impact profitability of non-life insurance companies during the integration period.

Kebede, (2016) assess the factors affecting insurance company's profitability in Ethiopia. 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 knowing 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 ten-year period from 2006–2015 for nine 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 proxies by ROA. The findings of the study showed that Size of company, Loss ratio and leverage have statistically significant relationship with insurers' profitability. However, reinsurance dependence has negative but insignificant relationship with profitability. 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 company size, Loss ratio, and Leverage are most important factors affecting profitability of insurance companies Ethiopia. Therefore; the study recommends that Ethiopian insurance companies should give due consideration to these factors to appropriately address profitability issues.

Ortyński (2016) analyze the main factors determining the financial performance of insurers; the paper identifies the determinants of the performance of general insurance companies in Poland using a panel dataset consisting of a firm specific factors and macroeconomic factors over the period 2006-2013. Six financial performance measures are used to capture different aspects of the insurance operations. These performance measures are related to nine cited business-specific and

macroeconomic variables, chosen on the basis of relevant theory and literature. A weight least square (WLS) method and intergroup method for each of six performance models are used to estimate the parameters of these models. The empirical results prove that there is a statistically significant relationship between the following variables with profitability performance being negatively affected by underwriting activity (represented the net claims ratio variable) and by the net operating expenses variable. It was also shown that the size of a company has positive relationship with its profitability. The study also confirmed statistically significant and positive relationships between profitability ratio of technical activity and the macroeconomic variable (rate of GDP) as well as positive impact of the motor gross written premiums ratio variable on the profitability ratio of technical activity.

Oyekan, (2013) examines the factors that influence the profitability of micro-life insurance firms in Nigeria and South Africa. In particular, the joint impact of cost efficiency, ownership structure, leverage and reinsurance together with other institutional factors, on the profitability of commercial micro-life insurance providers are investigated. The cost efficiency estimates are derived using two main frontier efficiency estimation techniques; data envelopment analysis (DEA) and stochastic frontier analysis (SFA) in a first-stage analysis. Furthermore, a panel data feasible generalized least squares (FGLS) estimator, which helps to simultaneously control for the presence of heteroskedasticity and serial correlation in the sample data, is employed to test the research hypotheses. Using the FGLS estimator in a panel of 61 firms over the period covering 2005 and 2010, the study supports as well as contradicts the results of prior studies. The study finds that the economic insights derived using either DEA or SFA in the computation of cost efficiency, as well as its components – technical and allocative efficiency- are relatively similar. The empirical results further suggest that cost efficiency which is positively associated with

profitability is significant for the business success of micro-life insurers. Furthermore, empirical evidence indicates that the increasing use of leverage helps to improve profitability, while the increasing use of reinsurance reduces profitability. Contrary to expectations, the interaction between reinsurance and leverage decreases the profitability of micro-life insurance firms. The empirical results reveal no statistically significant relation between ownership structure and the profitability of micro-life insurers for all the stock-ownership forms considered. On the other hand, the study finds that firm-specific effects such as the company size, product mix, length of time of operations in the market (age), and macro-economic factors such as the average annual interest rates, are significant drivers of the profitability of micro-life insurers.

The present study contributes potentially valuable insights on the performance of micro-life insurance operations, and its conclusions could be of interest and relevance to local and multinational insurers and reinsurers, industry regulators and other interested parties such as multinational investors.

Desalegn, (2014) aims at identifying the main causes of the problems associated with motor insurance, its impact on the revenue account of the insurer, factors contributed to high motor claims ratio and giving recommendations based on the findings. It focuses on the data of insurance industry and awash insurance company for the past six years (2007/08 to 2012/13). Primary data were collected through questionnaires and in-depth interview methods. Furthermore, data were also obtained from NBE, Federal Police Commission, Federal Transport Authority and Insurance Fund Office and financial publications of NBE were analyzed. Failure to charge equitable level of premium (inefficiency in pricing); inability to select risk precisely; increased cost of claims; increased administration and acquisition costs; and low investment income; have been identified as a key determinants of the problem. This study recommends that charging equitable level of

premium based on statistical data, reducing costs and expenses, and diversifying investment opportunities. Moreover, joint coordination works with the stakeholders, lobby policy makers and legislative bodies to produce the required level of behavioral change in order to curb the growing problem in this regard.

2.3. Conceptual Frame Work

The anticipated variables which were discussed in the literature review above specify how each factor contributes to profitability. The conceptual framework intended to elaborate graphically how the anticipated factors of profitability are related with insurance profitability. Simplified schematic representation of this model is presented in the following conceptual framework:

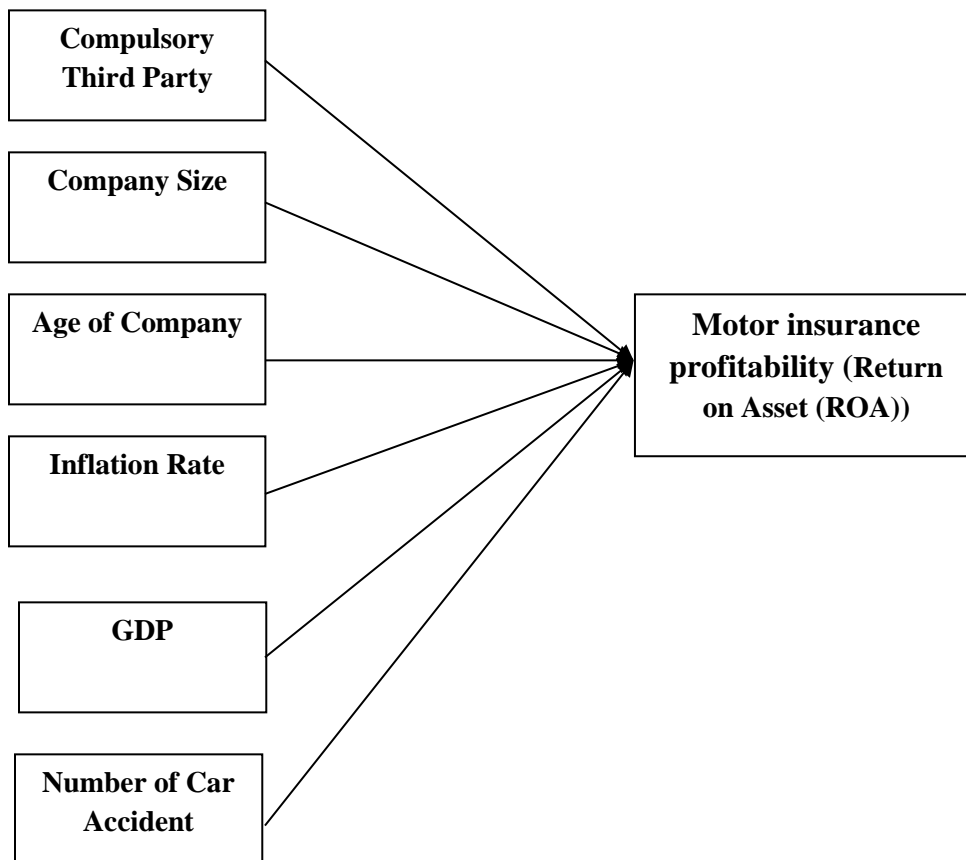


Figure 2.1 Conceptual Framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Research Design and Approach

The study employed a quantitative research approach which basically generates quantitative data. Since the nature of the research problem has cause and effect relationship causal or explanatory research design was appropriate and adopted to explain the determinants of motor insurance in Ethiopia over the period of thirteen years. According to Creswell (2009) a research design is the plan of a research study. It includes the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis. The study used causal research design. The study mainly aims to provide an accurate and valid representation of variables that are relevant to the research question. Moreover, causal research design was used to examine the determinants of insurance profitability.

3.2. Sampling Design

The total population of the study was insurance companies registered by NBE and under operation in Ethiopia. Currently, 17 insurance companies are working in Ethiopia. Previous related researches indicated that some of the insurance companies didn't have more than ten years data, hence, the researcher took purposely those insurance companies that have more than ten years data; these are Ethiopian Insurance Corporation, Nyala Insurance Company, Awash Insurance Company, Nile Insurance Company, NIB Insurance Company and United Insurance Company.

3.3.Data Type and Source

This research was highly depends on secondary sources of data. Basically the data was collected from selected insurance companies and different sources such as authorized regulatory bodies such as National Bank of Ethiopia (NBE), Ethiopian Central Statistics Authority (CSA).

3.4.Method of Data Analysis

The study utilized quantitative data analysis techniques. Descriptive statistics were employed to describe the given data. STATA software was employed to analyze the collected data. In order to analyze the inferential statistics there are two main classes of panel estimator approaches, fixed effects models (FEM) and random effects models (REM).

In the fixed effects models the disturbance term is decomposed into an individual specific effect – μ_i , or time specific effect μ_t , and the residual disturbance ν_{it} , which varies over time and entities, capturing everything left unexplained about the dependent variable. The simplest types of fixed effects models allow the intercept in the regression model to differ cross-sectionally but not over time, while all of the slope estimates are fixed both cross-sectionally and over time. Where as in Random effects models (REM), similar to fixed effects models use different intercept terms for each entity which are constant over time, and the relationships between the explanatory and explained variables is assumed to be the same both cross-sectionally and temporally, yet unlike fixed effects models, in random effects models “the intercepts for each cross-sectional unit are assumed to arise from a common intercept α , plus a random variable “ i that varies cross-sectionally but is constant over time. “ i measures the random deviation of each entity’s intercept term from the ‘global’ intercept term α .” (Brooks, 2008, p. 498).

In order to determine whether to use fixed or random effects a houseman test will be performed; according to Gujrat (2004) there is a formal test that will help us to choose between fixed or random effects, a test developed by Hausman in 1978. Therefore the researcher will identify whether to use fixed effect or random effect using Hausman test. The following are the general model for ROA which will be estimated using fixed effect or random effect.

$$ROA = B_0 + B_1CAC + B_2 CMP + B_3CSZ + B_4AGE+ B_5INF + B_6GDP+ e_{ij}$$

3.4.1. Variables and Expected Sign

In this study seven variables were considered as independent variables which are expected to affect return on asset of insurance companies. The variables are Compulsory third party, Company Size, Age of Company, Inflation Rate, GDP and Number of Car accident.

Variables	Description	Type	Expected sign
Return on Asset (ROA)	The ROA ratio is calculated by dividing the net profit from motor insurance by the amount of Total Assets from the Balance Sheet	Dependent	
Number of Car accident	The total number of accidents occurred annually	Independent	-
Company Size	This will be measured by Total Assets of the company. This variable is expected to have a positive effect on profitability, since large companies usually benefit from economies of scale	Independent	+
Age of Company	will be measured from the number of years to date since the establishment of the company	Independent	+
Inflation Rate	The rate of inflation typically refers to changes in the overall level of prices within an economy	Independent	-
GDP	The total value of goods and services produced in a given nation over a specified period of time usually a year	Independent	+
Compulsory third party	The total yearly compulsory third party premium	Independent	+

3.4.2. Model Estimation

3.4.2.1. Panel Data Regression Model:

There are two main classes of panel estimator approaches – fixed effects models (FEM) and random effects models (REM). In the fixed effects models the disturbance term is decomposed into an individual specific effect – μ_i , or time specific effect – μ_t , and the residual disturbance – ϵ_{it} , that varies over time and entities, capturing everything left unexplained about the dependent variable. Brooks's points out that: The simplest types of fixed effects models allow the intercept in the regression model to differ cross-sectionally but not overtime, while all of the slope estimates are fixed both cross-sectionally and over time (Brooks, 2008).

3.4.2.2. Fixed or Random Effects

According to Brooks (2008) points that it is often said that the random effects model is more appropriate when the entities in the sample can be thought of as having been randomly selected from the population, but a fixed effect model is more plausible when the entities in the sample effectively constitute the entire population. More technically, the transformation involved in the GLS procedure under the random effects approach will not remove the explanatory variables that do not vary over time, and hence their impact on y it can be enumerated. Also, since there are fewer parameters to be estimated with the random effects model and therefore degrees of freedom are saved, the random effects model should produce more efficient estimation than the fixed effects approach (Brooks, 2008).

The advantage of fixed effect inference is that there is no need to assume that the effects are independent of x_i . The disadvantage is that it introduces the issue of incidental parameters. The advantage of random-effect inference is that the number of parameters is fixed and efficient

estimation methods can be derived. The disadvantage is that one has to make specific assumptions about the pattern of correlation (or no correlation) between the effects and the included explanatory variables (Hsiao, 2002). Finally, it should be noted that the assumption of randomness does not carry with it the assumption of normality. Often this assumption is made for random-effects, but it is a separate assumption made subsequent to the randomness assumption. Most estimation procedures do not require normality, although if distributional properties of the resulting estimators are to be investigated, then normality is often assumed.” (Hsiao, 2002)

Gujarati asks: Is there a formal test that will help us to choose between FEM and ECM? Yes, a test was developed by Hausman in 1978... The null hypothesis underlying the Hausman test is that the FEM and ECM estimators do not differ substantially. The test statistic developed by Hausman has an asymptotic χ^2 distribution. If the null hypothesis is rejected, the conclusion is that ECM is not appropriate and that we may be better off using FEM, in which case statistical inferences will be conditional on the e_i in the sample (Gujarati, 2004, p. 651). Whatever the case, in Hausman test the interpretation is done, if the p value is significant or below 5% we reject null hypothesis and accept alternative hypothesis meaning that fixed effect model is appropriate; on the other hand if the p value is greater than 5% we accept the null hypothesis and reject alternative hypothesis meaning that random effect model is appropriate. Accordingly, the test result of hausman test shows that the p value is greater than 5%, and hence, we accept the null hypothesis meaning that the appropriate model is random effect model.

CHAPTER FOUR

RESULT AND DISCUSSION

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). The choice between both approaches is done by running a Hausman test. 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 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 (10 year) is greater than the number of cross-sectional units (i.e.9 insurance companies). According to Brooks (2008) and Wooldridge (2006), it is often said that the REM is more appropriate when the entities in the sample can be thought of as having been randomly selected. Therefore, Hausman test is performed accordingly: the null hypothesis stated random effect model is appropriate and the alternative hypothesis is fixed effect model is appropriate.

The interpretation is done, if the p value is significant or below 5% we reject null hypothesis and accept alternative hypothesis meaning that fixed effect model is appropriate; on the other hand if the p value is greater than 5% we accept the null hypothesis and reject alternative hypothesis meaning that random effect model is appropriate. Accordingly, as we have seen in the hausman

test below the p value is greater than 5%, and hence, we accept the null hypothesis meaning that the appropriate model is random effect model.

Table 4.1 hausman test for random and fixed effect choice

	---- Coefficients ----			sqrt(diag(V_b-V_B)) S.E.
	(b) Fixed	(B) Random	(b-B) Difference	
Company Size	5.31e-15	-4.93e-14	5.46e-14	2.34e-13
Number of Car accident	-9.72e-07	-1.66e-07	-8.06e-07	1.22e-10
Compulsory third party	6.24e-11	4.21e-10	-3.58e-10	1.63e-10
Inflation	.00144	.000127	1.69e-06	.0017682
GDP	3.92e-12	2.36e-11	-1.97e-11	3.89e-09
Age	.001631	.0002128	.0009503	.0015539

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\text{chi2}(3) = (b-B)'[(V_b-V_B)^{-1}](b-B)$$

$$= 0.76$$

$$\text{Prob}>\text{chi2} = 0.8587$$

(V_b-V_B is not positive definite)

4.2.Descriptive Statistics

A summary of the descriptive statistics of all variables for sampled insurance companies for a period of thirteen years from 2005-2017 with a total of 78 observations would be presented in Table 4.2 below.

As shown in table 4.2 the profitability measures shows that insurance company on average generates a positive profit over the last couple of years. The means of ROA was 9% with a maximum of 41% and a minimum of -4%. That means the most profitable insurance company among the sampled earned 61 cents of profit. On the other hand, unprofitable insurance company lost 3 cents of profit before tax for 1 birr invested in the assets of the firm. This clearly shows the disparity of rates of return earned by insurance companies. Furthermore, the standard deviation means the value of ROA deviate from its mean to both sides by 5% which indicates there was low variation from the mean. This implies that insurance companies incurred loss need to optimize the use of their assets to increase the return on their assets.

Size of insurance companies was highly dispersed from its mean value (i.e.16.21) with the standard deviation of 0.85. The maximum and minimum values were 21.87 and 19.23 respectively. The maximum value indicating the Ethiopian Insurance Corporation (EIC) and the minimum value was some of privately owned insurance companies. The mean value of real GDP was 10% indicating that the average real growth rate of the country's economy within sampled 6 years. The inflation rate had rate of 17.2%; of which was more than the average GDP. The maximum inflation was 36.4% and the minimum as 3%. The rate of inflation was highly dispersed over the periods under study towards its mean with standard deviation of 11%.

Table 4.2 descriptive analysis of variables

	Mean	Maximum	Minimum	Std. Dev.	Obs
Return on Asset	0.09	0.41	-0.04	0.05	78
Company Size	16.21	21.87	19.23	0.85	78
Compulsory third party	0.14	0.90	0.17	0.14	78
Car Accident	0.12	4.80	0.05	1.00	78
GDP	0.10	0.13	0.09	0.01	78
Inflation	0.17	0.36	0.03	0.11	78
AGE	20	43	8	9.43	78

4.3.Results of Regression Analysis

4.3.1. Pre-Estimation Test

4.3.1.1.Multicollinearity test

A VIF test was performed to test the existence of multicollinearity problem. The results of the test indicates the highest VIF is 4.78 with $R^2 = 0.66$; which indicates the model performed with no major multicollinearity problem among the explanatory variables

Table 4.3 multicolliniarity test

Variable	VIF	1/VIF
Company Size	3.87	0.258641
Age	3.51	0.285306
Number of Car accident	1.71	0.583785
Compulsory third party	1.52	0.658462
GDP	1.42	0.705498
Inflation	1.11	0.904002
Mean VIF	2.19	

4.3.1.2. Test of Heteroscedasticity

One of the important assumptions of the classical linear regression model is that the variance of each disturbance term u_i , conditional on the chosen values of the explanatory variables, is some constant number equal to σ^2 (Gujarati 2003). Breusch-Pagan test was used. The interpretation of Breusch-Pagan test is done using the p values, if the p value is less than 5% significant level it is the indication of heteroscedasticity problem; however if the p value is greater than 5% level of significance it implies there is no a problem of heteroscedasticity. Accordingly, as shown in the table below the results of the test shows that there is no a problem heteroscedasticity since the p values is not significant.

Table 4.4 heteroskedasticity test

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of Profitabilityratio
chi2(1) = 2.15
Prob > chi2 = 0.14130

4.3.1.3. Normality test

Normality assumption states that the error term should be normally distributed; in order to test this assumption Skewness/Kurtosis tests for Normality was performed; the interpretation of the test is based on the p-values, meaning that if the p-value is greater than 5% significant level it is the indication of the error terms are normally distributed otherwise not. Accordingly, as shown in the

table below the p-values is greater than 5% significant level which implies the error terms are normally distributed.

Table 4.5 test of normality

Skewness/Kurtosis tests for Normality					
				----- joint -----	
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
Resid	78	0.8826	0.5486	1.91	0.2325

4.3.2. OLS Estimation Result

As shown in the previous sub topic all of the assumption was fulfilled except, therefore profitability of insurance companies was estimated using OLS. As below the coefficient of determination (R^2) for the model is 0.4188 ($F= 8.53, p < 0.001$) showing that the model explained 41.88% of the variation in the level of profitability and the overall model is statistically significant.

The results of the econometric model estimation revealed that, Company size, compulsory third party and GDP were found to contribute significantly and positively to profitability. In contrast, number of car accident show negative and significant effective on profitability. The rest age and inflation didn't have any effect on profitability.

Company size had a positive and significant effect ($p < 0.05$) on profitability, the positive coefficient of this variable suggested that, as the size of the company size increases the profitability also increases. The other perspective were compulsory third party, this variable shows positive and significant ($p < 0.05$) effect on profitability; findings shows that, the positive coefficients of this particular variable suggested that when the third part insurance income increases by 1percent the

profitability of the insurances were increases by 4.21 percent. GDP of the country had found also that it has a positive and significant relationship with profitability. The positive coefficients suggested that whenever the country’s GDP increases by 1% the insurance companies profit would also increases by 0.023 percent.

Unlike to the above variables, the coefficients of number of car accident also had a negative effect on profitability; accordingly, as the number of car accident increases by 1 percent the profitability of the influences were reduced by 0.0016 percent. Furthermore, the other variable age of the company didn’t have a significant effect on profitability.

Table 4.6 OLS Estimation result

Source	SS	df	MS		Number of obs = 78 F(6, 71) = 8.53 Prob > F = 0.0000 R-squared = 0.4188 Root MSE = .01601 Adj R-squared = 0.3697
Model	.013109661	6	.002184944		
Residual	.018190403	71	.000256203		
Total	.031300064	77	.000406494		
Profit ratio	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]
Company Size	4.93e-14	1.53e-14	3.21	0.002	-7.98e-14 -1.87e-14
Number of Car accident	-1.66e-03	7.35e-07	-0.23	0.022	-1.63e-06 1.30e-06
Compulsory third party	4.21e-10	1.29e-10	3.25	0.002	1.62e-10 6.79e-10
Inflation Rate	.0000127	.0001712	0.07	0.94	-.0003287 .0003542
GDP	.00236	5.90e-12	4.00	0.000	1.18e-11 3.54e-11
Age	.0002128	.0004375	0.49	0.628	-.0006597 .0010852
_cons	.0454493	.0067286	6.75	0.000	.0320329 .0588658

4.3.3. Random Effect Estimation

The results from the estimated regression model show that based on our sample one can conclude that there is a relatively strong relationship between the profitability of insurance companies measured by ROA and the selected variables in this research.

Same as with the pooled data multiple regressions model the estimated results show that the company size has a statistically significant positive effect on the profitability of motor insurance companies in Ethiopia. Likewise, same as with the pooled data multiple regressions, the compulsory third party and GDP has a positive effect on motor insurers' profitability. The number of car accident, same as with the pooled data multiple regression, has statistically significant negative effect on ROA.

The panel data regression also showed Age of company and inflation rate not to affect profitability of motor insurance. Interestingly, number of car accident has a statistically negative and significant effect on profitability of motor insurance.

Table 4.7 Estimation result of Random Effect model

Random-effects GLS regression Group variable: Nameneu		Number of obs = 78 Number of groups = 6			
R-sq: within = 0.0090 between = 0.8165 overall = 0.4188 13		Obs per group: min = 13 avg = max =			
Wald chi2(3) = 9.75		corr(u_i, X) = 0 (assumed) Prob > chi2 = .00034			
Profit ratio	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]
Company Size	4.93e-14	1.53e-14	3.21	0.001	-7.93e-14 -1.92e-14
Number of Car accident	-1.66e-07	7.35e-07	-0.23	0.021	-1.61e-06 1.27e-06
Compulsory third party	4.21e-10	1.29e-10	3.25	0.001	1.67e-10 6.74e-10
Inflation Rate	.0000127	.0001712	0.07	0.941	-.0003229 .0003483
GDP	2.36e-11	5.90e-12	4.00	0.000	1.20e-11 3.52e-11
Age	.0002128	.0004375	0.49	0.627	-.0006448 .0010703
_cons	.0454493	.0067286	6.75	0.000	.0322615 .0586372
sigma_u	0				
sigma_e	.00742676				
rho	0 (fraction of variance due to u_i)				

CHAPTER FIVE

CONCLUSION, RECOMMENDATION AND LIMITATION OF THE STUDY

5.1. Conclusion

The intention of this research was to analyze the determinants of the profitability of motor insurance policy; as a design causal research design and time series secondary data were employed; the findings are based on studies made on only the data employed from 2005 to 2017. The data were estimated using both OLS and random effect models. The findings of the study verified that both the OLS and pooled regression shows that the company size has a statistically significant positive effect on the profitability of insurance companies in Ethiopia. Compulsory third party has also a positive and significant effect on profitability. Furthermore, the number of car accident shows statistically significant negative effect on ROA on both pooled and OLS regression analysis. Furthermore, inflation and number of car accident have a statistically negative and significant effect on profitability. On the other hand, the variable GDP shows a significant effect on the pooled multiple regression whereas it didn't show a significant effect on random effect estimation. The panel data regression also showed age of company did not to affect profitability

5.2. Recommendation

Based on the findings of the study the researcher forwards the following recommendations:

- The findings of the study shows that the size of insurance company's has a significant positive effect on the profitability; therefore, insurance companies should intensively work to grow their capital and size since it contributes for their profitability grow more and expand their activities to be more profitable

- The other significant variable was number of car accident; this variable had contributed negatively to the insurance companies' profit. Therefore, the insurance companies should identify wrong claims and reduce underwriting risk through improving the performance of claim techniques and increase claims handling practices through efficient procedures.
- Finally, for further research, any researcher could do further analysis through making this research as a benchmark; also researchers can make deep investigation particularly considering the issues of compulsory third party insurance since much investigation didn't work on this issues.

5.3. Limitation of the study

This research under taken in Addis Ababa on selected insurance companies to assess the determinants of motor insurance profitability, Because of time and financial constraints, this study only consider selected insurance companies and the researcher is constrained by time and finance for undertaking and in-depth and extensive representative samples-based coverage. And hence, the findings of the study could not be generalized for all insurance companies.

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APPENDIX

Questionnaire for Insurance Companies

1. When was the insurance company established?
2. Can you tell me when third party compulsory third party insurance was begun?
3. And what was the total yearly income from third party compulsory insurance? For the last 13 years (2005 to 2017)
4. What is the total capital of your company? Does it increase or decrease between 2005 and 2017? List the data
5. What was the yearly total number of car accident registered on your insurance company since the year 2005?
6. What was the total yearly generated income from motor insurance? Between 2005 and 2017?