Determinants OF PROFITABILITY OF ETHIOPIAN INSURANCE COMPANY

A thesis Submitted to the School of Graduate Studies of wolkite University in Partial Fulfillment of the Requirements of Award of the Degree of Master of Science in Accounting and Finance

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WOLKITE UNIVERSITY

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MASTER OF SCIENCE IN ACCOUNTING AND FINANCE PROGRAM

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WOLKITE ETHIOPIA

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DECLARATION

I hereby declare that this thesis entitled "Determinants of Profitability of Ethiopian Insurance Company", has been Carried out by me under the guidance and supervision of Sitina Akmel (Asst.Prof.)And Rukiy T. (MSc)

The thesis is original and has not been submitted for the award of degree of diploma any university or instructions.

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CERTIFICATE

*This is to certify that the thesis entities "*Determinants of Profitability of Ethiopian Insurance Company*" , Submitted to wolkite University for the award of the Degree of master of science in accounting and finance and is a record of Valuable research work carried out by Mr. Melese Kassa , under our guidance and supervision*

Therefore we hereby declare that no part of this thesis has been submitted to any other university or institutions for the award of any degree of diploma.

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Abstract

Ethiopian insurance sector does not grow as expected and cannot take a major part for the economic development and it contributes less than 1% to country's total GDP; therefore, the purpose of this study focuses on identifying the Determinants factors of Ethiopia Insurance Corporations profitability. Time-series data of Ethiopian Insurance Corporation from 1989 to 2019 was analyzed using multiple linear regression method. In this study, secondary data was analyzed to investigate the major factors of insurance profitability. To answer the above proposed main objective, descriptive statistics, diagnostic tests and OLS regression method have been run using E-Views 9 to test hypothesis of tangibility of asset, leverage ratio, liquidity ratio, insurance size, loss ratio, GDP gross rate and inflation rate on profitability measure i.e. (ROA) and quantitative research approach were used. The regression results shows that tangibility of asset, liquidity ratio, leverage ratio, GDP gross rate and inflation rate were significant at 99 percent level of significance but; insurance size and loss ratio have insignificant. The regression shows that all explanatory variables have negative effect on the profitability except leverage ratio and liquidity ratio. So, insurance companies in Ethiopia should pay due attention in using more debt because interest rate are tax free. Ethiopian Insurance Corporations in order to maximize profitability should not require large volume of fixed assets or do not require beyond optimum level of fixed assets. Ethiopian Insurance Corporation should increase the awareness level of insurance among majority of the citizens including rural area and investing in risky investments which may in turn increase profitability. Finally Government should pay due attention in reducing inflation rate by participating in price setting in market and decrease exchange rate because most of the goods are importable otherwise profitability is reduced by increasing the price.

Key words: ***profitability, Ethiopian Insurance Corporation and return on asset.***

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List of Acronyms and Abbreviations

ADF-Augmented Dickey-fuller

DW-Durbin-Watson

GDPR-Gross domestic product rate

H_1-Altornative hypothesis

INR –Inflation rate

IRS-insurer size

LDR-Liquidity ratio

LVR-leverage ratio

OLS-Ordinary least square

POT- Pecking order theory

ROA- Returns on asset

TAN-Tangibility of asset

VIF-Variance inflation factor

CHAPTER ONE

1 INTRODUCTION

1.1Background of the Study

The insurance sector is used to enhance countries economy by sharing risks and channeling funds. Insurance firms (both private and public) consisting the organizations which provides life, fire, accidents causality and non-life forms of insurance. Financial firms are deliver service to insured parties by transferring risks and channeling funds from one insured party's to another insured party's so as to facilitate resources arrangement (Gashaw 2012).

The existing business world without insurance firms is not able to be sustained or defended since in one way it is a normal practice that some insured parties or business units are in excess value of assets or good economic conditions while the others remain insufficiency or excess of expenditure or liabilities over income or assets in a given period and on the other way risky firms have unable to maintain all types of risk in current extremely uncertain environment. Insurance firms have used to both for businesses and individuals by compensating in respect of harm or losses and put them in same positions as they were earlier the happening of the loss(Melese 2014).

Ethiopia's insurance industry has been playing a growing role in long term economic progress and improving living standards by channeling household savings from a large portion of the population into productive investments. The sector also promotes economic advancement through its unique funding channels and investments as well as providing sizable job opportunities. Insurers are contributing directly to urban development by investing huge sums on various infrastructural projects that would enhance their capacity and make the industry an asset for future investments. The insurance business has witnessed rapid expansion as the opening of the sector to domestic private investors and currently the state-owned EIC and 18 private insurance companies continued their fierce competition for better market share. Insurance branches are increase time to time as information obtained from EIC's 2016/18 annual report indicated that currently the total of 492 insurance branches distributed throughout the country and through the intermediation of 54 insurance brokers and 1,438 agents, the industry able to

underwrite gross written premium of 7.5 billion Birr of which 7.1 billion (95 percent) is general insurance and the remaining 400 million Birr is life business.

During the past year, the insurance industry has registered a total of 1.1 billion Birr profit after tax and EIC and Nyala Insurance Company have the lion's share in making 700 and 122 million Birr profit respectively. Both EIC and Nyala recorded a massive profit margin in the history of the respective companies.

Insurance penetration and density are still low in Ethiopia. The industry's aggregate contribution to national GDP (penetration) is around 0.5 percent and the status depicts the low level of insurance development in Ethiopia, even by East African standards.

Additionally, insurers bring economic and social benefits in the community of people i.e. prevention of losses, reduction in anxiousness fear, increasing employment and able to be sustained in the competitive globalized environment and contribution to countries GDP. On the base of Ministry of Finance and Economic Development (MOFED) in 2018/18, Ethiopian economy continued to register a notable growth by 10.2 percent of real GDP. This continuous economic growth encourages for the emergence of insurance companies but in Ethiopia the insurance sector does not grow as expected and cannot take a major part for the economic development and it contributes less than 1% to country's total GDP (Muhidin 2014). The reason may be limited awareness level and understanding of insurance among majority of the citizens, low level of product innovation and technology supported services, absence of modern marketing channel and approaches by firms across the supply chain, inadequate governance and enabling regulatory system, fear of risky investments by insurance company themselves and shortages of managerial and professional employees.

For insurance firms to be sustainable in the competitive globalized environment, facilitating different services to customers, to bring economic and social benefit in the community of people or to contribute to GDP, earning profit is a prior- condition. In the non-existence or lack of profit, insurers can't provide service and attract outside capital so as to meet their objectives (Atsbeha and kaur 2015). Because the final goal of a business entity is to get profit or reward in order to make sure the sustainability of the business in dominant market conditions (Malik 2011).

So, in order to carry all risks, insurers should keep their profitability; therefore, the purpose of, this study is examined the determinants of insurance companies' profitability in Ethiopia. This will not only add to existing literature but also it will serve as identifying the determinants of insurance companies' profitability is useful for investors, researchers, financial analysts and supervisory authorities

1.2 Statements of the Problem

Profitability is the major goal of any business firms because the goal of any business firms is to get reward or increase the owner's wealth and profitability is very significant determinants of firm's performance (Sisay 2015). Profitable insurance sectors have used to both for business and individuals by compensating in respect of losses and put them in same positions as they were earlier the happening of the loss even it is important to contribute countries GDP rate.

Insurance sector of different country can take major part in the economic growth and development (Ward and Zubruegg 2000). Their significant role in economic development is through reducing uncertainty, indemnify the losses and put them in the same position as they were before, to avoid fear, anxious and for the peace of mind to policy holders and also encourages investment and employment opportunity.

Insurance industry stabilizes the financial markets, through its capacity by creation of assurance and confidence in an economy at large. Investors can focus only on their business after transferring the risks which would adversely affect their business to insurers; even risk-averse business persons can undertake projects and engage in economic activities. In order to provide these and other benefits the insurance sector should be profitable. The contribution of Ethiopian insurance sector in the country for gross domestic product is insignificant for several years in other words insignificant profit without profit insurance cannot increase countries gross domestic product besides, number of people employed in the sector is very few as compared to other countries, and moreover, such underdevelopment of insurance is much more in life insurance division (Bayeh 2011).

Insurance market in Africa still very low due to high poverty rate, lack of capital ,an increase claim disasters, infrastructure problem, but have high growth opportunities in cause of economic development and continues growth of investment in the continents. Another reason is the exchange rate deprecation of local African currencies is driving claims cost in certain insurance lines such as motor insurance in case of cars and machineries spare parts are imported. The insurance penetration in Ethiopia is very minimal compared to other African countries. The neighboring Kenya insurance penetration is 2.9 percent and in South Africa, it is 14 percent. The one billion aggregate profits reported from the Ethiopian insurance industry was also four times lower compared to that of Kenya (Derso 2018).

The insurance sector is still dominated by motor class of insurance and the market expansion remained focused in major urban areas than to new frontiers. The prevailing unethical competition and price undercutting has continued to be the major challenge of the sector, indirectly it affects profit of insurance. In real GDP growth, Ethiopia is the first from African countries but, at low standard in insurance performance. The largest volume of US 46$Billion or 72% of the total Africa insurance premium covered by South Africa market. Other major markets include Morocco, Egypt, Kenya and Nigeria, with five top markets account for 85% of the total premiums, whereas Ethiopia shares only 1% from other left countries (Schanz 2017).In summing up, the role and contribution of insurance companies is very much limited when compared to the size of the population.

Literature shows that inconsistency of result findings regarding to correlation between ROA and independent variables. Empirical evidences regarding factors affecting profitability of insurance companies focused on tangibility of asset, leverage ratio, insurance size, liquidity ratio, loss ratio, gross domestic rate and inflation rate. Different scholars come up with different conclusions on the factors of profitability as shown in the empirical reviews. Tangibility of asset is positive and significantly related with return on asset (Malik, 2011) and there is Yuqi (2007) in UK found no significant relationship between tangibility of asset and return on asset. Leverage is statistically significant and positively related on ROA (Mehari and Aemiro2013). However some empirical evidence with regarding to leverage found to be statistically significant relationship between

leverage and profitability but negatively (Sambasivam and Gashaw2013), Farah and Nina (2016) and Jay and Andres (2017) and traditional theory suggests using of cheaper source (debt) translates to an increase the value of the firm.

Regarding to insurance size Mehari and Aemiro (2013), Melese (2014), Sisay (2015), Ondigi and Willy (2016) and Atsbeha and Kaur (2015) found positive relationship between insurance size and profitability. Agency theory suggests that lower agency costs are associated with better performances and thus higher firm values, all other things being equal.

Regarding to liquidity ratio finding shows that it is major factor that negatively but, significantly affect the profitability of insurance company (Sambasivam and Gashaw (2013) and Atsbeha and Kaur (2015)). Mehari and Aemiro (2013), Melese (2014) and Sisay (2015) studies shows that there is insignificant relationship between liquidity and profitability.

Loss ratio is negatively and significantly related with profitability (Mehari and Aemiro (2013), Melese (2014), Sisay (2015) and Birhan (2017). And also Atsbehaand Kaur (2015) finding shows that loss ratio is negatively and insignificantly related with insurer profitability. The negative coefficient of this variable signifies that as the amount of claims increased in comparison to the earned premium. So, it creates confusion to accept above results of study as a result, it is subject to empirical study.

To sum up literature shows that inconsistency of result findings regarding to correlation between ROA and independent variables. Different scholars come up with different conclusions on the factors of profitability as shown in the empirical reviews. Finally some studies are conducted their studies by ignoring external factors (Gashaw2012), (Sambasivam and Gashaw 2013), (Mehari and Aemiro2013), (Sisay2015), (Ondigi and Willy 2016) and(Birhan2017)) etc. And most of the studies are conducted their studies by using less than 10 years panel data and some studies are used profit before tax to measure ROA so, this may lead inconsistency of the result finding.

The main reason that motivates the researcher to conduct this study is to identify the internal and external Determinates that influence Ethiopian Insurance Corporation profitability by using 31 years' time series data, adding macro-economic variables and used commonly used measure of ROA i.e. profit after tax. Therefore, the study will attempt to fill this gap and augment its own possible contribution to the existing literature.

1.3 Objective of the study

1.3.1 General objectives of the study

The general objective of the study is to examine the determinant factor that affects profitability of Ethiopian Insurance Company

1.3.2 Specific objectives of the study

Based on the above general objective, the study has the following specific objectives:

- To identify the impact of tangibility of asset on profitability of Ethiopian Insurance Company.
- To examine the impact of leverage on profitability of Ethiopian Insurance Company
- To examine the impact of liquidity ratio on profitability of Ethiopia Insurance Company
- To identify impact of loss ratio on profitability of Ethiopia Insurance Company.
- To identify impact of GDP gross rate on profitability of Ethiopia Insurance Company.
- To examine impact of inflation rate on profitability of Ethiopia Insurance Company.

1.4 Hypothesis*:*

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

H1a: Tangibility of asset have positive and significant impact on the profitability of Ethiopian Insurance Company

H1b: Leverage have negative and significant impact on profitability of Ethiopian Insurance Company.

H1c: Insurer Size have positive and significant impact on profitability of Insurance Company in Ethiopia.

H1d: Liquidity ratios have positive and significant impact on profitability of Ethiopia Insurance Company.

H1e: Loss ratio have negative and significant impact on profitability of Ethiopia Insurance Company.

H1f: GDP gross rate have positive and significant impact on profitability of Ethiopia Insurance Company.

H1g: Inflation rate have negative and significant impact on profitability of Ethiopia Insurance Company

1.5 Significance of the study

The study was investigated the factors that determine on the financial performance in Ethiopia insurance companies. The study was expected to contribute implications for policy makers and regulators like national bank of Ethiopia on how to improve financial performance of those insurance companies as an insurance sector. The outcome of the study was supposed to benefit the management of each insurance company and the shareholders on how to increase their well financial performance in order to maximize their wealth. In the same vein, the final report was expected to be used as a literature and base for further direction to other academic researchers who are willing to conduct studies in the same or related context..

1.6 limitations of the study

This study mainly focused on identifying factors that affecting profitability of Ethiopian Insurance Corporation by using time series data of thirty years from 1989-2020. The study includes Ethiopian Insurance Corporation only other private insurance are excluded because they do not have thirty years data for the study. The findings of this study well have paramount importance if more insurance companies have been included in the research.

Even though there are other factors that influence insurance corporation such as service delivery and competitive market position, exchange rate and political instability the study only focus on tangibility of asset, leverage, insurance size, liquidity ratio, loss ratio, GDP gross rate and Inflation rate that determine the performance of insurance corporation' using ROA as dependent variable for study.

1.7 Organization of the paper

The rest of this paper is organized as follows. Chapter tow presents empirical and theoretical review of the literature related to the issue of factors that affect profitability of Insurance Corporation; summary of literature review knowledge gap and conceptual framework, chapter three provides research design and methodology; chapter four contains data analysis and interpretation. Finally chapter five presents summary and conclusion, recommendations and implication for further researches.

CHAPTER TWO

LITERATURE REVIEW

2 Introduction

This chapter is where structure based on the research objectives. This chapter includes concept of insurance, concept of profitability and presents a theoretical review. It also reviews relevant literature available that focuses on factors that affect the profitability of Ethiopian Insurance Company and this chapter widely explores leverage ratio, insurer size, tangibility of asset, liquidity ratio, loss ratio, GDP gross rate, inflation rate and how these factors affect the profitability of Insurance Corporation, summary of theoretical and empirical review and knowledge gape and conceptual framework of variables.

2.1 Concept of insurance

Insurance can be defined from the view point of several disciplines, including law, economy, history, risk theory and sociology. A working definition of insurance and the one that captures the essential characteristics of a true insurance plan by the Commission on Insurance terminology of the American Risk and Insurance Association is defined as Insurance is contract in which the insured transfer risk to potential loss to the insurer who promise to compensate the former upon suffering loss. Insurance premium is the monetary consideration paid by the insured for the cover granted by the insurance policy. The insurer takes a number of clients (insured) who pays small premium that form an aggregate fund is called the premium fund (Walker, 2001 Insurance is a promise of compensation for specific potential future losses in exchange for a periodic payment. Insurance is designed to protect the financial well-being of an individual, company or other entity in the case of unexpected loss. Agreeing to the terms of an insurance policy creates a contract between the insured and the insurer. In exchange for payments from the insured (called premiums), the insurer agrees to pay the policy holder a sum of money upon the occurrence of a specific event (Chijioke 2008).

Insurance is an instrument to share the financial losses, which means insurance companies allow business/individuals to share their liability by pooling each risk and help them reduce the chance of facing financial losses. Insurance is a medium through which few losses are divided among

larger number of people/business. Insurance companies provide financial coverage of the loss that a business or an individual is expected to suffer, by doing so they reduce the impact of a certain events (Dejene 2015). All the insured add the premiums together towards a fund, and out of which the persons/business facing a specific risk is paid, which is facilitated by insurer. In other words the insurers reimburse the financial cost of a particular event against the premium they collect from the insured/policy holders. Zeleke (2007) insurance cannot eliminate the occurrence of the loss, but finance the loss, as a result the policyholder would be restored to approximately where his/her financial position before the occurrence of the risk, except the case of life and personal accident insurance. Insurance companies play a vital role to the economic development of a given country, by intermediation, saving mobilization and by protecting policy holders from adverse events.

As all types of activities are subject to risks of loss or damage due to unforeseen events which are beyond control of individual or business, insurance industry would help to take risks on behalf of the insured. Therefore, insurance companies transfer risk from insured to insurer, by doing this they promote financial stability and economic growth, rising contribution to GDP and increase employment.

2.2 The concept of profitability

The profitability is two words that are profit and ability. Profit is what is remaining from revenue obtained after deducting all expenditures linked to earning the income and it is expected so as to meet the required return by owners. Profitability means capacity to make profit from all the business activities of an enterprise. ROA is an indicator of how profitable a company is relative to its total assets. William and Dam (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. However, in the most studies in the field of insurance and their profitability stated that the key indicator of a firm's profitability is ROA defined as the after tax profits divided by total assets. It gives us an idea as to how efficient management is in using its assets to generate earnings. Among those Malik (2011) ,Melese (2014), Sisay (2015) and Atsbeha and kaur (2015) suggests it is better to use ROA as better measurement of profitability. According to Gashaw (2012) profit can take either its economic meaning or accounting concept which shows the excess of revenue over

expenditure viewed during a specified period of time. On one hand profit is one of the major goal of every business organization.

On the other hand profit is expected so as to meet the required returned by owners. Profitability is the ability of a given investment to earn a return from its use (Melese2014).

2.3 Profitability related theories

2.3.1Traditional theory

This theory suggests that reducing of the cost of capital when the favorable level of debt capital is employed maximizes the value of the firm (Sisay2015). The replacement of an expensive source of capital (equity) with a cheaper source (debt) translates to an increase in the value of the firm. This creates motivations of borrowing to firms. This argument holds because investors who hold debt are informed of the increased risk at moderate debt levels and will continue demanding the same return on debt. They argue that it's only at excessive debt levels that they demand a higher return. The debt funds are cheaper than equity funds carries the clear implication that the cost of debt plus the cost of equity together on weighted basis will be less than the cost of equity, which existed on equity before debt financing; that is the weighted average cost of capital will decrease with the use of debt. The validity of the traditional view is questioned on the ground that the market value of the firm depends up on its net operating income and risk attached to it. The form of financing doesn't change net operating income or the risk attached to it but simply the way in which the income distributed between equity holders and debt holders (ibid). They do not really add very much to the riskiness of the share.

Generally traditional theory suggests the replacement of an expensive source of capital (equity) with a cheaper source (debt) translates to an increase in the value of the firm.

2.3.2 Resource based theory

It addresses differences of performance between insurance firms or any firms using asymmetries in knowledge (Chen 1995). At the corporate strategy level theoretical interest in economies of scope and transaction costs focus on the role of corporate resources in determining the industrial and geographical boundaries of the firm's activities. At the business strategy level, considerations of the relationships between resources, competitions and profitability include the appropriate of returns to innovations and the role of imperfect information in creating

profitability differences between competing firms. According to Melese (2014) a firm's ability to earn a rate of profit in excess of its cost of capital depends upon the attractiveness of the industry in which it is located and its establishment of competitive advantage over rivals. Industrial organization economics emphasizes industry attractiveness as the primary basis for greater profitability, the implication being that strategic management is concerned primarily with seeking favorable industry environments, located attractive segments and strategic groups with in industries and moderating competitive pressures by influencing industry structures and competitors behavior. Thus a resource based theory of the firm entails a knowledge based perspective.

2.3.3 Pecking order theory

Pecking order refers to a hierarchy of financing beginning with retained earnings followed by debt financing and finally external equity financing. The theory basically suggests that companies with high profitability may use less debt than other companies because they have less need to raise funds externally and because debt is the 'cheapest' and most 'attractive' external option when compared to other methods of capital raising (Melese 2014).

POT theory explains why internal finance is much more popular than external finance and why debt is classified as the most attractive external finance option. Pecking order refers to a hierarchy of financing beginning with retained earnings followed by debt financing (Sisay 2015. The theory basically suggests that companies with high profitability may use less debt than other companies because they have less need to raise funds externally. POT further implies that outside investor is conscious about the debt and equity financing of Insurance Corporation. Thus Insurance Corporation consider retained earnings as the better source of finance than outside financing. So, firms use internal finance experience less or no transaction costs as compared to the use of external funds pecking order theory 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 corporation have more knowledge regarding the investment opportunities and profitability's of the business than investors in the firm (Ondigi and Willy 2016). If the external fund are inevitable then the insurance corporation like to make choice among external sources of funds. Then retained earnings are utilized first when possible, but if the insurance firm does not possess sufficient amount of retained earnings then it choose debt

financing. Because, debt is the cheapest and most attractive external option when compare to other methods of capital raising (ibid).

2.3.3 Agency theory

Agency theory recognizes that the interests of managers and shareholders may conflict and that, left on their own, managers may make major financial policy decisions, such as the choice of a capital structure, that are suboptimal from the shareholders' standpoint (Leykun 2011). According to Abdullah et al (2009) cited by Ondigi and Willy (2016) agency theory clarifies the relationship between the managers and shareholders. It states that management and owners have different interests. According to this theory agency costs arise from conflicts of interest between shareholders and managers of company.

There are costs involved with effort to minimize the potential for conflict between the principal's interests and agent's interest. Such costs are called agency costs, they are of three types: monitoring costs, bonding costs, and residual loss (Frank and Pamela 2003).

Monitoring costs are costs incurred by the principal to monitor or limit the actions of the agent. In a corporation, shareholders may require managers to periodically report on their activities via audited accounting statements, which are sent to shareholders. The accountants' fees and the management time lost in preparing such statements are monitoring costs. Another example is the implicit cost incurred when shareholders limit the decision-making power of managers. By doing so, the owners may miss profitable investment opportunities; the foregone profit is a monitoring costs.

Bonding costs are incurred by agents to assure principals that they will act in the principal's best interest. The name comes from the agent's promise or bond to take certain action. A manager may enter into a contract that requires him or her to stay on with the firm even though another company acquires it; an implicit cost is then incurred by the manager, who foregoes other employment opportunities. Even when monitoring and bonding devices are used, there may be some divergence between the interests of principals and those of agents. The resulting cost, called the residual loss, is the implicit cost that results because the principal's and the agent's interests cannot be perfectly aligned even when monitoring and bonding costs are incurred.

Generally Agency costs are defined as the sum of monitoring costs incurred by the principal, bonding costs incurred by the agent and residual loss. Lower agency costs are associated with better performances and thus higher firm values, all other things being equal. The variation of profit among Insurance Corporation over the years in a given country will result to suggest that internal factors or firm specific factors play a crucial role in influencing their profitability. Therefore it is very important to identify what are these factors as it can facilitate management, government, investor and customer. To do so, it is better to see what factors were considered in previous times by different individuals. The following points are some of the work of other researchers.

2.4 The effects of firm specific factors on profitability: Empirical review

2.4.1 Tangibility of asset

Tangibility of assets in insurance companies in most studies is measured by the ratio of fixed assets to total assets. The study of Malik ((2011) and Mehari and Aemiro (2013)) shows positive and significant relationship between tangibility of assets and profitability of insurance firms. According to agency cost theory of Jensen and Meckling (1976), there is a conflict between lenders and shareholders due to the possibility of moral hazard on the part of borrowers. This conflict creates incentives for shareholders to invest in a suboptimal way and lenders require tangible assets as collateral to protect them. The agency cost of debt increase when firms cannot collateralize their debt. Outsized proportion of a firm's assets can be used as collateral to fulfill lenders requirements and better chance to get debt financing so, it is used as collateral in external borrowing, the presence of a large fraction of tangible assets of a firm help to get bank loans at a lower interest rate (Leykun 2011). Tangibility of assets ratio measures the share of fixed assets from total assets, this allows the firm to get a borrowing access easily, and it is due to serving as collateral to get sufficient loan. Kidanie(2011) tangible assets are likely to have an impact on the borrowing decisions of a firm because they are less subject to informational asymmetries and usually have a greater value than intangible assets in case of bankruptcy. Therefore, it is considered that the availability of such borrowing capacity will impact on the profitability of the insurance companies.

And also high ratio indicates an inefficient use of working capital which reduces the firm's ability to carry accounts receivable and maintain inventory and usually means a low cash

reserve. This may often limit the ability of the firm to respond to increased demand for products or services. This concept was also supported by findings of Yuqi ((2007),Gashaw (2012) and Sambasivam and Gashaw (2013)), which was there is no significant relationship with insurance profitability.

2.4.2 Leverage:

The empirical evidences of the linkage between leverage and profitability are inconsistent. According to Mehari and Aemiro (2013) leverage ratio is statistically and positively related with ROA. However Sambasivam and Gashaw(2013), Farah and Nina (2016) and Jay and Andres (2017) in their study find out leverage is significantly and negatively related with profitability. An industry with higher leverage ratio is at greater financial risk as compared to another industry with lower leverage ratio. Packing order theory suggests that competitive firms in any industry prefer to use internal financing than using external debt. There is a negative relation between leverage and profitability (Athanasoglou et al. 2008). Due to inconsistency of investigation further studies is needed

2.4.3 Insurance size

As per Malik (2011) and Gashaw (2012) finding shows insurer size is significantly and positively related with profitability of insurance. According to Mehari and Aemiro (2013), Melese (2014), Sisay (2015), Ondigi and Willy (2016) and Atsbeha and Kaur (2015) found positive relationship between insurance size and profitability. The size of the company grows, it would be able to benefit from economies of scale more. In addition, a larger company would diversify its assets easier and could exist in a competitive market with the possibility of new competitors (Alahyari 2014). However Agency theory suggests that conflicts of interests between agents and owners due to greater company size, it is less control of management's behavior would be happen. Moreover, Jensen and Murphy (1990) show that job security of manager's increases as company size grows, therefore, it could result in a deviation from the main objective of a firm which is maximizing its shareholders' wealth.

2.4.4 Liquidity ratio

It is an important measure of the insure firms of profitability and it is measured by dividing current asset to current liability (Simon, 2016). It shows the ability to convert an asset to cash quickly and reflects the ability of the firm to manage working capital when kept at normal levels. Higher liquidity would allow a firm to deal with unexpected contingencies and to cope with its obligations during periods of low earnings.

The empirical evidences of the linkage between Liquidity and profitability are inconsistent. According to Gashaw (2012), Sambasivam and Gashaw (2013) and Atsbeha andKaur (2015) study shows liquidity ratio is negatively and significantly related with profitability. There are some studies that find out the insignificant and positive relationship between liquidity and profitability. For instance Mehari and Aemiro (2013), Melese (2014) and Sisay (2015). So, liquidity of insurance companies has an impact on the profitability of insurance, because a low liquidity level may lead to increasing financial costs and result in the incapacity to pay its obligations. On other hand an increase in liquidity of insurers will results in a decrease in profitability due to ideal cash. One of the many possible reasons for this might be misallocation of the resources or the inefficient utilization of the idle resource.

2.4.5 Loss ratio

It can be defined as the percentage of total premium dollars which paid for claims on a particular type of long-term coverage. According to Desheng et al (2008) the most common ratios used to evaluate operating performance are the loss ratios. Loss ratio showed negative but significant relationship with financial performance (Ahmed et al., 2011). The loss ratio; which is peroxide by the ratio of incurred claims to earned premium is another parameter which is considered in the factors of insurance company profitability. According to, Melese (2014), Sisay (2015) and Birhan(2017) loss ratio is negative and significant factor of profitability for insurance companies in Ethiopia. And also Atsbeha and Kaur (2015) finding shows that there is negative and insignificant relationship between loss ratio and insurance profitability. The negative coefficient of this variable signifies that as the amount of claims increased in comparison to the earned premium.

2.5 Macroeconomic (External) factors

2.5.1 Growth in Real GDP

The Growth in real GDP reflects economic activities and level of development of a particular country for specific period time of, usually for a year and that affects the supply and demand for insurance products and services. It is one of the most primary macroeconomic indicators which are used to measure the economic health of a country. 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 form of higher profits. (Mohana and Tekeste 2012) stated that GDP is one of the macroeconomic indicators used to measure the health of the economy of a country, and it is a measure of the overall economic output within a country's borders over a particular time, usually a year. Maja et al (2012) GDP growth positively affects insurers profitability that is, growth of overall economic activity encourage demand for insurers services and indirectly result in higher insurers income.

Atsbeha and kaur (2015) stated that GDP growth positively affects insurers profitability i.e. growth of overall economic activity encourage demand for insurers services and indirectly result in harvesting higher profit. However studies of Lee (2014), Reshid (2015) and Geberu (2015) found GDP rate were negative and significant effect on profitability of Ethiopian insurance firms.

2.5.2 Inflation

Dejene(2015) and Negussie(2012)Study's on the determinants of insurance companies' profitability in Ethiopia, and they suggested that inflation has negative impact and statistically significant determinant on profitability. It is known that inflation has effects on reducing performance by increasing the price of labor, materials and the market price as whole. The higher cost of operations due to rapid inflation rate significantly reduces the profit of insurance companies'. During the time of refund of claims insurers paid unexpected amounts of cost due to the result of inflation. HoweverStudy of Kumar (2013) shows inflation rate were positive and insignificantly affect profitability and Study of Melese (2014), Reshid(2015) and Atsbeha and kaur (2015)result of regression analysis shows inflation rate of the country has no significant effect on the profitability of insurers

2.6 Summary of theoretical and empirical Review and knowledge Gap

Traditional theory suggests that minimizing the cost of capital when the optimal level of debt capital is employed maximizes the value of the firm (Brealy and myer 1998) cited by Sisay (2015). Using of cheaper source (debt) translates to an increase the value of the firm. It creates borrowing incentives to firms. This argument holds because investors who hold debt are informed of the increased risk at moderate debt levels and will continue demanding the same return on debt. They argue that it's only at excessive debt levels that they demand a higher return. Resource based theory address performance differences between firms using asymmetries in knowledge (Chen and Hambirck1995). According to Melese (2014) a firm's ability to earn a rate of profit in excess of its cost of capital depends upon the attractiveness of the industry in which it is located and its establishment of competitive advantage over rivals. Pecking order theory suggests that insurer firms choose debt financing when insufficient amount of retained earnings is there in insurer firm. Because, debt is the cheapest and most attractive external option when compare to other methods of capital raising (Ondigi and Willy 2016). And agency theory suggests lower agency costs are associated with better performances and thus higher firm values, all other things being equal.

Literature shows that inconsistency of result findings regarding to correlation between ROA and independent variables. Empirical evidences regarding factors affecting profitability of insurance companies focused on Tangibility of asset, leverage ratio, insurance size, liquidity ratio, loss ratio, gross domestic rate and inflation rate. Different scholars come up with different conclusions on the factors of profitability as shown in the empirical reviews. Leverage is statistically significant and positively related on ROA (Mehari and Aemiro2013). However some empirical evidence with regarding to leverage found to be statistically significant relationship between leverage and profitability but negatively (Sambasivam and Gashaw (2013), Farah and Nina (2016), Jay and Andres (2017) and traditional theory suggests using of cheaper source (debt) translates to an increase the value of the firm.

The study of Malik ((2011) and Mehari and Aemiro (2013)) shows positive and significant relationship between tangibility of assets and profitability of insurance firms. Findings of

Yuqi((2007), Gashaw (2012) and Sambasivam and Gashaw (2013)), which was there is no significant relationship with insurance profitability.

Regarding to insurance size Mehari and Aemiro (2013), Melese (2014), Sisay (2015), Ondigi and Willy (2016) and Atsbeha and Kaur (2015) found positive relationship between insurance size and profitability. Agency theory suggests that lower agency costs are associated with better performances and thus higher firm values, all other things being equal. So, it creates confusion to accept above results of study.

Regarding to liquidity ratio finding shows that it is major factor that negatively but, significantly affect the profitability of insurance company (Sambasivam and Gashaw (2013) and Atsbeha and Kaur (2015)). Mehari and Aemiro (2013), Melese (2014) and Sisay(2015) studies shows that there is insignificant relationship between liquidity and profitability.

Loss ratio is negatively and significantly related with profitability (Mehari and Atsbeha (2013), Melese (2014) Sisay (2015) and Birhan (2017). And also Atsbeha and Kaur (2015) finding shows that loss ratio is negatively and insignificantly related with insurer profitability. The negative coefficient of this variable signifies that as the amount of claims increased in comparison to the earned premium.

Study of Mohana and Tekeste (2012), Maja et al (2012) and Atsbeha and Kaur (2015) shows GDP rate is positive and significant effect with profitability of insurance firms. Lee (2014), Reshid (2015) and Geberu (2015) found GDP rate were negative and significant effect on profitability of Ethiopian Insurance firms

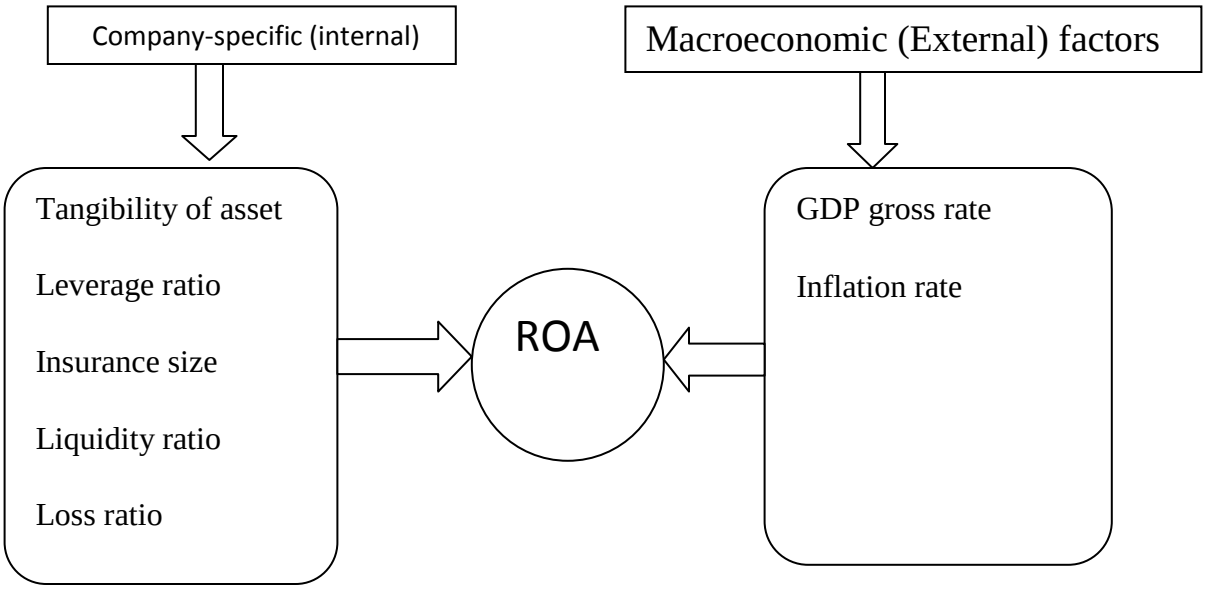
Dejene (2015) and Negussie(2012) Studies on the determinants of insurance companies' profitability in Ethiopia, and they suggested that inflation has negative impact and statistically significant determinant on profitability. However Study of Kumar (2013) shows inflation rate were positive and insignificantly affect profitability and Study of Melese (2014), Reshid(2015) and Atsbeha and kaur (2015 result of regression analysis shows inflation rate of the country has no significant effect on the profitability of insurers.

Finally some studies are conducted their studies by ignoring external factors (Gashaw (2012), (Sambasivam and Gashaw (2013), (Mehari and Aemiro (2013), Sisay (2015), Ondigi and Willy (2016) and Birhan (2017)) etc. And most of the studies are conducted their studies by using less than 10 years data this may lead inconsistency of the result finding. Therefore, the study will attempt to fill this gap and augment its own possible contribution to the existing literature.

2.7 Conceptual framework

Conceptual framework is a map which shows how particular variables are connected with each other in the study. That is, it helps to clearly identify the variables that are used in the study process. Different empirical evidences suggested that profitability of financial institutions affected by internal and external factors. This study used both internal and external determinants that influence the performance of Ethiopian Insurance Corporation including tangibility of asset, leverage ratio, insurance size, liquidity ratio, loss ratio, GDP gross rate and inflation rate.In this study, the conceptual framework of both independent variables and dependent variable is presented in figure 1 below;

Figure 1**. Conceptual framework of variables**



Source: Self developed based on literature

CHAPTER THREE:

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides the detail steps and procedures to be used to conduct the analysis of determinate of profitability of Insurance Company in Ethiopia. It includes the research design, research approach; data type and source of data, data analysis, model assumptions, model specification and measurement and selection of variables were adopted to examine the effect of main factors on profitability.

3.2 Research Approach

In this study quantitative research approach and deductive approach were used. Quantitative research is a means for test objective theories by examining the relationship among variables (Creswell 2009). So, the quantitative research approach, which constructed an econometric model, were used to identify and hypothesizing its relationship between independent and its dependent variable.

3.3 Research Design

A research design is a master plan that specifies the methods and procedures for measurement and analyzing the needed information. This study were use descriptive and explanatory research design, it establishes the relationship between independent variables and dependent variables. And Secondary source of data included Balance Sheet and Income statements of the Ethiopian Insurance Corporation obtained from the Insurance corporation annual audit report and National Statistics Office actual data. And Classical linear regression analysis based on the results of multiple regression analysis was adopt to measure the determinate insurance corporation profitability.

3.4 Sampling technique

There are several available alternative ways to take a sample. The main alternative sampling plans may be group in to two categories; probability technique and non-probability technique (William *et al* 2013). The probability sampling is a sample procedure which gives each one in the population non-zero probability of selection or it's about giving every element in the

population the same opportunity to be selected. On the other hand non-probability sample involves the selection of a sample on the basis of personal judgment or convenience. According to Singh (2006) when the subjects used in the sample is homogeneous, using purposive sampling technique is appropriate. Accordingly, this study were applies Purposive/Non-probability/ sampling technique, because the study did not include all insurance companies to have an equal chance to be selected as a sample. The total population of the study was all insurance companies registered by NBE and under operation in Ethiopia. Currently, 18 insurance companies are working in Ethiopia. In order to reach meaningful conclusion, there will a need to sample from the eighteen insurance companies, by using quantitative data over the period of 1989-2019; because of lack of 30 years data in companies established after 1989 the study were used only Ethiopian Insurance Corporation by using time series data.

3.5 Data type and data source

This study will use 31 years' time Series data from secondary sources mainly from the annual audited reports of the Ethiopian Insurance Corporation for firm specific factors and for external determinants, data on Gross Domestic Product (GDP) and inflation were obtained from the IMF (world economic outlook 2019) actual data over the period 1989 to 2019. The secondary data sources for this paper will Ethiopian Insurance Corporation annual audit reports that contain detail consolidate balance sheets and income statements. So, data were collect and analyzed for the period of 1989-2020.

3.6 Data analysis

For data analysis purpose, quantitative data analysis methods; ordinary least square (OLS) method wherl use to study the impact of independent variables on major profitability indicators. i.e (ROA) separately. Regression analysis wher carry out to test hypotheses to find which independent variable(s) individually and collectively provide a meaningful contribution towards the explanation of the dependent variable. To analysis secondary data different methods will use like descriptive and explanatory; Correlation matrix of explanatory variables. A correlation matrix where use to examine the relationship between the explanatory variables to investigate Multicollinearity, autocorrelation, and heteroscedasticity and stationary problem between variables. While do this paper, the study employ ordinary least square method. In addition, the

following diagnostic tests (i.e.,Augmented Dickey-Fuller (ADF) test for stationary; VIF test for Multicollinearity;Whitetest for Heterosce dasticity; Durbin-Watson(DW) test for autocorrelation) were carried out to ensure that the data fits the basic assumptions of linear regression model and E-view will used in this study.

Stationary test

Stationary of the time series where examine by use unit root tests. The rationale of performing this test was to model stationary series, to use the fit model for forecasting and to identify the correct model for estimation. Data is said to be stationary if its mean and variance are constant over time. It means that the joint distribution does not change when shift in time space and as a result, the parameters such as mean and variance do not change over time or position. Unless this test is carried out there is likelihood of end up with spurious results. So, Augmented Dickey-Fuller test which applies unit roots will employee.

3.7 Model specification

The researcher were used the multiple regression econometric model through which the profitability of the insurance corporation in the Ethiopian will analyze. Based on the hypotheses and previous study, the following general empirical research model is developed.

$$Y_t = ß0 + \sum ßKX_t + e_t$$

Where:

- Y_t represents the dependent variables (ROA) of insurance for time period *t*.
- ß0 is the intercept
- ßK represents the coefficients of the X_t variables
- X_t, represents the explanatory variables (tangibility of asset, leverage ratio, insurer Size, liquidity ratio, loss ratio, GDP rate and inflation rate).
- $e_t$is the error term

The above general empirical research model is changed into the study variables to find out the impact of Tangibility of asset, leverage ratio, insurer Size, Liquidity ratio, Loss ratio, GDP rate and inflation rate) on Ethiopian insurance corporation profitability as follows:

ROA = ß o+ ß1tan, t + ß2lvr, t + ß3irs, t +ß4ldr, t +ß5lor, t + ß6gdr, t +ß7lnr, t +et

Where:

- ROA = Return on total assets,
- tan=Tangibility of asset,
- lvr = Leverage ratio,
- irs = insurance size,
- ldr = Liquidity ratio,
- lor = Loss ratio,
- gdr= gross domestic product rate,
- inr= inflation rate,
- Єt = is the error component for company at time t assumed to have mean zero

  E [et] = 0
- ß o= Constant
- ß **1,** 2, 3…7 are parameters to be estimated;
- t = the index of time periods and t = 1, . . . , 30

3.8 Definition and Measurement of Study Variables

Financial performance refers to a firms‟ profitability that is how large the revenues exceed the costs incurred in generating them. The financial performance of insurance companies in financial terms is normally expressed in profitability from underwriting activities, net premium collected from their customers, annual sales turnover, ROA as well as ROE. Even though there are many profitability measurements, according to Rasiah (2010), the choice of the profitability ratio was depend on the objective of the profitability measure. ROA is primarily an indicator of company efficiency and it shows how profitable a company is relative to its total assets (Ahmed, 2008). ROA is a valuable measure when comparing the profitability of one company with other company (companies). Unlike the ROE, the ROA cannot be subject to an increase of higher borrowings. The financial performance of insurance companies was measured using profitability ratios (ROA). Arif & Showket (2015), Catherine (2014) and Hafiz (2011) are among others, who have suggested that although there are different ways to measure financial performance. Many profitability/financial performance measurements have not imparted impressive performance about the company. It is better to use ROA as it helps to measure the overall resource (asset)

performance. Therefore, Return on total assets (ROA) is a key indicator of insurance company's financial performance that used as a dependent variable.

- **Return on Assets (ROA) = Net Profit after Tax/ Total Asset**

Leverage: - which is also known as leverage or trading on equity, refers to the use of debt to acquire additional assets. The use of financial leverage to control a greater amount of assets (by borrowing money) may cause the returns on the owner's cash investment to be amplified. It confirms firms with higher financial leverage are more exposed to worsen the underinvestment problem, the risk of insolvency, and bankruptcy costs. This is measured by ratio of total debt to equity. This ratio shows the degree to which the insurance business is utilizing borrowed money. 43 It reflects insurance companies‟ ability to manage their economic exposure to unexpected losses (Adam & Buckle, 2000). • **LVR= Total Debt/Total Stockholders' equit**

Liquidity: Liquidity refers to the degree to which debt obligations coming due in the next twelve months can be paid from cash or an asset that was turned into cash. It reveals the ability to convert an asset to cash quickly and reflects the ability of the firm to manage working capital when kept at normal levels. • **LQR = Current Assets/Current Liabilities Tangibility of Asset**:

Tangibility of assets allows the firm to get a borrowing access easily, and it is due to serving as collateral to get sufficient loan (Yuqi Li, 2007). Tangible assets are likely to have an impact on the borrowing decisions of a firm because they are less subject to informational asymmetries and usually have a greater value than intangible assets in case of bankruptcy. Tangibility of assets ratio measures the share of fixed assets from total assets. Therefore, it is considered that the availability of such borrowing capacity has impact on the profitability of the insurance companies. • TGA= Fixed asset/ Total asset

Inflation: Inflation is a general increase in the overall price level of the goods and services in the economy (Hadush, 2015). Theoretically, the low level of inflation enhances the financial performance of insurance firms. The inflation is measured based on general annual increase change rates of consumer price Index (Hussain and Suyehli, 2015). • **IFR = (INF t – Inf t− 1)/Inf** t

–

Gross domestic product: the total value of goods produced and services provided in a country during a year. GDP growth rate is measured by the real annual GDP growth rate, is expected to impress insurance profitability positively. Increase in income of individuals, households and businesses will increases the demand for security. • GDP growth rate = **(GDP t – GDP t − 1)/ GDP t – 1**

Summary of Variables Measurement, symbols and expected results

No.	Variables	Symbol	Measurement of Variable	Source	Expected Result
	Return on asset	ROA	Net Profit after Tax/ Total Assets	(Lee,2014), (Rasiah, 2010)	
1	Leverage ratio	RLV	Total Debt/Total Stockholders‟ equit	(Asratand Tilahun, 2016)	-
2	Liquidity ratio	LQR	Current Assets/Current Liabilities	(Mwangi and Murungi,2015)	+
3	Tangibility of assets	TGA	Fixed asset/ Total asset	(Yuqi Li, 2007)	+
4	Inflation	IFR	(INF t – Inf t− 1)/Inf t – 1	(Hussain and Suyehli, 2015)	-
5	Gross domestic product	GDP	(GDP t – GDP t − 1)/ GDP t – 1	Kozack (2011)	+
6	Size (A)	IS	Log of total asset		+/-

Source: developed by researcher

3.9 Model assumptions

The following diagnostic tests were carried out to ensure that the data fits the basic assumptions of linear regression model.

Stationary test: Stationary of the time series was examine by using unit root tests. The rationale of performing this test were to model stationary series, to use the fitted model for forecasting and to identify the correct model for estimation. Data is said to be stationary if its mean and variance are constant over time. It means that the joint distribution does not change when shifted in time space and as a result, the parameters such as mean and variance do not change over time or position. Unless this test is carried out there is likelihood of ending up with spurious results. So, Augmented Dickey-Fuller test which applies unit roots will employ.

Heteroscedasticity: The assumption of homoscedasticity says that the variance of the errors is constant, $\sigma 2$ this is known as the assumption of homoscedasticity. If the residuals of the regression have systematically changing variability over the sample, that is a sign of heteroscedasticity. Whit test will for general test of heteroscedasticity. Brooks (2008) if the errors do not have constant variance they are said to be heteroscedasticity.

Test for autocorrelation assumption

According to brooks (2008; 240), assumption three said that the CLRM disturbance terms is the covariance between the error terms over time is zero. In other words, it is assumed that the errors are uncorrelated with one another. In addition he said that if the errors are not uncorrelated with one another, it would be stated that they are auto correlated or that they are serially correlate. To test this assumption the study use both Durbin-Watson (DW) and Breusch-Godfrey test for the existence of autocorrelation.

Multicollinearity assumption

As referred by Brooks (2008), an implicit assumption that is made when using the OLS estimation method is that the explanatory variables are not correlated with one another. In this section the correlation between Tangibility of asset, leverage, liquidity, insurance size, loss ratio, GDP rate and inflation rate have been present and analyze. A correlation matrix used to ensure the correlation between explanatory variables. Cooper & Schindler (2009) suggested that a

correlation coefficient above 0.8 between explanatory variables should be corrected for because it is a sign for Multicollinearity problem. And also Hair *et al.* (2006) argued that correlation coefficient below 0.9 may not cause serious Multicollinearity problem. The problem of Multicollinearity is said to be severe whenever the correlation analysis between two variables is found to be more than 80 percent (Kennedy 2008).

Co-linearity test

If the correlation coefficient is low it indicates that there is no problem of Multicollinearity. Variance inflation factors (VIF) is one of the tools used to measure the degree of co-linearity present for each factor. Gashayie (2013) indicates that Multicollinearity is a violation that no independent variables are nearly or highly correlated, as a result high correlation among independent variables will makes hard to separate the effects of individual variables. Gujarati (2004), Multicollinearity, is not considered a severe problem if the VIF value is less than ten.

3.9 Measure of model goodness

R-squared

The R-squared (R^2) statistic measures the success of the regression in predicting the values of the dependent variable within the sample. In standard settings, R-squared may be interpreted as the fraction of the variance of the dependent variable explained by the independent variables. The statistic will equal one if the regression fits perfectly and zero if it fits no better than the simple mean of the dependent variable.

3.10 Choice of Dependent Variable and its Measurement

Return on assets (ROA) is an indicator of how profitable a company is relative to its total assets. ROA gives a manager, investor, or analyst an idea as to how efficient a company's management is at using its assets to generate earnings. However there are many ways of measuring profitability of business that have been employed by academicians, practitioners, business managers and authors. Those are gross profit margin (GPM), return on equity (ROE) and return on asset or investment (ROA or ROI).

Alahyari(2014) investigates on determinants of Profitability in the Airline Industry: A Comparison with Turkish Airlines by using ROE and ROA as profitability measure. Negussie (2012) also investigated determinants of private commercial banks profitability in Ethiopia by using three bank profitability measures; Return on Asset (ROA), Return on Equity (ROE), and Net Interest Margin (NIM).

Furthemore, most researchers in the field of insurance and their study stated that the key indicator of a firm's profitability is ROA. Malik (2011) investigated determinants of insurance companies' profitability of insurance sector of Pakistan, Gashaw(2012) investigated Factors Affecting Profitability of Insurance Companies in Ethiopia, Mehari and Aemiro (2013) explored Firm specific factors that determine insurance companies' performance in Ethiopia, Melese (2014) Determinants of insurance companies profitability in Ethiopia, Birhan(2017) Determinants of insurance company profitability in Ethiopia, Sisay (2015) The determinants of profitability on insurance sector: evidence from insurance companies in Ethiopia Reshid(2015) determinants of insurance company's profitability in Ethiopian, Atsbeha and kaur (2015) Determinant of insurance company's profitability analysis of insurance sector in Ethiopia all the

above authors used return on asset (ROA) as proxy measure of profitability. In line with earlier empirical studies that have been investigated the determinants of Insurances' and Banks' profitability, this study was rely on one commonly used measure of performance as well as profitability, which was returned on total assets (ROA). Return on total assets (ROA) is calculated as net profit after tax by total assets.

3.11 Choice of Explanatory Variables and their Measurement

The choice of explanatory variables is based on their theoretical relationship with the dependent variable. In this paper, firm specific variables affecting the performance of Ethiopian Insurance Corporation were accounted. These explanatory variables and their measurement are as follows.

Tangibility of assets (TAN)

Tangibility of assets in insurance companies in most studies is measured by the ratio of fixed assets to total assets. The study of Malik ((2011) and Mehari and Aemiro (2013)) shows positive and significant relationship between tangibility of assets and profitability of insurance firms. According to agency cost theory of Jensen and Meckling (1976), there is a conflict between lenders and shareholders due to the possibility of moral hazard on the part of borrowers. This conflict creates incentives for shareholders to invest in a suboptimal way and lenders require tangible assets as collateral to protect them. The agency cost of debt increase when firms cannot collateralize their debt. Outsized proportion of a firm's assets can be used as collateral to fulfill lenders requirements and better chance to get debt financing so, it is used as collateral in external borrowing, the presence of a large fraction of tangible assets of a firm help to get bank loans at a lower interest rate (Leykun 2011). Therefore, it is considered that the availability of such borrowing capacity will impact on the profitability of the insurance companies. And also high ratio indicates an inefficient use of working capital which reduces the firm's ability to carry accounts receivable and maintain inventory and usually means a low cash reserve. This may often limit the ability of the firm to respond to increased demand for products or services and investment in profitable investment area. This concept was also supported by findings of Yuqi ((2007), Gashaw (2012) and Sambasivam and Gashaw (2013)), which was there is no significant relationship with insurance profitability. So, due to this reason further study is needed by using tangibility of asset as dependent variable.

Leverage ratio (Lvr) – the leverage ratio of an insurance corporation is measured by debt to equity ratio. It shows the amount of debt used to finance the assets of a given firm. An insurance corporation with significantly more debt than equity is considered to be highly leveraged (Shilpi 2016).The risk of an insurer may increase when it increases its leverage. However traditional theory suggests using of debt is used to maximize owner's wealth. Because of inconsistency this study is motivated to further empirical investigation.

Insurer's size (IRS) – insurer size is one of the best important variables considered by the study. Because it is too difficult to precisely measure the insurer size, then the natural logarithm of total assets is use as a proxy for insurers' size. The main motivation for considering insurers' size as a major factor of profitability is that firstly, large size insurers usually have greater capacity for dealing with adverse market fluctuations than smaller ones and the second is that insurers with large size can take advantages of economies of scale (Simon 2016). Regardless of the above facts, however, absence of consistency among the different researchers regarding the relationship between size of insurers and profitability is concerned in the literature. Due to this reason this study is subject to further empirical study.

Liquidity ratio (LDR) – it shows that capability of an insurance firm to pay its short term liability when it is due. It is commonly calculated by dividing current asset to current liabilities. It is ability of insurance firms to convert its assets in to cash (Sisay2015). In absence of using external source of financing insurance firms may use most liquid assets to facilitate firm's activities. Low liquidity ratio shows that an insurance firm is facing difficulties in paying its short term debts. Conversely high liquidity ratio could also shows insurance firms have kept idle cash rather than investing in profitable areas. Therefore, the researcher is motivated for further investigation.

Loss ratio (LOR) –It is total losses incurred (paid and reserved) in claims divided by the entire premiums earned. Loss ratio is one of the best indicators of Insurance Corporation profitability (Atsbehaand kaur 2015). In this study, loss ratio was calculated by dividing the incurred claims with the earned premiums. Insurance Corporation that consistently experience high loss ratios may be in bad financial health. It is an indication of unable to collect enough premiums to pay during claims incurred and unable to earn profit.

GDP gross rate (GDR)

The Growth in real GDP reflects economic activities and level of development of a particular country for specific period time of, usually for a year and that affects the supply and demand for insurance products and services. It is one of the most primary macroeconomic indicators which are used to measure the economic health of a country. Poor economic conditions can worsen the quality of the finance portfolio, thereby reducing profitability. Regardless of above fact there is a study that confirms that negative and significant effect (Lee (2014), Reshid (2015) and Geberu (2is reason further study is needed. The yearly real Gross Domestic Product (GDP) growth rate of the country was used.

Inflation (INR)

It is known that inflation has effects on reducing performance by increasing the price of labor, materials and the market price as whole. The higher cost of operations due to rapid inflation rate significantly reduces the profit of insurance companies'. During the time of refund of claims insurers paid unexpected amounts of cost due to the result of inflation. However Study of Kumar (2013) shows inflation rate were positive and insignificantly affect profitability and Study of Melese (2014), Reshid(2015) and Atsbeha and kaur (2015 result of regression analysis shows inflation rate of the country has no significant effect on the profitability of insurers. Annual percentages of average consumer prices were use in this study.

CHAPTER FOUR

DATA ANLAYSIS AND PRESENTATION

4 Introduction

This chapter presents the data analysis, findings, interpretations and presentation of the study based on the research objective which was to determine the effect of main firm specific and macroeconomic variables on profitability of Ethiopian Insurance Company. The analysis is based on data collected from 1989 to 2019 on an annual basis. The results are presented in the form of summary tables. The data for this study was obtained from national bank and Ethiopian insurance corporation Head office marketing department and IMF (world economic outlook 2019). To empirically investigate on the factors of profitability and achieve the objectives stated in the first chapter, all insurance companies their year of establishments was 1989 G.C were included in this study. So all private insurances are not included in this study because their establishment is after 1989, then Ethiopian Insurance Corporation is purposively selected for this study. Therefore 30 years observations were used to empirically analyze the profitability determinants of Ethiopian Insurance Company.

To investigate and identify the main determinants of profitability, which is proxied by ROA of Ethiopian Insurance Corporation, the study used five firm specific determinants and two macroeconomic determinants as independent variables. Those are; tangibility of asset, leverage ratio, liquidity ratio, insurance size, loss ratio, GDP rate and inflation rate.

Generally, the study was categorized in to four sub sections. Those are descriptive statistics analysis, diagnostic assumption tests, multiple regression result, and hypothesis testing.

4.1 Descriptive statistics of the study variables

This section discussed the summery statistics of each variables of the study. The variables include the dependent and independent variables. The dependent variables used in this study in order to measure Ethiopian Insurance Corporation financial performance is return on asset (ROA) whereas the explanatory variables (independent variables) are tangibility of asset, leverage ratio, liquidity ratio, insurance size, loss ratio, , real GDP rate and inflation rate.

The study conducted descriptive statistic in order to give the audience more understanding about the study variables that are being analyzed. Descriptive studies produced the mean, minimum, maximum and standard deviation for each variable. Accordingly, the descriptive statistics for all variables are presented below in table.1.

Table 1 Descriptive statistics of the study variables

	Return on asset	Tangibility of asset	Leverage ratio	Loss ratio	Liquidity ratio	Insurance size	Gross domestic rate	Inflation rate
Mean	0.296323	0.251567	1.908323	0.618000	1.802767	19.98723	0.326000	1.930657
Median	0.156000	0.250000	1.8985000	0.5560000	1.645000	21.43000	0.255000	0.925000
Maximum	0.910000	0.530000	2.730000	2.190000	3.820000	22.97000	2.000000	7.570000
Minimum	0.020000	0.100000	0.150000	0.210000	1.000000	15.21000	0.020000	0.020000
Std. Dev.	0.330008	0.095956	0.596837	0.339943	0.824060	1.817583	0.279299	1.936182
Skewness	0.565874	0.285171	-0.979707	4.012944	1.155819	-0.997610	1.077958	1.261175
Kurtosis	1.753515	1.792752	4.741545	20.40700	2.990229	2.976611	3.162640	3.276381
Jarque-Bera	4.029807	2.228424	8.590353	459.2732	6.679703	4.976813	5.843036	8.048291
Probability	0.242658	0.428174	0.023634	0.000000	0.034543	0.093042	0.058832	0.019576
Observations	31	31	31	31	31	31	31	31

Source: E-**View- 9**

Return on Asset (ROA):

Profitability is defined in terms of Return on Assets (ROA) of Ethiopian Insurance Corporation. The Return on Assets is used as dependent variable against a set of independent variables, and it is measured by the ratio of net income after tax to total asset. Return on Assets measures the returns in the total assets of Ethiopian Insurance Corporation. It is expected that the higher return on assets will be better effect on Ethiopian Insurance Corporation.

Table 1 shows that the mean value of ROA of the insurance corporation in Ethiopia is 0.29623, meaning that 29.6323 of the insurance 'earnings was generated from each unit of total Assets.

The income derived from assets ranges from 0.020000- 0.9100000 in the sample years with a standard deviation of 0.330008 from the sample year mean. This implies good variations of Ethiopian Insurance Corporation profitability across study periods.

Tangibility of Asset (TAN)

Tangibility is another firm specific explanatory variable used in this study. It measures the share of Fixed Assets from Total Assets. TA = Fixed Assets / Total Assets.

The mean value of tangibility of asset for Ethiopian Insurance Corporation during the study period is about 0.251567 and the value of the standard deviation is 0.095956 which implies 25 percent of total asset of Insurance Corporation is fixed asset and the presence of good variations among the tangibility of asset across the study period included for this study. Tangible assets are easily monitored and provide good collateral and thus they tend to mitigate agency conflicts between shareholders and creditors(Himmelberg and et al. (1999). However, according to Deloof (2003) and Nucci and et al. (2005) tangibility of asset may have a negative correlation, because firms with high levels of intangible assets (liquidity) have more investment opportunity in the long term, innovation and research and development. The maximum and minimum values were 0.530000 and 0.100000 respectively.

Leverage (LVR)

The mean value and standard deviation of leverage is 1.908323 and 0.596837 respectively. This indicates that there were large differences among leveraged level as measured by debt to equity ratio across the study period of Ethiopian Insurance Corporation under this study and it also suggests Ethiopian Insurance Corporation has leveraged because they used debt (outstanding claims, creditors, due to reinsurance, due to ceding companies, Deferred tax liability and current tax liability) than equity for financing purpose. The trade of theory suggests a positive relationship between profitability and leverage ratio. It says more profitable firms should prefer debt financing to get benefit from tax shield. In contrast to this, pecking order theory implies due to asymmetric information cost, firms prefer internal finance than external finance and, when outside financing is necessary, firms prefer debt to equity because of the lower information costs. The maximum value of leverage was 2.730000 and the minimum was 0.150000.

Liquidity (LDR)

In this study Liquidity measures the firm's ability to use its near cash or "quick" assets to retire its liabilities. In this case Liquidity is measured as Ratio of Current Assets to Current Liabilities.

The mean value of liquidity ratio is 1.802767 and the value of standard deviation is 0.824060 with 3.8200000maximum and 1.000000 minimum values. This result indicates that Ethiopian Insurance Corporation has liquid and also shows the existence of large variation among the liquidity level for study period of Insurance Corporation. According to the theory of agency costs, high liquidity of assets could increase agency costs and reinvestment risk. Unquestionably, agency cost and reinvestment risk would put injure on the profitability of a company (Melese 2014). However, according to Mehari and Aemiro (2013) assets are less likely to fail because they can realize cash even in very difficult situations. Therefore it is expected that Ethiopian Insurance Corporation with more liquid assets will earn more profit than high tangible asset.

Insurer size (IRS):

Insurer size is one of the best important variables considered by the study. Because it is too difficult to precisely measure the insurer size, then the natural logarithm of total assets is used as a proxy for insurer size. The main motivation for considering insurer size as a major factor of profitability is that firstly, large size insurers usually have greater capacity for dealing with adverse market fluctuations than smaller ones and the second is that insurers with large size can take advantages of economies of scale (Simon 2016).

The mean value of insurance size is 19.98723 and the value of the standard deviation is 1.817583. The result implies varieties of insurance size among the study period might have significant impact on profitability of Ethiopian Insurance Corporation. The maximum and minimum value of insurance size has 22.97000 and 15.21000 respectively. Therefore, it is expected insurance with large size is more profitable.

Loss ratio (LOR)

Loss ratio indicates how much percentage of net claims is incurred from the firm's or sectors net earned premium. From insurers point of view low ratio is preferable, since low ratio means low damage/loss/ in any subject matter of Ethiopian insurance corporation product and low claim turnover. Therefore, it is expected that the having low ratio is the more generating a good profit.

The average value of loss ratio has 0.618000 with a standard deviation of 0.0339943 Therefore, it indicates that, the Ethiopian Insurance Corporation has high risky because they incurred an average 0.618 cents of claim from single birr of premium earned and there exists moderate variation among the level of risk increase across study period included in this study. The maximum and minimum values were 2.190000 and 0.210000 respectively.

Growth in Real GDP

The Growth in real GDP reflects economic activities and development level of a particular country for specific period of time, usually for a year and that affects the supply and demand for insurance products and services. It is one of the most primary macroeconomic indicators which are used to measure the economic health of a country. If GDP grows, the likelihood of selling insurance policies also grows and insurers are likely to benefit from that in form of higher profits. The mean values of GDR across those study periods have 0.326000 and the standard deviation has 0.279299 which implies there is moderate variation in value of GDP growth rate across the study years. The maximum and minimum values have 2.000000 and 0.020000.

Inflation rate

Finally inflation is the second macroeconomic variable used in this study. Inflation is the rate at which the general level of prices for goods and services is rising and as a result the purchasing power of money is decreased. Logically it is the opposite of GDP. In this study inflation was measured by the annual percentage changes in the consumer price index (CPI).

In this study it is expected that high percentage change will cause depreciating the country's money purchasing power and it is the same to the sectors or companies money in purchasing a specific national as well as international product. The average value of inflation rate is 1.930657 and the standard deviation is 1.936182 it indicates moderate variation of the inflation rate in Ethiopian Insurance Corporation during study years.

4.2 Diagnostic Testing:

Before running a multiple regression result and concluding the result, it is mandatory to test the econometric assumption in order to know the proposed model statistical good fit. There are 5 critical assumptions relating to the classical linear regression model (CLRM). These assumptions are required to show that the estimation technique, Ordinary Least Squares (OLS), has a number of desirable properties, and also so that the hypothesis tests regarding the coefficient estimates could be validly conducted (Brook 2008).Considering the assumptions tested bellow, all assumptions are met (valid). Hence, the OLS model of this study is adequate, statistical good fit, and data's are represented correctly.

4.2.1 Stationary Test

The Augmented Dickey-Fuller (ADF) test is employed to test the stationary of the variables in the model. The reason for knowing whether a variable has a unit root (that is, whether the variable is no stationary) is to avoid the problem of spurious regression-case where the results of regression suggest that there are statistically significant long run relationship among the variables in the regression model. Stationary, in language of the time series, means that mean, variance and auto covariance (at various lags) remain the same no matter at what time point they are measured; they are time invariant (Gujarati, 2004). The presence of unit roots (non-stationary) for each variable is tested using the Augmented Dickey-Fuller(ADF) test procedure and the result of this test is presented on table 2.As summarized in the Table .2 below, all the variables stationary at level with lag zero; tangibility of asset, liquidity and inflation rate are non-stationary since p-values are greater than five percent it implies non-stationary. For non- stationary variables the study computed stationary at first and second difference, implying all variables are stationary; we can see p-values all are less than five percent so, it shows presence of stationary.

Table 2 ADF- unit root test

Variables	**Tests on level**		**Tests on first difference**		**Tests on 2nd difference**	
	At zero lag	p-value	At zero lag	p-value	At zero lag	p-value
ROA	-3.045715	**0.0424**	-6.821071	**0.0000**	-9.143200	**0.0000**
TAN	-1.686483	0.4273	-3.422618	**0.0186**	-5.539172	**0.0001**
LDR	-1.173977	0.6717	-7.426059	**0.0000**	-12.81839	**0.0000**
IRS	-2.639348	**0.0969**	-5.874958	**0.000**	-10.47229	**0.0000**
LVR	-3.2536	**0.0269**	-6.298529	**0.0000**	-9.170326	**0.0000**
LOR	-5.208352	**0.0002**	-8.431421	**0.0000**	-11.17932	**0.0000**
GDR	-3.718939	**0.0091**	-12.69026	**0.0000**	-18.58440	**0.0001**
INR	1.585	0.9991	-6.938742	**0.0000**	-12.41555	**0.0000**
Critical value1%	-3.679322		-3.689194		-3.699871	
5%	-2.967767		-2.9718553		-2.976263	
10%	-2.622989		-2.625121		-2.627420	

Source: E-View- 9

4.2.2. Test for heteroscedasticity assumption (var(ut) = σ2 <∞)

The assumption of homoscedasticity says that the variance of the error term is constant, σ2 this is known as the assumption of homoscedasticity. If the residuals of the regression have systematically changing variability over the sample, that is a sign of heteroscedasticity. Brooks (2008) if the errors do not have constant variance they are said to be heteroscedasticity. In this study which is indicated below; the test result presented on table 4.3 both F – statistics and Chi square showed that there is no evidence that there is heteroscedasticity because the result in the P value is more than .05, we can say that there is no evidence for the presence of heteroscedasticity. Thus, the conclusion of the test has shown that no evidence of heteroscedasticity and the null hypothesis is accepted.

H0: The variance of the error term is homoscedasticity

H1: The variance of the error term is heteroscedasticity

Table 3 Heteroscedasticity Test: White

F-statistic	1.250057	Prob. F(7,22)	0.3191
Obs*R-squared	8.536866	Prob. Chi-Square(7)	0.2876
Scaled explained SS	4.203764	Prob. Chi-Square(7)	0.7560

Source: E-View- 9

Another test for the existence of Heteroscedasticity Test by using Breusch-Pagan-Godfrey

Table 4 Breusch-Pagan-Godfrey Test

Heteroscedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.280544	Prob. F(7,22)	0.3050
Obs*R-squared	8.684790	Prob. Chi-Square(7)	0.2761
Scaled explained SS	4.276605	Prob. Chi-Square(7)	0.7474

Source: E-View- 9

Both versions of the test; F- statistic and R-squared version of the test indicate that there is no evidence presence of heteroscedasticity, since the p-values are considerably in excess of 0.05. The conclusion from both versions of the test described that there is no heteroscedasticity.

4.2.3. Test for autocorrelation assumption (cov(ui, uj) = 0 for i ≠ j

According to brooks (2008), assumption three said that the CLRM disturbance terms are the covariance between the error terms over time is zero. In other words, it is assumed that the errors are uncorrelated with one another. To test this assumption the study used Durbin-Watson (DW) test and Breusch-Godfrey Serial Correlation LM Test: for the existence of autocorrelation.

As table 4. 4 below indicates that the DW test result is 2.054for the profitability measure; return on asset. This indicates that there was no serious evidence of autocorrelation in the data since the DW test result is not far from two.

Table 5 Rules for Durbin-Watson test

Reject Ho: Positive Auto correlation	**Inconclusive :** Neither rejected nor accepted	Don't reject Ho: No evidence of autocorrelation	**Inconclusive :** Neither rejected nor accepted	Reject Ho: Negative Auto correlation
0 **DL** DU **2.054**4-DU **4-DL** 4				
0.748	1.814	2.186	3.2524	

Source: Gujarati (2004)

Where: DL = Lower bound

DU = Upper bound

Therefore, to test for autocorrelation, the DW test critical values at 1% level of significance were used. Then, relevant critical lower and upper values for the test are DL= 0.748 and DU=1.814 respectively. The values of 4 - DU = 4-1.814=2.186; 4 - DL = 4-0.748= 3.252.

The Durbin-Watson test statistic of 2.054 is clearly found on the non-rejection region so that there is no evidence for the presence of autocorrelation.

Table 6 Durbin-Watson (DW) test

R-squared	0.741697	Mean dependent var	0.325333
Adjusted R-squared	0.659509	S.D. dependent var	0.320008
S.E. of regression	0.186730	Akaike info criterion	-0.295131
Sum squared resid	0.767095	Schwarz criterion	0.078522
Log likelihood	12.42697	Hannan-Quinn criter.	-0.175596
F-statistic	9.024455	**Durbin-Watson stat**	**2.054324**
Prob(F-statistic)	0.000030		

Source: E-view 9.

Other test for the existence of autocorrelation is by using Breusch-Godfrey Serial Correlation LM Test:

Table 7 Breusch-Godfrey Serial Correlation LM Test:

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.176709	Prob. F(1,21)	0.6785
Obs*R-squared	0.250335	Prob. Chi-Square(1)	0.6168

Source: E-view 9

Both versions of test; an F-version and a $\chi 2$ version of the test indicates that no autocorrelation. The conclusion from both versions of the test in this case is that the null hypothesis of no autocorrelation is not rejected.

4.2.4 Multicollinearity assumption

As referred by Brooks (2008), an implicit assumption that is made when using the OLS estimation method is that the explanatory variables are not correlated with one another. In this section the correlation between Tangibility of asset, leverage, liquidity, insurance size, loss ratio, GDP rate and inflation rate have been presented and analyzed. A correlation matrix used to ensure the correlation between explanatory variables. Cooper & Schindler (2009) suggested that a correlation coefficient above 0.8 between explanatory variables should be corrected for because it is a sign for Multicollinearity problem. And also Hair *et al.* (2006) argued that correlation coefficient below 0.9 may not cause serious Multicollinearity problem. The problem of Multicollinearity is said to be severe whenever the correlation analysis between two variables is found to be more than 80 percent (Kennedy, 2008). Table 4.6 shows there is no evidence of Multicollinearity problem.

Table 8 correlation analysis of explanatory variables

Correlation Analysis: Ordinary

Date: 03/6/22 Time: 02:35

Sample: 1989 2020

Included observations: 31

Correlation

	TAN	LVR	LDR	IRS	LOR	GDR	INR
TAN	1.000000						
LVR	0.264919	1.000000					
LDR	-0.289794	0.129217	1.000000				
IRS	-0.535502	0.104229	0.424126	1.000000			
LOR	-0.245094	7.65E-05	-0.136982	0.130973	1.000000		
GDR	-0.327004	-0.251325	0.493233	0.482105	0.098790	1.000000	
INR	-0.615745	0.178737	0.787963	0.677421	0.150408	0.395045	1.000000

Source:E-View- 9

As per above table tangibility of asset has positively correlated with leverage but, negatively correlated with liquidity ratio, insurance size, loss ratio, GDP rate and inflation rate. Leverage has positively correlated with liquidity, tangibility of asset, insurance size and inflation rate, but negatively correlated with loss ratio and GDP rate. Liquidity ratio has positively correlated with insurance size, GDP rate, inflation rate and leverage but, negatively correlated with loss ratio and

tangibility of asset. Insurance size has positively correlated with leverage, liquidity ratio, loss ratio, GDP rate and inflation rate, but negatively correlated with tangibility of asset. Loss ratio has positively correlated with insurance size, GDP rate and inflation rate; and negatively correlated with Tangibility of asset, leverage and liquidity. GDP rate has positively correlated with liquidity ratio, insurance size, loss ratio and inflation rate; but, negatively correlated with tangibility of asset and leverage. Finally inflation rate has positively correlated with liquidity ratio, insurance size,loss ratio, leverage ratio and GDP rate; but negatively correlated with tangibility of asset.

4.2.5 Analysis of Variance inflation factor

If the correlation coefficient is low it indicates that there is no problem of Multicollinearity. The result of correlation analysis above it indicates that there is a high positive correlation between inflation rate with insurance size and liquidity ratio but, no more than 80 percent. Hence, further an alternative method should be employed to check the presence of Multicollinearity among independent variables. Variance inflation factors (VIF) is one of the tools used to measure the degree of co-linearity present for each factor. Gashayie (2013) indicates that Multicollinearity is a violation that independent variables are nearly or highly correlated, as a result high correlation among independent variables will makes hard to separate the effects of individual variables. Gujarati (2004), Multicollinearity, is not considered a severe problem if the VIF value is less than ten. Therefore, after obtaining the correlated variables, the study further assessed the severity of Multicollinearity as indicated above by evaluating the VIF values and the tolerance level.

Table 9 Regression analysis result of variance inflation factor.

Coefficients[a]

Model	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
Tan	.363	2.753
Lvr	.616	1.623
Ldr	.185	5.403
Irs	.388	2.579
Lor	.742	1.348
Gdr	.481	2.081
Inr	.117	8.538

a. Dependent Variable: roa **Source:E-view-9**

Variance inflation factor (VIF) is a measure of the amount of Multicollinearity in the set of multiple regression variables. The VIF value used to diagnose whether there exist any Multicollinearity problem. The result of VIF shows that all independent variables values are less than 10 it indicates that a Multicollinearity assumption is not violated.

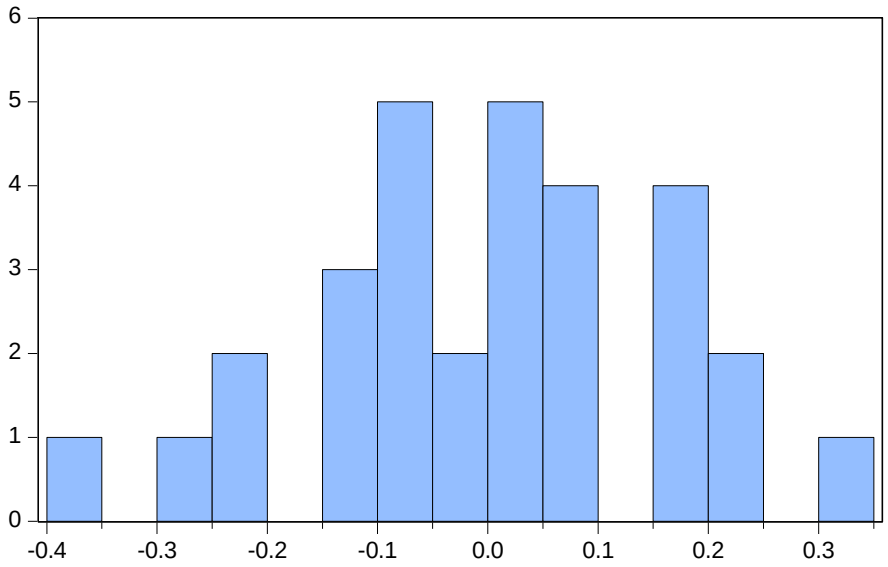
4.2.7 Normality test

According to Brooks (2008) stated in his book, testing normality assumption is very important before conducting hypothesis test about the model parameter, the normality assumption must be fulfilled. The normality assumption is about the mean of the residuals is zero. Therefore, the study used graphical methods of testing the normality of data as shown below.

From figure 1 below, it can be noted that the distribution is normal curve, indicating that the data confirms to the normality assumption. In addition, the Bera-Jarque (BJ) tests were used to test the normality of data as shown below in figure 4.1.

Figure 2 Jarque-Bera Normality test

Source: **E-view** **9**



Normality of Residuals	
Sample 1989 2020	
Observations 31	
Mean	9.08e-17
Median	0.030477
Maximum	0.334524
Minimum	-0.385419
Std. Dev.	0.162639
Skewness	-0.159936
Kurtosis	2.831332
Jarque-Bera	0.163459
Probability	0.921521

As per Brooks (2008) Jarque- Bera statistic would not be significant. This means p-value of normality test should be bigger than 0.05 to not reject normality at the 5% level of significance. Test of normality assumption as presented above figure 2 Probability Jarque- Bera statistic of ROA regression model is 0.92 this implies more than 0.05 so, it is indication of presence of normality. And normal distribution assumption states that it is not skewed and has a coefficient of kurtosis of 3. The normality test of this study is shown in figure 2 and has kurtosis close to3

4.2 Multiple regression result:

To examine the relationship between profitability measures and explanatory variables OLS regression analysis were run. The study conducted a multiple regression analysis so as to investigate the determinants of profitability of Ethiopian Insurance Corporation. As stated above, the model estimated is a combination of both internal variables and external variables. In order to know the effect of those independent variables on profitability, this sub section presents the empirical findings from the econometric output on determinants of the Ethiopian Insurance Corporation. Table 4.9 below reports regression results between the dependent variable (ROA) and explanatory variables. Under the following regression outputs the beta coefficient may be

negative or positive; beta indicates that each variable's level of influence on the dependent variable. P-value indicates at what percentage of each variable is significant. The R-squared value measures how well the regression model explains the actual variations in the dependent variable (Brooks, 2008).

Table 10 Regression Results

Dependent Variable: ROA

Method: Least Squares

Date: 0/15/2022 Time: 02:59

Sample: 1989 2020

Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.565717	0.629684	0.898413	0.3787
TAN	-2.057156	0.599605	-3.430854	**0.0024**
LVR	0.312355	0.074010	4.220419	**0.0004**
LDR	0.480699	0.097806	4.914835	**0.0001**
IRS	-0.034805	0.030637	-1.136029	0.2682
LOR	-0.004223	0.118446	-0.035654	0.9719
GDR	-0.506415	0.179087	-2.827763	**0.0098**
INR	-0.201893	0.052330	-3.858102	**0.0009**

R-squared	0.741697	Mean dependent var	0.325333
Adjusted R-squared	0.659509	S.D. dependent var	0.320008
S.E. of regression	0.186730	Akaike info criterion	-0.295131
Sum squared resid	0.767095	Schwarz criterion	0.078522
Log likelihood	12.42697	Hannan-Quinn criter.	-0.175596
F-statistic	9.024455	Durbin-Watson stat	2.054324
Prob(F-statistic)	0.000030		

Source:E-**View- 9**

Table 10 shows that the value of R^2 is 0.74 indicating that the profitability of Ethiopian Insurance corporation depends almost 74% of the independent variables namely ,tangibility of asset(TAN), liquidity ratio(LDR), insurance size(IRS), leverage ratio(LVR), loss ratio(LOR), real GDP rate (GDR) and inflation rate(INR). This implies that the explanatory power of the model which was made of five firm specific variables and two macroeconomic variables on profitability of Ethiopian Insurance Corporation was 74%, while the remaining 26% were explained by other variables that are not included in this study.

The regression result shows leverage and liquidity ratio have a significant positive relationship with Ethiopian Insurance Corporation 'profitability, while Tangibility of asset, GDP rate and

inflation rate have a significant negative relationship with ROA. However, loss ratio and insurance size have negative relationship with Ethiopian insurance corporation profitability but statistically insignificant.

From Table 4.10 regression result, the regression equation can be developed as follows:

ROA=0.566-2.057(TAN)+0.312355(LVR)+0.480699(LDR)-0.03480(IRS)-0.004223(LOR)0.506415 (GDR)- 0.201893(INR) +et

4.2.1 Interpretation of regression results

According to the regression result Tangibility of asset has a negative relationship with profitability of Ethiopian Insurance Corporation and has a beta coefficient of -2.057. However, it is significant to influence profitability of Insurance Corporation. Therefore, tangibility of asset has significant impact on Ethiopian Insurance Corporation's profitability. This implies Regression coefficient of tangibility-2.057implies that when TAN increases by 1% then the ROA will decrease by -0.057. Which means a company with high tangible asset is not profitable than a company with low tangibility.

Leverage has a beta of 0.312355. It shows a positive and significant impact on Ethiopian Insurance Corporation. The finding of positive association between leverage and profitability could be that growing insurance branches should rely more and more on external borrowing to seize market opportunities. This argument is supported by the pecking order theory, which argues firms prefer debt financing for their growth instead of equity due to its riskiness. The probable reason for this result could be growing insurance branches to increase additional customers (expand market share), which enables them to borrow more debt as result it increase insurance profit. A significant positive relationship between leverage and profitability was observed in the regression result. The beta coefficient of leverage is 0.312355 which implies a unit increases in leverage will lead to increase insurance profitability by 31.2355%.This means a company with high leverage is more profitable than accompany with small leverage.

The regression result also shows that the beta coefficient (i.e. 0.480699) associated with liquidity tells a significant positive relationship with Ethiopian insurance corporation. The regression coefficient of liquidity implies that a 1% increases in liquidity will lead to increase profitability of Ethiopian Insurance Corporation by 48.07%. This indicates that company with high liquidity is more profitable than a company with high tangible asset. Regression result also shows

insurance size has insignificant negative relationship with profitability of Ethiopian Insurance Corporation. The beta coefficient of insurance size is -0.034805, which implies that a unit increase in insurance size will lead to reduce profitability of insurance corporation by 3.48% but, insignificantly. Similarly result shows that coefficient of loss ratio is -0.004223 it indicates negative relationship with profitability of insurance corporation and loss ratio but, insignificantly. The regression coefficient of loss ratio implies that a 1% increase in loss ratio will lead to decrease Insurance Corporation's profitability by 0.423%. This means a corporation with low loss ratio has a good profitable than high loss ratio.

According to the regression result GDP has a significantly negative relationship with Ethiopian Insurance Corporation profitability. The beta coefficient of GDP is -0.506415; this implies that a unit increase in GDP will lead to 0.506415 decrease in profitability of Ethiopian Insurance Corporation. Theoretically GDP has positive and significant influence on profitability of Insurance Corporation that is, growth of overall economic activity encourages demand for insurer's services and indirectly result in higher insurer's income. But, this study shows Ethiopian insurance corporation profitability is negatively affected by GDP rate.

The regression coefficient of inflation rate has -0.201893. The result of this study clearly indicates that inflation has a negative impact on profitability and statistically significant determinant of Ethiopian Insurance Corporation's profitability. It shows that when inflation rate increases by 1% insurance profitability also decrease by 20.19%.

4.3 Hypothesis testing:

This section summarizes the expected relationship and the actual relationship of the seven independent variables namely Tangibility of asset(TAN), Leverage ratio(LVR), Liquidity ratio(LDR), insurance size(IRS), Loss ratio(LOR), GDP rate(GDR) and inflation rate(INR) with profitability (ROA) of Ethiopian Insurance Corporation.

4.4.1 Tangibility of asset (TAN)

The first hypothesis was formulated to evaluate the relationship of Tangibility of asset and ROA there is significant positive relationship between Tangibility of asset and profitability of Ethiopian Insurance Corporation. The regression results concerning Tangibility of asset show

that there is negative and significant relationship between Tangibility of asset and profitability of Ethiopian Insurance Corporation, since the regression coefficient is -2.057156. Hence, the result is inconsistent with the hypothesis of the study HA1 is rejected. Likewise, the statistical result revealed strong negative relationship between the variables and it can be concluded that tangibility of asset has strongly explained the profitability of Ethiopian Insurance Corporation; as a result it has negative significant impact on ROA of Ethiopian Insurance Corporation.

The result implies that the highest the level of fixed assets formation, the larger the insurance corporation is or a company with high fixed asset is not profitable than company with low fixed asset. The result is consistent with findings studied by Gashaw(2012),Sambasivam and Gashaw (2013). However the result is inconsistent with findings studied by Mehari and Aemiro(2013).

4.4.2 Leverage ratio

The second formulated hypothesis was "there is positive significant relationship between leverage ratios and profitability of Ethiopian Insurance Corporation. In consistent to the hypothesis, the regression result also shows that leverage ratio has a significant positive relationship with profitability of Ethiopian Insurance Corporation, since the coefficient is 0.312355 which implies that leverage ratio is the main and the best determinant of insurance companies profitability (ROA). Hence, inconsistent with the regression result and then HA2 is rejected. The regression result is consistent with the regression result of Mehari and Aemiro(2013) and traditional theory. Traditional theory suggests that replacement of an expensive source of equity with cheaper source (debt) translates to an increase firm's performance. However inconsistent with finding studied by Sambasivam and Gashaw (2013),Farah and Nina (2016) and Jay and Andres(2017).

4.4.3 Liquidity ratio

The third hypothesis predicted that there is a significant positive relationship between liquidity ratio and Ethiopian Insurance Corporations profitability. The regression result also shows that liquidity has a significant positive relationship with profitability of Ethiopian Insurance Corporation, since its beta coefficient and probability is 0.480699and hence, the hypothesis is consistent with the regression result, HA3 is accepted.

The result implies that the highest the level of liquidity ratio formation, the larger the insurance corporation is or a company with high liquid asset is more profitable than company with high tangible asset. The result is consistent with findings studied byYassin(2012). However inconsistent with findings studied by Gashaw (2012), Sambasivam and Gashaw (2013) and Atsbeha and Kaur(2015).

4.4.4 Insurance size

The fourth hypothesis was formulated to evaluate the relationship of insurance size and ROA there is significant positive relationship between insurance size and profitability of Insurance Corporation. The regression results concerning insurance size shows that there is negative and insignificant relationship between insurance size and profitability of Ethiopian Insurance Corporation, since the regression coefficient is -0.034805. A negative and insignificant association between insurance size and profitability implies that Ethiopian Insurance Corporation during the study period were not significantly affected as a result of whether increasing or decreasing the insurance size. Hence, the result is inconsistent with the hypothesis of the study HA4 is rejected. The result is consistent with Agency theory. It suggests that conflicts of interests between agents and owners due to greater company size, it is less control of management's behavior would be happen. And Jensen and Murphy (1990) show that job security of manager's increases as company size grows, therefore, it could result in a deviation from the main objective of a firm which is maximizing its shareholders' wealth. However inconsistent with finding studied by Mehari and Aemiro (2013), Melese (2013), Sisay(2015) and Atsbeha and kaur(2015).

4.4.5 Loss ratio

The fifth hypothesis was formulated in order to examine that the loss ratio has a significant negative relationship with profitability of Ethiopian Insurance Corporation. The regression result of this study explains that loss ratio has insignificant negative relationship with profitability (ROA) of Ethiopian Insurance Corporation, since the beta coefficient of loss ratio is-0.004223. Thus, the hypothesis is noting line with the regression result and then HA5 is rejected.

Moreover, the regression result tells that a company with low loss ratio incurred is profitable than a company with high loss ratio incurred. Similarly, one can expect that firms with lower

claim ratios should be better performers, solvent and efficient in underwriting practice. It also tells loss ratio of Ethiopian Insurance Corporation increases by 1 percent profitability also decrease by 0.4223 percent. A negative and insignificant association between loss ratio and profitability implies that Ethiopian Insurance Corporation during the study period were not significantly affected as a result of whether increasing or decreasing the level of loss ratio. The previous scholars who found a negative and insignificant correlation between loss ratio and profitability were Malik (2011) and Atsbeha and kaur(2015).

4.4.6 GDP rate

With regard to macro variables, the hypothesis was formulated in order to examine that the Gross Domestic Product (GDP) rate has a significant positive relationship with profitability of Ethiopian Insurance Corporation, the regression shows beta coefficient of GDP rate is -0.506415. The study showed that there was revealed to have a Negative and significant correlation with profitability of Ethiopian Insurance Corporation.This implies that a unit increase in GDP will lead 0.5064 cents decrement in profitability of Ethiopian Insurance Corporation.Thus, the hypothesis is not in line with the regression result and then HA6 is rejected. To conclude with this result it is very difficult considering the truth that have been seen in the country which is a key for development of all sectors, however, the result implies that when growth of the country real GDP is high , insurance companies will become less profitable than at a time the country real GDP is low. This is may be due to increase in automobile demand by country citizens, which means in logic whenever the country economy is grow income of any person will increase; as a result its demand towards luxury goods also increase. Similarly, the economy of Ethiopia has been increased from time to time as well as the number of automobiles (motors), since in Ethiopia motor insurance is the major source of insurance sector premium. Hence, the country citizens' have increased their demand towards motors as their income is increased hand in hand with the country economy. Therefore, as an obligation all motors must be insured, as a result the risk exposure as well as potential risks or claims of insurance companies can also increase.

Another reason may be limited awareness level and understanding of insurance among majority of the citizens, low level of product innovation and technology supported services, absence of modern marketing channel and approaches by firms across the supply chain, inadequate

governance and enabling regulatory system, fear of risky investments by insurance company themselves and shortages of managerial and professional employees. That's why GDP has a negative impact on profitability of insurance companies. The regression result is consistent with findings by Lee (2014),Reshid(2015) andGebru(2015).

4.4.7 Inflation rate

The hypothesis was formulated in order to examine that the inflation rate has a significant negative relationship with profitability of Ethiopian Insurance Corporation. The regression result of this study explains that inflation rate has a significant negative relationship with profitability (ROA) of Ethiopian Insurance Corporation, since the beta coefficient of inflation rate is -0.201893and it is the main determinant of Ethiopian Insurance Corporation 'profitability. Thus, the hypothesis is in line with the regression result and then HA7 is accepted.

It is known that inflation has effects on reducing performance by increasing the price of labor, materials and the market price as whole. The higher cost of operations due to rapid inflation rate significantly reduces the profit of insurance companies. During the time of refund of claims insurers paid unexpected amounts of cost due to the result of inflation. So, this study result shows that when inflation rate increases by 1% profitability of Ethiopian Insurance Corporation also decrease by 20.19%. Similar to this finding, the previous study who confirmed a negative and significantassociation between inflation rate and profitability wereDejene (2015) and Negussie(2012).

CHAPTER FIVE:

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of findings and Conclusions

Insurers carry economic and social welfares in the community of people i.e. avoidance of losses, fall in anxiousness fear, increasing employ and able to be sustained in the reasonable globalized environment and support to countries GDP. For insurance firms to be workable in the competitive globalized environment, simplifying different services to customers, to bring economic and social benefit in the community of people or to contribute to GDP, earning profit is a prior- condition. So, in order to carry all risks, insurers should keep their profitability; therefore, the purpose of this study focuses on identifying the success and failure factors of Ethiopia Insurance Corporations profitability. Absolutely insurance specific factors and macroeconomic factors were used. Time-series data of Ethiopian Insurance Corporation from 1989 to 2019 was investigated using multiple linear regressions method. In this study, secondary data was analyzed to investigate the key determinant factors of profitability of Ethiopian Insurance Corporation.

To response the above suggested main objective, descriptive statistics, diagnostic tests and OLS regression method have been run using E-Views 9. The diagnostic tests of all conventions are valid and met, as a result it is possible to conclude that the model is adequate, statistically good fit, and data's were characterized validly. The key outcomes of the study effects from secondary data analysis are offered as follows:

As accessible in the descriptive statistics section the mean value of ROA of the insurance corporation in Ethiopia is 0.296323, importance that 29.6323of the insurance 'incomes was produced from each item of overall Assets. The income derivative from assets ranges from 0.020000- 0.91000 in the sample years with a standard deviation of 0.32008 from the sample year mean. This suggests good differences of Ethiopian Insurance Corporation profitability across study periods.

The mean value of tangibility of asset for Ethiopian Insurance Corporation during the study period is about 0.241667 and the value of the standard deviation is 0.095956 which implies 24 percent of total asset of Insurance Corporation is fixed asset and the presence of good variations among the tangibility of asset across the study period included for this study.

The mean value and standard deviation of leverage is 1.808333 and 0.596837 respectively. This indicates that there were large differences among leveraged level as measured by debt to equity ratio(deferred insurance liabilities to shareholder equity) across the study period of Ethiopian Insurance Corporation under this study and it also suggests Ethiopian Insurance Corporation has leveraged because they used debt than equity for financing purpose.

The mean value of liquidity ratio is 1.902667 and the value of standard deviation is 0.824060 with 3.710000 maximum and 1.000000 minimum values. This result indicates that Ethiopian Insurance Corporation has liquid and also shows the existence of large variation among the liquidity level for study period of Insurance Corporation.

The mean value of insurance size is 19.77733 and the value of the standard deviation is 1.817583. The result implies varieties of insurance size among the study period might have significant impact on profitability of Ethiopian Insurance Corporation.

The average value of loss ratio has 0.519000 with a standard deviation of 0.339943. Therefore, it indicates that, the Ethiopian Insurance Corporation has low risky because they incurred an average 0.519 cents of claim from a single birr of premium earned and there exists moderate variation among the level of riskiness across study period included in this study.

The mean value of GDR across those study periods has 0.317000 and the standard deviation has 0.279299 which implies there is moderate variation in value of GDP growth rate across the study years. The average value of inflation rate is 1.840667 and the standard deviation is 1.936182 it indicates moderate variation of the inflation rate in Ethiopian Insurance Corporation during study years.

The regression result shows also R^2 is 0.74 indicating that the profitability of Ethiopian Insurance corporation depends almost 74% of the independent variables namely, tangibility of asset(TAN), liquidity ratio(LDR), insurance size(IRS), leverage ratio(LVR), loss ratio(LOR), real GDP rate (GDR) and inflation rate(INR). This implies that the explanatory power of the model which was made of five firm specific variables and two macroeconomic variables on profitability of Ethiopian Insurance Corporation was 74%, while the remaining 26% were explained by other variables that are not included in this study.

The regression result concerning Tangibility of asset shows that there is negative and significant relationship between tangibility of asset and profitability of Ethiopian Insurance Corporation. The statistical result revealed strong negative relationship between the variables and it can be concluded that tangibility of asset has strongly explained the profitability of Ethiopian Insurance Corporation; as a result it has negative significant impact on ROA of Ethiopian Insurance Corporation. The result implies that the highest the level of fixed assets formation, the larger the insurance corporation is or a company with high fixed asset is not profitable than company with low fixed asset. The result is consistent with findings studied by Gashaw (2012), Sambasivam and Gashaw (2013).

The coefficient of leverage ratio implies positive and significant relationship with profitability of Ethiopian Insurance Corporation. The regression result is consistent with the regression result of Mehari and Aemiro (2013) and traditional theory. Traditional theory suggests that replacement of an expensive source of equity with cheaper source (debt) translates to an increase firm's performance. The regression result also shows that liquidity has a significant positive relationship with profitability of Ethiopian Insurance Corporation. The result implies that the highest the level of liquidity ratio formation, the larger the insurance corporation is or a company with high liquid asset is more profitable than company with high tangible asset. The result is also consistent with findings studied by Yassin (2012).

The regression results concerning insurance size show that there is negative and insignificant relationship between insurance size and profitability of Ethiopian Insurance Corporation. A negative and insignificant association between insurance size and profitability implies that Ethiopian Insurance Corporation during the study period was not significantly affected as a result of whether increasing or decreasing the insurance size. The result is consistent with Agency theory. It suggests that conflicts of interests between agents and owners due to greater company size, it is less control of management's behavior would be happen. And Jensen and Murphy (1990) show that job security of manager's increases as company size grows, therefore, it could result in a deviation from the main objective of a firm which is maximizing its shareholders' wealth.

The regression result of this study explains that loss ratio has insignificant negative relationship with profitability (ROA) of Ethiopian Insurance Corporation. The regression result tells that a company with low loss ratio incurred is profitable than a company with high loss ratio incurred. A negative and insignificant association between loss ratio and profitability implies that Ethiopian Insurance Corporation during the study period was not significantly affected as a result of whether increasing or decreasing the level of loss ratio. The previous scholars who found a negative and insignificant correlation between loss ratio and profitability were Malik (2011) and Atsbeha and kaur(2015).

The study showed that there was revealed to have a Negative and significant correlation with profitability of Ethiopian Insurance Corporation and GDP rate. To conclude with this result it is very difficult considering the truth that have been seen in the country which is a key for development of all sectors, however, the result implies that when growth of the country real GDP is high , insurance companies will become less profitable than at a time the country real GDP is low during the study period, this may be limited awareness level and understanding of insurance among majority of the citizens, low level of product innovation and technology supported services, absence of modern marketing channel and approaches by firms across the supply chain, inadequate governance and enabling regulatory system, fear of risky investments by insurance company themselves and shortages of managerial and professional employees. That's why GDP has a negative impact on profitability of insurance companies. The regression result is consistent with findings by Lee (2014), Reshid (2015) and Gebru (2015). Finally the

regression result of this study explains that inflation rate has a significant negative relationship with profitability (ROA) of Ethiopian Insurance Corporation. It is known that inflation has effects on reducing performance by increasing the price of labor, materials and the market price as whole. The higher cost of operations due to rapid inflation rate significantly reduces the profit of insurance companies. Similar to this finding, the previous study who confirmed a negative and significant association between inflation rate and profitability were Dejene (2015) and Negussie(2012).

5.2 **Recommendations**

Based on the above finding the study is forwarded the following recommendations.

- Overall these empirical results provide evidence that Ethiopian Insurance Corporation is shaped by liquidity ratio, leverage ratio, tangibility of asset, insurance size GDP rate and inflation rate. However, and loss ratio have not seem to significantly affect. So, the insurance managers and policy makers should give high concern to liquidity ratio, leverage ratio, tangibility of asset, GDP rate and inflation rate.
- The finding shows leverage ratio is positively affect Ethiopian Insurance Corporation, so insurance should pay due attention in using more debt because interest rate are tax free. As suggested by traditional theory replacement of an expensive source of equity with cheaper source (debt) translates to an increase firm's performance.
- Ethiopian Insurance Corporations tangibility of asset were negatively affect profitability of corporation in order to maximize profitability Ethiopian Insurance Corporation should not require large volume of fixed assets or do not require beyond optimum level of fixed assets. As above finding shows GDP rate is negatively affect Ethiopian Insurance Corporation so, Ethiopian Insurance Corporation should be increase awareness level and understanding of insurance among majority of the citizens including rural area, increase level of product innovation and technology supported services, using modern marketing channel and approaches by firms across the supply chain, investing risky investments and giving Training to employees how to attract customers which may in turn increase profitability of Ethiopian Insurance Corporation. Finally Government should pay due attention in reducing inflation rate by participating in price setting in market and decrease exchange rate because most of the goods are importable otherwise profitability of Ethiopian Insurance Corporation is reduced by increasing the price of labor, materials and the market price as whole.

5.3 Suggestion for future researches

The objective of this study was to examine the determinates profitability of Ethiopian Insurance Corporation as measured by ROA for the period of 1989-2020. The studied period is considered as flatted period but, the study does not included private insurance company's so further research on profitability in insurance companies, it is better to use including private insurance companies to adequately investigate.

Finally, the study sought to investigate the determents of Ethiopian Insurance Corporation. However, the variables used in the statistical analysis did not include all factors that can determine Ethiopian Insurance Corporations profitability. Thus, future research shall conduct research on the issue like impact of non- financial determinant of insurance profitability such as Devaluation of currency, political instability and market share.

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Appendixes

Appendix 1: Descriptive statistics

	ROA	*TAN*	*LVR*	*LDR*	*IRS*	*LOR*	*GDR*	*INR*
Mean	0.325333	0.241667	1.808333	1.902667	19.77733	0.519000	0.317000	1.840667
Median	0.135000	0.230000	1.795000	1.645000	20.34000	0.450000	0.225000	0.935000
Maximum	0.890000	0.420000	2.840000	3.710000	21.97000	2.180000	1.000000	6.670000
Minimum	0.020000	0.100000	0.150000	1.000000	15.21000	0.210000	0.020000	0.020000
Std. Dev.	0.320008	0.095956	0.596837	0.824060	1.817583	0.339943	0.279299	1.936182
Skewness	0.595574	0.285171	-0.979707	1.155819	-0.997610	4.012944	1.077958	1.261175
Kurtosis	1.653517	1.792752	4.741545	2.990229	2.976611	20.40700	3.162640	3.276381
Jarque-Bera	4.039808	2.228424	8.590353	6.679703	4.976813	459.2732	5.843036	8.048291
Probability	0.132668	0.328174	0.013634	0.035442	0.083042	0.000000	0.053852	0.017879
Sum	9.760000	7.250000	54.25000	57.08000	593.3200	15.57000	9.510000	55.22000
Sum Sq. Dev.	2.969747	0.267017	10.33022	19.69319	95.80459	3.351270	2.262230	108.7152
Observations	30	30	30	30	30	30	30	30

Appendix 2: Heteroscedasticity Test: White

Heteroscedasticity Test: White

F-statistic	1.250057	Prob. F(7,22)	0.3191
Obs*R-squared	8.536866	Prob. Chi-Square(7)	0.2876
Scaled explained SS	4.203764	Prob. Chi-Square(7)	0.7560

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 05/12//2022 Time: 1:18

Sample: 1989 2019

Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.058102	0.057469	1.011013	0.3230
TAN^2	0.114876	0.193121	0.594840	0.5580
LVR^2	-0.001109	0.004488	-0.247073	0.8071
LDR^2	0.006407	0.005244	1.221719	0.2347
IRS^2	-0.000142	0.000142	-1.000790	0.3278
LOR^2	0.001813	0.008681	0.208832	0.8365
GDR^2	-0.033149	0.031353	-1.057268	0.3019
INR^2	-0.000348	0.001757	-0.198250	0.8447

R-squared	0.284562	Mean dependent var	0.025570
Adjusted R-squared	0.056923	S.D. dependent var	0.035194
S.E. of regression	0.034178	Akaike info criterion	-3.691290
Sum squared resid	0.025699	Schwarz criterion	-3.317637
Log likelihood	63.36935	Hannan-Quinn criter.	-3.571755
F-statistic	1.250057	Durbin-Watson stat	2.077200
Prob(F-statistic)	0.319120		

Appendix 3: Heteroscedasticity Test: Breusch-Pagan-Godfrey

Heteroscedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.280544	Prob. F(7,22)	0.3050
Obs*R-squared	8.684790	Prob. Chi-Square(7)	0.2761
Scaled explained SS	4.276605	Prob. Chi-Square(7)	0.7474

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 05/12/22 Time: 1:27
Sample: 1989 2019

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.097898	0.114856	0.852356	0.4032
TAN	0.029894	0.109370	0.273333	0.7871
LVR	0.002444	0.013500	0.181012	0.8580
LDR	0.022613	0.017840	1.267543	0.2182
IRS	-0.006191	0.005588	-1.107812	0.2799
LOR	0.004035	0.021605	0.186752	0.8536
GDR	-0.030553	0.032666	-0.935309	0.3598
INR	0.001647	0.009545	0.172580	0.8646

R-squared	0.289493	Mean dependent var	0.025570
Adjusted R-squared	0.063423	S.D. dependent var	0.035194
S.E. of regression	0.034060	Akaike info criterion	-3.698206
Sum squared resid	0.025522	Schwarz criterion	-3.324553
Log likelihood	63.47309	Hannan-Quinn criter.	-3.578671
F-statistic	1.280544	Durbin-Watson stat	2.015114
Prob(F-statistic)	0.304976		

Appendix 4: Auto-correlation: Durbin-Watson (DW) test

R-squared	0.741697	Mean dependent var	0.325333
Adjusted R-squared	0.659509	S.D. dependent var	0.320008
S.E. of regression	0.186730	Akaike info criterion	-0.295131
Sum squared resid	0.767095	Schwarz criterion	0.078522
Log likelihood	12.42697	Hannan-Quinn criter.	-0.175596
F-statistic	9.024455	Durbin-Watson stat	**2.054324**
Prob(F-statistic)	0.000030		

Appendix 5: Breusch-Godfrey Serial Correlation LM Test:

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.176709	Prob. F(1,21)	0.6785
Obs*R-squared	0.250335	Prob. Chi-Square(1)	0.6168

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 05/14/22 Time: 1:30
Sample: 1989 2019
Included observations: 30
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TAN	-0.101081	0.656752	-0.153911	0.8791
LVR	0.011754	0.080451	0.146101	0.8852
LDR	0.007715	0.101364	0.076109	0.9401
IRS	-3.03E-05	0.031227	-0.000971	0.9992
LOR	0.004020	0.121104	0.033192	0.9738
GDR	-0.000470	0.182538	-0.002575	0.9980
INR	-0.007414	0.056177	-0.131970	0.8963
C	0.000254	0.641808	0.000396	0.9997
RESID(-1)	-0.102989	0.244996	-0.420368	0.6785

R-squared	0.008345	Mean dependent var	-1.18E-16
Adjusted R-squared	-0.369429	S.D. dependent var	0.162639
S.E. of regression	0.190325	Akaike info criterion	-0.236844
Sum squared resid	0.760694	Schwarz criterion	0.183515
Log likelihood	12.55266	Hannan-Quinn criter.	-0.102367

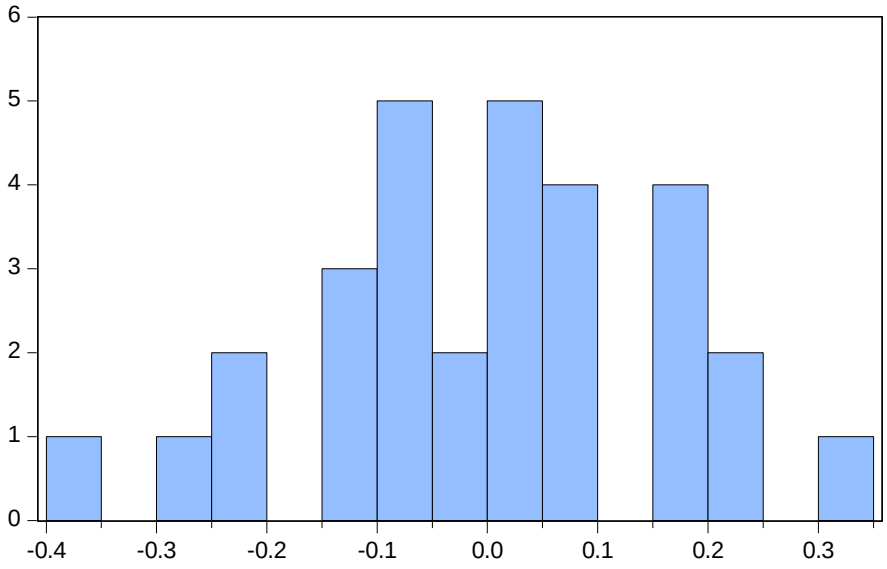
F-statistic	0.022089	Durbin-Watson stat	1.940434
Prob(F-statistic)	0.999996		

Appendix 6: Correlation analysis of explanatory variables

Correlation Analysis: Ordinary
Date: 05/20/22 Time: 02:35
Sample: 1989 2019
Included observations: 30

Correlation Probability	TAN	LVR	LDR	IRS	LOR	GDR	INR
TAN	1.000000						
LVR	0.264919	1.000000					
LDR	-0.289794	0.129217	1.000000				
IRS	-0.535502	0.104229	0.424126	1.000000			
LOR	-0.245094	7.65E-05	-0.136982	0.130973	1.000000		
GDR	-0.327004	-0.251325	0.493233	0.482105	0.098790	1.000000	
INR	-0.615745	0.178737	0.787963	0.677421	0.150408	0.395045	1.000000

Appendix 7: Normality- test



Normality of Residuals	
Sample 1989 2019	
Observations 30	
Mean	9.07e-17
Median	0.020477
Maximum	0.334524
Minimum	-0.385419
Std. Dev.	0.162639
Skewness	-0.159936
Kurtosis	2.831332
Jarque-Bera	0.163459
Probability	0.921521

Appendix 8: Regression Result

Dependent Variable: ROA

Method: Least Squares

Date: 05/20/12 Time: 02:59

Sample: 1989 2019

Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.565717	0.629684	0.898413	0.3787
TAN	-2.057156	0.599605	-3.430854	0.0024
LVR	0.312355	0.074010	4.220419	0.0004
LDR	0.480699	0.097806	4.914835	0.0001
IRS	-0.034805	0.030637	-1.136029	0.2682
LOR	-0.004223	0.118446	-0.035654	0.9719
GDR	-0.506415	0.179087	-2.827763	0.0098
INR	-0.201893	0.052330	-3.858102	0.0009

R-squared	0.741697	Mean dependent var	0.325333
Adjusted R-squared	0.659509	S.D. dependent var	0.320008
S.E. of regression	0.186730	Akaike info criterion	-0.295131
Sum squared resid	0.767095	Schwarz criterion	0.078522

Log likelihood	12.42697	Hannan-Quinn criter.	-0.175596
F-statistic	9.024455	Durbin-Watson stat	2.054324
Prob(F-statistic)	0.000030		

Source E-view-9

Appendix 9: Stationary test

Return on asset at lag 0

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.821071	0.0000
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

Return on asset at lag 1

Augmented Dickey-Fuller test statistic		-4.687103	0.0009
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

Tangibility of asset at lag 0

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.422618	0.0186
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

*MacKinnon (1996) one-sided p-values.

Tangibility of asset at lag 1

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.533989	0.0147
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

Liquidity ratio at lag 0

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.426059	0.0000
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

Liquidity ratio at lag 1

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.396425	0.0201
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

Insurance size at lag 0

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.874958	0.0000
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

Insurance size at lag 0

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.133063	0.0035
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

Leverage ratio at lag 0

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.298529	0.0000
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

Leverage ratio at lag 1

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.631720	0.0010
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

Loss ratio at lag 0

Null Hypothesis: D(LOR) has a unit root
Exogenous: Constant
Lag Length: 0 (Fixed)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.431421	0.0000
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

Loss ratio at lag 1

Null Hypothesis: D(LOR) has a unit root
Exogenous: Constant
Lag Length: 1 (Fixed)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.370980	0.0002
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

GDP gross rate at lag 0

Null Hypothesis: D(GDR) has a unit root
Exogenous: Constant
Lag Length: 0 (Fixed)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-12.69026	0.0000
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

GDP gross rate at lag 1

Null Hypothesis: D(GDR) has a unit root
Exogenous: Constant
Lag Length: 1 (Fixed)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.421314	0.0017
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

Inflation rate at lag 0

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.938742	0.0000
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

Inflation rate at lag 1

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.088090	0.0395
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	