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ADDIS ABABA UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
DEPARTMENT OF ACCOUNTING AND FINANCE

**THE EFFECT OF MARKET STRUCTURE ON PRIVATE
NON-LIFE INSURANCES' PROFITABILITY IN ETHIOPIA**

**A thesis submitted to the Department of Accounting and Finance for
the Partial fulfillment of the degree of Master of Science in
Accounting and Finance.**

By:
Anwar Adem

February, 2019
Addis Ababa, Ethiopia

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Certification

This is to certify that the thesis prepared by **Anwar Adem**, entitled: **The Effect of Market structure on Private Non-life Insurances' Profitability in Ethiopia**” and submitted in partial fulfillment of the requirements for the degree of Master of Science in Accounting and Finance complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Statement of Declaration

I, Anwar Adem declared that this thesis entitled **The Effect of Market structure on Private Non-life Insurances' Profitability in Ethiopia**” is my original work, prepared under the guidance of **Alem Hagos (PHD)**. All resources used in the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

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List of Acronyms

CLRM	Classical Linear Regression Model
CON	Concentration
EFF	Efficiency
EIC	Ethiopian Insurance Corporation
ESH	Efficiency Structure Hypothesis
GDP	Gross Domestic Product
HHI	Herfindahl-Hirschman Index
LEV	Leverage
LIQ	Liquidity
MS	Market share
NBE	National bank of Ethiopia
OLS	Ordinary Least Square
RMP	Relative Market Power
ROA	Return on Asset
SCP	Structure Conduct Performance

Abstract

The main objective of this study is to examine the effect of market structure on private non-life insurances profitability in Ethiopia. The research used Relative Market Power (RMP), Structure-Conduct-Performance (SCP) and Efficiency Structure hypothesis (ESH) theory to investigate the effect of market structure on profitability of non-life insurances in Ethiopia. The study used panel data of nine Sample non-life insurances that have commenced their operation before eleven years that covers (2009-2017) period. The data used in this study are secondary that was collected from national bank of Ethiopia and respective non-life insurance companies. In line with the objectives, the study adopted a quantitative method of research approaches to test the hypothesis. The dependent variable profitability was measured using return on asset. The explanatory variables include; market share, concentration and efficiency as well as liquidity and leverage as control variables. The study used OLS to estimate the multiple regression model constructed through E-views 8 software after it made sure it satisfy the basic diagnostic tests. The result indicates market share, efficiency, and liquidity had a positive and statistically significant effect on private non-life insurances profitability in Ethiopia. On the contrary, leverage was negative and statistically significant on private non-life insurances profitability in Ethiopian. Market concentration has a negative, but insignificant relation with profitability of non-life insurance during the study period. Based on the above findings, the study suggests private non-life insurance company managers should emphasize to increase their market share maximization strategy, progressively become efficient internally and hold the adequate liquid asset to meet their obligations.

Keywords: *Non-life insurance, return on asset, market structure, efficiency and panel data*

Chapter One

1. Introduction

This chapter of the study discusses the theoretical ground of the study and followed by the details of statements of the problem that the researcher tried to identify are presented clearly. The intended objectives of the study, research questions and hypothesis are part of this chapter. Significance, Scope and Limitation are also parts included in the chapter and finally, the structure of the study is included.

1.1. Background of the study

The financial institutions are an integral part of each economy. Insurance is one of the financial institutions that play major role in economic development and growth in the service based-economy (Brainard, 2008). It is a universal notion that insurance it is like any other activity that can be defined as is a cooperative device that spreads the losses of the insured over those that have agreed to protect themselves against that risk (Rejda and McNamara, 2014).

Insurance companies specialized financial services range from the underwriting of risks inherent in economic entities to the mobilization of a large amount of funds through premiums for long-term investment (Ahmed et al., 2010). The uncertainty and multiplicity of risks create a hard to replace demand for insurance in terms of mitigation of the unforeseen loss for the business industry is very crucial (Kihara, 2012).

According to Koller (2011) insurance companies primarily plays the role of transfer and reduction of non-diversifiable risk from one unit to the other, such as general and life insurance companies and it also plays financial intermediation in terms of channeling financial resource from one to the others. In the financial system operates the market has been dominated in either market or bank-based system.

In line with the above concept, Africa Economic Outlook (2016) states Ethiopian financial system consists of banks and insurance and dominated by a bank-based financial system. Insurance can be classified as life and non-life insurances. Life insurance companies have used a unique accounting system to compute profitability since the market of life insurance companies

has been difficult to measure as compared to the non-life insurance system. According to National Bank of Ethiopian (NBE) report, on the last five years on average 95.45% of Gross Written premium is contributed from non-life insurance products and the remaining 4.55% are contributed from life insurance products. This shows the need to investigate the Non-life sector of insurance intensively.

The variation of profit in the insurance industry has been caused by both internal and external factors which affect each insurance company that operates in the industry. From those, the Market structure takes the lion shares. The market structure of the insurance industry has been characterized as monopolistically competitive since there are low concentration, low entry, and exit, but large companies are operated (Joskow, 1973). Although the market structure is relatively homogeneous due to the standardization of the contract, the price has determined individually and the insured are not well informed about the price dispersion and also some heterogeneity also observed at the time of the claim settlement procedure by the insurance company and firm-specific factors (Eastman, 1994).

Market structure and its effect on profitability is asserted based on the well know three hypotheses. Relative Market Power (RMP) hypothesis predicts a positive relationship between a firm's market share and its performance. That is, if consumers rely on a firm's position in the market as an indicator of quality, larger firms have market power simply by virtue of their position in the market, allowing them to earn profits (Rhoades, 1985); Structure–conduct–performance (SCP) paradigm suggests that effective collusion between firms increases with industry concentration because concentration lowers the cost of collusion. Prices that are less favorable to consumers positively impact firm performance, such as profitability (Stigler, 1964), and Efficiency structure performance (ESP) hypothesis which provides more weight to the efficiency of individual insurance than the concentration or market share by itself as a reason for a higher profitability performance of insurances. This paradigm has attributed the structure of a market to the efficiency of some firms (Thomas et al, 2011).

In Ethiopia, the insurance companies remained at 17, of which 16 were private and one Public. The number of insurance branch increased to 504 from 492 a year ago of which 53.8 percent were located in Addis Ababa. The capital of the insurance industry in the country reached Birr

4.6 billion, of which private companies accounted for 75 percent (NBE, 2018). Thus, the effect of market structure on private non-life insurances' in Ethiopia was the target of this study.

1.2. Statement of problem

The growth of the economy can be attributed to the growth of individual sectors such as construction, transport and communication, manufacturing and financial institutions. In the global financial system the existence of financial institution is crucial and specifically insurance sector plays the major role in a substantial role in mitigating risk and involves in investment activities in the economy directly and indirectly contribute to real economic growth of any given country. Insurance in both developed and developing countries that foster economic growth, reduction of transaction cost, efficient resource allocation, facilitate fund transfer and spread of financial loss (Haiss and Sumegi, 2008).

Prior studies on market structure-profit relationship has been done in the context of developed countries with few works from emerging and developing countries, supporting a single hypothesis such as Relative Market Power (RMP) hypothesis predicts a positive relationship between a firm's market share and its performance.; Structure-conduct-performance (SCP) paradigm suggests that effective collusion between firms increases with industry concentration because concentration lowers the cost of collusion because more likely to engage in anti-competitive behavior and Efficiency structure performance (ESP) hypothesis which provides more weight to the efficiency of individual insurance than the concentration or market share by itself as a reason for a higher profitability performance of insurances

While taking into account of very little about the joint effect of market structure variables on insurance companies' profitability in general and Ethiopian in particular, the researcher attempts to supplement the empirical evidence by incorporating market structure variables separately. The Relative Market Power (RMP) in terms of the effect of market share on profitability of insurance companies, strong positive relationship has been established by Pervan et al. (2012), Mohammed and Islam (2017), and Workinesh (2017) where as Jasmindeep and Teklit (2017) claims that market share by itself does not have a significant impact on profitability, but there are more variables that, along with market share, can play role in firm returns.

The empirical results on Structure–conduct–performance (SCP) were inconsistent with itself; a positive and significant relationship between concentration and insurance profitability has been confirmed by Vickie and Bajtelsmit (1998), Gemechis (2017). Contrarily, Jovovic et al. (2014) established an inverse relationship has been between concentration and profitability of insurance companies. While Chi et al. (2015) state, there is no significant relationship between market concentration and firm performance. Thomas et al. (2011) show strongly support the efficient structure hypothesis, and there is extremely little or no support for the SCP hypothesis or the RMP hypothesis.

The structural features and the overall conduct and nature of competition in the insurance industry could affect the profitability performance of insurance firms. In developing countries like Ethiopia, the financial sector is undergoing a major structural transformation in response to various economic and policy transformation. Despite the fact that there were little effort has been made to investigate the effect of market structure on insurance company performance in different developing countries within the scope of current research according to the researcher's knowledge, no study has been conducted on the effect of market structure variables jointly on profitability of insurance firms in Ethiopia generally and private non-life insurances particularly. The lack of empirical evidence of Ethiopian non-life insurance industry market structure and lack of inconsistency of prior empirical studies has motivated the researcher to conduct the study with this particular postulate.

1.3. Objectives of the study

1.3.1. General objective

The general objective of this study was to examine the effect of market structure on Private non-life insurance profitability in Ethiopia. In this regard, this study intends to particularly investigate the following specific objectives.

1.3.2. Specific objectives

- ✓ To examine the effect of market share on Private non-life insurance profitability in Ethiopia.

- ✓ To investigate the effect of concentration on Private non-life insurances profitability in Ethiopia.
- ✓ To determine the effect of efficiency on Private non-life insurances profitability in Ethiopia.
- ✓ To evaluate the effect of liquidity on Private non-life insurances profitability in Ethiopia.
- ✓ To examine the effect of leverage on Private non-life insurances profitability in Ethiopia.

1.4. Research Hypothesis

As mentioned previously, the main objective of this study is to examine the effect of market structure on Private non-life insurances profitability in Ethiopia in general and particularly emphasizing on market share, concentration and efficiency that are based on theories and empirical evidences that shall be discussed briefly in chapter three sections 3.8 of the study. Hence, subsequent to the preceding research question of the study, the following hypotheses were tested in this study;

- ✓ ***H1:** Market share has a positive and a significant effect on Private Non-life insurances profitability in Ethiopia.*
- ✓ ***H2:** Concentration has a positive and a significant effect on Private Non-life insurances profitability in Ethiopia.*
- ✓ ***H3:** Efficiency has a positive and a significant effect on Private Non-life insurances profitability in Ethiopia.*
- ✓ ***H4:** Liquidity has a positive and a significant effect on Private Non-life insurances profitability in Ethiopia.*
- ✓ ***H5:** Leverage has a negative and a significant effect on Private Non-life insurances profitability in Ethiopia.*

1.5. Significance of the study

The central purpose of the study is to investigate the effect of market structure on private non-life insurances profitability in Ethiopia. Consequently, the finding of this study adds to the stock of knowledge on the area of market structure in the insurance industry. Specifically, this study is significant in the sense that:

- The study assists the managers of insurance firms primarily to determine its position in the industry and take necessary actions to improve their performance in terms of profitability and make a better informed decision.
- The research aids existing investors, to make a cognizant decision on annual meeting on their investment.
- Finally, the study also opens the issue under study for further and detail investigations for academic scholars as well as for policy makers as the sector continues to leap forward.

1.6. Scope of the study

The scope of this study was limited to the effect of market structure on Private non-life insurances profitability in Ethiopia over the period 2009 up to 2017 G.C. From seventeen insurance operating in Ethiopia, this study was taken nine non-life insurances that established before eleven years ago. This study used OLS to estimate the multiple regression model on the panel data collected to analyze This study was used three explanatory variables market share, concentration and efficiency. Liquidity and Leverage were taken as control variables due to the reason that in most studies, both variables were a significant effect on profitability of insurances to ensure the accuracy of the result of the regression model.

1.7. Limitation of the study.

The major limitation of this study was on data of financial statement collected from the National Bank of Ethiopia were not complete. To overcome this problem, the researcher collected those data that has not available on national bank of Ethiopia, from respective insurance companies. Furthermore, the study area was limited to the variables that were modified to entertain industry wide variables that results from this case might not be similar to those that include macroeconomic variables and has a different ownership structure as a factor.

1.8. Structure of the Study

Chapter two presents relevant theoretical and empirical ground of the study. The chapter also discusses the definition given for market structure and clarification of some aspects of it. Chapter three deals the methodology and design that the researcher was applied to carry out the study. Specifically, it includes study methodology and design, target population and sampling with its

technique, data source and type, data analyzing method and finally, variables measurement as well as model specification. Chapter four contains the results of the empirical tests based on the regression model that used by the researcher and analysis and discussion of the implication of the results also presented under this chapter. Finally, chapter five covers the conclusions of the results and the recommendation of the researcher based on the findings of the study obtained.

Chapter Two

Literature Review

This chapter of the study consists of the relevant review of related literature. A brief overview of the subject under study and relevant theoretical clarifications are included in this chapter. Different prior empirical findings and conceptual frameworks are also part of this chapter.

2.1. Theoretical reviews

2.1.1. Overview of insurance

According to the universally accepted concepts, the insurance itself is like any other activity that can be defined as is a cooperative device that spreads the losses of the insured over those that have agreed to protect themselves against that risk (Rejda and McNamara, 2014). It involves the transfer of risk of potential loss from one entity (insured) to another entity (insurer) in exchange for a risk premium. Insurance sector plays an important role in a service-based economy of both developed and developing markets (Mohammed et al., 2016). According to Hailu (2007), cited by (Temesgen, 2015) insurance is a system that operates on the principle of pooling of risks which refers to the combination of similar insurable pure risks of individuals and organizations in a pool, predicting the probable loss to pools, and then distributing the predicted loss of the group for all those in the pool on some equitable loss and the law of large numbers. According to Ward and Zurbruegg (2000), insurance not only plays a role of facilitates economic transactions through transferring and sharing of risk which can create confidence over the occurrences of uncertain event and indemnification, but it is also channeling funds (resource) from one unit to another called financial intermediation.

A well developed and evolved insurance sector is a backbone for economic development since it provides long -term funds for infrastructure development at the same time strengthening the risk-taking ability of the country (Charumathi, 2012). A sound and well-regulated insurance industry can highly contribute to economic growth and efficient resource allocation through the transfer of risk and mobilization of savings, enhance financial system efficiency by reducing transaction costs, creating liquidity and facilitating economies of scale in investment (Davies et al., 2003). According to Skipper (2001), insurance can have an effect on the economy, such as promote

financial stability, mobilize savings, facilitate trade and commerce, enable risk to be managed more efficiently, encourage loss mitigation, foster efficient capital allocation and also can be a substitute for and complement government security programs.

2.1.2 Overview of Market structure

Market structure means the pattern or form or manner in which the market share, concentration and efficiency constituent parts of that body are arranged together. Taking the market as a complex 'body', one can examine how its different constituents, i.e., sellers and buyers, are linked together. This can be specified in terms of organizational characteristics which determine the relations: a) of sellers in the market to each other; b) of buyers in the market to each other; c) of sellers and the buyers; and d) of sellers established in the market to the new potential firms which might enter the market. As of Bain (1959), this means those characteristics of the organization of a market that seems to exercise a strategic influence on the nature of competition and pricing within the market. There are the main features of the market-structure have been suggested by Bain (1959), which are important to understand the concept precisely and to measure it. Each of these different dimensions or features of the market structure were important in determining the behavior of the firms which in turn affects their performance as well as the performance of the industry as a whole. If there is only one firm, then we get the form of monopoly market; if there are two, then duopoly; if few then oligopoly and finally if there are 'many' then monopolistic market. In each case, the process of output and price determination will be different.

Looking at the absolute sizes of the sellers as another feature of the market structure, there will be interesting problems finding how the large one will be more efficient than the smaller one or vice versa; and taking into account the size distribution of the sellers in the market, whether the concentrated industries are more efficient than others (Bain, 1959).

2.1.3. Market Structure Hypothesis.

A firm's market position within an industry depends principally on the characteristics of the environment in which it competes. Hence, the competitive market structure can be thought as the

overarching economic and technical parameters that establish an industry's environmental boundary (Porter, 1979).

Among the various market structures constructs which are studied for their relationship to profitability is market share, the degree of concentration in industry and efficiency is the significant one. The market structure in relation to profitability explanation has three hypotheses: The relative Market Power (RMP) hypothesis, the structure conduct performance (SCP) hypothesis and Efficient Structure Hypothesis (ESH).

2.1.3.1. Relative Market Power Hypothesis (RMH)

Relative Market Power (RMP) hypothesis has been widely used in the banking and insurance industry. The RMP put forwarded by Rhoades (1985), focuses on the role of market share on profit and prices. Under this hypothesis, consumers differentiate the products of large firms from smaller firms.

The relative market power hypothesis (RMH) base its notion on the ability of individual firms to alter a given product market. RMP theory is based on the premise that market share rather than the concentration (through collusion) leads to market power. It states that firms with large market share and differentiated products are able to exercise market power in the setting of prices above marginal costs. Under Relative Market Power (RMP) hypothesis, market share is the key exogenous variable. Firms with large market shares have well-differentiated products because of advertising, location, or other advantages are able to exercise market power in pricing their products. Therefore, the positive profit-market share relationship occurs because market share affects output prices and this in turn affects profits (Lalith, 2010).

Furthermore, the Relative Market Power (RMP) hypothesis also helps to explain why the concentration coefficient is insignificant because profit and concentration are only spuriously related because both variables are correlated with market share. Some argue that the common finding of a positive, dominating coefficient estimate for market share and an insignificant coefficient of concentration justifies acceptance of the Relative Market Power (RMP), which relates market share to market power. On the whole, the RMP hypothesis asserts that only firms with large market shares and well-differentiated products are able to exercise market power in pricing their products and earn supernormal profits independent of market concentration (Berger,

1995). If consumers rely on a firm's position in the market as an indicator of quality, larger firms have market power imply by virtue of their position in the market, allowing them to earn super profits (Rhoades, 1985).

The quality explanation; the high market share of a brand acts as a signal of superior quality to consumers. In such markets, consumers are likely to have greater confidence in high market share brands. This enables high market share brands to command a price premium over low market share brands and thereby enhance their profitability. The market power explanation; Businesses with a high market share, by exercising their market power-the ability to command a price premium, lower costs by negotiating for more favorable terms (than their competitors are able to) with vendors and marketing intermediaries, and obtaining favorable shelf placements from retailers enhance their profitability. The efficiency explanation; The scale and experience effects associated with market share lead to lower costs and thereby enable a business with a high market share to earn higher profits than its competitors with a low market share (Satish and Varadarajan, 1999)

2.1.3.2. Structural Conduct Performance (SCP) hypothesis

The well-known approach of examining the market structure performance relationship has been known as SCP paradigm which postulates that certain market attributes affect the company conduct (behavior) which in turn impact company profitability within the relevant market. The Structure-Conduct-Performance (SCP) Paradigm states that an industry structure is determined by conditions; hence the competitive environment that results in shapes the behavior of firms and determines the overall performance of the players in the industry (Faris, 2010)

The traditional structure-conduct-performance hypothesis is based on the proposition that the persistence superior profits for a given industry or market members is indicative of anti-competitive behavior and is due to some features of market structure that foster collusion and retard competition among firms in the industry (Bain, 1951). Since concentration facilitates collusive or monopolistic practices, firms in concentrated markets will have the market power to set prices above their marginal costs to earn higher profits than firms operating in less concentrated markets. As explained in the SCP, the market concentration fosters collusion among large firms in the industry, which subsequently leads to higher profits (Lalith, 2010). In other

word SCP hypothesis states that, largest firms in a highly concentrated market may collude in order to set a higher price and gain a higher profit (Nabieu, 2013).

The SCP statement held that market structure (the number and size distribution of firms in an industry) determines market conduct (the way in which the firms in that industry interact), which in turn determines firm performance (profitability). When a market is dominated by a few large firms with the existence of high- profit levels in an industry, it was evidence that the firms in that industry possessed monopoly power (Faris, 2010). This hypothesis suggests that firms in concentrated markets would be able to extract monopolistic rents by their ability which reflects the setting of prices that are less favorable to consumers (high policyholders, higher Gross Written Premium) as a result of competitive imperfections in markets (monopoly profits).

From an economic perspective, the significance of changes in concentration levels is the potential effects it might have on the industry's market conduct and performance (Bain, 1951). Concentration effects market conduct by influencing the pricing and marketing policies of firms in that industry (Weiss, 1971). The more concentrated the market, the greater the degrees of discretion firms have with respect to the pricing policies. The degree of discretion is limited by the force of competition. The higher the concentration, the greater will be the possibility of firms coordinating their pricing policies. Hence, concentration affects both market conduct and market performance. Also, in the absence of product differentiation, and in the short run before entry can occur, the fewer the sellers or the less equal their market shares, the more likely is seller behavior to be monopolized (Bain, 1951).

2.1.3.3. Efficient Structure Hypothesis (ESH)

There is also another explanation for the positive relationship between profits and either market share or concentration, that is, of the positive relationship between efficiency and profitability. Demsetz (1973) has attributed the cause for some observed degree of concentration to the efficiency of some firms rather than the structure by itself. This is because efficient firms increase in size and market share because of their superiority in producing and marketing products. The positive relationship between market structures (concentration) and profitability, performance is from the greater efficiency of firms with a larger market share, a phenomenon that produces both a higher concentration and greater profitability (Abdullah, 2008).

The ESH emerged from criticism of the traditional structural conduct paradigm. It has attributed concentration to the increased profitability and market share of some efficient firms, rather than being a random event. This occurs because increased productivity and profitability enables firms to offer competitive rates (high policyholders, higher Gross Written Premium), inducing them to gain larger market shares and further increase profitability (Goldberg, 1996).

The efficiency structure hypothesis states that the performance of the firm is positively related to its efficiency, which means efficient firms increase in size and market share because of their ability to generate higher profits, which usually leads to higher market concentration. Thus, the positive relationship between profits and concentration is explained by lower costs achieved through either superior management or production processes. If such insurance also gains higher market share and thereby make their market more concentrated, it would appear that concentration leads to higher profits, while in fact both are caused by higher efficiency (Demsetz, 1973). Thus, under the efficiency paradigm, the degree of concentration is not considered a reflection of the collusive behavior of firms, but rather a consequence of the superior efficiency of firms.

In line with this, it is often suggested that market structure is not exogenously determined, but rather that it is the result of the superior efficiency of a number of firms in the market. Firms with a comparative advantage in production become larger and obtain a higher market share in the industry, leading to an increase in the level of concentration. In this case, that is, if market share is truly representative of efficiency, then market share and profitability may be correlated, but there will be no causal relationship between concentration and profitability since efficiency drives both profitability and concentration (through market share).

Studying the efficiency of insurance companies is highly important because it helps in determining how insurance companies respond to the various challenges and how many of them are likely to survive those challenges in the event of their occurrence (Berger and Hannan, 1993). Efficiency is a major concern for the insurance companies and efficiency implies improved profitability, the greater amount of funds channeled into, better prices and service quality for consumers and greater safety in terms of an improved capital buffer in absorbing a risk (Berger, 1995).

2.2. Empirical Review

This part discussed different prior studies that were done in different countries with their findings as follows.

2.2.1. Empirical studies outside Ethiopia

Thomas et al. (2011) investigates the market structure, efficiency and performance in the European property-liability insurance industry. The purpose of this research is to test these three theories that are structure-conduct performance (SCP) hypothesis, relative market power (RMP) hypothesis and efficient structure hypothesis (ESM) hypotheses in the European property-liability insurance market. Panel data covering twelve countries and the years 2003 to 2007 are used to test the hypotheses. Both group and company data are tested. The results strongly support the efficient structure hypothesis, and there is extremely little or no support for the SCP hypothesis or the relative market power hypothesis.

Pervan et al. (2012) examine the effect of market share and diversification of non-life insurance performance for eleven years from the period of 1999-2009. The dependent variable was return on asset and explanatory variables market share and diversification and the control variables were ownership, industrial concentration, GDP per capita and inflation are used. The source of data used for the study was secondary data. Therefore, the direction of the relationship is also somewhat questionable. While some authors find this relationship to be positive, the others reveal its negative association. The impact of six independent variables such as firms' profitability from previous years, market share, diversification and control variables (i.e. Ownership, industrial concentration, GDP per capita, inflation) on non-life insurance is companies' performance tests on the empirical model by employing two-step generalized methods of moments (GMM) estimating in the study. Based on the result from the model, there is evidence of a negative and statistically significant influence of diversification and inflation on insurers' profitability whereas market share, GDP and past profitability is a positive and statistically significant impact on profitability.

Mohammed and Islam (2017) undertake a study to investigate the effect of micro and macro factors on performance of listed Jordanian insurance companies. . The study was employed a

secondary source of data and a panel data collected from 24 listed insurance companies' data from 2008 to 2014. The study dependent variables used to measure profitability was return on asset (ROA) and the independent variable was liquidity, leverage, underwriting risk, size, market share, inflation, and GDP. The finding of the study concluded that liquidity, leverage and underwriting risks have a negative and a significant effect, whereas the size of the company, market share and GDP have statically a positive and a significant effect on the profitability of the Jordanian insurance industry. Findings also include that inflation has no significant effect on the profitability of the insurance industry in Jordan.

Kozak (2011) examines determinants of profitability of non-life insurance companies in Poland. A panel of 25 non-life insurance companies for the period 2002-2009 is used. Source of data for the study was a secondary source of data and quantitative research approach was adopted. The study was done on the integration of a Poland financial system that affects the profitability of the Poland non-life insurance companies. The results indicate that the reduction in the share of motor insurance in the portfolio, with a simultaneous increase of other types of insurance, has a positive impact on profitability and cost-efficiency of insurance companies. Additionally, increases of the GDP growth and the market share of foreign-owned companies positively impact the profitability of non-life insurance companies during the integration period.

Vickie and Bajtelsmit (1998) examine market structure and performance in private passenger automobile insurance. The researchers examine the relationship between market structure and performance. The source of data was a secondary source of data and a panel regression was used. The dependent variable was performance measured by the return on asset and the independent variable was market concentration and the study revealed the existence of a positive and significant relationship between concentration and performance.

Choi and Weiss (2005) determine the relationships between market structure and performance in property-liability insurers over the period 1992–1998 using data at the company and group levels. Three specific hypotheses are tested: traditional structure-conduct-performance, relative market power, and efficient structure (ES). The results provide support for the ES hypothesis. The ES hypothesis point that more efficient firm can charge lower prices than competitors, enabling them to capture larger market shares and economic rents, leading to increased concentration. Both revenue and cost efficiency are used in the analysis, and this is the first study

to use revenue efficiency in this type of analysis. The results for the sample period as a whole and by year are consistent. The overall results suggest that cost-efficient firms charge lower prices and earn higher profits, in conformance with the ES hypothesis. On the other hand, prices and profits are found to be higher for revenue-efficient firms. Revenue X-efficiency is derived from activities such as cross-selling and may rely heavily on the use of detailed information from customer databases to identify potential customers. The implications of this research are that regulators should be more concerned with efficiency (both cost and revenue) rather than the market power that arises from the consolidation activity taking place in insurance.

Jovovic et al. (2014) investigate determinants of business performance of non-life insurance in the Serbia sample of 12 insurance companies using the panel data over the period 2006-2013. The ROA was used as a performance indicator and the dependent variable was size, combined ratio, growth, concentration, investment, leverage liquidity, reinsurance and age. The finding shows that a significant negative relationship between combined ratio, financial leverage, reinsurance, concentration and age on the profitability of non-life insurers, as measured by the return on assets (ROA), while the influence of the written premium growth rate, return on investment and company size is significant and positive.

Almajali et al. (2012) examine the factors that affect the financial performance of Jordanian insurance companies. Source of data was of all insurance companies listed on the Amman Stock Exchange during 2002–2007. In this study, the financial performance of insurance companies is measured by the return on asset and independent variables were liquidity, leverage, the size of the company and management competence index. The study result shows management competence index, liquidity and has a significant and positive effect on the profitability in Jordanian insurance, whereas there is no significant relationship between age of the company and profitability.

Murigu (2015) identify determinants of financial performance in general insurance companies in Kenya. Source of data was secondary and collected from 23 insurance companies that cover a period of 2009-2012. Dependent variables used to measure profitability were ROA whereas, leverage, retention ratio, liquidity, underwriting risk, equity capital, size, management competence index, ownership and age of the company used as independent variables on the performance of non-life insurance companies in Kenya. The result from the analysis revealed

that leverage, equity capital and management competence index have a positive effect, whereas size and ownership structure had a negative effect on the performance of selected insurance companies in Kenya.

Alice and Muturi (2016) investigate on factors affecting the profitability of insurance firms on Nairobi security exchange-listed insurance with a panel data of five insurance firms that cover a year from 2010 to 2014. The variables used by the researchers as the independent variable were firm size, the effect of liquidity, the effect of equity and effects of debt on the profitability of the insurance and the dependent variable was return on assets. The study revealed that liquidity and size have a significant and positive effect on insurance performances and the recommendation was that the insurance firm should maintain adequate level liquidity levels through the form of holding short-term securities.

Mazviona et al. (2017) undertakes the study of factors affecting the performance of insurance companies in Zimbabwe. The study used secondary data from twenty short-term insurance companies which were collected through panel data from the period of 2010 to 2014 for years. The study used nine key variables such as expense ratios, claims ratio, the size, liquidity, leverage, growth rate, inflation, and retention rate and equity capital. In order to see the impact of those variables, the study used factor analysis and multiple linear regression models for the panel data. The finding shows that expense ratio, claims ratio and the size of a company significantly and negatively affect insurance companies' performance, whereas leverage and liquidity affect the performance of the insurance companies positively.

Malik (2011) examine the determinant of profitability of insurance companies in Pakistan. Source of data was secondary source and data collected from 35 listed life and non-life insurance companies which cover the period o2005-2009. Specifically, this examines the effects of firm specific factors (age of company, size of the company, the volume of capital, leverage ratio and loss ratio) on profitability proxies by ROA. A key indicator of insurance companies' profitability is return on assets (ROA). While the age of company, size of the company, the volume of capital, leverage and loss ratio) as independent variables. The findings show that there is no relationship between profitability and age of the company and there is significant positive association between the size of the company and profitability. The result also shows that the volume of

capital is significantly and positively related to profitability. Loss ratio and leverage ratio showed a negative, but significant relationship with profitability

Chi et al. (2015) analyses the relationship between market concentration and performance; evidence from Malaysia general insurance industry. The regression analysis was carried out by using panel data that covering the period from 2000 to 2012. Source of data for the study was a secondary source of data. The performance of general insurance sector in Malaysia was negatively affected during the 2007/2008 Asian Financial Crisis. Statistics from the Central Bank of Malaysia (BNM) have shown that the claim ratio is higher than its underwriting profit ratio. This has led to a drop in the performance of the industry. In 2009, BNM has implemented the liberalization plan to strengthen the general insurance industry and improve its competitiveness. The plan has led the market consolidation, which resulted in a change in the degree of market concentration of the industry. According to the Structure-Conduct-Performance hypothesis, a higher degree of market concentration would lead to better firm performance. The results indicate that there is no significant relationship between market concentration and firm performance.

2.2.2. Empirical studies in Ethiopia

Worknesh (2017) has assessed the effect of market share on profitability in Ethiopian insurance companies. The source of data was secondary and a quantitative research method was adopted. A panel data of Ten insurance company financial statements that covering a year period from 2005-2014. The dependent variable used to indicate performance was ROE and the major independent variable was market share and size, tangibility and liquidity used as control variables. The findings of the study revealed market share and size are a positive and significant relationship with the profitability of the Ethiopian insurance industry. On the other hand, there is a negative relationship between tangibility and liquidity in relation to profitability.

Gemechis (2017) investigate determinants of profitability of non-life insurance sector in Ethiopia. Source of data for the study was a secondary data that collected from twelve (12) insurance companies for a period of six years (2010/11-2015/16) with a total of 72 observations through panel data. The dependent variables were ROA as a proxy of profitability and the independent variables were industry concentration ratio, leverage, diversification, underwriting

risk, reinsurance dependence, GDP, inflation and liquidity. The finding revealed that the industry concentration ratio and leverage have a statistically significant and positive relationship with profitability. On the other hand, diversification, underwriting risk and reinsurance dependence have a negative and statistically significant relationship with profitability. Based on this finding, the study suggests that the management bodies of the insurance companies should give high attention on firm and industry related variables, particularly by adopting better risk management strategies and better internal control to achieve superior profitability.

Meaza (2014) examine the determinants of insurance companies profitability in Ethiopia. The study examines both firm-specific and macroeconomic factors with panel data that cover 2008-2013 of the ten insurance companies. The variable used by the researcher was size, leverage, liquidity, loss ratio, tangibility, growth, and ROA used as a proxy of profitability. The study revealed that size, leverage, the tangibility of asset, loss ratio/ risk, firm growth and managerial efficiency are identified as significant determinants of profitability hence firm size, the tangibility of asset, firm growth and managerial efficiency are positively related. In contrast, leverage and loss ratio/ risk are negative, but significantly related to profitability. Liquidity, inflation, and economic growth are not significant determinants of profitability

Hailegebreal (2016) evaluate determinants of the Profitability of Insurance Industry in Ethiopia. This study was conducted on the determinants of profitability of the Ethiopian insurance industry. The study attempts to examine the firm specific factors which are the age of the company, the size of the company, leverage ratio, liquidity ratio, premium growth, technical provision, underwriting risk, solvency, re-insurance dependency and tangibility of assets and macroeconomic factors; GDP and Inflation on profitability of the Ethiopian insurance industry. Nine insurance companies from the total of 17 insurance companies established before 2008 were included in the study. Secondary data that were collected from the financial statements (Balance sheet and income statements) of insurance companies; and annual reports of National bank of Ethiopia are the major sources of data for this study. This study found that underwriting risk, technical provision, leverage and inflation have a negative and significant effect, whereas premium growth, age of the company, solvency ratio and GDP have a statically positive and significant relationship with the profitability of the Ethiopian insurance industry.

Yuvaraj and Abate (2013) examine the profitability of insurance companies in Ethiopia. A nine insurance company for nine years (2003-2011) panel data was used. The independent variable of the researcher was age, size, volume of capital, leverage, liquidity, growth and tangibility and the dependent variable was ROA for proxy of profitability. Source of data for the study was a secondary audited financial statement of the insurance companies. The study results that growth, leverage, the volume of capital, size and liquidity are identified as most important determinant factors of profitability hence, growth, size and volume of capital are positively related to profitability whereas liquidity and leverage are negative, but significantly related to profitability. The other one which is age and tangibility is found that no significant effect on profitability.

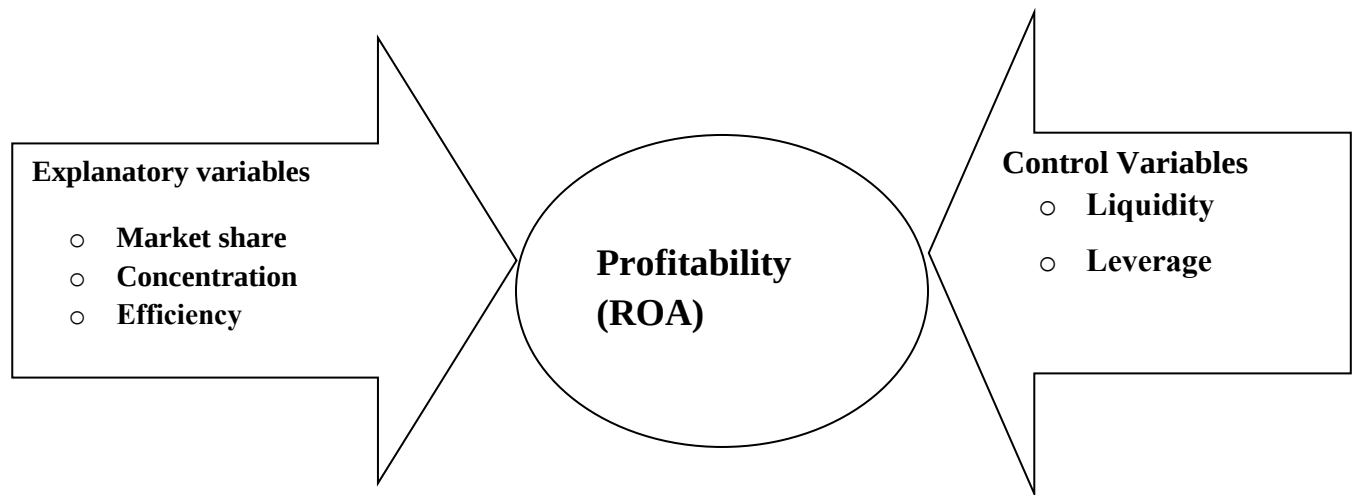
Sambavizam and Ayele (2013) investigate the performance of insurance companies' in Ethiopia. Source of data was obtained from the financial statements (Balance sheet and Profit/Loss account) of insurance companies, financial publications of National Bank of Ethiopia and panel data of nine listed insurance companies for nine years (2002-2011) was analyzed. Return on asset used for the study to measure profitability and the firm specific factors (age of company, size of the company, the volume of capital, leverage ratio, liquidity ratio, growth and tangibility of assets) are independent variables. The results indicate that; growth, leverage, the volume of capital, size, and liquidity are identified as most important determinant factors of profitability hence growth, size, and volume of capita are positively related. In contrast, liquidity ratio and leverage ratio are negative, but significantly related to profitability. The age of companies and tangibility of assets are not significantly related to profitability.

Jasmindeep and Teklit (2017) conducted a study on the determinants of insurance companies' profitability analysis of the insurance sector in Ethiopian. Source of data for the study was a secondary data that collected from 17 insurance companies for a period of 2005/6 to 2014/15. The key variables of the study were internal (capital adequacy, size, liquidity, leverage, and loss ratio) and the external variable (market share, growth rate of GDP and inflation) as the independent and return on asset as the dependent variables. The finding revealed that capital adequacy, liquidity, growth and size were the major factors significantly affect the profitability of insurance in Ethiopia, whereas leverage, market share, loss ratio and inflation were found to have an insignificant effect on insurance profitability. The study recommendation was the manager of the insurance company and the policy makers in the country should take crucial

measure by framing policies and strategies so as to improve the profitability of insurance companies.

2.3. Conceptual frameworks

After reviewing different theoretical and empirical literature that shows the effect of market structure on Private non-life insurance profitability the following conceptual framework model is developed.



Source: Researcher compilations

Fig 2.1 Conceptual framework

Chapter Three

Research methodology and Design

This chapter consists of research approach that the researcher was applied while conducting this study. The research methodology, research design, sampling and study period, data sources and types are given in detail. It also comprises the data analysis and the techniques that used to achieve the objective of the study. Lastly, variable definition, measurement, model specifications and expected sign of the variables are presented in this chapter.

3.1. Research Approaches (Methodology)

There are three types of research approach, namely qualitative, quantitative and mixed approach. Qualitative approach used mostly when the researcher needs to develop a complex, holistic picture, analyzes words, reports, detailed view of informants, and conducts the study in a natural setting and involves studies that do not attempt to quantify their results through statistical summary or analysis (Creswell, 2009). The rational reason for adoption of quantitative approach includes: to develop knowledge of cause and effect thinking, reduction to specific variables and hypotheses and questions, use of measurement and observation, and the test of theories, employee strategies of inquiry such as experiments and surveys (Creswell, 2009). Quantitative approach uses surveys of cross-sectional or longitudinal using self-administered semi structured questionnaires with the intent of generalizing from a sample to a population. So well designed and implemented quantitative research approach has the advantage of making generalization to a wider population from the sample. The mixed research approach is a means to collect both qualitative and quantitative data and analyses together to answer the research questions. In other words, it involves the collecting and “mixing” or integration of both quantitative and qualitative data in a study. A mixed methods approach is one in which the researcher tends to base knowledge claims on pragmatic (Creswell, 2009). Even though, each approach has its own objective and application time, in the selection process one should take into account the nature of the research problem or issues being addressed. Consequently, the study in hand requires analyzing the relationship between variables based on theories and hypothesis testing using statistical procedures due to the nature of the study the quantitative research approach was adopted.

3.2. Research Design

According to Creswell (2009) research design is a plan or proposal to conduct research. It involves the intersection of philosophy, strategies of inquiry and specific methods. The researcher should define and evaluate research design before conducting the research since it is a blueprint for the collection, measurement, and analysis of data or conceptual structure which research is conducted (Kothari, 2004). For this study, an explanatory research design was adopted to determine the cause and effect relationship between market structure and profitability in the Private Non-life insurance industry in Ethiopia.

3.3. Population of the study

Currently in Ethiopia, the insurance companies remained at 17, of which 16 were private and one is Public. The target population of the study was only sixteen private Non-life insurance companies.

3.4. Sample and sampling technique

From the existing sixteen insurance companies that operate in Ethiopia, nine insurance was selected as the study sample by using non-probability purposive sampling technique considering the operating period of 2009 up to 2017 G.C.

The ground behind selecting these nine insurances from the target population in accordance with the sampling technique under consideration is based on the ownership structure (only private Non-life insurance companies included in this study) and time of establishment (only insurance those have eleven and above year's experiences in the insurance operations were included). This is done because the non-life insurance sector under this period more than half of private insurance companies commence their operation who are leaders in the market in terms of market share. Furthermore, the researcher believed that reasonable time is necessary to look at changes in the business of insurance operations.

The following two tables show a list of all insurance companies operating in Ethiopia that will be using the sample for the study respectively with their year of establishment.

Table 3.1: List of all insurance companies in Ethiopia with their establishment period alphabetically.

No	Insurance Name	Year Est. (G.C.)
1	Abay Insurance company S.C	2010
2	Africa Insurance company S.C.	1994
3	Awash Insurance company S.C	1994
4	Berhan Insurance company S.C	2011
5	Bunna Insurance company S.C	2013
6	Ethiopian Insurance corporation	1974
7	Ethio life and General Insurance company S.C	2008
8	Global Insurance company S.C	1997
9	Lion Insurance company S.C	2007
10	Lucy Insurance company S.C	2012
11	National Insurance company of Ethiopian S.C	1994
12	Nib Insurance company S.C	2002
13	Nile Insurance company S.C	1995
14	Nyala Insurance company S.C	1995
15	Oromia Insurance company S.C	2009
16	Tsehay Insurance company S.C	2012
17	United Insurance company S.C	1997

Source: (NBE, 2018 G.C)

Table 3.2: List of study sample insurances in Ethiopia.

No	Insurance Name	Year Est. (G.C.)
1	Africa Insurance company S.C.	1994
2	Awash Insurance company S.C	1994
3	Global Insurance company S.C	1997
4	National Insurance company of Ethiopian S.C	1994
5	Lion Insurance company S.C	2007
6	Nile Insurance company S.C	1995
7	Nyala Insurance company S.C	1995
8	Nib Insurance company S.C	2002
9	United Insurance company S.C	1997

Source: (NBE, 2018 G.C)

3.5. Data Source and Type

There are mainly two sources of data, namely; primary and secondary source. In order to gather the required information to attain the research objective, the main source of data for this study was the secondary data. Based on types there are three types of data, namely; time series, cross-sectional and panel or pooled data. According to Gujarati (2009) panel data has the combination of both cross-sectional and time-series, it is more useful data as it captures individual variability (cross-sectional information) and dynamic nature of the data (time series information) and also it ensures more variability or more degree of freedom, more efficiency and less collinearity among the variables. Therefore, to conduct this study, the researcher used a balanced panel data (companies have the same number of observations).

3.6. Data collection instrument

The secondary source of data for this study was the past nine years (2009-2017 G.C) financial data, i.e. balance sheet and income statement of each non-life insurance. Therefore, the data were obtained from National Bank of Ethiopia and respective Private Non-life insurances.

3.7. Data Analysis

Data analysis is the coming task following the data collection in which the application of the statistical technique to evaluate data through inspecting, transforming and modeling data to draw useful information or decision making. “The term analysis refers to the computation of certain measures along with searching for patterns of relationship that exist among data-groups” (Kothari, 2004). Hence, statistical techniques such as descriptive statistic and regression were performed to analyze the collected data. The descriptive statistic used to determine the minimum, maximum, mean and standard deviation. Then, multiple linear regression analysis was used to determine the relative importance of explanatory variables (Market share, concentration and efficiency) and control variables (liquidity and leverage) in influencing the dependent variable (Return on asset) of Private Non-life insurance companies in Ethiopia. To conduct this study, the researcher used statistical tools E-views 8 software. The study has also performed diagnostic tests to ensure whether the OLS assumptions are violated or not and other related tests.

3.8. Variables Definition, Measurement and hypothesis.

3.8.1. Dependent Variables (Profitability Measure)

According to Nguyen (2006) to measure the profitability of insurance companies, there are a variety of ratios of which are Return on Asset (ROA), Return on Equity (ROE) and Net interest margin (NIM). However, the choice of the profitability ratio depending on the objective of the profitability measure. ROA is a better measure of insurance profitability than others since ROA indicates how capable the management of the insurance has been in converting the institution’s assets into net earnings (Malik, 2011). The ROE is a measure of the rate of return flowing to the insurance’s shareholders. This measure of profitability is the most important for insurance’s stockholders because it reflects what the insurance is earning on their investment. On the other hand, the NIM variable is defined as the net interest income divided by total assets. It focused on the profit earned by on interest activities. Therefore, ROA is used as a better measure of profitability than other ratios and it reveals how much profit a company earns for its assets (Malik, 2011). ROA as a proxy of insurance profitability used by many researchers like Yuvaraj and Abate (2013), Pervan et al. (2012) Malik (2011), Meaza (2014) and Gemechis (2017).

Return on asset (ROA) in the company measures the ratio of net income after tax for its total asset of the given companies (Tomislava et al, 2017).

3.8.2. Explanatory Variables

The explanatory variables of this study contains market share, concentration and efficiency.

3.8.2.1. Market share

Market share can be defined as it is the relation between a given company performance (based on their sales, volume, units, asset, or employees share, etc.) and the total industry performance (Pervan et al. 2012). According to Pearce and Robinson (2003) market share defined as the company, sales position in relation to its total industry sales in a given period of time. Market share usually used to show the competitive position of the company in which it operates against to their competitors in the market. In relation to the insurance business, market share constitutes how much is the percentage of gross written premium of insurance's to the Industry gross written premium for a certain period of time. It is argued that firms with larger market share are able to enjoy lower costs and greater profitability because they are of greater efficiency in their operations (Cole et al., 2014).

In general speaking, the increasing market share can be related to the company success, whereas the decrease of market share is an implication that the company is unable to compete with their competitors. The Relative market power (RMP) hypothesis predicts a positive relationship between a firm's market share and its performance. That is, if consumers rely on a firm's position in the market as an indicator of quality, larger firms have market power simply by virtue of their position in the market, allowing them to earn profits (Rhoades, 1985). More empirical evidence shows a positive relationship between market share and profitability like Worknesh (2017), Pervan et al. (2012), Mohammed and Islam (2017) and Kozak (2011) claims that market share and profitability have a strong positive relationship with the insurance profitability. However, Thomas et al. (2011) and Jasmindeep and Teklit (2017) claim that market share by itself does not have a significant impact on profitability, but there are more variables that, along with market share, can play role in firms' returns. Generally, market share computed as the ratio

of gross written premium of insurance's to the Industry gross written premium for a certain period of time.

H1: Market share has a positive and a significant effect on Private Non-life insurances profitability in Ethiopia.

3.8.2.2. Market Concentration

Market concentration indicates the level of the domination of firms within a specific industry. The degree of concentration depends on the number of existing companies, as well as on their relative size (Boutsioli, 2007). Concentration is the collusive or monopolistic practices of the firms in which concentrated markets will have the power to set prices above their marginal costs to earn higher profits than firms operating in less concentrated markets. As explained in the SCP, the market concentration fosters collusion among large firms in the industry, which subsequently leads to higher profits, (Lalith, 2010). There are two commonly used methods of measurement of concentration these are: concentration ratio and Herchiman Herfindahl Index (HHI). Concentration ratio calculates the commutative market share of the four highest firms that have the highest shares in the industry, whereas Herfindahl Index (HHI) measures the sum of squared market shares of a premium of all insurance industry assets (Kapopoulos and Siokis, 2002).

Generally, Structure-conduct-performance (SCP) theory suggests that the higher the concentration level in the industry the higher the level of profitability (Meral, 2015). Empirical studies on concentration and profitability are inconsistencies; some researchers like Gemechis (2017) and Vickie and Bajtelsmit (1998) declared the existence of a positive relationship between concentration and performance in the insurance industry, whereas a study of Jovovic et al., (2014) found there was an inverse relationship between concentration and profitability of insurance. On the other hand, study of Thomas et al, (2011) and Chi et al, (2015) do not find any significant relationship between market concentration and profitability of insurance companies. For this study, Concentration ratio measured by Herfindahl Index (HHI) that the sum of squared market shares of a premium of all insurance industry and most researchers prefers to use this measurement of concentrations (Pervan and Pavic, 2006).

H2: Market concentration has a positive and a significant effect on Private Non-life insurances profitability in Ethiopia.

3.8.2.3. Efficiency

Efficiency measurement used to examine the performance of firms by computing the relative efficiency of each firm (Eling and Luhnen, 2010). Efficiency described an evaluation of the relationship between inputs and outputs in the production process. Efficiency structure hypothesis (ESH) affirms that the most efficient firms, with better organization and management of their resources, are more profitable (Demsetz, 1974). High performance reflects management efficiency in making use of the company's resources and this in turn contributes to the country's economy at large (Nasser and Mokhtar, 2004).

According to Boone (2008), an efficient firm will gain a higher market share and realize higher profits than a less efficient one. Firms are punished more harshly for being inefficient. Hence, in more competitive markets, efficient firms perform better – in terms of market share and profits – than inefficient firms. Empirical studies on efficiency and profitability of insurance companies revealed that most researchers claim a more efficient insurance company should have growth in profits since it is able to maximize on its net premiums and net underwriting incomes. For instance, Thomas et al. (2011), Choi and Weiss (2005), Meaza (2014), Almajali et al. (2012) and Murigu (2015), identified a strong positive association between efficiency and profitability. The efficiency in insurance companies can be computed as an expense and claim payment (Input) to Gross written premium (Output) of the insurance (Datu, 2016).

H3: Efficiency has a positive and a significant effect on Private Non-life insurances profitability in Ethiopia.

3.8.3. Control Variables

There are a number of factors that affect private non-life insurance profitability other than market structure. This is one of the reasons for inclusion of control variables that used for this study was liquidity and leverage. The basic reason that researcher employed liquidity and leverage as a control variable was most empirical studies revealed that there is a strong relationship between the two variables with profitability of insurance companies.

3.8.3.1. Liquidity

Liquidity refers to the ability of firms to meet its short-term obligations when it is due. In the context of insurance, liquidity represents the possibility of an insurer to pay liabilities which include operating expenses and payments for loss/benefits under insurance policies, when due then shows us that more current asset is held and idle if the ratio became more which could be invested in profitable investment (Chen and Wong 2004). An insurer can use a liquid asset in order to finance its activities and investments in times when there is less availability of the external source of funds. Low liquidity ratio implies insurers face difficulties to meet its short-term obligation. On the other, hand a high liquidity ratio means insurers keeping idle cash. Empirical studies on liquidity are inconsistent, for instance, a study of Almajali et al. (2012), Alice and Muturi (2016), Mazviona et al. (2017) Jasmindeep and Teklit (2017) found that there a positive and significant relationship between liquidity and insurances profitability. Whereas studies of Worknesh (2017), Mohammed and Islam (2017) and Yuvaraj and Abate (2013) found a reverse relationship of liquidity and profitability in insurance companies. On the other hand studies of Meaza (2014) and Gemechis (2017) found no significant relationship between liquidity and profitability of insurances. Liquidity measured the ratio of the current asset to current liabilities of the insurance company.

H4: Liquidity has a positive and a significant effect on Private Non-life insurances profitability in Ethiopia.

3.8.3.2. Leverage

It is defined as the amount of debt used to finance its total asset and measured as the ratio of total debt to total equity of an insurance company (Jasmindeep and Teklit, 2017). Source of leverage for the insurers comes from its unearned premiums, from unexpired policies any outstanding claim amount (Lee, 2014). An insurance company that has a high amount of debt than equity used to finance its asset can be considered high leverage and the risk of an insurer may increase with increase its leverage (Jasmindeep and Teklit, 2017). The empirical studies of leverage on insurance company profitability are inconsistencies researchers like Mohammed and Islam (2017), Jovovic et al. (2014), Meaza (2014), Hailegebreal (2016), Yuvaraj and Abate (2013), Malik (2011) and Sambavizam and Ayele (2013) founds a negative and significant relation of

leverage and insurance profitability and supports the pecking order capital structure theories and argue that insurance companies with lower leverage will generally report higher return on asset. On the other hand, Gemechis (2017), Murigu (2015) and Mazviona et.al,(2017) claims that there is a positive and significant relation between leverage and performance of insurance companies. Even some study like Jasmindeep and Teklit (2017), founds there are no significant relationship between leverage and profitability. Leverage in the insurance companies can be measured as the ratio of total debt to total equity.

***H5:** leverage has a negative and a significant effect on Private Non-life insurances profitability in Ethiopia.*

3.9. Model specification

A general model were developed and tested in order to achieve the desired purpose of the study. The Explanatory variables in this model were Market share, Concentration, Efficiency, Liquidity and Leverage in the specified regression model. The variable representing profitability of private non-life insurances which was measured by ROA used as the dependent variable in the regression models.

The regression equation was as follows:

$$ROA_{it} = \beta_0 + \beta_1 (MS)_{it} + \beta_2 (CONC)_{it} + \beta_3 (EFF)_{it} + \beta_4 (LIQ)_{it} + \beta_5 (LEV)_{it} + U_{it}$$

Where:

Coefficient of variables and Error term

β_0 = coefficient of Intercept (Constant)

β_1 = coefficient of market share

β_2 = coefficient of market concentration

β_3 = coefficient of Efficiency

β_4 = coefficient of Liquidity

β_5 = coefficient of Leverage

u = The Error Term

Table 3.3. Summary of Variables, Measurement and Expected Sign

Category	Variables	Measurement	Source	Sign
Dependent	Return on Asset (ROA)	Net income after tax/Total Asset	<i>Tomislava et al. (2017)</i>	
Explanatory Variables	Market Share	Firms gross written premium / Industry gross written premium	<i>Pervan et al. (2012) and Mohammed and Islam (2017)</i>	+
	Market Concentration	(HHI) measures the sum of squared market shares of premium of all insurance industry.	<i>Gemechis (2017) Vackie and Bajtelsmit (1998)</i>	+
	Efficiency	Expense and claim payment / Gross written premium	<i>Thomas et a. (2011)</i>	+
Control Variables	Liquidity	Current Asset /Current Liabilities	<i>Alice and Muturi (2016) and , Mazviona et al. (2017)</i>	+
	Leverage	Total Debt/ Total Capital and Reserve.	<i>Mohammed and Islam (2017) and Hailegebreal (2016)</i>	-

Chapter Four

Result and Discussion

This Chapter deals result and discussion of the study. The chapter contains three parts. The first sections deal about descriptive statistics of dependent and independent variables. The second part deals test of CLRM assumptions. The third part presents and explains the result of regression outputs of the effect of market structure on profitability in Ethiopian private non-life insurance profitability.

4.1. Descriptive Statistics

The distribution of the data set or dependent and independent variables used in the study are explained by descriptive statistics. The summary of descriptive statistics is presented to determine the minimum, maximum, mean and standard deviation for dependent variable (Return on Asset) and Variables (Market share, Concentration, Efficiency, Liquidity and Leverage). The following table summarized the descriptive statistics of Ethiopian private non-life insurance for 81 observations (Nine non-life private insurance data of nine years 2008/9-2016/17 GC).

Table 4.1 Summary of descriptive statistics

	ROA	MS	CONC	EFF	LIQ	LEV
Mean	0.07813	0.0575	0.00392	0.58011	0.97495	2.2375
Median	0.07821	0.06213	0.00386	0.57694	0.98232	2.03169
Maximum	0.14125	0.10074	0.01015	0.87979	1.63196	4.63218
Minimum	-0.1027	0.01098	0.00012	0.33561	0.26255	0.89774
Std. Dev.	0.03883	0.02483	0.00272	0.14661	0.22262	0.80785
Observations	81	81	81	81	81	81

Source: E-views 8 outputs

4.1.1. Descriptive Analysis of dependent variables

As shown in the above, the dependent variable used to measure profitability is Return on Asset (ROA) and calculated profit after tax divided by the total asset. It can observe clearly on the above tables, the mean value of ROA was 0.078(7.78%). This means that on average private non-life insurances has been earning 7.78% on their asset during the study period. In addition, the maximum value of 0.141249 (14.12%) and a minimum of -0.102709 (-10.2%) were

observed. The maximum return on asset invested was recorded by United Insurance Company S.C in the year 2014 which means this sampled non-life insurance earned 0.141cents of profit after tax for single Birr invested in assets and the a maximum loss of -0.1027 cents of profit after tax for a single Birr invested in assets and this was recorded by Lion Insurance Company S.C in the year 2009. The standard deviation of return on asset was 0.0386 which implies that the volatility of return on the asset from the mean value that indicates the profitability of private non-life insurance company operating in Ethiopia varies from the mean by 3.86% during the study period.

4.1.2. Descriptive analysis of independent variables

In relation to the independent variables, the descriptive statistics of market share indicated in the above table that mean value of 0.0575which shows that on average the market share of private non-life insurance has 5.75 % during the study period. The maximum and minimum market shares were 0.10074 and 0.01098 respectively. The maximum value of the market share of 10.07% and the minimum value of market share 1.09% recorded by Africa and Global Insurance Company S.C respectively. Whereas a standard deviation of 0.02483 (2.48%) indicates high dispersion of market share was available in the selected period of the study.

The second independent variable was concentrated and its descriptive statistics indicate an average 0.00392 (0.39%) of the private non-life insurance has concentrated during the selected period. The Concentration ratio are ranging from the maximum of 0.01015 (1.01%) to the minimum of 0.00012 (0.012%). The standard deviation of concentration indicated in the above table was 0.00272 (0.27%) which shows fluctuation of concentration ratio in the private non-life insurance in Ethiopia was very low than any other variables.

The third variables are Efficiency in the above table also show Efficiency of private non-life insurance is a mean value of 0.58011which implies the average efficiency of private non-life insurances operating in Ethiopia under the study period. The maximum and minimum values of efficiency scored 0.87979 and 0.33561 respectively, and standard deviation of 0.14661 which indicates the difference of relative efficiency among the private non-life insurance industry. The other independent variable was liquidity ratio the ability of insurance companies to fund increases in asset and meet obligation as they come due, without incurring unacceptable loss.

The descriptive statistics of the above table show the average values of liquidity in private non-life insurance was 0.97495. The average value of 0.97 indicates that for each one Birr current liability there was 0.97 cent current assets to meet the obligation. Which is less than the minimum requirement of a national bank. The maximum and minimum values of the liquidity ratio is 1.63196 and 0.26255 respectively. The standard deviation of liquidity ratio of 0.22262 shows there was a high dispersion of private non-life insurance from its mean. The non-life insurance, which scores higher liquidity ratio, there was more current asset is available to meet current liability than another.

The last independent variable in this study was leverage. The ratio of total liability for total owner's equity on average indicates 2.2375. The average shows that the private non-life insurance that operates in Ethiopia under the study uses debt than equity for their financial purpose. The private non-life insurance for this study indicates a maximum of 4.63218 and a minimum of 0.89774 with its standard deviation of 0.80785 that scores the highest variation from all other independent variables in the given study.

4.2. CLRM Assumption and Diagnostic Test

Before to test the regression model and discussion of its result, the researcher carries out the diagnostic test to make sure that the data fit the basic assumption or not. There are five basic diagnostic assumptions and the test conducted one by one on the following sections;

Assumption 1. Zero Mean: $\{E(U_t) = 0\}$

According to Brook (2014), this assumption requires that the average value (mean) of the error is zero. In fact, if the constant term is included in the regression equation, this assumption will never be violated. Since there is a constant term (C) in the regression, the mean value of the errors is zero.

Assumption 2. Heteroscedasticity ($Var(u_t) = \sigma^2 < \infty$)

This assumption can be used to check whether the variance of error is constant or not. If the assumption of constant variance is violated, the standard error could be wrong and any inference made from them became misleading. In other word, if the errors do not have a constant variance,

they are said heteroscedastic (Brook, 2014). To check heteroscedasticity there are a number of methods are used, but, the white's (1980) tests for checking for heteroscedasticity problem were applied in this study.

The hypothesis of the heteroscedasticity test were formulated as follows;

H0: There is no Heteroskedasticity problem in the model.

H1: There is Heteroskedasticity problem in the model.

$\alpha = 0.05$

Decision Rule: Reject H0 if p-value less than significant level. Otherwise, do not reject H0.

Table 4.2 Result of Heteroskedasticity Test

Heteroskedasticity Test: White

F-statistic	0.461745	Prob. F(6,74)	0.8344
Obs*R-squared	2.923104	Prob. Chi-Square(6)	0.8184
Scaled explained SS	2.730265	Prob. Chi-Square(6)	0.8419

Source: E-views 8 outputs

As shown in the table 4.2 both F-statics and Chi-square version of the test statics gave the same conclusion that there is no evidence for the presence of heteroscedasticity in this particular study since the P-value is in excess of 0.05. Therefore, the error in the regression model has a constant variance or (homoscedasticity) so the null hypothesis should not be rejected.

Assumption 3. Test of Autocorrelation ($\text{cov}(u_i, u_j) = 0$ for $i \neq j$)

This assumption states that the covariance between the error terms over time is zero. According to Brook (2014) "it is assumed that the errors are uncorrelated with one another. If the error is not un-correlated with one another, it would be stated that they are 'auto-correlated' or they are 'serially correlated'". To check the presence of autocorrelation in the study, the researcher used Breusch-Godfrey test, which allow the examination of the relationship between error terms and several it's lagged value at the same time. Therefore, the hypotheses of the autocorrelation test were formulated as follows:

H0: There is no autocorrelation problem in the model

H1: There is autocorrelation in the model.

$\alpha = 0.05$

Decision Rule: Reject H0 if p-value less than significant level. Otherwise, do not reject H0.

Table 4.3 Result of Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.566216	Prob. F(2,72)	0.5702
Obs*R-squared	1.254259	Prob. Chi-Square(2)	0.5341

Source: E-views 8 outputs

As it can be seen from the table 4.3 both versions (X2 and F-statistics) of the test are greater than the significant value, in this case, the null hypothesis of no autocorrelation should be not-rejected since the P-value are greater than 0.05.

Assumption 4. Test of Multicollinearity

Multicollinearity means there is a linear relationship between the explanatory variables which may cause the regression model biased (Gujirati, 2009). There are two classes of multicollinearity these are; perfect and near multicollinearity. Perfect multicollinearity occurs when there is an exact relationship between two or more variables and this causes a difficulty in explaining which independent variables are affecting the dependent variables. The second one is much more likely to occur in practice and would arise when there was a non-negligible, but not perfect, relationship between the two independent variables. Then, the simplest method to investigate the existence multicollinearity is looking at the matrix of correlations between individual variables.

Table 4.4 Result of Multicollinearity Test

	MS	CONC	EFF	LIQ	LEV
MS	1	0.97435	-0.0095	-0.3782	0.41734
CONC	0.97435	1	-0.0592	-0.3505	0.46834
EFF	-0.0095	-0.0592	1	0.06264	-0.099
LIQ	-0.3782	-0.3505	0.06264	1	-0.3383
LEV	0.41734	0.46834	-0.099	-0.3383	1

Source: E-Views 8 Output

As far as the benchmarks Cooper & Schindler (2009) suggested that a correlation above 0.8 should be considered as a problem of multicollinearity. As it can be seen from tables 4.4 the relationship between market share and concentration are correlated. This is because of that both (Market share and concentration) are the measures of markets structures and concentration is the square of market shares. Furthermore, concentration is insignificant variables in the regression results. The other independent variables have a lower correlation coefficient, which is the maximum of 0.46.

Assumption 5. Test of Normality

Even if there are several tests for normality assumption, like the histogram of residuals, normal probability plot (NPP), the most common one is Bera-Jarque (1981) test. If the residual are normally distributed, the histogram should be bell shaped and Bera-Jarque statistics could not be significant. This means the P-value given at the bottom of the normality test screen should be bigger than 0.05 to not reject the null of the normality hypothesis that the data is normally distributed. The hypothesis of the normality test was formulated as follows:

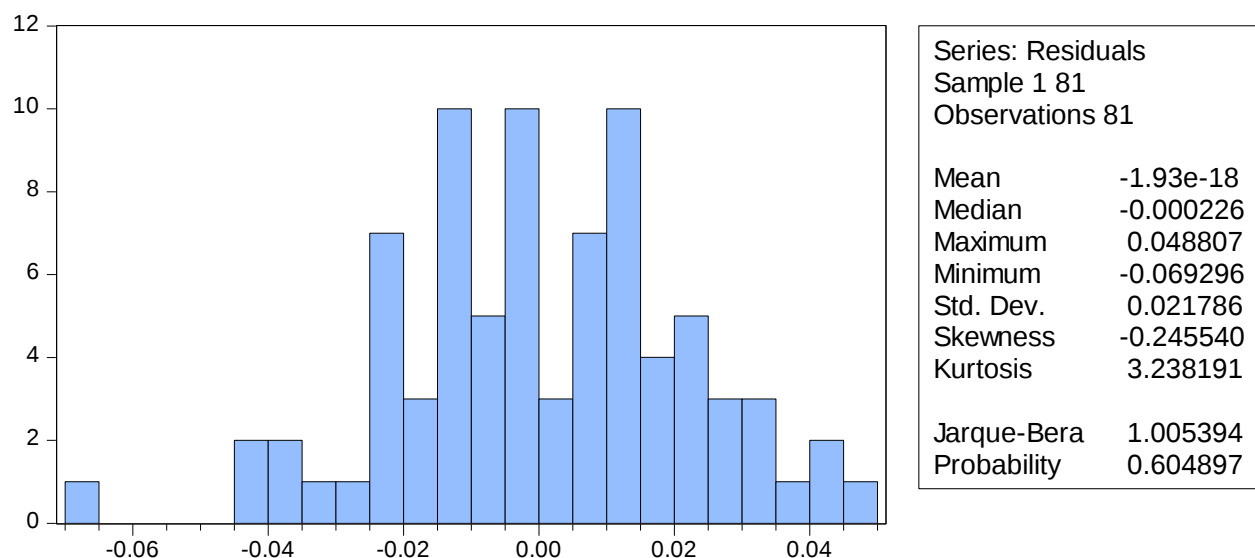
H0: The data are normally distributed.

H1: The data are not normally distributed.

$\alpha = 0.05$

Decision Rule: Reject H0 if p-value less than significant level. Otherwise, do not reject H0

Figure 4.1 Normality Test Result



Source: E-Views 8 Output

There was a problem of normality due to very high negative value of observation. The negative value is due to loss incurred by lion insurance in the year of 2009 G.C. After the remedial measure taken, namely the outlier observation dummy the normality is fixed. As shown in the figure 4.1 above, the Bera- Jarque statistics have a P-value of 0.604897 clearly implies that it is greater than 0.05, which indicates there is no evidence for the presence of an abnormality in the data. Thus, the null hypothesis that the data is normally distributed should not be rejected since the P-values were in excess of 0.05 significant levels. It can be concluded that there is no problem of normality

4.3. Model Specification Test

The assumption of the CLRM that the econometric model used in the analysis is correctly specified has two meanings. The first is since the model is correctly specified, there is no equation specification error and the second is no model specification error. The model specification error exist due to omission of an important variable(s), inclusion of unnecessary variable(s), incorrect specification of the error, adoption of wrong function form and error of measurement in the regress and regressors. When the appropriate variables are omitted from a model, the OLS estimators of the variables retained in the model are biased and inconsistent. In addition to the above, the variance and standard error of these coefficients are incorrectly estimated. As a result, including of irrelevant variables in the model are also that the estimated variances tend to be larger than necessary, thereby making for less precise estimation of the parameters. That is, the confidence intervals tend to be larger than necessary (Gujirati, 2009). Therefore, in order to select a correct estimated model, the researcher has carried out the Ramsey-RESET Test to check on the model specification. The hypothesis of the model specification test formulated as follows;

H0: The model is correct.

H1: The model is incorrect.

$\alpha = 0.05$

Decision Rule: Reject H0 if p-value less than significant level. Otherwise, do not reject H0

Table 4.5 Result of Model Specification Test

Ramsey RESET Test

Equation: UNTITLED

Specification: ROA C MS CONC EFF LIQ LEV DUMMY73

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.034316	73	0.9727
F-statistic	0.001178	(1, 73)	0.9727
Likelihood ratio	0.001307	1	0.9712

Source: E-Views 8 Output

From the table 4.5 above, do not reject the null hypothesis (H0) since the P-values of t-statistics, F-statistics and likelihood ratio are 0.9727, 0.9727 and 0.9712 respectively are greater than the significant value. Therefore, it can be concluded that the model is correctly specified.

4.4. Model Selection: Random versus Fixed Effect Model

There are two classes of panel estimator approaches that can be employed in financial research; Fixed and Random Effect model. The question which model is more appropriate from fixed and random effect model. In order to select the appropriate model, the researcher used Hausman Test. The Hausman test that examines whether any unobserved omitted variables are uncorrelated with the included explanatory variables. If they are uncorrelated, a random effect approach can be used; otherwise, the fixed effect model is preferable. The null hypothesis for this test is that unobservable heterogeneity term is not correlated or random effect model is appropriate, with the independent variables. If the null hypothesis is rejected then study employ fixed effect model (Brook, 2014). Therefore, the Hausman test hypothesis were formulated as follows;

H0: Random effect model is appropriate

H1: Fixed effect model is appropriate.

$\alpha = 0.05$

Decision Rule: Reject H0 if p-value less than significant level. Otherwise, do not reject H0

Table 4.6 Result of Hausman Test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	6.409582	5	0.2684

Source: E-Views 8 Output

The above table 4.6 shows, Hausman test has a P-value of 0.2684 which is more than 0.05 (5%) level of significance. The conclusion from the above Hausman test result is the null hypothesis of the random effect should not reject. This implies that for this study random effect is more appropriate than fixed effect.

4.5. Regression Result Analysis

In this part the regression result has been presented. The following linear regression was developed on variables considered in the model to test the effect of market structure on Ethiopian private non-life insurances' profitability.

$$ROA_{it} = \alpha + \beta_1 (MS)_{it} + \beta_2 (CONC)_{it} + \beta_3 (EFF)_{it} + \beta_4 (LIQ)_{it} + \beta_5 (LEV)_{it} U_{it}$$

The main focus of the study is the regression results between market structure and profitability. But, few additional independent variables effect on profitability of insurance was considered in the model to serve as a control variables. Under the following regression output, it is common to find the beta coefficient to be negative or positive. The beta value indicates that each variable's level of influence on the dependent variables. The P-value indicates at what percent or precision level of each variable is significant. The R-squared value measures how well the regression model explains the actual variations in the dependent variables (Brook, 2014).

Table 4.7 Regression Output

Dependent Variable: ROA

Method: Panel EGLS (Cross-section random effects)

Date: 12/19/18 Time: 05:30

Sample: 2009 2017

Periods included: 9

Cross-sections included: 9

Total panel (balanced) observations: 81

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.049161	0.023762	-2.068910	0.0420
MS	1.377541	0.485667	2.836392	0.0059
CONC	-8.664528	4.498565	-1.926065	0.0579
EFF	0.095146	0.017952	5.299913	0.0000
LIQ	0.060670	0.012797	4.740936	0.0000
LEV	-0.013675	0.003815	-3.584368	0.0006
DUMMY73	-0.141326	0.023767	-5.946322	0.0000

Effects Specification

	S.D.	Rho
Cross-section random	0.000000	0.0000
Idiosyncratic random	0.022647	1.0000

Weighted Statistics

R-squared	0.685194	Mean dependent var	0.078129
Adjusted R-squared	0.659669	S.D. dependent var	0.038829
S.E. of regression	0.022652	Sum squared resid	0.037971
F-statistic	26.84419	Durbin-Watson stat	2.087740
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.685194	Mean dependent var	0.078129
Sum squared resid	0.037971	Durbin-Watson stat	2.087740

Source: E-views 8 outputs

Note: at 5% Significant level

The linear function for the study regression equation is denoted as below;

$$\text{ROA} = -0.049 + 1.377\text{MS} - 8.664\text{CONC} + 0.095\text{EFF} + 0.0601\text{LIQ} - 0.013\text{LE}$$

The above Table 4.7 the random effect panel data regression results shows the coefficient intercept (α) is -0.049. This means, when all explanatory variables took a value of zero, the average value ROA would take -0.049.

As we can see from table 4.7 also shows Market share had a positive and statistically significant relationship with profitability of private no-life insurance operating in Ethiopia (P-value=0.0059) at the 1% significance level. Whereas, Concentration had a negative, but statistically insignificant relationship with profitability (P-value =0.0579) at the 5% significance level. Efficiency has a positive and statistically significant relationship with profitability (P-value=0.0000) at the 1% significance level. Similarly, liquidity had a positive and statistically significant with profitability (P-value=0.0000) at the 1% significance level. Lastly, Leverage had a negative and statistically significant with profitability (P-value=0.0006) at the 1% significance level.

Besides, the value of R-square and adjusted R-square is 0.685194 and 0.659669 respectively. This indicates 65.80% of the change in independent variables explains the change in the dependent variable. This means market share (MS), concentration (CONC), efficiency (EFF), liquidity (LIQ) and leverage (LEV) collectively explain 65.96% of change in return on asset (ROA). While, the remaining 34.04% of the variation in change dependent variable explained by other independent variables which are not included in this study model. In addition, the above regression result shows the model is properly fit and the explanatory variables are properly selected and used in this study, since, the F-statistics (an overall test of significance) take a value of 26.84 with P-value of zero. The null hypothesis of F-statistics (an overall test of significance) that equal to zero R-square is rejected at 1% since P-value is 0.0000. Thus, all the explanatory variables had a jointly statistically significant effect on profitability of private non-life insurance in Ethiopia.

4.6. Discussion of result

The above section of this chapter presents the overall results of the study. In this section of the study, the researcher presents a further detail discussion on each of the signs and significant relationship between the dependent variable (ROA) which measures the private non-life insurance profitability in Ethiopia and explanatory variables (MS, CONC and EFF) as well as

control variables (LIQ and LEV). Therefore, the current study discussed and evaluates the statistical findings in relation to previous theoretical and comparison to the earlier empirical evidences. Then, the following discussion present explanatory variables which are given to determine the profitability of private non-life insurances in Ethiopia and then followed by control variables.

Market share and Profitability

The hypothesis was developed to test the relationship between market share (MS) which, measured by gross written premium of insurers divided by gross insurance industry written premium and Profitability (ROA) of the private non-life insurance in Ethiopian is done to determine whether if any positive and significant relationship between market share and profitability arise from market power. The above table 4.8 shows market share (MS) was a positive and statistically significant at 1% significance level (P-value=0.0059) in explaining the variability of private- non life insurances profitability in Ethiopia. Further, it can be observed that the coefficient of the degree of market share (MS) is 1.37. Based on the beta coefficient; holding other things constant; if one unit increases in market share increase profitability by 1.37. The result shows market share has a positive effect on the profitability of private non-life insurance in Ethiopia.

The positive and significant relationship between market share and profitability of non-life insurance in Ethiopia implies that; First, it can be related to the insurance company success that have more capital and more innovative will result more market share and results more profit and second, the evidence for the existence of relative market power(RMP) theory which state that when the firm is able to manage its price or offer products because its rivals are not able to offer customers reasonable alternatives. Therefore, non-life insurance with higher market shares exhibit better profitability performance than those with smaller market share. That is, if insured rely on insurances position in the market as an indicator of quality, larger insurances have market power simply by virtue of their position in the market, allowing them to earn profits.

The above regression result is consistent with the finding of Pervan et al. (2012), Worknesh (2017), Kozak (2011) and Mohammed and Islam (2017) but in contrast with findings of Jasmindeep and Teklit (2017).

Concentration (HHI) and profitability

Concentration is one of the variables of market structure and it has played a role in the determination of profitability of the firms. Therefore, the industry concentration ratio in this study is measured by the Herfindhal-Hirchaman Index (HHI) and is calculated as the sum of the squared market share of Ethiopian private non-life insurance companies. As indicated in the above table 4.8, there is a negative, but an insignificant relationship between concentration and profitability since P-value =0.0579 which is more than 5% significant levels. Based on beta coefficient holding other things constant; a unit increase in a concentration lead to decrease profit by -8.66 and the relationship is statistically insignificant at 5% significance level. This result did not support the structure-conduct-performance (SCP) assertions of the existence of a collusive agreement for a positive and significant relationship between concentration and profitability of firms. Such result also indicates that whether the non-life insurance industry in Ethiopia is dominated by a few large firms or not, there is no collusive agreement among non-life insurance firms in the pricing policy so as to maximize their profitability.

The absence of a collusive agreement in the industry as evidenced by the regression test can be further stated literally with the existing condition of non-life insurance sectors in Ethiopian. The non-life insurance in Ethiopia is dominated by one public insurance, namely Ethiopian Insurance Corporation (EIC). This non-life insurance dominates in terms of size, market share, and other structural criteria. The remaining private non-life insurance is situated in similar sizes and market shares. These features of the industry may not provide for private non-life insurances an opportunity to participate in the pricing agreement. The other possible explanation is, the closer supervisory and regulatory role of National bank of Ethiopia plays a vital role in the overall activities of insurances. Thus, the market power of non-life private insurance firms is limited to exercise such power in the market.

The finding of an this study is consistent with the studies of Thomas et al. (2011) and Chi et al. (2015) but contradict with the finding of Gemechu (2017), Vackie and Bajtelsmit (1998) and Choi and Weiss (2005).

Efficiency and Profitability

The efficiency in insurance companies can be computed as an expense and claim payment (Input) to Gross written premium (Output) of the insurance (Datu, 2016). This was developed from the proxy of efficiency in many structure-profit-studies. The result indicated in the above table 4.7, there is a positive and significant relationship between efficiency and profitability (P-value =0.000) at the 1% significance level. Further, it can be observed that the coefficient of the degree of efficiency (EFF) is 0.095. Based on the beta coefficient; holding other things constant; if one unit increases in Efficiency increase profit by 0.095.

Even if the above study did not separately measure the technical and scale efficiency of private non-life insurances in Ethiopia, the result is consistent with one version of efficiency -structure-hypothesis (ESH) which asserts that profitability is the result of the efficiency of individual firms. The result confirms that the efficiency hypothesis works in private non-life insurance industry in Ethiopian. The more efficient insurer has earned a higher profit than less efficient insurers since the more efficient firm achieves superior performance at the expense of their less efficient counters. So that, a strong positive relation between efficiency and non-life insurance profitability claims a more efficient insurance company have growth in profits since it is able to maximize Gross written premium and then its net premiums as well as net underwriting income.

The finding of this study is consistent with studies of Thomas et al. (2011), Choi and Weiss (2005), Meaza (2014), Kozak (2011) and Almajali et al. (2012).

Liquidity and Profitability

It is a measure of the capability of an insurer to fulfill their immediate commitment or pay their liabilities to policyholders and other creditors, which fall in a period less than a year without having to increase profits from the underwriting activities and investment activities and/or liquidate financial assets when they due. The result indicated in the above table 4.7, liquidity ratio of private non-life insurance in Ethiopia has a positive and statistically significant on profitability (P-value =0.000) at the 1% significance level. Holding other things constant, if one unit increases in liquidity increase profitability by 0.060. The results of a positive relationship between liquidity and profitability show private non-life insurance that has more liquidity ratio

will bring higher profits for their firms and increase insurance companies' ability to pay claims incurred to policyholder and creditors by increasing their profitability. Therefore, it is expected that non-life insurers in our country with a more liquid asset will outperform those with less liquid assets. Since, insurer's lower liquidity means they will have more cash constraints and will have more difficulties in repaying to policyholders when the loss occurred. Thus, non-life insurance companies in Ethiopia should keep a minimum amount of liquidity that required by NBE to meet their commitment to policyholders and to meet short term creditors.

The finding of this study is consistent with the studies of Almajali et al.(2012) , Alice and Muturi (2016), Mazviona et al.(2017), and Mazviona et al.(2017), but contradict with studies of Worknesh (2017), Mohammed and Islam (2017) and Yuvaraj and Abate (2013).

Leverage and profitability

The regression result of table 4.7 shows there is a negative and significant relationship between leverage and profitability in private non-life insurances in Ethiopia (P-value=0.0006) at the 1% significance level. Leverage measures the companies' long-term financing and calculated as the ratio of total debt to total equity. The coefficient -0.013 indicates that holding other things constant if one unit increase leverage ratio decrease the profitability of private non-life insurances in Ethiopia by 0.013. The above result shows that debt financing has a negative effect on the profitability of private non-life insurances in Ethiopia and financial leverage could be reflected in lower market value, thereby reducing the firm's profit and leading to the solvency problem. Therefore, the findings clearly show that firms with high leverage ratio have lower profit than with that of the lower leverage ratio under private non-life insurance companies in Ethiopia. On the other hand, the negative relationship between leverage and profits in this study implied that highly profitable non-life insurance companies have more likely relied on internally generated funds and equity capital than debt capital as the source of financing and the result supports capital structure theory of pecking order which postulates that there is a negative correlation between them (Myers and Majluf, 1984).

This study is consistent with Mohammed and Islam (2017), Meaza (2014), Hailegebreal (2016), Yuvaraj and Abate (2013), Jelena et al. (2014), Malik (2011) and Sambavizam and Ayele (2013), but contradict Gemechu (2017), Murigu (2015) and Mazviona et al. (2017).

Table 4.8 The Summary of expected and actual signs of independent variables.

Independent Variables	Expected sign effect	Actual effect	Hypothesis status
Market share	Positive and Significant	Positive and Significant	Do not reject
Concentration	Positive and Significant	Negative and Insignificant	Reject
Efficiency	Positive and Significant	Positive and Significant	Do not reject
Liquidity	Positive and Significant	Positive and Significant	Do not reject
Leverage	Negative and Significant	Negative and Significant	Do not reject

Source: researcher compilation

Chapter Five

Conclusion and Recommendations

The objective of this study is to examine the effect of market structure on private non-life insurance profitability in Ethiopian. The study used panel data during the period 2009-2017 and selected nine private non-life insurances as a sample out of seventeen insurances that operate in Ethiopia. In the fourth chapter descriptive and regression analysis were performed to determine the effect of market structure on Ethiopian non-life private insurances profitability. This chapter comprises the conclusion and recommendation based on the finding of the study.

5.1. Conclusion

Market structure and profitability have been studied in many countries in different sectors based on the well-known three hypotheses known as Relative -Market-Power (RMP), Structure-Conduct-Performance (SCP) and Efficiency-Structure-Performance (ESP). RMP theory is based on the premise that market share rather than the concentration (through collusion) leads to market power. It states that firms with large market share and differentiated products are able to exercise market power in the setting of prices and earn above-average profit. Importantly, only firms with (relatively) large market share benefit from this exertion of market power, independent of market concentration.

The SCP states based on the idea that superior profit is received by the market member is indicative of anti-competitive behavior and is due to some features of market structure that foster collusion and retard competition among firms in the industry. Since concentration facilitates collusive or monopolistic practices, firms in concentrated markets will have the market power to set prices above their marginal costs to earn higher profits than firms operating in less concentrated markets. As explained in the SCP, the market concentration fosters collusion among large firms in the industry, which subsequently leads to higher profits.

The ESP is also other explanations for the positive relationship between profits and either concentration or market share, that is, of the positive relationship between efficiency and profit relationship. Thus, under the efficiency paradigm, the degree of concentration is not considered a reflection of the collusive behavior of firms, but rather a consequence of the superior efficiency of firms. In this case, that is, if market share is truly representative of efficiency, then market

share and profitability may be correlated, but there will be no causal relationship between concentration and profitability since efficiency drives both profitability and concentration (through market share).

To analyze the descriptive statistics, the researcher used the mean, maximum, minimum and standard deviation to describe the overall market structure and its effect on the profitability in the Ethiopian private non-life insurance. Further, the researcher discussed regression analysis to determine the effect of independent variables on the dependent variable. Therefore, in line with the specific objective based on empirical results the researcher reached at the following conclusion;

The study investigates the effect of market structure on private non-life insurance profitability in Ethiopia. Nine insurances were selected with a period of nine years data from 2009 to 2017. The source of data for this study was a secondary source of data collected from the National bank of Ethiopia and from insurance companies. Accordingly; market share, concentration, efficiency was explanatory whereas liquidity and leverage selected as control variables and Return on asset is taken as the dependent variable.

The result of regression analysis shows that there is a positive and significant relationship between market share and profitability in private non-life insurances in Ethiopia. This implies the evidence for the existence of relative market (RMP) theory which state that when the firm is able to raise its price or offer inferior products because its rivals are not able to offer customers a reasonable alternatives exhibit better profitability performance than those with smaller market share that insurer who have small market share. That is, if consumers rely on a firm's position in the market as an indicator of quality, larger firms have market power simply by virtue of their position in the market, allowing them to earn profits.

Another variable of market structure is concentration and there is a negative, but an insignificant relationship between concentration and private non-life insurances profitability under the study. The result is evidence for the absence of collusion in private non-life insurances operating in Ethiopia during the study period (2009-2017) or did not support the structure-conduct-performance (SCP) assertions of the existence of a collusive agreement between the firms in the industry for a positive and significant relationship between concentration and profitability.

The efficiency regression result shows that it has a positive and significant effect on the profitability of private non-life insurances. This is one version of the efficiency hypothesis which asserts that profitability is the result of efficiency of individual firms. Higher internally efficient non-life insurer enjoys high profit in the industry.

The regression result of liquidity found that a positive and significant effect on the profitability of non-life insurances. The more liquid asset insurer will outperform those with less liquid assets insurer since insurance companies are subject to unpredictable loss might happen and then more liquidity ratio will bring higher profits for their firms and increase insurance companies' ability to pay claims incurred to policyholder and creditors by increasing their profitability.

Finally, leverage has a negative and significant influence on non-life insurer profitability during the study period. The financial leverage could be reflected in lower market value, thereby reducing the firm's profit and leading to the solvency problem. Then, firms with high leverage ratio have lower profit than with that of the lower leverage ratio under private non-life insurance companies in Ethiopia.

5.2. Recommendations

Market share, efficiency, and liquidity in this study were a positive and significant effect with Non-life insurance profitability in Ethiopia, whereas concentration has insignificant and leverage had a negative effect on Profitability.

Based on the major findings of the study result, the researcher provides the following recommendations.

1. Then, marketing managers of the insurance company should pay great attention to maximization of market shares through innovation and development of new non-life products, come up with the best technology since the high-quality insurer may earn a price premium than a low-quality insurer, but, in consideration of Expense incurred to increase its market share.
2. Insurance managers should not worry about the degree of concentration in the industry. Because market concentration encourages firms to collude in the industry and characterized by anti-competitions behaviors of firms. Furthermore, the current condition

in the non-life insurance industry in Ethiopia is not dominated by few insurance firms rather EIC only dominated the insurance industry.

3. Moreover, being internally efficient leads more profit to non-life insurers. So that non-life insurances should give more emphasis on internal efficiency that provides insurance coverage to the insured with less cost as possible.
4. Finally, the insurance company should hold adequate liquid asset by investing in liquid assets to ensure that it is able to meet its financial short term and uncertain claim obligation as and when they fall due.

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Appendix

Appendix 1 Regression Result

Dependent Variable: ROA

Method: Panel EGLS (Cross-section random effects)

Date: 12/19/18 Time: 05:30

Sample: 2009 2017

Periods included: 9

Cross-sections included: 9

Total panel (balanced) observations: 81

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.049161	0.023762	-2.068910	0.0420
MS	1.377541	0.485667	2.836392	0.0059
CONC	-8.664528	4.498565	-1.926065	0.0579
EFF	0.095146	0.017952	5.299913	0.0000
LIQ	0.060670	0.012797	4.740936	0.0000
LEV	-0.013675	0.003815	-3.584368	0.0006
DUMMY73	-0.141326	0.023767	-5.946322	0.0000

Effects Specification

	S.D.	Rho
Cross-section random	0.000000	0.0000
Idiosyncratic random	0.022647	1.0000

Weighted Statistics

R-squared	0.685194	Mean dependent var	0.078129
Adjusted R-squared	0.659669	S.D. dependent var	0.038829
S.E. of regression	0.022652	Sum squared resid	0.037971
F-statistic	26.84419	Durbin-Watson stat	2.087740
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.685194	Mean dependent var	0.078129
Sum squared resid	0.037971	Durbin-Watson stat	2.087740

Appendix 2 Heteroskedasticity Test

Heteroskedasticity Test: White

F-statistic	0.461745	Prob. F(6,74)	0.8344
Obs*R-squared	2.923104	Prob. Chi-Square(6)	0.8184
Scaled explained SS	2.730265	Prob. Chi-Square(6)	0.8419

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 12/19/18 Time: 05:38

Sample: 1 81

Included observations: 81

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000684	0.000420	1.629384	0.1075
MS^2	-0.004958	0.116844	-0.042433	0.9663
CONC^2	-1.145375	13.53825	-0.084603	0.9328
EFF^2	-0.000164	0.000483	-0.339823	0.7350
LIQ^2	1.59E-05	0.000219	0.072462	0.9424
LEV^2	-2.15E-05	2.67E-05	-0.805553	0.4231
DUMMY73^2	-0.000469	0.000753	-0.623285	0.5350
R-squared	0.036088	Mean dependent var	0.000469	
Adjusted R-squared	-0.042067	S.D. dependent var	0.000706	
S.E. of regression	0.000720	Akaike info criterion	-11.55116	
Sum squared resid	3.84E-05	Schwarz criterion	-11.34423	
Log likelihood	474.8219	Hannan-Quinn criter.	-11.46814	
F-statistic	0.461745	Durbin-Watson stat	1.609866	
Prob(F-statistic)	0.834402			

Appendix 3 Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.566216	Prob. F(2,72)	0.5702
Obs*R-squared	1.254259	Prob. Chi-Square(2)	0.5341

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 12/19/18 Time: 05:40

Sample: 1 81

Included observations: 81

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002436	0.024096	0.101078	0.9198
MS	-0.035376	0.491001	-0.072049	0.9428
CONC	0.365998	4.552059	0.080403	0.9361
EFF	0.000677	0.018074	0.037443	0.9702
LIQ	-0.000753	0.012913	-0.058346	0.9536
LEV	-0.000670	0.003901	-0.171789	0.8641
DUMMY73	-0.001690	0.023966	-0.070498	0.9440
RESID(-1)	-0.056838	0.118774	-0.478543	0.6337
RESID(-2)	-0.116505	0.118684	-0.981638	0.3296
R-squared	0.015485	Mean dependent var	-1.93E-18	
Adjusted R-squared	-0.093906	S.D. dependent var	0.021786	
S.E. of regression	0.022786	Akaike info criterion	-4.620900	
Sum squared resid	0.037383	Schwarz criterion	-4.354851	
Log likelihood	196.1465	Hannan-Quinn criter.	-4.514158	
F-statistic	0.141554	Durbin-Watson stat	2.020441	
Prob(F-statistic)	0.996931			

Appendix 4 Ramsey RESET Test

Ramsey RESET Test

Equation: UNTITLED

Specification: ROA C MS CONC EFF LIQ LEV DUMMY73

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.034316	73	0.9727
F-statistic	0.001178	(1, 73)	0.9727
Likelihood ratio	0.001307	1	0.9712

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	6.13E-07	1	6.13E-07
Restricted SSR	0.037971	74	0.000513
Unrestricted SSR	0.037970	73	0.000520
Unrestricted SSR	0.037970	73	0.000520

LR test summary:

	Value	df
Restricted LogL	195.5144	74
Unrestricted LogL	195.5151	73

Unrestricted Test Equation:

Dependent Variable: ROA

Method: Least Squares

Date: 12/19/18 Time: 05:35

Sample: 1 81

Included observations: 81

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.050929	0.056791	-0.896773	0.3728
MS	1.404862	0.934384	1.503518	0.1370
CONC	-8.840489	6.842214	-1.292051	0.2004
EFF	0.097139	0.060838	1.596696	0.1147
LIQ	0.061948	0.039395	1.572472	0.1202
LEV	-0.013951	0.008894	-1.568500	0.1211
DUMMY73	-0.140047	0.044277	-3.162980	0.0023
FITTED^2	-0.128636	3.748543	-0.034316	0.9727

R-squared	0.685199	Mean dependent var	0.078129
Adjusted R-squared	0.655012	S.D. dependent var	0.038829
S.E. of regression	0.022806	Akaike info criterion	-4.630002
Sum squared resid	0.037970	Schwarz criterion	-4.393513
Log likelihood	195.5151	Hannan-Quinn criter.	-4.535120
F-statistic	22.69891	Durbin-Watson stat	2.086186
Prob(F-statistic)	0.000000		

Appendix 5 Hausman Test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	6.409582	5	0.2684

** WARNING: estimated cross-section random effects variance is zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
MS	4.279260	1.366467	3.324870	0.1102
CONC	-26.975081	-7.194932	164.764882	0.1233
EFF	0.123490	0.109882	0.000247	0.3867
LIQ	0.042166	0.057605	0.000152	0.2105
LEV	-0.008128	-0.018153	0.000038	0.1052

Cross-section random effects test equation:

Dependent Variable: ROA

Method: Panel Least Squares

Date: 12/19/18 Time: 05:22

Sample: 2009 2017

Periods included: 9

Cross-sections included: 9

Total panel (balanced) observations: 81

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.156885	0.068101	-2.303719	0.0243
MS	4.279260	1.915763	2.233710	0.0288
CONC	-26.97508	13.93914	-1.935204	0.0572
EFF	0.123490	0.026645	4.634702	0.0000
LIQ	0.042166	0.019783	2.131387	0.0367
LEV	-0.008128	0.007666	-1.060334	0.2928

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.582950	Mean dependent var	0.078129
Adjusted R-squared	0.502030	S.D. dependent var	0.038829
S.E. of regression	0.027400	Akaike info criterion	-4.200589
Sum squared resid	0.050303	Schwarz criterion	-3.786733
Log likelihood	184.1238	Hannan-Quinn criter.	-4.034545
F-statistic	7.204008	Durbin-Watson stat	2.233309
Prob(F-statistic)	0.000000		

Appendix 6 Normality Test

