Addis Ababa University

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Department of Management

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EFFECTS OF UNDERWRITING RESULT AND INVESTMENT INCOME TO THE PROFITABILITY OF PRIVATE INSURANCE COMPANIES IN ETHIOPIA

By

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Certificate of Originality

I declare that the project paper for EMBA at the University of Addis Ababa, herby submitted by me, is my original work and have not previously been submitted for a degree at this or any other University, and that all references materials contained therein have been duly acknowledged.

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This is to certify that the project paper prepared by Tekalign Birhanu Wedajo entitled: **The Contribution of Underwriting Result and Investment Income to the Profitability of Private Insurance Companies in Ethiopia** submitted in partial fulfillments of the requirements for the Degree of maters in EMBA with the rules and regulations of the university and meets the expected standards with respect of originality and quality.

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Abstract

Ethiopia's insurance industry is one of the least developed in the world based on the commonly used measurements, penetration rate and density. Many factors may have contributed to this stagnation. It is commonly anticipated that the performance and profitability of insurance industry is the result of its underwriting performance and efficient investment portfolio management. But for companies in Ethiopia it is claimed that neither is doing well, especially their trend of high dependence on interest income in recent years, is putting the prospect of the sector in jeopardy. The purpose of this study is therefore to investigate the effects of underwriting profit and investment income on profitability of Ethiopia's private Insurance market. The study conducted on all private insurance companies in the industry who operate on non-life insurance and who have also been operating at least for full five budget years until 30th of June, 2017. Quantitative research technique has been used. Then the data variables from the revenue accounts of the companies have been analyzed using SPSS software version 23 with descriptive statistics and more importantly, a multiple regression model adopted on at least five years revenue accounts of the insurance companies to analyze the relation between the variables and their contribution to profitability.

According to the findings of the study there was a positive relationship between the independent variables and the dependent variable with the investment income having a relatively strong positive relation with profit before tax. There was also weak positive relationship between the underwriting profit and investment income. Finally both policy and future study recommendations have been put forward. Some recommendations have also been forwarded to the management of the insurance companies in such a way that the correlation can be improved if insurance underwriting is viewed as a risk transfer process and not just a wealth generation endeavor.

***Keywords**: Investment income, Insurance Penetration Rate, Insurance Density, Non-life insurance Profitability, Risk, Underwriting result.*

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List of Acronyms/Abbreviations

BPT	Behavioral Portfolio Theory
CAPM	Capital Asset Pricing Model
CBO	Class of Business
EIC	Ethiopian Insurance Corporation
EPS	Earnings per Share
GDP	Gross Domestic Product
GIMAR	Global Insurance Market Report
INN	Investment Income
NBE	National Bank of Ethiopia
NEP	Net Earned Premium
ROE	Return on Equity
ROA	Return on Asset
PBT	Profit before Tax
UP	Underwriting Profit

CHAPTER ONE

INTRODUCTION

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

1.1. Background of the study

The insurance sector plays a vital role in the financial services industry, contributing to economic growth, efficient resource allocation, reduction of transaction costs, creation of liquidity, facilitation of economics of scale in investment, and spread of financial losses (Haiss and Sümegi, 2008).

Insurance companies are expected to generate underwriting profit by underwriting insurable risks. They pool cash inflows from premiums collected and invest the funds to earn investment income. The profit from risk underwriting and investment activities are random variables and the rates of underwriting profit of various lines of insurance may be correlated (Kahane, 1977a as cited in Kamau,2013).

1.1.1 How Insurance Companies Make A Profit

The business model of insurance companies is very different business from most other types of business companies. In his article written on the same issue (Nikieta, 2017) tried to explain the insurance business model and he indicated that one key aspect of insurers' business models is the inverted production cycle.

• Inverted production cycle means policyholders pay premiums upfront and contractual payments are made only if and when an insured incident has happened.

This means that the large majority of insurance liabilities are not liable to unexpected claims. It means that insurers receive premiums upfront and deliver a service later.

• The inverted production cycle and the contractual premium payments of policyholders permit for a steady cash flow to insurers. However, in other business models, business has to market and sell the product first and then they receive money from the customers.

Due to this specific nature of insurance businesses, two main implications in business models can be easily identified –

• Insurers can earn an investment return over the period between premiums being paid in and claims being paid out.

• While most vendors can set prices based on a known cost of production, the price charged for insurance is set based on estimates of the future level of claims and expenses.

Thus, it is evident that the insurers can make profits mainly through good underwriting that means, by carefully selecting, costing and pricing the risks they take on and investment income that insinuates by investing premium income and making a return in excess of that needed to pay policyholder claims. Expense management and robust claims handling will also help to control the costs.

Another interesting article related to the profitability of insurance business is an article written by John (Mr. Vintage Value Investing) | April 11, 2017. "How Warren Buffett Used Insurance Float to Become the Second Richest Person in the World" According to this article, Insurers don't pay out all the money they collect right away. Rather, an insurance company will collect money in the form of premiums, invest that money, and then pay out claims as needed at some future date. The difference between premiums collected and claims paid out is called **insurance float**.

Insurance float has been a huge contributor behind Warren Buffett's success with Berkshire Hathaway. Because premiums received are essentially like loans from policyholders (that only need to be paid back when a claim is made sometime in the future), Buffett has been able to use insurance float as leverage when investing in stocks and private companies, which has a significant (positive) impact on the company's return for its shareholders.

In his 2002 Berkshire Hathaway Shareholder Letter, Warren Buffett explains:

"To begin with, float is money we hold but don't own. In an insurance operation, float arises because premiums are received before losses are paid, an interval that sometimes extends over many years. During that time, the insurer invests the money. This pleasant activity typically carries with it a downside: The premiums that an insurer takes in usually do not cover the losses and expenses it eventually must pay. That leaves it running an "underwriting loss," which is the cost of float. An insurance business has value if its cost of float over time is less than the cost the company would otherwise incur to obtain funds. But the business is a lemon if its cost of float is higher than market rates for money."

1.1.2 Underwriting Profit

In simple terms, underwriting profit is the technical income or operational profit of the insurance companies. Underwriting is process that enable insurers to classify risks and price them accordingly. Among the cornerstone of successful insurance operation is the ability to underwrite well as poor risks selection results in significant losses and insurer failure (Browne & Kamiya, 2012). Insurers have a freedom to incorporate information that they deem important in risk selection and pricing.

The total accounting profit of an insurance company is the sum of underwriting profit and investment gains less income taxes. Underwriting profit, according to Zurich annual magazine, 2013 is the NEP minus the total costs. As with any business, an insurer is seeking to make a

profit from its day-to-day activities. This underwriting profit plus any investment income earned to give the total operating profit. In developed economies it is becoming increasingly important to maximize underwriting profit as investment returns in the financial markets continue to decline (Zuruch Municipal,2014). Until 1960s, a 5% underwriting profit provision was accepted as appropriate for most lines of insurance notwithstanding lack of theoretical justification (D'Arcy & Garven, 1990). From the 1970s, the impact of investment income and taxes on the bottom line became apparent with insurers even operating at an underwriting loss.

According to Hoffelander & Darandell, an insurer should make underwriting profit within the constraints of regulation both real and threatened. It is possible for an insurer to survive with zero underwriting profit and still do better than operating essentially as an investment trust (Hofflander & Drandell, 1969). An insurance company operates in a business environment marked with constraints on its operating policies; constraints arrived at through experience and intuition.

1.1.3 Investment Income

Insurers invest a premium received which adds to any underwriting profit made. Different lines of business have different claims' payment patterns e.g. Employers' Liability is a 'long tail' line, meaning that claims' payments are spread over a longer period and, thus, the investment income on the premium is greater. According to Zurich, 2016 magazine for developed economies in the current low interest rate environment, investment returns are significantly lower than in the past (Zurich,2013).

Investment income has been a determinant factor in failure or success of major insurance companies. Insurers generate capital by selling insurance policies. Insurers generate investing funds because on average premiums are received in advance of payment of loss claims and premium funds are invested during this lag (Kraus & Ross, 1982 as cited in Kamau, 2013).

There is an operational problem of determining an efficient means of measuring investment returns. The compounded rate of cash inflows should be more than that of cash outflows for the insurer to avoid generating capital at a cost.

The amount of investible funds generated by an insurer at times depends on exogenous factors for instance the efficiency of the judicial system in processing of claims. Internally an insurer may reduce investible funds by prompt settlement of claims or collecting premium on installments rather than in a single payment (Kahane, 1978) .The funds generating coefficient is the amount of investment generated by a shilling of premium in a specific insurance line that Kahane (1978) regards as decision variable of the firm within certain limits. Some insurance lines generate more investible funds than others do.

It is beneficial for shareholders to continue to write insurance even in instances of underwriting losses as long as investment return on assets ratio exceeds the absolute value of a negative ratio underwriting loss on premium (Ferrari, 1968). This is because leverage from the insurance portfolio is still favorable.

1.1.4 Relationship between Underwriting Profit and Investment Income

The selection of insurance lines and investments portfolios is a management dilemma for insurance companies. The initial attempts to combine underwriting profit with investment income involved developing a target total rate of return for insurers in semblance to target total rate of return for utilities (D'Arcy & Garven, 1990). After setting the target total profit, the investment income is forecasted and then required underwriting profit determined.

For multi-product insurer, the underwriting profit differs from one line to another and there are different risks associated with those profits. This dilemma complicates decision making on the types and number of insurance lines that will be availed to a market where regulation restrictions must be adhered to (Kahane, 1977a).

1.2. Ethiopia's Insurance Industry

1.2.1 History of Insurance Industry in Ethiopia

The history of insurance service is as far back as modern form of banking service in Ethiopia which was introduced in 1905. At the time, an agreement was reached between Emperor Menelik II and a representative of the British owned National Bank of Egypt to open a new bank in Ethiopia. Similarly, modern insurance service, which were introduced in Ethiopia by foreigners, mark out their origin as far back as 1905 when the bank of Abyssinia began to transact fire and marine insurance as an agent of a foreign insurance company (Hailu,2007).

According to a survey made in 1954, there were nine insurance companies that were providing insurance service in the country. With the exception of Imperial Insurance Company that was established in 1951, all the remaining of the insurance companies were either branches or agents of foreign companies. In 1960, the number of insurance companies increased considerably and reached 33. At that time insurance business like any business undertaking was classified as trade and was administered by the provisions of the commercial code (Gebrewahid, 2015).

1.2.2 Ethiopia's Insurance Industry today

Ethiopian insurance industry is one of the least developed in the world. This can easily been indicated by its lowest density and penetration rate, the two important indicators of growth of country's insurance industry. The GIMAR, 2016 report shows that the country's Insurance penetration rate is 0.6% of GDP Which is far below even Africa's average of 3.5% and the density is around 2.4 USD which is at very low relative to Africa's average of around 35 USD.

According to NBE's annual report, currently there are 17 licensed insurance companies operating in the industry including the state owned EIC.

It is clear that the future of any given industry heavily depends on the performance of its existing players and on its ability to attract more investors. When we mean performance, the investors commonly look at the EPS that it yields among other factors. Hence, profitability comes second to none when we talk about attractiveness and performance of a given industry.

On 14th of May, 2017 this was written on Fortune newspaper "Despite a surge in written premiums, insurance companies have suffered a profit decline for the third year in a raw, earning 311 million birr in nine months. The profit is 11pc lower compared to the same period last year". The article continues "Last year, more than 10 of the 16 insurance companies reported a dwindling profit. About the same number of insurers also reported a slump in shareholder's return during same period"

Conversely, according to this writer, "in the past nine months, the industry leveraged a premium of six billion birr from general insurance business, which is 20 pc higher than the same period last year. The premium growth however is accompanied by a bulge in claims paid resulting in a fall of profit. Claims paid and failed premium policies were worse than expected in the past three quarters of the current fiscal year, according to industry insiders"(Berhane,2017)

Today, more worrisome is appearing to be not the penetration and density of the sector but the declining operating profit due to excessive price war between the companies in the market and higher dependence on investment income especially that of interest income from fixed time deposit.

Price undercutting can be explained in terms of stiff competition leading to predatory pricing. This can threaten the stability of the industry if the prices go below the optimum level.

1.3. Problem statement

One can simply look into the financial statements of the Ethiopia's insurance companies and observe that they are currently enjoying significant investment returns made from premiums that are collected and held in reserve in banks in the form of fixed time deposit with negotiated high interest rate due to the current cash crisis and deposit mobilizing problem in the banking sector. Due to this, they seem to be less worried or ignorant about making an underwriting profit. But the main question is how long will it last? Surely, it won't last long and that will be the time when the industry will no longer able to survive the effects of its declining profit from the mainstream business.

The global insurance trend shows that insurance companies' investment income is declining especially for the developed economies. For instance, the 2015 Global Insurance Market Report (GIMAR), January 2016, stated that Investment yields for (re)insurers have declined slightly, but held up reasonably well despite low interest rates. Insurers' investment income is, however, going to be impacted by a continuation of the low interest rate environment, as the proceeds from maturing assets are reinvested in lower-yielding securities. Investment yields will thus remain under pressure. The lagged impact of low interest rates will keep portfolio yields on a weakening trend for the next couple of years (GIMAR, 2013)

Recently, Ethiopia's insurers are struggling to survive due the price based competition aka *price war* between them and huge dominance of the motor insurance in their portfolio, the COB which merely contributes to the overall underwriting result. According to Alemseged Gebremedihin, a known contributor to local newspapers with regard to Ethiopia's insurance industry, "Price based competition between the insurance companies is like a suicide mission they declare on themselves"(Alemeged, Ginbot 2019)

Research on the relationship between underwriting profit and investment income by insurers in Ethiopia is scarce. Notable studies in Ethiopia include Firm specific factors that determine insurance companies' performance in Ethiopia (Daniel and Tilahun, 2013), Determinants of insurance companies' profitability in Ethiopia (Meaza, 2014), A study on the performance of insurance companies in Ethiopia (Abate, 2013), Capital structure and financial performance of insurance (Mohammed, 2016), The impact of motor insurance performance on profitability of insurance companies (Tigist, 2015). None of those studies specifically address the issue from this perspective. But according to a study made in Kenya the two study variables explains 81.7% of income before tax thus the main determinants of an insurer's overall profitability (Kamau, 2013).

The conclusions and findings of studies done outside Ethiopia may differ in their assessment of the effects of underwriting profit and investment income on profitability. To the best of the researcher's knowledge local studies focused more on determinants, capital structure, overall performance and growth and the like. There is need of a study testing the effects of underwriting profit and investment income on profitability. This project aims at filing this research gap.

1.4 Objective of the study

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

1.4.1 General Objective of the study

To evaluate the relationship between underwriting profit and investments income, and their corresponding contribution to the profitability of the industry

1.4.2 Specific objectives

1. To find out the contribution of underwriting result on the profitability of insurance companies in Ethiopia.
2. To assess contribution of investment income on the profitability of insurance companies in the last five years (2013 to 2017)
3. To find out the relationship between the underwriting result and investment income.

1.5 Research hypothesis

In many quantitative studies, writers use research questions. However, a more formal statement of research employs hypotheses. These hypotheses are predictions about the outcome of the results, and they may be written as alternative hypotheses specifying the exact results to be expected (more or less, higher or lower of something). They also may be stated in the null form, indicating no expected difference or no relationship between groups on a dependent variable (Creswell, 2009)

Therefore, in order to achieve the objective of the study, the following hypotheses were developed regarding the relationship between underwriting profit and investment income as well as their contribution to the profitability of Ethiopia insurance companies based on different empirical research and theoretical reviews made.

The researcher decided to test a hypothesis to determine whether all the factors highlighted actually contribute to the profitability of insurance companies. The appropriate null hypothesis under the Chi Square test of independence is formulated.

1. H1 = Underwriting result has no major contribution to the profitability of the insurance companies
2. H2 = Investment income has no major contribution to profitability of the insurance companies
3. H3= There is a strong relationship between underwriting profit and investment income of insurance companies

1.6 Significance and expected outcome of the study

The main reason for this study is that the researchers have not paid enough attention to this subject in Ethiopia. Most of the studies previously focused only on analysis of financial performance not on factors affecting financial performance. Despite there are some studies that examine factors that affect the profitability of insurance companies in Ethiopia but they focused only on firm specific factors. Therefore, this study drops light on the lack of these types of study in Ethiopia.

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

1.7 Scope and limitation of the study

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

The formats of financial statement presentation used by the studied insurance companies were different each other, even in a single company different financial statement format used over the years. It makes difficult to take the intended data but the researcher handled this difficulties by relating with their report complied at NBE using standard format.

1.8 Organization of the paper

This paper was organized into five chapters. Chapter one deals with introduction, Chapter two the review of the related literature, and chapter three was about research methodology, chapter four deals about data analysis and presentation of findings. Finally, chapter five contains summary of major findings, conclusions, recommendations and suggestions for further research.

CHAPTER TWO

REVIEW OF LITERATURE

This chapter presents a theoretical review and empirical evidence. Theories on underwriting profit and investment income are highlighted followed by review of empirical evidence on relationship between underwriting profit and investment income.

2.1 Theoretical review

There is no general theory that provides a general framework for the study contribution of underwriting result and investment income to the insurer's profitability. Because of this, this study tries to view some theories which are related to the concept of insurance profitability and insurance business in general.

An insurance contract is a derivative contract where the underlying asset is the value of losses experienced by the insured. Insurers in Ethiopia have to diversify their insurance lines to capture more market share. Stiff competition in the market influences insurers to resort to rates undercutting to win over competition. This under-pricing of risk reduces the underwriting profit making insurers vulnerable to insolvency. The law of large numbers works against an insurer that is unable to earn positive returns on the insurance lines underwritten.

2.1.1 Modern Portfolio Theory

Markowitz initially developed the mean-variance portfolio theory and was one of the three portfolio theories introduced in 1952 (Shefrin & Statman, 2002 as cited in Mwangi, 2013). It is a powerful tool in allocation of resources among competing alternatives with foundation in Capital Asset Pricing Model (CAPM). Markowitz's customary wealth theory and Roy's safety-first theory were the other two theories presented in 1952. The customary wealth theory was to counter the unrealistic implications of the Freidman- Savage framework.

The technique incorporates preferences of investors, expectation of returns and risk of all assets considered without overshadowing diversification effects that reduces overall portfolio risk (Jorion, 1992). An inherent drawback of mean-variance analysis is the estimation errors associated with the return outputs. By construction, optimal portfolios weigh heavily those assets that show the highest return.

Freidman- Savage hypothesis has not been empirically tested widely probably due varying risk aversion at different levels of wealth (Eisenhauer, 2005). The optimal solutions under Behavioral Portfolio Theory (BPT) resemble combination of bonds and lottery tickets. Optimal portfolios under BPT are different from CAPM optimal solutions. The BPT efficient frontiers do not coincide with mean-variance efficient frontier (Eisenhauer, 2005).

2.1.2 Capacity Theory

Insurance capacity theory draws much from the demand side and mainly concerned with the conditions under which insurance companies operates as they seek to satisfy the needs of consumers (Cummins & Nye, 1980). Insurers are subject to a myriad of constraints including the ruin constrain imposed by regulators in form of regulated premium rates. Insurers may offer any type of cover provided there are sufficient number of independent exposures units to mitigate risks to manageable proportions through diversification (Cummins & Nye, 1980). The gains from diversification will only hold if the risk exposures units are independent.

The capacity of an insurer is determined by among other factors the probability of ruin, the law of large numbers and the reserve funds generated from operations (Doherty, 1980). For an insurer to reach its capacity, an additional new policy would tilt the level of risk to being unacceptable. Insurer capacity threshold should always tilt ruin probability in favor of the insurer (Doherty, 1980). Risk tolerance levels and the degree of diversification of the existing insurance operations have a bearing on the acceptance of additional insurance lines.

2.1.3 Ruin Theory

Kass et al (2009) considered the development in time of the capital of an insurer. This is a stochastic process that increases continuously because of earned premiums, and decreases

stepwise at times that claims occur. When the capital becomes negative, we say that ruin occurs. They focused on the probability that this ruin occurs. This probability is a useful management tool since it serves as an indication of the soundness of the insurer's combination of premiums and claims process, in relation to the available initial capital.

According to these authors, higher probability of ultimate ruin indicates instability: measures such as reinsurance or raising premiums should be considered, or the insurer should attract extra working capital. The probability of ruin enables one to compare portfolios, but we cannot attach any absolute meaning to the probability of ruin, as it does not actually represent the probability that the insurer will go bankrupt in the near future.

The overall assumption based on collective risk theory is that insurance company decision making incorporates ruin probabilities. Insurance operation is considered as a stochastic process in discrete time with continuous steps and single absorbing barrier (Cummins & Nye, 1981). Ruin probabilities are manifested in safety-first decision-making and constraint utility maximization. For safety first decision making, the rule is to maximize expected net income and constraint utility maximization rule is to optimize expected utility of the net worth (Cummins & Nye, 1981).

2.1.4 Game Theory

According to Ryan Warren,Ji Yao, Tim Rourke and Jan Iwanik (2012) "The basic principle of game theory is to determine the expected payoffs for each player under each option and for each choice made by the other players. Rational players will be aware of their alternatives, form expectations of any unknowns, and will choose their actions deliberately so as to maximize their expected payoff. We can therefore determine each player's best response strategies which give the best payoff given the other players' actions".

The process of setting commensurate price for non-life insurance policies has evolved over time. There is now more information on customers to be insured and existence of sophisticated statistical models leading to increases price differentials. Driven by the assumption that better estimates of the marginal cost of a policy will enhance the chance of an insurer to attract

currently overcharged policies and not undercharge ones in their books, some prediction models focus on costs of providing cover ignoring the strategic optimal price to quote (Warren, Rourke, & Iwanik, 2012). The market is not static and expected competitors behavior should be analyzed.

The notion of strategic interdependence is important and the payoff to insurer choices will depend on the choices open to its competitors and how they will respond (Warren et al., 2012). Apparently, it is impossible for sure to know the payoffs for actions taken even with full availability of information about an insurer's customers and costs.

2.1.5 Auction Theory

A 2009 GIRO working party (Rothwell, et al., 2009) applied the **winner's curse** concept of auction theory to setting the price of an insurance policy. This suggests that firms bid to underwrite a customer's risk by quoting a premium. But, unlike in other businesses the actual cost of that policy is unknown as it is not possible to precisely predict what will be the claims cost. Hence, insurers will determine the price they will bid by considering their expectation of what is the cost of claims. The winner's curse theory suggests that an insurer who bids the lowest price and wins the business is likely to have underestimated the cost and therefore is likely to be cursed by less profit than expected. Auction theory suggests that bidders should "shade" their bids to allow for the impact of winner's curse.

2.1.6 Implication of Theories

In dealing with the inconsistency of the contribution of investment income and underwriting profit to the overall profitability, the concept of diversification as advocated by portfolio theory is crucial.

Insurance capacity limits the number and magnitude of insurance policies that the general insurers are able to underwrite. Thus, it ultimately influences their ability of generating investible funds and underwriting profit. The risk-based supervision methodology adopted by industry regulators has borrowed to some extent the maxims of ruin theory to forestall collapsing of insurance companies.

Game theory provides general mathematical techniques for analyzing situations in which two or more individuals make decisions that will influence one another's welfare." It is "the interactive behavior of "Homo Rationalis" – rational man... An important function of game theory is the classification of interactive decision situations that brings out the strategic interdependence when setting the price of insurance policies in a competitive insurance industry. The premium charged should be in excess of the cost of claims, underwriting and administrative costs to generate underwriting profit. The activity of tendering to provide cover that is prevalent in the insurance industry to some extent operates on auction theory where the lowest bidder wins. Price under-cutting to win tenders has an adverse effect (winner's curse) on underwriting profit and investment funds generating ability.

2.1.7 Profitability of Insurance business

In real world profitability for any business attached with the firm business performance. Performance is a difficult concept in terms of definition and evaluation. It is defined as an output, and the proper measure select to assess corporate performance is considered according to the organization type and objectives of evaluation. Researcher in strategic management has offered a variety of models that can be used to analyze financial performance. Profitability, defined as proxy of financial performance, is one of the main objectives of insurance company's management (Burca & Batrinca, 2014). Profit is a crucial prerequisite for an increasing competitiveness of a company that operates in a market.

At microeconomic level, performance is the direct result of managing various economic resources and of their efficient use within operational, investment and financing activities. To optimize economic results, a special attention should be given to the proper grounding of managerial decisions (Malik 2011). These should be based on complex information regarding the evolution of all types of activities within the company. A synthetic picture of the company's financial position and its performance is found in the annual financial statements, which therefore become the main information sources that allow the qualitative analysis of how resources are used during the process of creating value.

One of the common limitations behind accurate determination of insurance companies profit is the extent to which reported profits depend upon estimated liabilities for unpaid losses provides insurers with some opportunity to manage reported results by strengthening or weakening loss reserves. Because deficient reserves must ultimately be strengthened and redundancies must ultimately be recognized, the interplay between current reserving decisions and the amortization of past reserving decisions adds an additional leve1 of complexity to the problem of measuring property-casualty insurance profitability.

Profitability of private insurance companies was analyzed through micro and macroeconomic level, being determined both by internal factors represented by specific characteristics of the company which is totally under the hand of the corporate management system, and external factors regarding connected industry and macroeconomic environment in general which also not under the hand of the corporate management but identifying and knowing its directions and magnitude was helps to develop the strategy to get the opportunity or to minimize the treat.

In a competitive marketplace, private insurance companies essentially absorb to achieve a satisfactory level of profitability (Malik, 2011). Increasing profitability involves determining which areas of operation and a financial strategy are working and which ones need improvement. Understanding the key factors and its magnitude determining profitability assists managers in developing an effective profitability strategy for their company.

The trend in developed economy looks totally different. For instance according to Zurich magazine, 2014 “insurance companies previously enjoyed significant investment returns made from the premiums that are collected and held in reserve, to pay claims at a later date, which meant that there was less focus on making an underwriting profit. Very low interest rates have prevailed in the last few years to help stabilize the economy. However this has significantly reduced the investment returns insurers are now able to make. Therefore, in the current environment, rates need to increase to reflect the fact that there will be lower investment income earned. This is affecting all lines of business and is an industry-wide issue for insurers” (Zurich Municipal, 2014)

The insurance Profitability growth was fluctuated from time to time. For instance, the general insurance sector total profit of seventeen insurance companies have been earned in thousands birr of 245,704 in 2010, 252,071 in 2011,402,609 in 2012, 586,782 in 2013, 751,175 in 2014 and registered 85%, 3 %, 60 %, 46 %, 28 % net growth respectively (NBE, annual report 2015).

In the initiation of unstable industry profit in increasingly complex private insurance companies, it has become authoritative that private insurance company's managers understand the variables that significantly relate to the profitability of insurance business in Ethiopia.

2.1.8 Impact of low interest rates

The 2015 GIMAR stated that, continued attention by insurance companies and supervisors is being placed on the medium- to longer-term impacts of the low interest rate environment, in terms of possible changes in risk appetite to generate returns and reinvestment risk for maturing bond portfolios. Interest rate risk is significant given the likelihood of rising future rates from current near-zero levels (GIMAR, 2016)

Ethiopia's insurance industry is not an exception, when the market shapes itself and gradually become unable to protect itself from the global trend the bonanza of enjoying higher interest rate will stagger. So the best way of staying stable in terms of profitability should be making a reasonable profit from the mainstream business.

2.1.9 The Concept of Insurance

The concept of insurance is really very simple. In exchange for the insured's payment of a relatively small sum of money—the *premium*—the insurer assumes the risk of financial consequences for the loss of the insured's property (such as a house or car) or the risk of the loss presented by the costs of defending a liability lawsuit (and where appropriate, paying a resulting settlement or judgment). This can provide financial security for the average consumer—that is *you*—which strengthens our economy as a whole and spurs further growth (R. Zevnic, 2004)

2.2 Insurer's Profitability; Underwriting Result and Investment Income: An Empirical Review

Profitability is one of the most important objectives of financial management because one of the goals of financial management is to maximize the owner` s wealth and profitability which in turn indicates better financial performance. According to Malik (2011), insurance plays a crucial role in fostering commercial and infrastructural businesses. From the latter perspective, it promotes financial and social stability; mobilizes and channels savings; supports trade, commerce and entrepreneurial activity and improves the quality of the lives of individuals and the overall wellbeing in a country.

Due to the complex nature of insurance business and different perspectives in assessment of profitability of the sector, the issue of assessing profitability of insurer's has attracted a lot of attention in recent years across the world.

Rudolf (2001 as cited in Reshid, 2015) in his paper examined the key factors and latest trends determining profitability in the major non-life insurance markets. The study focused on the non-life insurance markets of the group of seven countries (G7) mainly for the period 1996 to 2000. To analyze the profitability, investment results and underwriting results were compared between countries and across lines of business and to analyze the drivers of profitability, return on equity were decomposed into its main components namely underwriting results and investment income. The results indicated that only Germany and Japan did not have negative underwriting results and return on equity was high in UK, moderate in Canada and US, and low in France and Germany. The study found that underwriting result and investment yield are negatively correlated. The research suggested that due to uncertain prospects for investment results, the insurers must focus on underwriting results to achieve greater profitability.

Greene (2004) argued that the profitability of insurance is normally expressed in net premium earned, profitability from underwriting activities, annual turnover, return on investment, return on equity. These measures could be classified as profit performance measures and investment performance measures.

Holzheu (2006) used economic combined ratio as alternative key performance indicator instead of conventionally published combined ratio by suggesting that it reflects underwriting profitability more accurately. The study focused on the underwriting profitability of six major non-life markets, the US, the UK, Germany, Japan, France and Canada from 1994 to 2004. The results indicated the picture for the business year results for Japan, Canada, France, Germany and the UK were broadly consistent with the US results. The results for the years 1994 to 1997 and 2002 to 2004 were profitable, though often only moderately. The period from 1998 to 2001 exhibited dismal underwriting results. Substantial improvements in underwriting results from 2001 to 2003 restored profitability to the level of the 1994 to 1997 period. The study further pointed out that the ten year average underwriting margins before taxes were positive in all countries implying a positive contribution to profits from the insurance activities. However, the contribution was only about one- two per cent in the US and Japan, two-three per cent in France, five per cent in Canada and the UK, and six per cent in Germany. The study found that these positive results were necessary but not a sufficient condition for creating shareholder value. Profits must also cover tax and the insurers' capital cost. During the period 1994 to 2004, it was difficult for the industry to earn its underwriting cost of capital.

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

Kamau (2013) assessed the relationship between these two profitability drives in Kenya’s insurance market by using panel data of 38 non-life and composite insurers between (2000-2011). The result showed that there was low correlation between underwriting profit and investment income. Underwriting profit had low correlation with all other selected variables notably admitted assets, admitted liabilities, capital employed, non-life net premium unlike investment income that have high correlation. The result also pinpointed that the mean overall

insurance industry returns were positive for both underwriting and investment portfolios. However, underwriting profit accounted for only 20% of total income before tax with investment income taking the largest share of 80%.

In Ethiopia, empirical testing of the relationship between underwriting profit and investment income is rare. There is no study cited that analyzed the effectiveness and efficiency of the risk transfer mechanism and the resultant investment performance by insurers. Majority of the studies relating to insurance industry have focused firm specific performance measures, others focused on determinants of insurance companies' profitability. Some of these are:

Yuvaraj and Abate (2013) examined the internal factors affecting profitability of insurance companies as measured by ROA. The study included nine of the listed insurance companies for years (2003- 2011). The results of regression analysis on the panel data reveals that leverage, size, and volume of capital, growth and liquidity are most important determinant of performance of insurance sector whereas ROA has statistically insignificant relationship with, age and tangibility. As the findings show liquidity do have negative impact on profitability and it provides further implication on the effective risk management practices in the companies.

Meaza (2014) examined the effects of firm specific factors (size of company, leverage ratio, liquidity ratio, loss ratio/ risk, tangibility of assets, growth and managerial efficiency) and macroeconomic factors (economic growth and inflation) on profitability peroxide by ROA by using a panel data of ten companies for six years between 2008 and 2013. The result showed that; size, leverage, tangibility of asset, loss ratio/ risk, firm growth and managerial efficiency are identified as significant determinants of profitability hence firm size, tangibility of asset, firm growth and, managerial efficiency are positively related.

Reshid (2015) used a panel data of nine companies for the period between 2004 and 2014. The results of the study showed that underwriting risk, technical provision and solvency ratio have statistically significant and negative relationship with insurers' profitability. However, reinsurance dependence has negative but insignificant relationship with profitability. On the other hand, according to the finding variables like liquidity, company size and premium growths

have a positive and statistically significant relationship with insurers' profitability. In addition, economic growth rate has significant influence on profitability whereas inflation has insignificant influence on insurers' profitability. The study provides evidence that underwriting risk, technical provision and liquidity are the most important factors that affect profitability of insurance companies in Ethiopia. The study also recommends that Ethiopian insurance companies' managers should give consideration to underwriting risk, technical provision and liquidity to increases their profitability significantly.

2.3. Conclusion and Research Gap

For the very important reason that insurance plays a key role in the stability of a given country's micro economy and profitability of the sector assures the attractiveness and going concern of the business itself, the variables contributing most to the profitability shall be thoroughly analyzed.

Studies made in different countries show different results based on the microeconomic situations and growth of the sector. Studies made in the developed world indicate that the contribution of underwriting result was minimal in previous years. It sometimes even goes to negative. But most of the researchers recommend that insurer's must focus on improving the contribution of their underwriting result to profitability due to uncertainty of investment income.

The contribution of underwriting profit and investments income to profitability of insurance business has been empirically tested and validated in developed financial markets. Return from investment component is often factored in during insurance premium ratemaking. The investible funds generating coefficients are positively influenced by underwriting profit. The bulk of the literature relates to studies with data collected outside Ethiopia which is a developing financial market. No local studies cited that analyzed the relationship between underwriting profit and investment income. Insurance deepening in Ethiopia is low at 0.6%. It is essential a research using data specifically from Ethiopia's insurance industry be done to confirm if any linkages exist between underwriting profit and investment income and their impact on profitability of the sector.

2.7 Conceptual Framework

The study focused on two independent variables underwriting results (gain/loss) and Investment Income which are added up to make up the total accounting profit before tax for insurance companies that is the dependent variable in this study.

Conceptual Framework

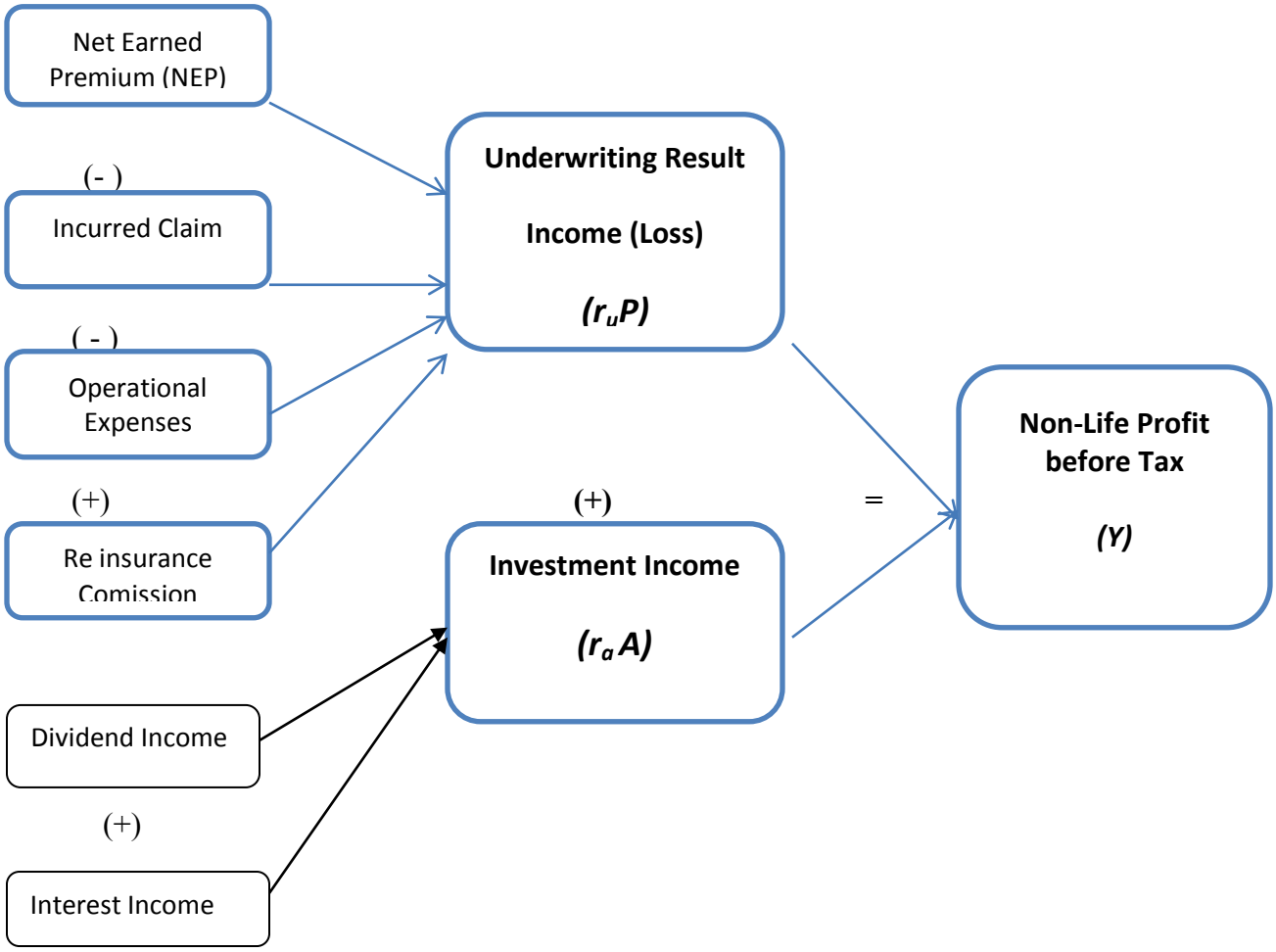

Figure 2.1: Conceptual Framework, Self developed on 22/03/2018, adopted from the literatures of (Hailu, 2007) and (Zuric Insurance, 2013)

CHAPTER THREE

RESEARCH DESIGN AND METHODS

The chapter discusses the research design, population of study, sample size, data collection and data analysis.

3.1 Research Design

This research paper was based on explanatory research design through mixed approach of both quantitative and qualitative approach, composed of econometric model to estimate and determine the parameters on profitability of private insurance companies in Ethiopia and evaluate the contribution of underwriting result and investment income on profitability of the sector and also to show the relation between and among these independent variables.

3.2 Population

A population is the total collection of elements about which the researcher wishes to make some inferences; Cooper and Schindler (2001). The target population for this study comprises sixteen private insurance companies which are licensed by NBE to operate on non-life insurance business and who were operating for at least five years until June 30, 2017.

3.3 Sample size and Sampling techniques

Out of the sixteen private insurance companies, all the fifteen of them who have operated at least for full five years have been taken for the purpose of the study and hence purposive research technique is used.

3.4 Data source and method of data Collection

This study is mainly based on secondary data. Firm's specific data has been obtained; the financial statements of at least five years of each company have been assessed. The data for this

study was collected from audited revenue accounts of insurance companies at NBE through physical contact at their office.

3.5 Method of Data Analysis

For the purpose of analysis, simple descriptive analysis and percentage has been used. Also regression analysis was conducted on the revenue accounts of the 15 insurance companies to determine the relationship between the independent and dependent variables with the use of SPSS version 23 software.

The regression model used to analyze the data was of the form;

$$Y = c + r_a A + r_u P + e$$

Where;

y – Non-life income before tax

c - Constant

r_a- Non-life Investment income as percentage of non-life admitted assets

A – Admitted assets of non-life insurer

r_u – Non-life underwriting profit as percentage of non-life net premium income

P – Non-life net premium income

e – Error term

3.5.1 Descriptive analysis

This descriptive study was produced mean, minimum, maximum and standard deviation for each variable for Ethiopian insurance companies during 2013-2017.

3.5.2 Correlation analysis

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

3.5.3 Multiple regression analysis

The Multiple regression analysis is used to examine the relationship between the profitability of

Ethiopian insurance companies and independent variables underwriting profit and investment income. This method is used when independent variables are correlated with one another and with the dependent variable (Al-shami 2008). The result of a regression analysis is an equation that represents the best prediction of a dependent variable from several other independent variables.

CHAPTER FOUR

DATA PRESENTATION ANALYSIS AND INTERPRETATION

This chapter deals with the results of the study which include descriptive statistics of variables, correlation results for dependent and explanatory variables, diagnosis test for the regression models, and regression analysis for profitability measures, $r_u P$ and $r_a A$.

4.1 Relationship among Variables

Correlation analysis estimates the extent of the relationship between any pair of variables (Reimann, Filzmoser, Garrett, & Dutter, 2008). The correlation coefficient is a measure of this relationship and depends on the variability of each of the two variables. Because of covariance, correlation coefficient can take a number with + or – sign (Reimann et.al, 2008). One of the widely-used methods to calculate a correlation coefficient is the Pearson product moment correlation. This method result in a number between −1 and +1 that expresses how closely the two variables are related, ±1 shows a perfect 1:1 relationship (positive or negative) and 0 indicates that no systematic relationship exists between the two variables (Reimann et.al, 2008). In relation to the magnitude of correlation coefficient, Cohen (1988) stated that a correlation coefficient between 0.10 and 0.29 can be considered as small or weak, from 0.30 to 0.49 medium and from 0.50 to 1.0 large or strong.

Table 4.1: Correlation among Independent and Dependent Variables

	PBT	IIN	UP	AA	NP	CE	ra	ru
PBT	1	.791**	.709**	.775**	-.001	.757**	.618**	.543**
IIN		1	.164	.939**	.022	.928**	.762**	.162
UP			1	.174	-.016	.155	.187	.697**
AA				1	.017	.998**	.589**	.192
NP					1	.016	.070	-.007
CE						1	.574**	.181
Ra							1	.226
RU								1

**. Correlation is significant at the 0.01 level (2-tailed).

PBT= Profit before Tax, IIn= Investment Income, UP=Underwriting Profit, AA= Admitted Asset, NP= Net Premium, CE= Capital Employed, $r_{a=}$ Return on assets and r_u = Return on underwriting premium

Table 4.1 shows correlation between dimensions of profit before tax (PBT) independent variables (IN, UP, AA, CE, ra and ru). As can be seen in table 4.1, profit before tax had statistically positive significant relationship with all independent variables except net premium (NP). This implies that as one variable increase, the other variable also increases and vise-versa. For example, as admitted assets (AA) increases profit after tax (PBT) also increases and vise-versa. The first strong correlation was between PBT and IIN, $r = 0.791$, $p < 0.001$. The correlation between PBT and AA was the second strong, $r = 0.775$, $p < 0.001$. The correlation between PBT and CE was the third strong, $r = 0.757$, $p < 0.001$. Relatively, the correlation between PBT and ru was the least strong correlation, $r = 0.543$, $p < 0.001$. However, the correlation between PBT and NP was not statistically significant, $p > 0.05$.

This implies that there is a strong positive relationship between Investment income and Profit before tax. On the other hand there is relatively weak positive relationship between underwriting return (r_u) and Profit before tax.

Table 4.1 also shows the correlation among independent variables. The first strong correlation was between AA and CE, $r = 0.998$, $p < 0.001$. The second strong correlation was between AA and IIN, $r = 0.939$, $p < 0.001$. The third strong correlation was between UP and CE, $r = 0.928$, $p < 0.01$.On the other hand table 4.1 shows that there is a weak relationship between the two main independent variables UP and INN at correlation coefficient of 0.164.

4.2 Multiple Linear Regressions

4.2.1 Tests of Assumptions for Multicollinearity

This assumption refers to the relationship among the predictor variables. Multicollinearity occurs when the predictor variables are highly correlated ($r = 0.9$ and above). The predictor variables IIN and UP have shown significant relationship with each other and their correlation coefficients were not too high at 0.164. This shows that the assumption of multicollinearity was not violated. In addition the assumption of multicollinearity can also be assessed using SPSS as part of

multiple regression procedure. In the collinearity statistics section, Tolerance and VIF values are given. Tolerance is an indicator of how much of the variability of the specified independent is not explained by the other independent variables in the model and is calculated using the formula (1 – R squared for each variable. If this value is small (less than 0.10) it indicates that the multiple correlation with other variables is high, suggesting the possibility of multicollinearity. In the present study the tolerance value for each independent variable was not less thatn0.10 therefore, this also suggests that the assumption of multicollinearity was not violated. The other value given is the VIF (Variance inflation factor), which is just the inverse of the Tolerance vale. VIF values above 10 would indicate multicollinearity. Again in the present study the VIF value was less than 10 for all independent variables (see table Table 4.2.). This also indicates that the assumption of multicollinearity was not violated.

Table 4.2: Collinearity Statistics Test of Independent Variables

Collinearity Statistics		
	Tolerance	VIF
Investment Income	.973	1.028
Underwriting Profit	.973	1.028

4.2.3 Outliers, normality, linearity, independence of residuals

These assumptions can be checked by inspecting the Normal Probability Plot (P-P) of the Regression Standardized Residual and the Scatterplot shown as part of the analysis. If points lie in a reasonably straight diagonal line from bottom left to top right in the Normal P-P plot, no major deviation from normality can be suggested. In the present study, we can easily inspect from the Normal P-P plot that points line in a reasonably straight diagonal line from bottom left to top right for all dependent variables (see figure 1). This suggests that the assumption of normality was not violated. In the Scatterplot of the standardized residuals, the residuals were roughly rectangular with most of the scores concentrated in the center, along the line 0. This also suggests no violation of the assumption of independence of residuals.

Outliers can also be detected from the Scatter plot. From this Scatter plot we can find that there were no major outliers.

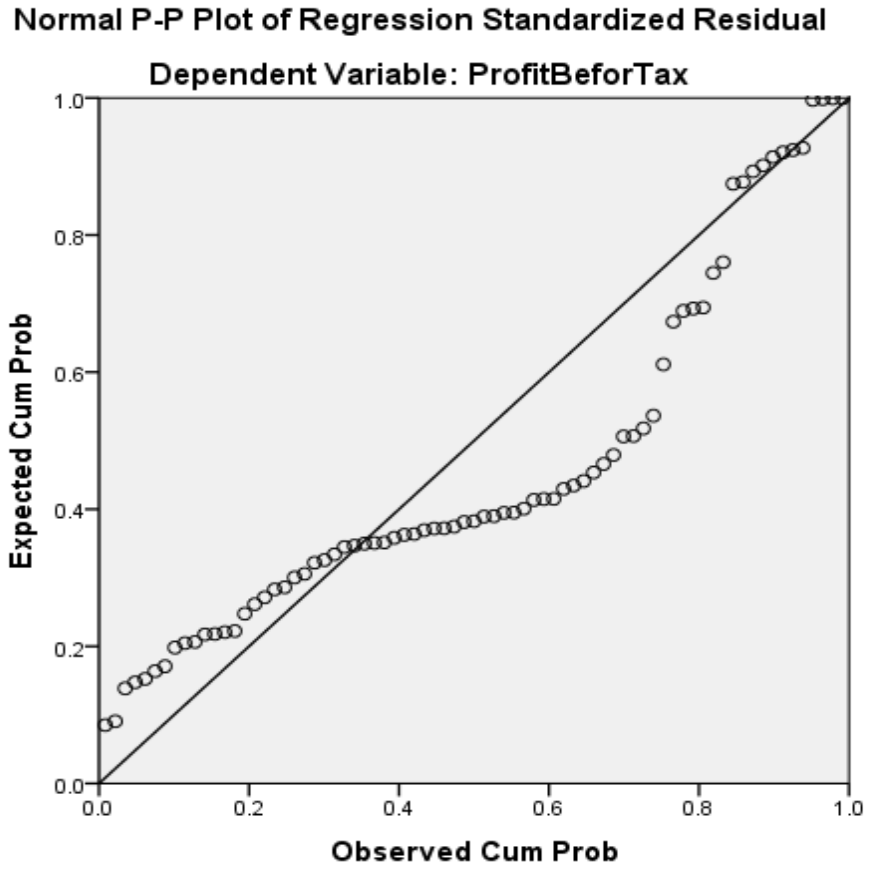

Figure 4.1, P-P plot of MIPR

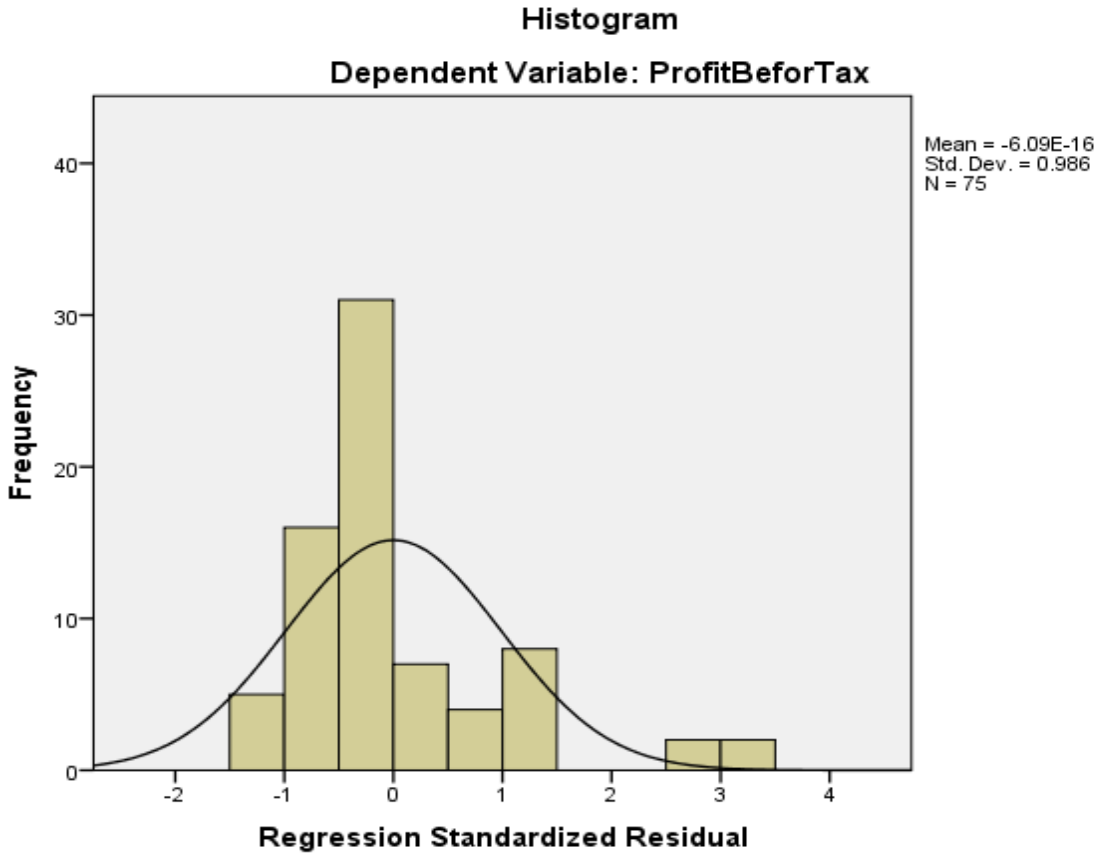

Figure 4.2 Histogram for Profit before tax

Table 4.3: The Influence of Predictor Variables on Profit before Tax

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.985[a]	.970	.969	5899729.15015

a. Predictors: (Constant), Underwriting Profit, Investment Income

b. Dependent Variable: Profit Before Tax

As can be seen from table 4.4 the value of adjusted R square was 0.969. This value tells how much of the variance in the dependent variable Profit before Tax is explained by the model (Underwriting Profit, Investment Income). This means that the model explains 97% (multiplying R Square value with 100) of the variance in the criterion (dependent) variable (Profit before Tax).

Table 4.4: Goodness of Fit – ANOVA Result

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	80319348071127920.000	2	40159674035563960.000	1153.788	.000[b]
Residual	2506089891253371.000	72	34806804045185.707		
Total	82825437962381296.000	74			

a. Dependent Variable: Profit Before Tax

b. Predictors: (Constant), Underwriting Profit, Investment Income

Table 4.4 displays the goodness of fit results of linear multiple regression with Profit before Tax as the dependent (predicted) variable and variables (Underwriting Profit, Investment Income) as predictors. The model tells that there was a statistically significant relationship between Profit before Tax and predictor variables, $F(2,72) = 1153.79$, $p < 0.001$. This shows that the model was fit.

Table 4.5: Regression coefficients of predictor variables in predicting the dependent variable, Profit before Tax

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1543488.877	1042267.286		1.481	.143
Investment Income	1.182	.035	.693	33.339	.000
Underwriting Profit	.927	.032	.595	28.638	.000

a. Dependent Variable: Profit before Tax

Multiple linear regression analysis was computed to assess the relative influence of predictor variables (Underwriting Profit, Investment Income) on the criterion variable, Profit before Tax. Table 4.6 shows the regression coefficients of predictor variables and their level of influence on the criterion variable, Profit before Tax. As shown in table 4.6, the two predictor variables

(Underwriting Profit, Investment Income) made a statistically significant prediction/influence in predicting the dependent variable, Profit before Tax.

Beta value shows the relative contribution or influence of each predictor variable to the dependent variable (criterion variable). In other words Beta value indicates the number of standard deviations that scores in the dependent variable would change if there was a one standard deviation unit change in the predictor. The Beta value for predictor variable, Investment Income was 0.693 which implies that this predictor variable made the first strong positive and statistically significant influence in explaining or predicting the dependent variable (Profit before Tax) when the variance explained by all other variables in the model is controlled for. This implies that if we could increase investment income by one standard deviation, the profit before tax scores would be like to increase by 0.693 standard deviation units. In addition, predictor variable, Underwriting Profit, made a statistically significant positive influence to the dependent variable with Beta value of 0.595.

In general, the study explored the relationship among Underwriting profit, Investment Income and Profitability with the anticipation that there is statistically significant relationship between these variables. Correlation results of this study indicated that the relationship between PBT and UP as well as PBT and IIN were statistically significant ($p < 0.001$).

Regression result also indicated that the model (IIN and UP) explained 97% of the variance in the dependent variable **(PBT)**. In addition, both predictor variables (IN and UP) made statistically significant prediction in predicting the dependent variable, Profit before tax (PBT). Therefore, the specified model which was:

$Y= c +raA + ruP + e$ or $Y = \beta o + \beta\ raA + \beta\ ruP + e$

Where;

y – Non-life income before tax

c – Constant

ra - Non-life Investment income as percentage of non-life admitted assets (the ratio of investment income over admitted assets)

A – Admitted assets of non-life insurer

ru – Non-life underwriting profit as percentage of non-life net premium income/ non-life underwriting profit over non-life net premium

P – Non-life net premium income is confirmed as;

$Y = \beta o + \beta\ raA + \beta\ ruP + e$

$Y = 1543488.877 + 0.693\ raA + 0.595\ ruP + 1042267.286$

4.2.4 Model Summary

Table 4.6: Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.791[a]	.625	.620	20624703.6477851	.625	121.710	1	73	.000
2	.985[b]	.970	.969	5899729.1501548	.345	820.142	1	72	.000

a. Predictors: (Constant), Investment Income

b. Predictors: (Constant), Investment Income, Underwriting Profit

c. Dependent Variable: Profit Before Tax

We can also see from Table 4.4 that from 97% contribution of the two variables IIN and UP to PBT the IIN (investment income) take the lions share contribution of 62.5% while UP (Underwriting profit) contributes only 34.5% which is very low relative to the other variable.

Table 4.7 Trend of contribution of UP and IIN to PBT between (2013-2017)

Year	Variables					Percentage contribution of the variables to profitability		
	Underwriting Profit	Interest Income	Dividend Income	Total Investment Income	Profit before Tax	UP as %age of PBT	Interest Income as %ge of PBT	Total Investment Income as %ge of PBT
2013	217,533,432.00	98,562,281.00	69,449,523.00	168,011,804.00	418,597,103.00	52%	24%	40%
2014	170,736,638.01	169,527,053.56	77,969,418.71	247,496,472.27	479,681,287.86	36%	35%	52%
2015	313,375,413.00	231,389,364.00	101,094,316.00	332,483,680.00	721,186,037.00	43%	32%	46%
2016	24,819,906.00	317,285,019.00	103,971,847.00	421,256,866.00	513,310,405.00	5%	62%	82%
2017	73,357,429.00	390,079,202.00	126,178,819.00	516,258,021.00	698,584,257.00	11%	56%	74%

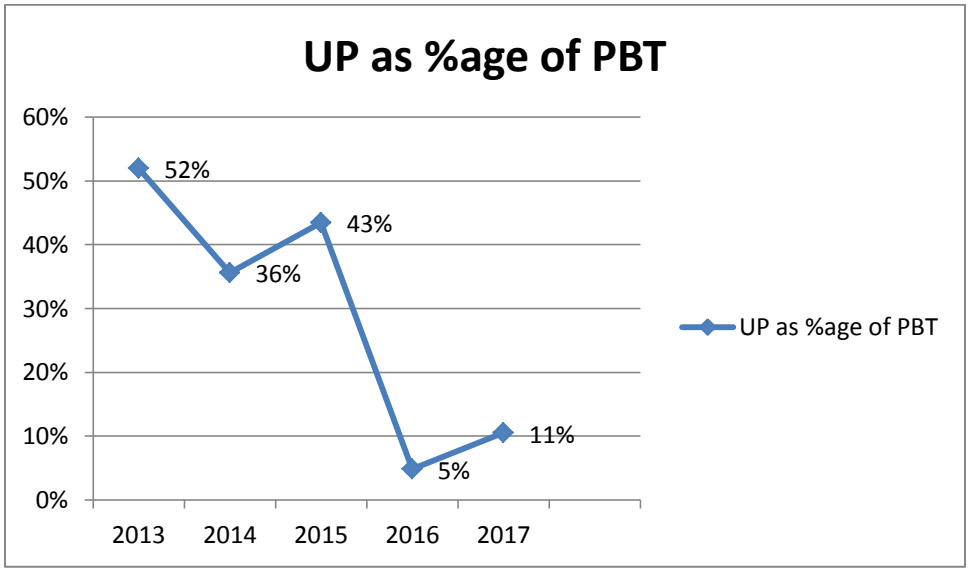

Figure 4.3 Trend of Underwriting Profit Contribution to PBT

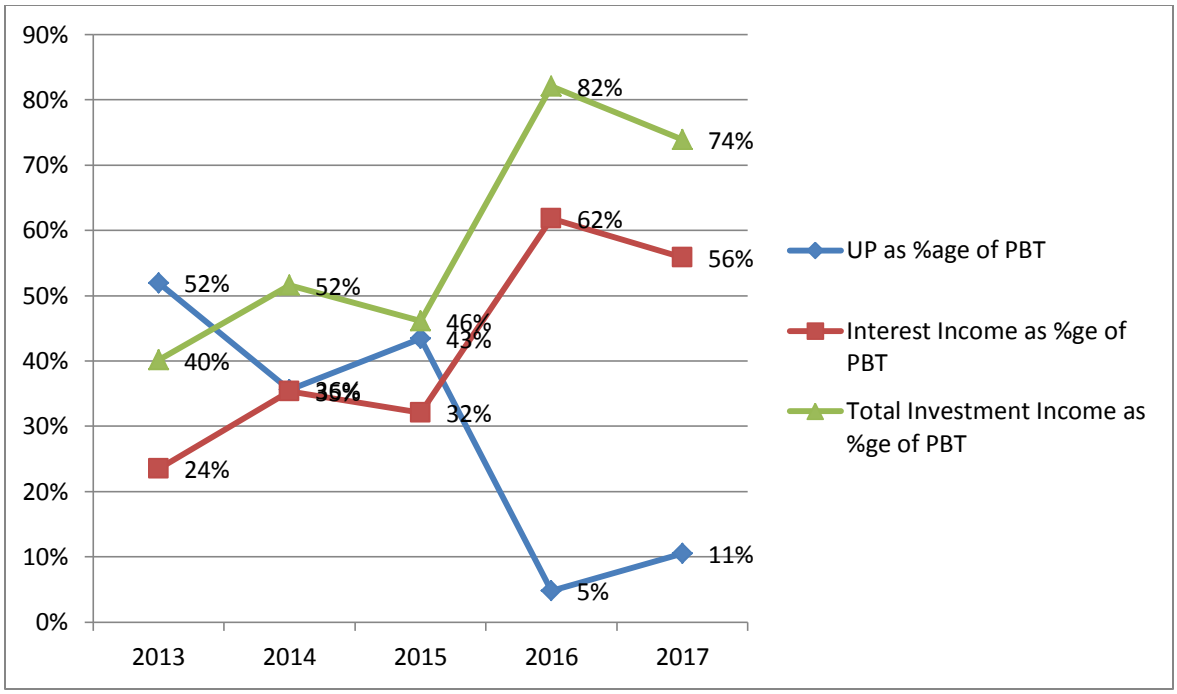

Figure 4.4 Trend of the two variables contribution to PBT (2013-17)

The results of the above two trend analysis figures indicate that the contribution of underwriting profit to profit before tax is going down from 52% in 2013 to only 11% in 2017. It even went down to as few as 5% in 2016. On the other hand the contribution of investment income to PBT (figure 4) has increased up to 82 %(2016) and 74 %(2017). This implies that the companies are earning much of their profit from investment income mainly from interest income and hence are highly dependent on interest income for their profitablity.

4.4 Discussion on findings

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

Y = 1543488.877 + 0.693 raA + 0.595 ruP + 1042267.286

Adjusted R-squared measured the goodness of fit of the independent variables in explaining the variations in insurance companies profitability measure PBT. As clearly described in Table 4.4 Adjusted R-squared value for the regression model was 0.969. This indicates the independent variables in this study jointly explain about 97 percent of the variation in the profitability of insurance companies' measure, PBT. The remaining 3 percent of the variation in the profitability of insurance companies explained by other variables which are not included in the model this research. Therefore, these independent variables together, are good independent variables of the profitability of insurance companies in Ethiopia. Beside this F-statistics (1153.79) which is the used to measure the overall test of significance of the model was presented, and null hypothesis can be clearly rejected since the p-value is 0.000 which is sufficiently low, the model is well fitted at 1 percent level of significance.

Investment Income

The panel random effect estimation result of the study revealed that there exist a significant and positive relationship between investment Income and profitability of insurance companies in Ethiopia with a regression coefficient of 0.693 , t-statistics of 33.339 and p-value of 0.000. Thus the result of the regression output is consistent with the hypothesis of the study.

Underwriting Profit

The panel random effect estimation result of the study revealed that there exist a significant and positive relationship between underwriting profit and profitability of insurance companies in Ethiopia with a regression coefficient of 0.595, t-statistics of 28.638 and p-value of 0.000. Thus the result of the regression output is consistent with the hypothesis of the study.

The regression result of this study is similar with the finding of different researchers. For instance, Kamau (2013) finds significantly positive association between profit before tax and both investment income and underwriting profit of insurance companies. According to his finding, the two study variables explains 81.7% of income before tax thus the main determinants of an insurer's overall profitability. The low correlation of profitability drivers creates a dilemma on performance measurement of risk transfer mechanism that is the core mandate of insurers.

Hypothesis testing

1. Regression result shows there exists significant and positive relationship between underwriting profit and profit before tax at with a regression coefficient of 0.595, t-statistics of 28.638 and p-value of 0.000. Hence, we can reject H1.
2. Regression result shows that there exist a significant and positive relationship between investment Income and profitability of insurance companies in Ethiopia with a regression coefficient of 0.693, t-statistics of 33.339 and p-value of 0.000. Hence, H2 can be rejected.
3. Correlation result shows that there is a weak positive relationship between underwriting profit and investment income and hence, H3 can be rejected

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

The objective of the study was to evaluate the relationship between underwriting profit and investment income and their contribution to the profitability of the private insurance companies. Five years data have been collected from audited financial statements of non-life insurers licensed more than five years within the study period. Data was analyzed using SPSS version 23 and results presented using correlation tables and regression model summary.

5.1 Summary of findings

According to the findings of the analysis:

- The model was scientifically relevant with t values (t=33.339, p=.000) for raA, (t=28.638, p=.000) for ruP (Table 4.3, Table 4.4 and Table 4.5) and hence fit for the test with the two variables r_aA and r_uP explaining around 97% of the dependent variable (PBT) but out of this investment income takes the lion's share of 62.5% (Table 4.4).

- There was low correlation between underwriting profit and investment income (Table 4.1).Underwriting profit had low correlation with all other selected variables notably admitted assets, admitted liabilities, capital employed, non-life net premium unlike investment income that have high correlation.

- The results of the trend analysis (Table 4.6, Figure 3 & 4) also shows a decreasing contribution of **Underwriting profit** to the overall **Profit before tax(PBT)** while the contribution of INN(Investment Income) to PBT is increasing in recent years mainly dominated by interest income.

5.2 Conclusion

Insurance business is basically a business of pooling out many similar risks in order to compensate the victim few and thereby make profit by the law of large numbers.

Ideally investment income should supplement risk underwriting surplus. The findings of this study shows that insurers were concentrating more on investment income at the expense of underwriting profit. The low correlation between investment income and underwriting profit is unhealthy for the industry. Adequate pricing of risks underwritten translates to high underwriting profit providing incentive for innovations to sustain a trend of high underwriting profit.

The low correlation of underwriting profit with other selected variables shows an inefficient industry that does not require compliance but risk based supervision. It is important for the insurers to bear in mind that the growth of the insurance industry depends on an efficient and effective risk transfer mechanism. Adequate risk pricing have a direct impact on the levels of underwriting profit.

The high correlation of investment income with other selected variables indicates an industry almost dependent on investment income especially on interest income to maximize shareholders wealth. The trend in developed economies clearly shows that seasonal variations in macroeconomic variables like interest rates results in variations of investment income levels affecting insurance industry profitability. Selection of risks to underwrite is a management decision unlike macroeconomic variables that are systemic. The growth of the industry depends on prudent risk selection decisions, efficient claims management and innovations to boost insurance penetration in Ethiopia. Investment leverage boosts equity returns.

5.3 Recommendations

Based on the major presentation and discussion of findings, conclusion and literatures, the following are recommendations are put forward. In this section the researcher tried to put forward policy recommendations, recommendation for future study areas and some recommendations to the insurance companies.

5.3.1 Policy recommendations

The role insurance sector plays in a given country's economy is very crucial. Any economy can't be stable without the stability of its financial sector. The trend of low correlation between underwriting profit and investment income is alarming for a country with low insurance penetration rate. The correlation can improve if insurance underwriting is viewed as a risk transfer process and not just a revenue generation endeavor. Insurers in Ethiopia seem to be operating largely on the maxim equity holders' wealth maximization overlooking their core mandate of pooling of risks efficiently.

The supervisory bodies like the NBE should look at this critically and try to provide them maximum support in order to protect the wellbeing of the companies, the sustainability of their growth and profitability by enforcing mechanisms like minimum rating, human resource development.

5.3.2 Recommendation for insurers

The local insurers should strengthen their association and level of professionalism in order to tackle the issue before it goes too late.

They have to give time to learn even from the neighboring counties like Kenya, Uganda and Tanzania to impose policies such as minimum rating especially on dangerous classes of business like motor insurance which holds more than half of their portfolio.

Portfolio modeling facilitates adequate pricing of insurable risks and provides prudent decision making parameters. The optimality and viability of insurable risks underwriting portfolios should be known at beginning of fiscal year which is not prevalent in Ethiopia. The NBE should encourage portfolio modeling by making it a requirement before licensing. The selected underwritten risks portfolio should aim to operate within the efficient frontiers.

Professionally qualified individuals who have been vetted for integrity should hold management positions to instill professionalism in the industry. Such individuals should appreciate the

theories behind insurance premium rates determination and uphold professional code of conduct and ethics. Professional entrepreneurs and managers having a long term mindset will develop viable risk transfer business models not skewed towards investment income generation. This will ensure self-sustaining risk pools.

5.3.3 Future study areas

From the findings of the study it has been observed that the contribution of the underwriting profit, profit from mainstream business of the insurers, is relatively low and is diminishing in recent years. But the reason for this diminishing return from underwriting by itself needs a detail assessment. Effect of competition, Impact of pricing strategy of insurance companies on operational profitability, Effect of their cost their claims management efficiency and cost management, the level of professionalism in the sector and the like could be studied by future researchers.

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Appendices

Residuals Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-6050909.5000	149023216.0000	36995055.6121	32945357.72390	75
Std. Predicted Value	-1.307	3.400	.000	1.000	75
Standard Error of Predicted Value	686473.625	2884803.250	1103658.217	420196.265	75
Adjusted Predicted Value	-5965820.0000	147122112.0000	36961020.0247	32855867.95315	75
Residual	-8090786.50000	19810662.00000	.00000	5819456.98597	75
Std. Residual	-1.371	3.358	.000	.986	75
Stud. Residual	-1.417	3.399	.003	1.010	75
Deleted Residual	-8634493.00000	20302678.00000	34035.58740	6101129.86001	75
Stud. Deleted Residual	-1.427	3.684	.016	1.048	75
Mahal. Distance	.015	16.706	1.973	2.929	75
Cook's Distance	.000	.210	.017	.040	75
Centered Leverage Value	.000	.226	.027	.040	75

a. Dependent Variable: Profit Before Tax

Mean Investment Return

Ratio Statistics for Investment Income / Admitted Asset

Group	Mean	95% Confidence Interval for Mean		Std. Deviation	Range	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
		Lower Bound	Upper Bound					Median Centered
Awash	.074	.063	.084	.008	.021	.982	.071	12.1%
Global	.039	.025	.053	.011	.028	.949	.182	28.1%
Nile	.046	.005	.088	.033	.076	.893	.381	60.8%
Nice	.030	.000	.059	.024	.054	1.121	.579	74.1%
Africa	.053	.046	.059	.005	.013	.989	.074	10.0%
Nib	.067	.059	.074	.006	.017	.984	.062	9.4%
Niyala	.077	.066	.088	.009	.020	1.002	.090	14.0%
United	.048	.044	.053	.004	.008	1.011	.057	7.4%
Oromoiya	.060	.047	.074	.011	.027	.964	.095	18.0%
Lion	.038	.030	.047	.007	.019	1.028	.137	18.7%
Abay	.054	.012	.096	.034	.090	.834	.389	58.2%
Birhan	.054	.033	.074	.016	.046	.904	.206	32.2%
Tsehay	.040	.015	.065	.020	.052	.808	.299	45.6%
Ethio Life and General	.039	.022	.055	.013	.032	.827	.294	43.1%
Lucy	.037	.009	.064	.022	.058	.769	.483	68.5%
Overall	.050	.046	.055	.021	.090	.861	.314	40.9%

The confidence intervals are constructed by assuming a Normal distribution for the ratios.

Mean Underwriting Returns

Ratio Statistics for Underwriting Profit / Net Premium

Group	Mean	95% Confidence Interval for Mean		Std. Deviation	Range	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
		Lower Bound	Upper Bound					Median Centered
Awash	.063	-.012	.139	.061	.148	1.096	.706	120.1%
Global	.147	.041	.253	.066	.141	1.063	.357	43.5%
Nile	.031	-.002	.064	.021	.048	1.039	.542	69.6%
Nice	.206	-.138	.551	.277	.663	1.146	1.622	303.6%
Africa	.001	.	.	.	.000	1.000	.000	.
Nib	.098	-.052	.247	.060	.118	1.070	.346	55.8%
Niyala	.210	.015	.406	.158	.432	1.033	.605	96.5%
united	.165	.043	.286	.098	.234	1.104	.391	53.7%
Oromoiya	.083	-.010	.175	.037	.072	1.021	.255	42.3%
Lion	.057	.015	.100	.027	.057	1.085	.289	43.0%
Abay	.243	.179	.306	.040	.085	1.003	.117	16.6%
Birhan	.013	.	.	.	.000	1.000	.000	.
Tsehay	.029	.002	.057	.017	.035	1.075	.437	92.8%
Ethio Life and General	.094	.	.	.	.000	1.000	.000	.
Lucy	.068	-.047	.183	.072	.149	28.013	.991	118.9%
Overall	.117	.082	.151	.124	.690	1.999	1.092	172.0%

The confidence intervals are constructed by assuming a Normal distribution for the ratios.

Table 1.1 Lists of Insurance Companies in Ethiopia

S.N.	Insurance Company	Year Established
1	Ethiopian Insurance Corporation	1975
2	Awash Insurance Company S.C	1994
3	Africa Insurance Company S.C	1994
4	National Insurance Corporation of Ethiopia S.C	1994
5	Nyala Insurance Company S.C	1995
6	Nile Insurance Company S.C	1995
7	The United Insurance Company S.C	1997
8	Global Insurance Company S.C	1997
9	Nib Insurance Company S.C	2002
10	Lion Insurance Company S.C	2007
11	Ethio-Life Insurance Company S.C	2008
12	Oromia Insurance Company S.C	2009
13	Abay Insurance Company S.C	2010
14	Berhan Insurance Company S.C	2011
15	Tsehay Insurance Company S.C	2012
16	Lucy Insurance Company S.C	2012
17	Bunna Insurance Company S.C	2013

Source: NBE