St. Mary's University

Institute of Agriculture and Development Studies

INSURANCE SECTOR DEVELOPMENT AND ECONOMIC GROWTH IN ETHIOPIA

By

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SMU, AA

INSURANCE SECTOR DEVLOPMENT AND ECONOMIC GROWTH IN ETHIOPIA:

(2000-2014)

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This is to certify that the thesis prepared by Nigus Anteneh, entitled: Insurance Sector Development and Economic Growth in Ethiopia (2000-2014), which was submitted in partial fulfillment of the requirements for the Degree of Master's of Science in Development Economics complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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DECLARATION

I, Nigus Anteneh, declare that, the thesis entitled: Insurance Sector Development and economic growth in Ethiopia : 2000-2014, is my original work produced under the guidance of my advisor, Dr. Worku Tessema, and has never been published and/or submitted for any award of Degree in any other University. Any source used is duly acknowledged in this study.

Signed: ---------- Date: ----------

Nigus Anteneh

DEDICATION

This research work is dedicated to my parents, Ato Anteneh Yirsaw and W/ro Denbernesh Ayele.

TABLE OF CONTENTS

CHAPTER III

CHAPTER IV

Acknowledgement

First and foremost, I would like to thank the Almighty God for His countless support throughout my life. I extend my sincere thanks to my advisor, Dr Worku Tessema, for his assistance throughout the progress of the paper. Staffs of the National Bank of Ethiopia, Insurance Supervision Directorate, were also very cooperative. Thank you all!

Acronyms

ADF – Augmented Dicky- Fuller

AEI- Association of Ethiopian Insurers

BLUE- Best Linear Unbiased Estimator

BM- Broad Money

DF- Degree of Freedom

GCF- Gross Capital Formation

GFD- Global Financial Distribution

GMM- Generalized Method of Moments

GWP- Gross Written Premium

IR- Inflation Rate

LIP- Life Insurance Penetration

NBE- National Bank of Ethiopia

NLIP- Non-life Insurance Penetration

OECD- Organization for Economic Cooperation and Development

PUC- Paid Up Capital

UNCTAD- United Nation Conference on Trade and Development

TGS- Total Government Spending

TI- Total Imports

List of Tables

ABSTRACT

This empirical study investigated the link between insurance sector developments to economic growth of Ethiopia over a period 2000-2014. To achieve objectives of the study, data were collected from the regulatory body, National Bank of Ethiopia, annual statistical bulletins. The data collected were analyzed using relevant econometric model testes OLS, ADF unit root, Pair wise correlation test, Johanson Co-integration, Student t-test and F-test. The result revealed that Non-life Insurance penetration, Life insurance penetration, Gross capital formation and broad money do have a direct short run relationship to Real Gross Domestic Product (RGDP). The result from t-test shows that except Life insurance penetration and Paid up capital, other independent variables are statistically significant to explain economic growth in Ethiopia. Moreover, the overall model is statistically significant as the calculated value of F-statistics is greater than the tabulated value at 5% significance level. This shows that the combined contribution of the independent variables is statistically significant. The Coefficient of Multiple Determination (R^2) with a value of 0.95 showed that about 95% variation in the dependent variable was explained by the variation of included explanatory variables while the remaining 5% was explained by the stochastic variables. The result of the ADF unit root test revealed that the parameters were stationary at difference since the ADF statistics is greater than 5% critical value. Moreover, the result form Johanson Co-integration test revealed a long run relationship among the variables as the Trace/Max statistics is greater than 5% critical values. It is recommended that the regulatory body, National Bank of Ethiopia, and the Association of Ethiopian Insurers should build their capacity and work together to pull the sector out of its current infancy level.

Keywords: Life Insurance, Non-Life Insurance, economic growth, Ethiopia, statistical correlations, National Bank of Ethiopia, Association of Ethiopian Insurers.

CHAPTER I: INTRODUCTION

1.1. Background of the study

The earliest known instance of insurance dates back to the Babylonian period of 2250 BC, when the Babylonians developed a type of loan insurance for maritime business. Upon receipt of a loan to fund the shipment, a merchant would typically pay the lender an additional premium in exchange for the lender ' s guarantee to cancel the loan should the shipment be stolen or lost at sea. In effect, the lender assumed the perils of the goods in transit at a premium rate of interest. The maritime loan therefore cannot be considered a stand - alone insurance contract, although the practice proved effective enough for it to later be adopted by the Greeks, Romans, and Italian city states (Hailu, 2007).

Use of the maritime loan persisted until the thirteenth century in the Italian city - states of Genoa and Venice. Rigorous application of financial principles, 4 as well as the city - states ' great fortune in escaping the stifling yoke of feudalism on commerce and trade and their convenient geographic location at the interstices of Eastern and Western culture, had given these merchants a commercial advantage, establishing a wealthy trading region (Park, 2002).

Financial risk diversification was already well established by this time in the form of jointstock ventures, pooling goods of a number of merchants to be sold jointly. 5 Ventures pooling goods in joint stock allowed for risk diversification at the level of the individual investor. This provided merchants the opportunity to contribute a fraction of their wealth to the equity of a venture, thereby gaining a pro rata risk - return exposure to its success. If the ship went down, the loss would be spread among a number of investors, diversifying risk at both investor and product level (ibid).

Since the late fourteenth century, merchant bankers began to split the finance and insurance components by drawing up separate contracts for the debt and the marine insurance. The advent of marine insurance, the oldest of the modern lines of insurance

business, thus separated credit risk from peril risk, reducing the cost of both. This innovation spread through the Mediterranean, to the Adriatic, and the Low Countries, eventually being adopted in England some 300 years later. At the time there was growing demand to finance and insure voyages to the new colonies of the British Empire. Famously, merchants, ship owners, and underwriters would meet at Lloyd ' s Coffee House in London to finance these ventures. Lloyd ' s developed into an association of underwriters, so called because insurance policies were backed by a number of individuals, each of whom would write his name and the amount of risk he was assuming underneath the insurance proposal. The term "underwriting" is today synonymous with Lloyd ' s, but in fact originated in the Italian city states (Buckham et al. 2010).

Historically speaking after the Great fire of London in 1666 gutted down the medieval city of London and destroyed 13,200 houses, 87 parish churches, St Paul's Cathedral and most of the buildings of the City. Hence, several Insurance companies were established to protect members of the public against possible future similar events. It has been well documented that tragedies often lead to major developments in the insurance sectors as the event usually exposes a need that is not being met by the current market offerings. Since the 2011 Asian tsunami, insurance companies in the regions affected came up with more innovative and comprehensive covers to protect against such risks which shows that major developments in the insurance industry have followed major tragedies, that is, the great fire of London 1666 and the 2001 Asian tsunami resulted in developments in the respective insurance and reinsurance sectors. The great fire of London led to the founding of some of the very first major insurance companies and following the Tsunami better and more comprehensive reinsurance arrangements had to be devised as the effects of the tsunami were far reaching and the existing arrangements proved to be inadequate (ibid, 2010).

The importance of insurance in modern economies is unquestionable and has been recognized for centuries. It is practically a necessity to business activities and enterprises. Insurance also serves a broad public interest far beyond its role in business affairs and its protection of a large part of the country's wealth. It is the essential means by which the

risk to an individual is shared by many, the disaster to a community is shared by other communities; great effects of catastrophes are thereby minimized (Horng, 2012)

Insurance involves pooling funds from many insured entities (known as exposures) to pay for the losses that some may incur. The insured entities are therefore protected from risk for a fee, with the fee being dependent upon the frequency and severity of the event occurring. In order to be an insurable risk, the risk insured against must meet certain characteristics. Financial intermediary is a commercial enterprise. Kunreuther (1996) indentified some typically common characteristics of risk which can be insured as: the risk must have large number of similar exposure units, definite loss, accident loss, large loss, affordable premium, calculable loss and limited risk of catastrophically large losses.

For a company to insure an individual entity Holsboer (1999) emphasized on the basic legal common requirements, principles of insurance, and these are identified as principles of indemnity, insurable interest, utmost good faith, contribution, subrogation, and proximate cause. Insurance can have various effects on society through the way that it changes who bears the cost of losses and damage.

Insurance enables businesses to operate in a cost-efficient manner by providing risk transfer mechanisms whereby risks associated with business activities are assumed by others. It allows businesses to take on credit that otherwise would be unavailable from banks and other credit-providers fearing of losing their capital without such adequate protection. Beyond the business world, insurance is vital to individuals. Lack of insurance coverage would leave individuals and families without protection from the uncertainties of everyday life. Life, health, property and other insurance coverage's are essential to the financial stability, wellbeing and peace of mind of the average person.

Insurance appears simultaneously with the appearance of human society. Insurance is the equitable transfer of the risk of a loss of human being, from one entity to another in exchange for payment. It is a form of risk management primarily used to hedge against the risk of a contingent, uncertain loss. Insurance business is being carried out by an insurer or insurance carrier. An insurer, or insurance carrier, is a company selling the insurance policy to the insured and the insured, or policyholder, is the person or entity

buying the insurance policy. The amount of money to be charged for a certain amount of insurance coverage is called the premium.

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

Ethiopia's Insurance sector has shown strong resilience from a challenging macroeconomic environment and global development. According to a report from the National Bank of Ethiopia, the average annual premium growth rate for non-life and life was 22.14% and 25.43% in 2004-2014. In 2014 the gross written premium reached Birr 4.6 Billion for non-life and Birr 273 million for life. Average loss ratio (for the period 2004-2014) for non-life was 67% while it was 40% for life.

In 2014, the total asset for non-life reached Birr 7 Billion and the total asset for life reached Birr 1.1 Billion. In terms the capital accumulated, the industry shows a tremendous progress from Birr 388 Million in 2004 to Birr 1.95 Billion in 2014 for non-life and Birr 20 Million in 2004 to Birr 101.1 Million in 2014 for life. Profit after tax of the insurance industry in Ethiopia, which was 69.5 Million in 2004 reached Birr 778.2 Million in 2014.

General insurance (non-life insurance) continued to dominate the insurance business. It took around 94% of the total premium and 95% of the total insurance capital in 2014. Private insurers constituted 60% and 79 % of the total market share and capital size respectively. The slow growth of premiums in the current year makes insurance penetration went down to 0.83% from 0.87% in June 2014 .This is still a sign of the low level of progress of insurance in Ethiopia (NBE, 2014).

Despite the gradual growth of the insurance industry in Ethiopia inline to the overall economic growth, in terms of some indicators such as total assets, total capital, number of insurance companies, its contribution to the Gross Domestic Product etc. no study has been conducted to investigate the relationship of the insurance sector with the country's

economy. In this context, this study examines the impact of the insurance industry and economic growth to fill the gap in insurance - growth nexus. Such an understanding is important, because it equips the industry players, the regulat+ory body and the government with adequate knowledge so that they can work hard for important and timely all rounded improvement of the insurance sector in order to increase its contribution to the economy as a whole.

1.2. Statement of the Problem

Although there is a huge potential to be addressed, the insurance sector in Ethiopia is still at its infancy stage. In addition to its minimal contribution to the national economy, the sector has many observed threats like deterioration of professional practices and unhealthy competition that is confined only to cutting of premium rate which does not commensurate with the risk shouldered. Moreover, absence of a well coordinated information exchange system within the industry can also be mentioned as a weakness. With all these weaknesses of the insurance sector, it has contributed its part to the growth of the economy (Hailu, 2007)

Despite the importance of insurance to the stability of financial systems through provision of risk management services, very little is known of its linkage with growth in Africa. The assessment of the potential causal relations between the insurance business and economic growth has not been studied in as much as that of banks (Arena, 2008).The studies examining insurance growth nexus have mainly been based on data from developed economies. Most studies examining the financial growth nexus in Africa (Adjasi and Biekpe, 2006; N'Zue, 2006; Odhiambo, 2007; Seetanah, 2009; Ahmed and Wahid, 2011; Kagochi et al, 2013) have focused on Bank and Stock market development, although few studies have been carried out on the insurance growth nexus in Ghana.

In the Ethiopian context, as far as the researcher knows, there is no empirical study conducted on the insurance and growth nexus. Some studies, for example, Urgessa (2014) conducted a research on the performance of life insurance in private insurance company in Ethiopia. Hailu (2007) wrote a book entitled: Insurance in Ethiopia-Historical Development, Present Status and future Challenges.

This study therefore seeks to fill this obvious gap in empirical literature by providing evidence in causal link between insurance outreach and economic growth from developing African country, Ethiopia.

1.3. Research Objectives

1.3.1. General Objective

- To investigate the link/relationship between insurance sector development and economic growth in Ethiopia.

1.3.2. Specific Objectives

- To measure the extent of influence of the insurance sector on economic growth.
- To estimate both the short and long run relationship of insurance penetration and economic growth in Ethiopia.
- To assess the causal relationship between insurance sector and economic growth in Ethiopia.

1.4. Research Hypothesis

Hypotheses for the research are stated in the null and alternative forms as follows.

Hypothesis I

Ho – There is no significant relationship between the total non-life insurance penetration and economic growth expressed in Gross Domestic Product in Ethiopia.

H_1 – There is a significant relationship between the total non-life insurance penetration and economic growth expressed in Gross Domestic Product in Ethiopia.

Hypothesis II

Ho – There is no significant relationship between the total life insurance penetration and the Gross Domestic Product in Ethiopia.

H_1 – There is a significant relationship between the total life insurance penetration and the Gross Domestic Product in Ethiopia.

1.5. Conceptual definition of terms

The choice of explanatory variables is based on their theoretical and empirical relationship with the dependent variable. Generally speaking, the chosen explanatory variables are expected to partly explain the variation of the dependent variable. These variables and their measurement are as follows.

- ***Real Gross Domestic Product (RGDP):*** The real gross domestic product (RGDP) is an inflation-adjusted measure that reflects the value of all goods and services produced in a country usually in a given year, expressed in base-year prices. Often referred to as "constant-price," "inflation-corrected" GDP or "constant dollar GDP".

- ***Non-life Insurance Penetration (NLIP):*** indicates the level of development of non-life insurance sector in a country. It is measured as the ratio of premium underwritten from non-life insurance business in a particular year to the GDP.

- ***Life Insurance Penetration (LIP):*** indicates the level of development of life insurance sector in a country. It is measured as the ratio of premium underwritten from life insurance business in a particular year to the GDP.

- ***Gross Capital Formation as a percentage of GDP (GCF):*** refers to the percentage share of Government acquisition of goods and services intended to create future benefits, such as infrastructure development or research spending to the GDP.

- ***Inflation Rate (IR):*** Inflation is the rate at which the general level of prices for goods and services is sustainably rise and, consequently, the purchasing power of a domestic currency is falling.

- ***Indemnity:*** To place a person in the exact financial position she/he was in immediately before the loss occurred.

- ***Premium:*** The amount of money to be charged for a certain amount of insurance coverage.
- ***Undercutting:*** This is a marketing strategy where insurance companies try to attract clients by offering premium rates that are lower than those of their competitors.
- ***Net export:*** Net exports refer to the value of a country's total exports minus the value of its total imports. It is used to calculate a country's aggregate expenditures or GDP in an economy.
- ***Broad Money Supply:*** In economics, broad money refers to the most inclusive definition of the money supply. Since cash can be exchanged for many different financial instruments and placed in various restricted accounts, it is not a simple task for economists to define how much money is currently in the economy. Therefore, the money supply is measured in many different ways. Broad money is used colloquially to refer to a broad definition of the money supply.
- ***Paid-up capital:*** is the amount of money a company has received from shareholders in exchange for shares of stock. Paid-up capital is only created when a company sells its shares on the primary market directly to investors. When shares are bought and sold between investors on the secondary market, no additional paid-up capital is created because the proceeds of those transactions go to the selling shareholders, not the issuing company.
- ***Reinsurance:*** also known as insurance of insurance is the practice of insurers transferring portions of risk portfolios to other parties by some form of agreement in order to reduce the likelihood of having to pay a large obligation resulting from

an insurance claim. The intent of reinsurance is for an insurance company to reduce the risks associated with underwritten policies by spreading risks across alternative institutions.

- ***Cession:*** The portion of risk that a primary insurer passes to a reinsurer. Cession allows the primary insurer (the ceding company) to reduce its risk exposure to an insurance policy by passing that risk onto another company (the accepting company), with the accepting company receiving a premium for taking on the risk.
- ***Retention:*** the net amount of risk the ceding company keeps for its own account.

1.6. Significance of the Study

This study intends to empirically show the contribution that the insurance sector to the national economy and inform decision makers to exert their maximum efforts to work for alleviating all the problems of the sector.

The study will be of immense benefit to authorities in the insurance industry, relevant government agencies (policy makers) and students seeking further research on the area. To the authorities in the industries, the findings will expose the various means of tackling the challenges of insurance business in the economy. It will also reveal some of the loopholes in their endeavor to enhance on the activities of insurance in the economy.

1.7. Scope and Limitation of the Study

The researcher has been working in the Ethiopian Insurance industry for more than 20 years creates a big opportunity to know the challenges and prospects of the Ethiopian insurance industry. It was the interest of the researcher to incorporate several years' data for a better result. However, it was found difficult to obtain adequate and proper data for the period before 2000. Therefore, the researcher confined himself analyzing recent data and hence this study is limited to the examination of the contribution of

the insurance business to economic growth of Ethiopia for a range of time from 2000– 2014.

1.8. Organization of the Study

The rest of the paper is organized as follows: Chapter two deals with reviewing related literature on insurance growth nexus while chapter three outlines the methodology applied in the research. Chapter four discusses the findings and empirical results of the study and chapter five gives summary, conclusions and recommendations based on the findings of the study.

CHAPTER II: LITERATURE REVIEW

2.1. Theoretical Literature

2.1.1. Overview of the Ethiopian Insurance Industry

The introduction of insurance in Ethiopia dates back to the establishment of the Bank of Abyssinia in 1905. The Bank acted as an agent for foreign insurance companies transacting fire and marine business. Later on, foreign insurance companies which were represented by other organizations started insurance business. According to the Ethiopian Economic Review, the practice continued and in 1961, seventy four agencies were underwriting risks in fire, marine, life and general accident classes. Imperial Insurance Company of Ethiopia Ltd was the first insurance company and other 14 companies were also established in the 1960s competing with the agents of foreign companies (Medhen Magazin, 2014).

The insurance market was not regulated until 1960 when some provisions relating to insurance were introduced in the Commercial and Maritime Codes. In 1970 the first insurance Proclamation was enacted as a result of which foreign companies were prohibited from transacting insurance business in Ethiopia directly or through agencies. Consequently, some companies converted to domestic companies in line with the requirement of the law while others had to close down. In 1971, the Government issued Legal Notice No.393/71 which restricted the proportion of ownership by foreigners to 49% for the non-life and composite companies. On the basis of these laws and regulations, thirteen insurance companies were registered. In 1975, these companies were nationalized by Proclamation No 26/1975. A provisional insurance Board was formed to control the activities of the nationalized companies. In December 1975, the Government issued Proclamation No. 68/1975 to establish the Ethiopian Insurance Corporation (EIC) which took over the assets and liabilities of the nationalized companies and commenced insurance operation throughout the country. The nationalized companies became branches of EIC (Hailu, 2007).

The new era emerged with the enactment of Proclamation No. 86/94 which ended the monopoly of EIC and allowed the establishment of Private insurance companies whereby foreigners are not allowed to own shares. According to the information collected from the financial institutions regulatory body of the country, National Bank of Ethiopia (NBE), there are 17 insurance companies operating in the country of which 16 are privately owned. The total number of branches is 369 of which 54 percent is located in the capital city of Addis Ababa and the remaining are in the regions. There are 50 brokers, 1800 insurance sales agents and 88 loss assessors and one Association supporting the industry. The sector has so far created around 4400 jobs.

Table 1: Insurance Companies in Ethiopia and their Date of establishment

S.No	Insurance Company	Date of establishment	Establishment capital (Birr)
1	Ethiopian Insurance Corporation	1975	11 Million
2	National Insurance Company of Ethiopia S.C	23/09/1994	9 Million
3	Awash Insurance Company S.C	01/10/1994	25 Million
4	Africa Insurance Company S.C	01/12/1994	30 Million
5	Nyala Insurance Company	06/01/1995	35Million
6	Nile Insurance Company	11/04/1995	12 Million
7	Global Insurance Company S.C	11/11/1997	7 Million
8	The United Insurance Company S.C	01/04/1997	8 Million
9	Nib Insurance Company S.C	01/05/2002	30 Million
10	Lion Insurance Company S.C	01/07/2007	16 Million
11	Ethio Life and General Insurance S.C	23/10/2008	6.5 Million
12	Oromia Insurance Company S.C	26/01/2009	26 Million
13	Abay Insurance S.C	26/07/2010	7.5 Million
14	Berhan Insurance Company S.C	24/05/2011	9.7 Million
15	Tsehay Insurance S.C	28/03/2012	11 Million
16	Lucy Insurance S.C	01/10/2012	8 Million
17	Bunna Insurance S.C	21/05/2013	6.7 Million

Source: National Bank of Ethiopia

According to NBE's 2014 report, an insurance branch office serves 264,918 people. The figure shows that there exists huge potential to be addressed in the future. In 2014, the lion share of the market, which is around 40%, has been dominated by the state owned insurance company, Ethiopian Insurance Corporation and the remaining portion is scrambled by the privately owned insurance companies (NBE, 2014). The ten years (2005-2014) average annual profit growth rate of the industry is 33% and the loss ratio for the general and life insurance for the same period is 68% and 37% respectively. The average annual capital growth rate of the industry for the last ten years (2005-2014) has been 18% and the capital has currently reached Birr 2.5 Billion.

The first major recapitalization process was introduced by the regulatory body, National Bank of Ethiopia, under minimum paid up capital for insurers Directive No. SIB/34/2013. This recapitalization exercise which ended on December 31, 2015 does have an essential role in increasing the retention capacity of insurers and enhances the competitive edge.

Table 2: Capital base for Ethiopian Insurance Companies

Category of insurance	**Old capital base (Eth Birr)**	**New capital Base (Eth Birr)**	**Increase in percentage (%)**
Life Insurance	4 Million	15 Million	275
General Insurance	3 Million	60 Million	1,900
Composite Insurance	7 Million	75 Million	971
Reinsurance	-	500 Million	

Source: National Bank of Ethiopia

The insurance industry before the regulatory induced recapitalization/consolidation was one confronted with many challenges. These challenges were mostly responsible for the sector's inability to attract sufficient businesses both locally and internationally. It also affected its ability to retain a significant proportion of risk emanating from assets domiciled in Nigeria. Insurance premium flight was a key challenge for the sector, as the underwriting capacity of the existing companies was low.

There is no Reinsurance company operates in the market so far. But, early in 2016 the founding share holders of the first Reinsurance Company conducted the first General Assembly and ratified the Article of Association and Memorandum of Association of the Company which was the key step to establish the first Reinsurance Company, Ethiopian Reinsurance Share Company, which will be believed to contribute a significant positive impact on the industry as a whole.

Although the overall performance of the insurance market is encouraging, it has faced with lots of challenges such as: Globalization (Foreign may join the sector, hence domestic insurance companies may encounter difficulties to withstand the likely strong competition), unable to maintain professionalism and ethical standards in the industry, unable to attain solid cooperation and collaboration among the insurance companies, restrictions in expanding insurance services to the rural population and diversifying new and tailor made products based on demand.

Table 3: Insurance Products Currently Available in Ethiopia

• ***Property Insurance*** - Motor insurance - Fire and lightning insurance - Burglary and House Breaking insurance - Plate glass insurance - Marine cargo insurance - Goods in transit insurance - All risks insurance	• ***Engineering Insurance*** - Contractors All risks insurance - Erection All risks insurance - Contractors Plant and Machinery Insurance - Machinery breakdown insurance - Boiler and Pressure Vessel insurance - Electronic Equipment insurance
• ***Liability Insurance*** - Public liability insurance - Professional Indemnity Insurance - Product Liability Insurance - Carrier's Legal Liability Insurance - Workmen's Compensation Insurance - Bus*iness* Interruption Insurance	• ***Pecuniary Insurance*** - Bonds - Fidelity Guarantee Insurance - Money Insurance - Personal Accident Insurance • ***Life Assurance*** - Group Term assurance - Individual Term assurance - Mortgage protection assurance - Whole life assurance - Endowment assurance - Travel Health Medical insurance

2.1.2. Concept and Mechanism of Insurance Business

The definition of insurance has been analyzed by various scholars, for some as a social device, some as a contract, some as an institution etc. Marcus (2002) defined insurance as a risk transfer mechanism, where by policy holder called the insured contributes into common pool, out of which the unfortunate is made fortunate or the insured pay a consideration called premium in view of the insured, so that if loss occurs, the insurer will put the insured in the same position he/she was prior to the loss. Irukwu (1999) defined insurance as an agreement between two parties, the insured and the insurer where by the insured pays a small consideration called premium in view of risk insured, so that if a loss occur the insurer will put the insured in the same financial position he/she was prior to the lss. Furthermore, Anelle (2004) and Nwite (2007) defined insurance as a profession where people are trained to insure the risk of individual, corporate bodies, government and the general public and also teach them on ways of risk management in the environment.

According to Oluoma (1999) "insurance is a device for the reduction of uncertainty of one party, called the insured through the transfer of particular risk to another party, called the insurer who offers a restoration, at less in part, of the economic losses suffered by the insured."

Nduka (2005), insurance is defined as a systematic plan for protection against economic losses, in which large number of people agree to make regular payments to an insurance organization in exchange for an assurance that they will be reimbursed for losses they may suffer from such hazards as fire, accident and death. More so, Irono and Akoji (2003) described insurance as one of the best of all risk management measures which shifts the risk and the financial blow that exists when the risk or loss occurs to an insurance company. However, Scott (1994) established that every individual faces an assortment of financial risks that range from the possibility of receiving a parking ticket to a potential reduction of income caused by a long-term illness. Insurance he continued is one of several options for dealing with certain types of risks. Nader and Smith (2000) wrote that insurance is basically about spreading risk.

Agbaje (2005) defined insurance as the mechanism of polling resources together to pay compensation to the insured on the occurrence of a specified event in return for a periodic consideration, premium. An insurance contract is usually evidenced by a document called insurance policy.

Insurance unlike most other products is a conditional promise. In return for a certain fee (the premium), the insurer promises to make a payment (referred to as the claim) if an event of a specified nature occurs and the insured consequently suffers loss or damage. In such a way insurance is a risk transfer mechanism, the basic proposition is that the insured exchanges the uncertainty of a low frequency, high severity risk for the certainty of a lower cost premium. The insurer holds these premiums in a common pool and pays the claims of the few from the premiums of the many. Insurers set premiums to cover the expected claims, reserves, their own expenses plus a margin for profit. They have a reasonable expectation of making a profit as they are able to take advantage of the law of large numbers. This implies that the larger the number of units that are exposed to a given risk the more predictable is the result.

Insurance involves the transfer of risk from one individual to another and sharing of losses on an equitable basis by all members of the group. The group, known as insurance company, must increase its hold on the premium and widen its profit margin to cope with the demand of their customer (Gollier, 2003).

In addition to its common role of managing risks, insurance business activities, both as provider of risk transfer and indemnification, promotes growth by allowing different risks to be managed more efficiently, long term savings and encouraging the accumulation of capital which may serve as a pipe line to channel funds from policy holders to investment opportunities there by mobilizing domestic savings into productive investment (Arena, 2008).

Definitely, to the layman, the concept of insurance sounds very illusory. For instance, it looks absurd for an institution to parade itself as an insurer, having received only a small amount of money as premium and undertakes to indemnify a person if he suffers over thousands or millions of naira worth of at the happening of the event insured against. An

insurer combines similar exposure units. He studies past records of losses suffered in a particular class of insurance. The law of large numbers tells him that the larger the statistical basis of the study the more reliable the numerical basis of the study the more reliable the numerical information of relevance now is the average loss in the group. It is the knowledge of this average loss that enables the insurer to fix the premium he charges the prospective policy holders.

This is an area of insurance business in which tools of statistics and financial mathematics are used to determine among things, the premium considered adequate to cover certain risks. From this basic premium, adjustments could be made to accommodate variations in losses and other exigencies of legitimate business undertaking.

2.1.3. Contribution of Insurance to Economic Growth

Three schools of thought have been proposed on the transmission mechanism between finance and growth. The first school of thought called 'demand- following' hypothesis posits that the growth in the real economy stimulates demand for financial services; hence an expanding economy creates the demand for financial services (Robinson, 1952; Romer, 1990). However, 'supply-leading hypothesis' argues that well developed financial markets provides a venue for more efficient utilization of funds from surplus spending units to deficit spending units to propel growth (Patrick, 1966). Therefore, these functions of financial systems help to maximize resource usage, leading to increased investment and growth.

The third school of thought known as the 'feed-back' hypothesis posits that causality runs from both directions. That is, well developed financial systems promote economic expansion through technological changes, product and services innovations which ultimately stimulates demand for financial services (Levine, 1997). In responding to the demands for financial services, growth is also enhanced resulting in the feedback causality (Luintel and Khan, 1999).

The basic principle of indemnity is also Important in economic growth and development as it ensures that businesses resume normal operations as fast as possible once a loss has

occurred and thus reducing the number of man hours lost a good illustration would be where a factory that employs five hundred employees were to burn down as a result of a fire then the proprietors will have lost money in terms of their investment while five hundred people would be out of a job but with the availability of insurance the owners would be able to rebuild the factory, recoup their losses and ensure that the livelihood of the workers is guaranteed thus ensuring that the economy will not be adversely affected (Charles T, 2014).

In a study carried out by the European Community in insurance, it was pointed out that the insurance industry enhances the growth of the economy. Moreover, insurance has the impact of structural development through various channels such as: offering protection to firms by which financial stability is promoted by the insurance company for damage or any interruption in the production process due to the occurrence of the insured event, encouraging investment, technological innovations, increasing financial intermediation, mobilizing savings, promotion of risk prevention and minimization thereby contributes to sustainable development.

Although the contribution of insurance on economic growth has been recognized, detail assessment of the potential causal relationship has not yet been studied in as much as that of Banks (Arena, 2006). However, since the UNCTAD conferences in 1964, the recognition of the insurance market for economic growth of a country was highly appreciated.

According to Ward & Zurbruegg, 2006, insurance facilitates not only economic transactions by transferring risks and granting insurance benefits should the risk materializes, but it also acts as a promoter of financial intermediation.

By providing protection, insurance could affect economic growth through the channels of marginal productivity of capital, technological innovations and saving rates. Insurance companies indemnify one who suffer a loss and stabilize the financial position of individuals and firms with the possibility of transfer of different kinds of risks to insurance companies. Risk adverse economic units are more induced to buy goods and services, especially those of higher value. In this way, insurance sustains demands or

consumption for goods and services that encourage production and employment which ultimately results in multiplier effect on economic growth (Ojo, 2012).

Insurance market activity may not only contribute to economic growth by itself but also through complementarities with other financial sectors of the economy like Banks. That is the development of insurance activities could encourage bank borrowing by reducing market cost of capital, which then influence economic growth by increasing the demand for financial services (Grace & Rebello, 1993). Banks intermediation activities can also be facilitated by insurance. For instance, by collateralizing credit, Bank's reduce credit risk exposure and promoting higher level of lending (Admas et al, 2006).

Insurance fosters investment and innovation or economic growth by creating an environment of greater security. It increases marginal productivity of capital in a way that makes no need for high liquid contingency funds of firms which results in more funds available for financing high return projects. In the absence of insurance coverage, large contingency funds would be needed to protect firms against risk. Increasing availability of funds could result from kind of insurance products by which insurance companies provide protection from credit risk to other financial intermediation. In this way, financial intermediation is more willing to lend funds for financing real investment which encourage economic growth (Bulut, 2012).

Holsboer (1995) argues that the change of importance of insurance services in the economy is dependent on the growing amount of assets and the increasing competition between the financial sectors, but the author emphasizes the prominent role in the services industry and denotes insurance sector development as a determinant for economic growth.

Insurance helps individuals minimize the financial impact of unexpected and unwelcome future events, and help them organize their business and their lives with greater certainty. Risk averse individuals are able to enjoy greater utility from their most important assets via the purchase of insurance products. Almost every conceivable asset or activity can be insured through familiar product types (Buckham et al, 2010). As a vital tool for the

management of risk by both individual and organizations, insurance plays an important role in the economic, social and political life of all countries.

Quantifying the contribution of insurance to economic growth is not simple. One such attempt was made in 1990 by J. Francois Outreville, who investigated the economic significance of insurance in developing countries by comparing forty five developed and developing countries, he was able to show that there is a positive but non-linear relationship between insurance premium per capita and GDP per capita, demonstrating that the development of insurance as a financial instrument plays an important role in assisting a national economic growth.

From its origins in ancient times, insurance has evolved in response to the need for individuals to mitigate against or diversify from the risks that they confront in their commercial activities and later to guarantee their personal health and the financial well being of their families through life and health insurance. Pooling and diversification of these risks has progressed to become a scientific discipline, in the process of creating positive externalities at both micro and macro levels (Buckham et al, 2010).

Many theories, studies and empirical evidences have shown that countries with better developed financial systems enjoy faster and more stable long-term growth. Well developed financial intermediaries and financial markets have a significant positive impact on total factor productivity, which translates into higher long-run growth. The idea that a well functioning financial system like insurance plays an essential role in promoting economic development dates back to J. Schumpeter, who argued that the services provided by financial intermediaries-mobilizing savings, evaluating projects, managing risk and facilitating transactions are essential for technological innovation and economic development.

Concha et al, 2014 argued that there is a positive relationship between financial development and economic growth. A higher degree of financial development brings about long term growth by means of risk diversification, efficient capital use, increased savings opportunities and trade of goods and services as a gear of the financial engine of which the insurance industry helps to diversify risk.

The benefit of insurance business is not only limited to risk absorption, allocation and transfer but also the mobilization of funds for use by financial markets to induce investment and growth (Alhassan et al, 2014). The importance of insurance is growing due to the increasing share of the insurance sector in the aggregate financial sector in almost every developing country. Insurance companies are one of the biggest institutional investors in stock bond and real estate markets (Ojo, 2012).

At its first session in 1964, the United Nations Conference on Trade and Development (UNCTAD) formally acknowledged the contribution of insurance services to economic development in the following forms:

- Insurance promotes financial stability for both households and firms
  The services of insurance transfer and pool risks, thereby encouraging individuals and firms to specialize, create wealth and undertake beneficial projects they would not otherwise consider.
- Life Insurance Companies mobilize and channel savings
  Insurance mobilizes savings from the household sector and channel them to the corporate and public services.
- Insurance supports trade, commerce and entrepreneurial activity
  Given the heavy reliance of all economic activities on risk transfer, insurance service plays a key supporting role, that is, it can give investors the financial confidence to make investments.
- Insurance lowers the risk faced by the economy
  This risk reduction arises from the portfolio diversification and incentives to better measure and manage the risks to which they are exposed as well as to promote risk mitigation activities.
- Insurance improves individual's quality of life and increase social stability
  This may be accomplished through individual health and life insurance, pension funds and Workmen's Compensation Insurance schemes.
  The role of insurance as a social protection mechanism is perhaps what first comes to mind when asked to think about its benefits. Indeed, by mitigating the effects of exogenous events over which we have no control such as, illness, accident, death,

natural disasters, insurance allows individuals to recover from sudden misfortune by relieving or at least limiting the financial burden. In the case of health insurance, it could even mean the difference between life and death. Insurance, however, has a far wider and more profound impact than this initial perception, though its value to society derives from this primary function. Because it manages, diversifies and absorbs the risks of individuals and companies, insurance is often a precondition for the development of other productive activities, such as buying a home and starting or expanding a business. In turn, these activities fuel demand, facilitate supply and support trade, but are only generally engaged in once the associated external risks are managed through insurance (Marcus, 2012).

Insurance has a real effect on the global economy, of course, through the sheer number of people that the sector employs. But it also acts in a complementary fashion with the banking sector, offering easier access to credit, channeling savings into long-term investments and providing greater transparency and liquidity to the markets, thus providing further support and growth to the economy. It contributes to public safety and new product development by raising awareness about security, leading to improved safety requirements that save lives and fuel innovation in the manufacturing sector (Eric, 2012).

2.1.4. Assessment of the Global Insurance Market

International insurance market is characterized by a high degree of heterogeneity as a result of the diversity of events that cause the damage, and of the activities that may affect them. On the international level presented fluctuating developments from a period of time to another. Some years ago, the American Insurance market generated more than half of the total earned insurance premium in the world, while currently it is at the same level as the European one. Currently, the world insurance market is concentrated around the three major regions: Europe, North America and Asia.

Table 4: World distribution of gross premium in 2014

Region	% distribution
North America	33.87
Europe	33.28
Asia	29.19
Oceania	2.10
Africa	1.56

Source: Sigma Magazine, No 3/2013, world insurance, 2012

According to Swiss Re's annual report, Japan is considered as the highest contribution of life insurance market having established itself as a distinct region with 80%. Countries in Europe have a proportion of life insurance of an average of 57%, being on the 4th place from this point of view, after Japan, Asia and Africa.

As regards insurance participation in the development of the Gross Domestic Product, it is rather significant in Japan, with more than 11% of the GDP, while in areas such as North America, Europe, it is around 8%. The smallest of the insurance participation in the creation of per capita GDP is in Latin America, with 3%. At the world level, the share of earned gross premium in the GDP is 6.5%.

The European insurance market records rapid change and consolidation, in particular as a result of the plans and strategies developed by the European Union, aimed at extending transactions with insurance. Differences between organizational and national cultures have prevented the creation of the necessary financial mechanisms. The best results have been obtained on the life insurance market that has promoted rendering work more effective by reducing costs. As a result, regional globalization creates favorable conditions for Europe, reduces the relative share of the United States, but fortifies particularly the Japanese pole.

Thus, the main indicators that characterize the insurance market on European level, that is, written gross premiums, the insurance density and the degree of penetration shall be as follows:

- written gross premiums - the United Kingdom, France, and Germany are on the first three positions;
- according to the degree of density, Switzerland, The Netherlands, and Luxembourg are at the top, with values between 5,600 and 6,600 USD per capita;
- the degree of insurance penetration in GDP, the top three places are the UK (more than 12% gross premiums in the GDP, declining from 16% the previous year), the Netherlands (with more than 12% of the GDP), and France (more than 10% gross premiums in the GDP).

The following table shows insurance penetration in selected African Countries based on GFD data base, 2013.

Table 5: Insurance Penetration in Selected African Countries

	2006	2007	2008	2009	2010	average
Cot D'Ivoire	1.212	1.239	1.346	1.325	1.433	1.294
Ghana	0.878	0.905	0.922	0.933	0.563	0.911
Malawi	1.517	1.658	1.758	2.005	1.052	1.578
Nigeria	0.508	0.504	0.638	0.754	0.682	0.604
Tunisia	1.476	1.491	1.489	1.484	1.663	1.502
South Africa	14.193	13.087	13.491	14.195	11.595	13.146

Source: Authors Computation based on GFD database, 2013

2.2. Empirical Literature

Ward and Zurbruegg (2000) examined the relationship between insurance and growth for OECD countries from 1961 to 1996 using co-integration analysis. They found that there is uni-directional causality to run from insurance consumption to economic growth. Kugler and Ofoghi (2005) found a long run relationship between insurance market development and economic growth for most components using Johansen's co-integration test.

Arena (2008) in examining the causality between insurance consumption and economic growth employed the Generalized Method of Moments (GMM) on a panel data of fifty six countries from 1976 up to 2004. It was found that, a significant positive causal effect does insurance consumption on economic growth. Similarly, Azman-Saini and Smith (2011) applied a panel data on fifty one developed and developing countries from 1981 to 2005 to examine the impact of insurance sector development on economic growth. They found out that a positive relationship between insurance developments and economic growth is transmitted through improvements in productivity for developed countries where as the channel for developing countries was through capital accumulation for investment.

Outreville (1990) examined the relationship between property-liability insurance premia and economic and financial development with a cross-section of 55 developing countries. A positive relationship between logarithm of property-liability premia per capita and GDP per capital was found. It was argued that 1% increase in demand. A positive relationship development defined (defined as insurance penetration or ratio of insurance premia to GDP and financial development was reported by using OLS method. He reported that the income elasticity was greater than one and a positive relationship between demands for insurance and financial development, but the coefficient for price was not statistically significant, he conclude that financial development is an important factor for insurance demand.

Park, Borde & Choi (2002) concentrate in their research work on the linkage between insurance penetration and GNP and some socio-economic factors adopted from Hofstede (1983). The results of analysis of the cross-sectional data from 38 countries in 1997 show significance for GNP, masculinity, socio-political instability and economic freedom. All other factors lack importance and masculinity has to be dropped after checking for heteroscedasticity of unknown form. Deregulation was found to be a process able to facilitate growth in the insurance industry and supports the expectations of Kong & Singh (2005). Sociopolitical instability was found to be more a proxy for poverty than an indicator for the need to insurer.

Webb, Grace & Skipper (2002) use a Solow-Swan model and incorporate both the insurance and the banking sector, with the insurances divided in property/liability and life products. Their findings indicate that financial intermediation is significant. When split into the three categories banking and life sector remain significant for GDP growth, while property/liability insurances lose their importance. Furthermore results show that a combination of one insurance type and banking has the strongest impact on growth.

Horng et al (2012) employed the Vector Autoregressive on Taiwanese data from 1961 to 2006 to examine the insurance growth nexus by testing the demand following hypothesis versus supply- leading hypothesis. The authors found short run causality running from economic growth to insurance demand to support the 'demand-following' hypothesis.

Brown and Kim (1993) analyzed life insurance consumption per capita on forty five countries for a period from 1980 to 1987 using multiple regression model on cross sectional data on various country figures, such as income or inflation rate. It was found that income dependency and social security expenses are positively correlated while inflation is negatively correlated and significant on both years.

Adams et al (2005) examined the dynamics and historical relation between banking, insurance and economic growth in Sweden in the period from 1830 to 1998. Insurance development was measured by annual aggregate (non-life and life) insurance premiums. They employed time series data and econometric tests of co-integration and granger causality. The results show that development of banking but not insurance preceded economic growth during the 19^{th} century, while it was reversed in the 20^{th} century.

Haiss and Sumergi (2008) applied a cross country panel data analysis for twenty nine European countries for the period from 1992 to 2004. The insurance variable is measured by premium income and total investment of insurance companies. Premium

income is split in to life and non-life premium income. As an estimation method, the authors used Ordinary Least Square (OLS) or unbalanced panel with country and time fixed effects. They found out that there is a positive impact of life insurance on GDP growth in the European 15 countries such as Switzerland, Norway and Iceland, while non-life insurance has a larger impact in Central and Eastern Europe.

Beenstock et al (1988) applied pooled time series and cross-sectional analysis on 1970 to 1981 data, covering mainly 12 countries. They regress premium for property insurance on to Gross National Product (GNP), income and interest rate development. They found that premiums are correlated to interest rate and GNP; Marginal Propensity to insure rises with income per capita and is always higher in the long-run. Zhi Zhuo (1998) focused on China and conducts a cross regional study for 1995 and a time series analysis for the period 1986 to 1995. In accordance with other findings both the cross-regional and time series analysis shows that GDP per capita and Consumer Price Index (CPI) are significantly correlated with insurance consumption.

Kjosevski (2011) examined the impact of insurance on economic growth using the insurance penetration as a measure of insurance development. Three variables were used: Life insurance penetration, penetration of non-life insurance and total insurance penetration. The analysis employed data for the period 1995- 2010 of the Republic of Macedonia using OLS techniques, followed by an analysis of the variability in order to identify the effects of each variable. The result of this analysis showed that the development of total insurance sector positively affects economic growth; this result is confirmed in non-life insurance while the result shows that life insurance negatively affects economic growth.

Michael Ojo (2012) examined the short and long term relationship between economic growth and the development of insurance sector in Nigerian economy over the period 1985 to 2009. The results showed that the development of insurance sector positively and significantly affects economic growth. Similarly, Njegomir et al (2010) in their study examined the impact of insurance on economic growth and the interaction

between the insurance and banking activity in promoting economic growth in the former Yugoslavia for the period 2004- 2008. The results of this research showed that the insurance industry provides a positive effect on economic growth both as provider of risk management compensation and an institutional investor.

In 2013, Bendnarczyk examined in her work the long-term relationship between insurance development and economic growth in Poland. In her empirical studies, she used secondary data for the years 1995-2009, on a quarterly basis. Insurance development is measured by the growth rate of insurance density (quarterly insurance premium per capita); and the economic growth by the growth rate of the quarterly GDP per capita. Three different insurance variables were used: Life insurance premium per capita, non-life insurance premium per capita and total insurance premium per capita. Econometrics test were used for co-integration and Granger Causality. The estimation method used the Ordinary Least Square (OLS) for time series with data on a quarterly basis. Using Johansen's Co-integration tests and the Engle-Granger procedure, the author finds a long-term relationship between insurance development and economic growth.

Wadlamanniati (2008) examined the effects of insurance growth and reforms along with other relevant control variables on economic development in India in the period from 1980 to 2006. Growth of insurance penetration (life, nonlife and total) is used as proxies of insurance sector growth. The author applied Ordinary Least Square co integration analysis and Error Correction Model (ECM). The study confirms positive contribution on insurance sector to economic development and a long run equilibrium relationship between the variables. While the reforms in the insurance sector do not affect economic activity, their growth has positive impact on economic development.

Han et al. (2010) had combined cross-sectional and time series data to examine the relationship between insurance development and economic growth in 77 economies over the period of 1994 to 2005. They used GMM models on dynamic panel data to conclude that there is fairly strong evidence in favour of the hypothesis that insurance

development contributes to economic growth. Angela et al. (2014) performed an empirical assessment of the relationship between the use of insurance and economic growth in eleven Latin American countries from 1980 to 2009. From a growth equation specification, a 1% increase in insurance use is associated with a rise in economic growth ranging from 0.17% to 0.44%.

In 2011, Mojekwu examined the impact of insurance contribution on economic growth in Nigeria. The study covered the period between 1981 and 2008. The study used dynamic factor model which described a number of methods designed to analyze a functional relationship between the volume of insurance contribution and economic growth in terms of underlying but unobservable random quantities called factors. The study found a functional positive relationship between the volume of insurance contribution and economic growth in Nigeria.

Yinusa et al. 2013 analyzed both the long and short run relationship between insurance development and economic growth in Nigeria over the period 1986 to 2010 using Error Correction Model (ECM). The study found out that insurance development co integrated with economic growth in Nigeria. That is, there is long run relationship between insurance development and economic growth in Nigeria.

Omoke (2012) makes use of insurance density (premium per capita) as a measure for insurance market activity and real GDP for economic growth in Nigeria between 1970 and 2008. The study also employs control variables such as inflation and savings rates as other determinants of growth. The Johansen cointegration and vector error correction approach were used to estimate the relationship among the variables. The finding of the study is that insurance does not reveal any positive and significant effect on economic growth in Nigeria within the period of study. The result shows low insurance market activity and development in Nigeria. In their paper, Eze and Okoye (2013) use co integration test and error correction model to examine the impact of insurance practice on the growth of Nigerian economy. Insurance premium capital, total insurance investment, and insurance sector development are used as

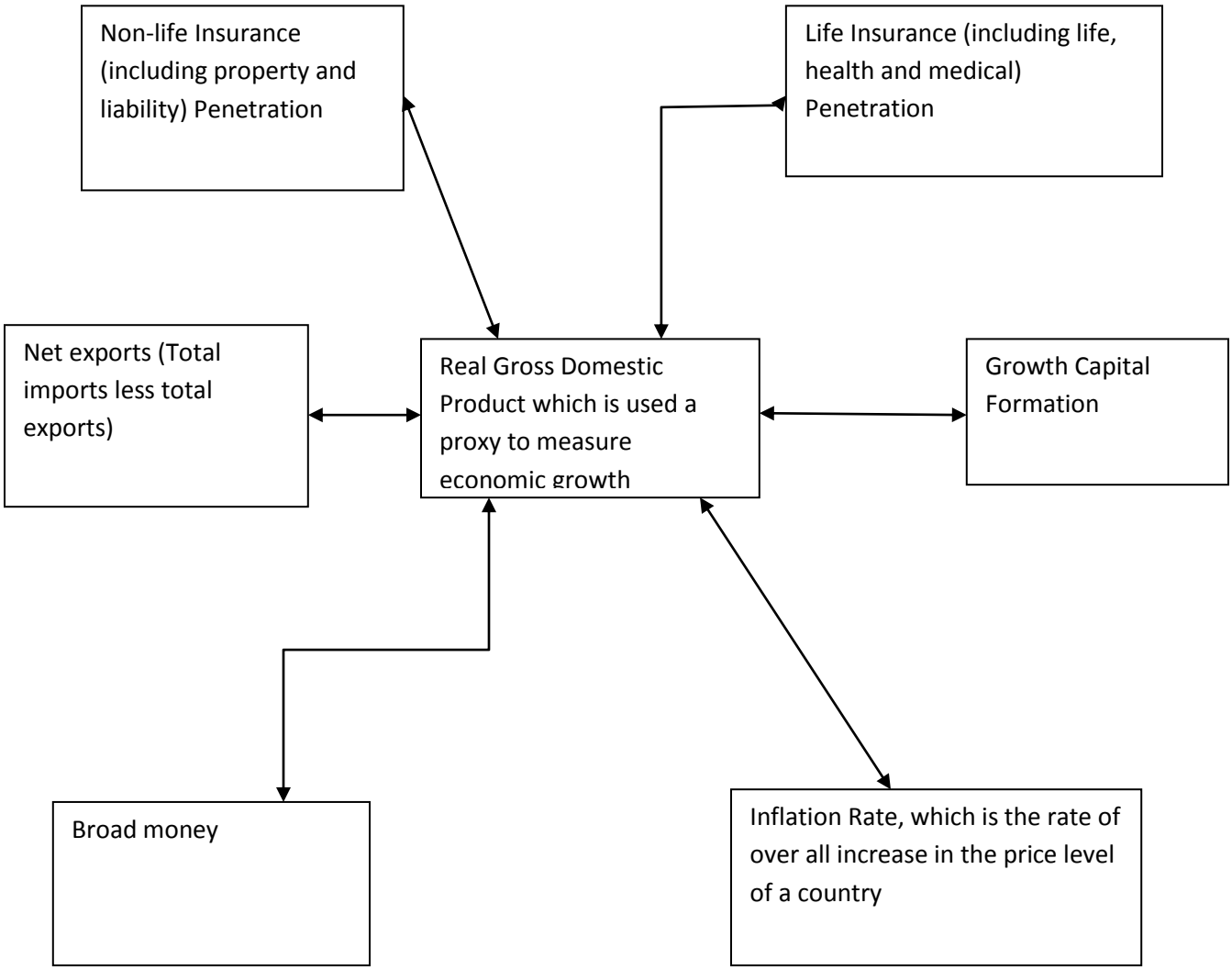
measures of insurance development. The paper concludes that there is a significant positive effect of insurance practice on the growth of Nigerian economy.

Recently, Olayungbo (2015) investigated the asymmetric non-linear relationship between insurance and economic growth in Nigeria from 1976 to 2010. The conclusion is that asymmetric effect is present in Nigeria's insurance market. Also, unidirectional causality runs from positive GDP growth to negative insurance premium growth. In addition, the robustness results, using variance decomposition and impulse response with control variables, show that low insurance promotes high growth in Nigeria. The impulse responses also show the presence of an asymmetric relationship between low insurance and high growth in Nigeria. In conclusion, from the insurance-growth literature, it is clear that studies on African countries are scarce. To the best of our knowledge, no known study has employed time-varying parameter VAR in the analysis of the relationship between insurance demand and growth. Our paper, therefore, fills this gap in the insurance-growth literature.

2.3. Conceptual Framework

The conceptual frame work of this stud sows the linkage between independent variables to the dependant variable. The conceptual framework of this study is presented in the diagram below.

Conceptual Framework of the study



CHAPTER III: RESEARCH METHODOLOGY

3.1. Research Design

This study employed time-series data on two different insurance variables: non-life insurance penetration and life insurance penetration, as a proxy to measure insurance sector development, while the Real Gross Domestic Product (RGDP) was adopted as a proxy for the level of economic growth. Macro economic variables: Gross Capital Formation (GCF), Net Exports (NI), Broad Money Supply (BM) and Inflation Rate (IR) were used as control variables.

The type of study was a correlation study (ex-post-facto research). The study employed analytical research design. Being an empirical research work, the data used were secondary data, and were collected from National Bank of Ethiopia's annual bulletins.

3.2. Model Specification

An econometric model is a representation of the basic features of an economic phenomenon; it is an abstraction of the real world (Fonta et al 2003). The specification of a model is based on available information relevant to the study in question. This is to say, the formulation of an economic model is dependent on available information embedded in standard economic theory and other major empirical studies.

This research estimates and analyzes the relationship between insurance sector development measured in terms of insurance penetration both on life and non-life and economic growth of Ethiopia using linear regression model with data over the period of 2000 to 2014. The model adopted Real Gross Domestic Product (RGDP), dependent variable, as a measure for economic growth. Life insurance penetration and Non-life insurance penetration were used as explanatory variables.

Macroeconomic indicators that may explain economic growth namely, Gross Capital Formation (investment), Net Exports, Broad Money and Inflation Rate, were chosen as control variables.

Activities of insurance sector is expected to be positively related to economic growth, this implies that the higher the people demand for insurance, the higher the economic growth in the country. Empirical evidences have shown that insurance sector is benefited out of increase in government spending, capital accumulation (investment) and imports as government's capital spending, investment and imports require insurance coverage which has an ultimate impact of increasing total insurance penetration. Hence, they are expected to be positively correlated with economic growth where as high inflation has the tendency of distorting economic activities, an increase in the rate of inflation will reduce the level of economic growth. Therefore, inflation rate is expected to be negatively correlated with economic growth.

The model used is formulated in the form of Y as a function of X; where Y is the dependent variable and X is the independent variable.

The mathematical form of the model can be specified as Y=f (Xi)

In econometric pattern, it can be written as:

Y= Bo + B1Xi + u---------- (1)

Where:

Y= Economic growth (Real Gross Domestic Product, dependent variable)

Xi= Insurance activities (Contribution of insurance sector to RGDP, Independent variable)

Bo= Constant term

B_1= coefficient of X

u= error term

To eliminate specification error (also called omitted variable bias), mainly caused by omitting variables from the model which may have a relationship with both

the dependent variable and one or more of the independent variables, four macro economic variables are included in the model. These variables are: Total Gross Capital Formation (GCF) as a % of GDP, Net Export (NI), Broad Money (BM) and Inflation Rate (IR). Thus, equation (1) can be translated to:

$Y= Bo + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 + B_7X_7 + u$……. (2)

Where:

Y = Real Gross Domestic Product (RGDP)

X_1= Non-Life Insurance Penetration (NLIP)

X_2= Life Insurance Penetration (LIP)

X_3= Gross Capital Formation (GCF) as a % of GDP

X_4= Inflation Rate (IR)

X_5 = Paid Up Capital (PUC)

X_6= Broad Money (BM)

X_7 =Net Export (NX)

μ = the stochastic error term or disturbance term

Assuming a linear relationship between the variables, the functional and the econometric form of the model can be expressed as:

RGDP= f (NLIP, LIP, GCF, IR, PUC, BM, NX, μ)

$RGDP = Bo + B_1NLIP + B_2LIP + B_3GCF + B_4 IR + B_5PUC + B_6BM + B_7NX + \mu$

Where:

Bo is the intercept

The explanatory variables are NLIP, LIP, GCF, IR, PUC, BM and NX

RGDP = Real Gross Domestic Product (dependent variable in the study)

B_1, B_2, B_3, B_4, B_5, B_6, and B_7 are the coefficients of explanatory variables

μ = the stochastic error term or disturbance variable.

At first, the test for stationarity of the variables was done using the Augmented Dicky-Fuller (ADF) unit root test before running the regression to avoid spurious regression. The test was done at various levels of stationarity, at first and second difference levels. The stationarity of the parameters is determined if the ADF statistics is greater than the Mackinnon Critical values at 1%, 5% or 10%; or when the p-value is less than or equal to a specified significance level, often 0.05 (5%), or 0.01 (1%) and even 0.1 (10%).

Then, the parameters were estimated by Ordinary Least Square (OLS) using multiple regression analysis to know the short run relationship of the parameters.
The Ordinary Least Square (OLS) technique, which is attributed to Carl Friedrich Gauss, a German mathematician has been employed to obtain the numerical estimates of the coefficients. The researcher chooses OLS method because it possesses some optimal properties, simplicities of its computation procedures and it is also an essential component of most order estimation techniques. In demonstrating the application of Ordinary Least Square method, the multiple linear regression analysis was used with Real Gross Domestic Product (RGDP) as the dependent variables while the explanatory variables as the independent.

The analysis of the correlation between the variables identified can be achieved by Pearson's pair wise Correlation Coefficient, which was used to test the hypotheses to determine the intensity, direction of correlation and the extent of correlation, while the standard error test was used to find out the significance of the relationship that exists between the variables.

The test for the long run relationship is done using the Johansen co- integration test. For the purposes of analysis, we have a set of 15 observations, between 2000 and 2014. The coefficient of determination (R^2) was adopted to test for the reliability or goodness of fit of the model.

An evaluation of the model enables to determine where the estimated coefficients are theoretically meaningful and statistically significant.

A priori expectations are determined by the principles of economic theory and refer to the parameter of economic relationship. The expected signs (based on theory and previous findings) of the variables used in the model are summarized in the table below.

Table 6: Expected Signs of the Variables

Variables	**Expected Sign**
NLIP	+
LIP	+
GCF	+
IR	-
PUC	+
BM	+
NX	+

3.3. Evaluation based on Econometric Criteria

3.3.1. Serial Autocorrelation

The Durbin Watson d-statistics was employed to test the randomness of the residuals or the presence of serial autocorrelation in the error term. The null hypothesis (Ho) is summarized as follows:

Null Hypothesis	Decision	If
No positive autocorrelation	Reject	0<d<di
No positive autocorrelation	No Decision	di<d<du
No positive autocorrelation	Reject	4-di<d<4
No negative autocorrelation	No Decision	4-du<d<4-di

No negative autocorrelation, positive or negative	Do not Reject	du<d<4-du

3.3.2. Multicollinearity test

Multicolliniarity test was conducted to test if the explanatory variables are highly correlated. Some of the common methods used for detecting multicollinearity include:

- The analysis exhibits the signs of multicollinearity — such as; estimates of the coefficients vary from model to model.
- The t-tests for each of the individual slopes are non-significant ($P > 0.05$), but the overall F-test for testing all of the slopes are simultaneously 0 is significant ($P < 0.05$).
- The correlations among pairs of predictor variables are large

3.3.3. Normality test

This test is carried out to check whether the error term follows a normal distribution. Estimation of the coefficients only requires that the errors be identically and independently distributed The normality test adopted in this research work is the Jarque Bera (JB) statistic which follows the chi-square distribution with 2 degrees of freedom. If the computed p-value of the JB statistic is low, one can reject the hypothesis that the residuals are normally high, which will happen if the value of the statistic is close to zero, we do not reject the normality assumption.

3.3.4. Heteroskedasticity test

When the standard deviations of a variable, monitored over a specific amount of time, are non constant. Heteroskedasticity often arises in two forms: conditional and unconditional. Conditional heteroskedasticity identifies nonconstant volatility when future periods of high and low volatility cannot be identified. Unconditional heteroskedasticity is used when futures periods of high and low volatility can be identified.

3.4. Hypothesis Testing

In this section the researcher analyzed the significant causal relationship between Non-life insurance business and life assurance business and economic growth of Ethiopia from 2000-2014.

Hypothesis I

Null Hypothesis: There is no significant causal relationship between Non-life insurance business and economic growth of Ethiopia.

Alternative Hypothesis: There is significant causal relationship between Non-life insurance business and economic growth of Ethiopia.

Hypothesis II

Null: There is no significant causal relationship between Life Assurance business and economic growth of Ethiopia.

Alternative: There is significant causal relationship between life assurance business and economic growth of Ethiopia

CHAPTER IV: RESULTS AND DISCUSSIONS

4.1. Descriptive Statistics

This section discussed the summery statistics of each variables of the study. The variables include the dependent and independent variables. The dependent variables used in this study to measure economic growth is Real Gross Domestic Product (RGDP) whereas the explanatory variables (independent variables) are Non-life insurance Penetration (NLIP), Life Insurance Penetration (LIP), Gross capital Formation (GCF), Net Exports (NX), Broad Money (BM), Paid Up Capital (PUC) and Inflation Rate (IR).

The researcher conducted descriptive statistic using STATA 12 software in order to give the audience more understanding about the study variables that are being analyzed. It is derived from statistical analysis before performing another test using multiple regression analysis. Descriptive studies produced the mean, minimum, maximum and standard deviation for each variable. Accordingly, the descriptive statistics for all the variables used in the regression are presented below.

Table 7: Summary of descriptive Statistics

Variable	Mean	Std Dev	Minimum	Maximum
RGDP	377.04	169.94	197.34	691.23
NLIP	1.64	1.49	0.4	4.68
LIP	0.103	0.1003	0.0184	0.2295
GCF	29.2	5.48	23.6	39.3
NX	-61120	49655	-133526	-7962
IR	16.1	10.22	2.8	36.4
PUC	0.1906	0.036	0.164	0.296
BM	105850	85695	24516	255452

Source: Author's estimation from STATA 12 results

Table 7 shows the descriptive statistics of each variable, computed based on the 15 observations recorded. It can be seen that the Real GDP fluctuates between 197.3 and

691.2 with an average value of 444.25. The mean value of Non-life insurance penetration (NLIP) is 1.64 and the value of standard deviation is 1.49 which implies that moderate variation is observed on non-life Insurance Penetration. Whereas since the mean value of Life insurance Penetration is 0.103 with the standard deviation of 0.1003 which implies low variation of life insurance Penetration during the observed period.

4.2. Pair wise Correlation Test

This section of the study presents the results of the Pearson pair wise correlation analysis to identify the relationship between Real Gross Domestic Product and non-life insurance penetration, life insurance penetration, gross capital formation, Net export, inflation rate, broad money and paid up capital.

The correlation coefficients show the extent and direction of the linear relationship between the variables. In this study, the researcher used Pearson pair wise correlation coefficient matrix generated through STATA 12 which shows the cross-relationship among all of the variables.

Basically, a Pearson correlation attempts to draw a line of best fit through the data of two variables, and it indicates how far away all these data points are to this line of best fit (how well the data points fit this new model/line of best fit). It can take a range of values from -1 to +1. A value of 0 indicates that there is no association between the two variables. A value greater than 0 indicates a positive association; that is, as the value of one variable increases, so does the value of the other variable. A value less than 0 indicates a negative association; that is, as the value of one variable increases, the value of the other variable decreases. That means it is used to determine whether there is positive or negative association between them.

The correlation coefficients are also checked for the presence of high collinearity among regressors. Since the correlation analysis showed only the degree of

association, it was followed by multiple regression analysis. The Pearson's correlation coefficient matrix for all variables is presented in Table 8.

Table 8: Pair wise correlation

Correlation	RGDP	NLIP	LIP	GCF	IR	PUC	BM	NX
RGDP	**1.0000**							
NLIP	**0.754**	**1.0000**						
LIP	**0.632**	**0.712**	**1.0000**					
GCF	**0.712**	**0.6325**	**0.6523**	**1.0000**				
IR	**-0.1212**	**-0.0184**	**-0.0558**	**-0.0082**	**1.000**			
PUC	**0.4253**	**0.7634**	**0.65031**	**0.4536**	**0.3526**	**1.0000**		
BM	**0.756**	**0.7568**	**0.654**	**0.7654**	**0.324**	**0.125**	**1.0000**	
NX	**0.641**	**-0.523**	**-0.423**	**-0.856**	**0.245**	**0.326**	**0.475**	**1.000**

Source: Own estimation from STATA 12 summery of pair wise correlation

The above Correlation test shows that the dependent variable, Real Gross Domestic Product (RGDP), has strong and positive correlation with life insurance penetration with the value of (0.632), non-life insurance penetration with the value of (0.754), Gross capital formation with the value of (0.712), and relatively weak negative correlation with inflation rate with the value of (-0.1212).

Correlation analysis between independent variables revealed that except inflation rate and net exports which has a negative association with the independent variables which is explained due to the fact that much of the expenditure mainly focuses on those items which are not insurable and contribute to the increase in the insurance premium, all independent variable do have positive and strong linear association.

4.3. Augmented Dickey- Fuller Test for Unit Root

Augmented Dickey–Fuller test (ADF) is a test for a unit root in a time series sample. It is an augmented version of the Dicky-Fuller Test for a set of time series models. The augmented Dickey–Fuller (ADF) statistic, used in the test, is a negative number. The test is done at various levels of stationarity; at first and second difference levels. The stationarity of the parameters was determined as the ADF statistics is greater than the Mackinnon critical value at 5%. The following table shows the result of the ADF test.

Dfuller ir, ternd lags (1)

Augmented Dickey- Fuller Test for Unit Root

Number of Observations = 15

	Test Statistics	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-4.50	-3.750	-3.00	-2.630

Mackinnon approximation p-value for Z(t)= 0.02

With this ADF test, we would reject the null hypothesis that the time series has a unit root and conclude that the series has difference stationary (accepting the alternative hypothesis). This means that the mean and variance do not vary systematically over time. This result is in line to most empirical works based on time series data which assume that the underlying time series is stationary. Since the result from the unit root test is in line to our expectation that there is no unit root and the series is stationary, we can proceed to estimate the slope coefficients of the model using Ordinary Least Square Estimation.

4.4. Normality Test for Residual

The examination of the normal distribution of the data of the study is one of the fundamental requirements for linear regression analysis between the study variables. Normality tests are used to determine whether a data set is well-modeled by a normal distribution or not, or to compute how likely an underlying random variable is to be normally distributed (Gujarati, 2009). This assumption requires the disturbances to be normally distributed. It is also based on the Ordinary Least Square residuals. This test first computes the skewness and kurtosis measures of the ordinary least square residuals and uses the chi-square distribution (Gujarati, 2009).

The hypothesis is:

Null Hypothesis (H0): Xi = 0 normally distributed.

Alternative Hypothesis (H1) : Xi ≠ 0 not normally distributed.

At 5% significance level with 2 degree of freedom.

JB (Bera-Jarque) = 12.56

While critical JB > (X2(2)df) = 4.32

Conclusion:

Since 12.56 > 4.32 at 5% level of significance, we reject the null hypothesis and conclude that the error term do not follow a normal distribution.

4.5. Ordinary Least Square Estimation

The parameters were estimated by Ordinary Least Square (OLS) of regression analysis to know the short run relationships of the parameters. Properties of the OLS estimators are contained in the well-known Gauss–Markov theorem. The OLS estimator is said to be a best linear unbiased estimator (BLUE) if the following hold (Gujarati, D, 1999)

- It is linear, that is, a linear function of a random variable, such as the dependent variable Y in the regression model.
- It is unbiased, that is, its average or expected value, (E), is equal to the true value
- It has minimum variance in the class of all such linear unbiased estimators;

To estimate the econometric model given, that is, to obtain the Numerical values of Bo, B_1, B_2, B_3, B_4, B_5 and B_6, the researcher compiled the required data as prescribed in annexes. The numerical estimates of the parameters give empirical content to the GDP function.

4.6. Presentation of Regression Results

Table 9: Regression Result

RGDP	Coefficient	Standard error	t-statistics (calculated)	P > /t /	95% confidence interval
NLIP	176.1	102.9	1.71	0.731	-67.24 _ 419.4
LIP	45.23	1142.2	-0.43	0.51	-5385 _ 16.21
GCF	10.79	3.5	-3.08	0.018	-19.08 _ -2.5
IR	-1.61	0.894	-1.81	0.114	-3.73 _ 0.498
PUC	-701	1061.9	-0.46	0.530	-3212 _ 1809
BM	0.0019	0.01	1.99	0.087	-0.00037 _ 0.0043
NX	-0.0015	0.001	-1.498	0.180	-0.0038 _ 0.0008
CONSTANT	537	193.5	2.78	0.027	995

Number of Observations = 15; F (7, 7) = 92.63; Prob > F = 0.0000; R- Squared (R^2) = 0.9542; Adj R^2 = 0.932; Root MSE = 23.96

Once we obtained the values of the regression coefficients, we shall obtain the multiple linear regression equation as follows.

RGDP= B0 + B1NLIP + B2LIP + B3GCF + B4IR + B5PUC + B6BM + B7NX + u

Where:

RGDP is Real Gross Domestic Product of Ethiopia;

NLIP –Non-life Insurance Penetration;

LIP – Life Insurance Penetration;

GCF- Gross Capital Formation as a percentage of GDP

IR- Inflation Rate

PUC- Paid Up Capital

BM- Broad Money

NX – Net Export

GDP= 537 + 176.1NLIP + 45.23LIP + 10.79GCF – 1.61IR – 701 PUC + 0.0019 BM – 0.0015NX + u

The interpretation of the obtained equation from Table 9 reveals that, on the basis of the data analyzed for the period 2000-2014; the value of the intercept is 537, this shows that the Ethiopian economy will experience a 537 increase when all other variables are held constant. Of course, such a mechanical interpretation of the intercept term does not make economic sense in the present instance because the zero value is out of the range we are working with and does not represent a likely outcome (Gujarati, 1995).

The more meaningful value is the slope coefficients. Therefore, on a short time horizon, if the share of non-life insurance penetration (NLIP) increased by one percentage point, the Real Gross Domestic Product (RGDP) will be increased by 176.1 percentage point; if the life insurance penetration increased by one percentage point, the RGDP will be increased by 45.23 percentage point; a percentage point change in Gross Capital Formation (GCF) will cause a 10.79 percentage point increase in RGDP. This result is consistent with previous studies that focused on developing markets. A percentage increase in Inflation Rate and net export will cause a 1.61% and 00.15 % decrease in RGDP.

4.7. Economic a priori Criteria

The goal of this test is to determine whether the sign and size of the results are in line with what economic theory postulates. Thus, economic theory tells us that the coefficients are positively related to the dependent variable, if an increase in any of the explanatory variables leads to an increase in the dependent variable.

Therefore, the variable under consideration and their parameter exhibition of a priori signs have been summarized table 10.

Table 10: Priori signs of the parameters

Variable	Expected sign	Estimated	Remark
NLIP	+	*B1>0*	Conform
LIP	+	B2>0	Conform
GCF	+	B3>0	Conform
IR	-	B4<0	Conform
PUC	+	B5<0	Does not Conform
BM	+	B6>0	Conform
NX	_	B7<0	Conform

From table 10, it is observed that except PUC all others variables conform to a priori expectation. Hence, we can deduce that NLIP, LIP, GCF and BM do have positive relationship with RGDP, while PUC and IR do have negative relationship with the RGDP.

4.8. Statistical Criteria (First order test)

4.8.1. Coefficient of Multiple Determinations (R^2)

R^2 measures the overall significance of the model. That is, it is the measure of the amount of the total variation of the dependent variables that is explained by the model or the variation in the independent variables.

The R^2 of the entire regression is 0.9542 = 95.42%. This result indicates that 95.42% of the variation in the dependent variable is caused or explained by the independent variables in the model. This means that the independent variables included in the model are the major determinants of RGDP.

4.8.2. The Student's t-test

The test of significance approach is a procedural test used to test whether the variables are significant or not in determining the variations in the dependent variable.

That is, t- test is carried out to check for the individual significance of the variables in determining the dependent variable.

Statistically, the t-statistics of the variables under consideration is interpreted based on the following statement of hypothesis.

H0: The individual parameters are not statistically significant.

H1: The individual parameters are statistically significant.

Decision Rule:

If t-calculated (in absolute value) > t-tabulated (reading from t-table at t $\alpha/2$, n-k) we reject the null hypothesis (H0) and accept the alternative hypothesis (H1), and if otherwise, we accept the null hypothesis (H0) and reject the alternative hypothesis (H1).

Level of significance = α at 5% = 0.05

Degree of freedom (df) = n-k = 7

Where

n = 15= number of observations

k = 8= number of parameters (including the intercept)

The t-test result is summarized in the table below:

Table 11: Result of the Student t-test

Variables	t- calculated	t-tabulated	Remark
NLIP	1.71	±1.495	Statistically significant
LIP	-0.43	±1.495	Statistically insignificant
GCF	-3.08	±1.495	Statistically significant
IR	-1.81	±1.495	Statistically Significant
PUC	-0.46	±1.495	Statistically insignificant
BM	1.99	±1.495	Statistically Significant
NX	-1.498	±1.495	Statistically Significant

As discussed above, the t-statistics is used to test for individual significance of the estimated parameters β1, β2, β3, β4, β5, β6 and β7

From table 11 above, as the calculated t-value of NLIP, GCF, IR,BM and NX which is 1.71, -3.08, -1.81, 1.99 and -1.498 respectively is greater than the tabulated t-value of ±1.495, the null hypothesis (H_0) was rejected and the alternative hypothesis (H_1) was accepted. Hence, it can be conclude that NLIP, GCF, IR, BM and TX are statistically significant in determining RGDP.

On the other hand, since the calculated t-value of LIP= -0.43and PUC=-0.46 is less than the tabulated t-value of ±1.495; we can accept the null hypothesis (H_0) and conclude that LIP and PUC are statistically insignificant in determining RGDP.

4.8.3. F-Statistics

F-statistics is used to test for simultaneous significance of all the estimated parameters or the overall significance of the regression model.

Level of significance = α at 5%

Degree of freedom:

V1 = k-1;

V2 = n-k

Where n is the number of observations and k is the parameters (including the intercept)

Hypothesis:

H_0: The overall estimate of the parameters is not statistically significant

H_1: The overall estimate of the parameters is statistically significant

Decision Rule:

- If the f-calculated is greater than the f-tabulated, that is, (f-cal > f-tab), reject the null hypothesis (H0) otherwise accept the alternative hypothesis.

From the result, f-calculated =74.62 is greater than f-tabulated = 13.5806 at α =0.05, hence, we reject the null hypothesis H_0 and accept the alternative hypothesis (H_1) that the overall estimate of independent variables is simultaneously **statistically significant** in determining the dependent variable

4.9. Johansen Co integration Test

The test for the long run relationship is done using the Johansen co-integration test. The long run relationship is being determined if the trace statistics/max statistics is greater than 5% critical value at the non-hypothesized stage.
The result of the Johansen co-integration test is depicted on table 12.

Vector rank RGDP NLIP LIP TGS, trend (Constant) max
Johansen test for co-integration
Trend: Constant
Sample: 2000-2014
Number of observations = 15
Lags= 2

Table 12: Johansen Co-integration test (Trace Statistics)

Max rank	Parms	LL	Eigen value	Trace statistics	5% critical Value
0	20	-7.5378871	-	109.2294	47.21
1	27	23.685953	0.99180	46.7818	29.68
2	32	40.538313	0.92518	13.0770	15.41
3	35	46.361644	0.59176	1.4304	3.76
4	36	47.076835	0.10419		

Table 13: Max Statistics

Max rank	Parms	LL	Eigen value	Max statistics	5% critical Value
0	20	-7.5378871	-	62.4477	27.07
1	27	23.685953	0.99180	33.7047	20.97
2	32	40.538313	0.92518	11.6467	14.07
3	35	46.361644	0.59176	1.4304	3.76
4	36	47.076835	0.10419		

Null hypothesis (Ho) = No co-integration among the variables
Alternative hypothesis (H1) = There is co-integration among the variables

The general Guideline for Johansen co-integration test is:

Reject Ho, if Trace statistics/max statistics > 5% critical Value, otherwise accept H1.

In rank 0, the trace statistics 109.22 is greater than the 5% critical value of 47.21. Hence, null hypothesis is rejected and the alternative hypothesis is accepted. That is, there exists co-integration among the variables. The same conclusion is drawn from the result of max statistics.

Hence, the result of the Trace statistics and Max statistics (above tables) show that there exist a long- run relationship between economic growth and the development of the insurance sector in Ethiopia. At 5% critical value, the hypothesis of no-co-integrating relationship is rejected in favor of accepting the hypothesis of the presence of co-integration between economic growth of Ethiopia and development of the insurance sector. This is determined because the trace statistics is greater than 5% critical value at a rank of 0.

4.10. Econometric Criteria

4.10.1. Test for Autocorrelation

One of the underlying assumptions of the Ordinary Least Square regression is that the succession values of the random variables are temporarily independent. In the context of the time series analysis, this means that an error {Ut} is not correlated with one or more of previous errors {Ut-1}. The problem is usually dictated with Durbin-Watson {DW} statistics.

The Durbin-Watson's test compares the empirical d* value calculated with dL and dU tables to their transforms {4-dL} and {4-dU}.

Decision Rule:

• If d* < dL, then we reject the null hypothesis of no autocorrelation and accept that there is positive autocorrelation of first order.

• If d* > {4-dL}, we reject the null hypothesis and accept that there is negative autocorrelation of the first order.

• If dU< d* < {4-dU}, we accept the null hypothesis of no autocorrelation.

• If dL < d* < dU or if {4-dU} < d* < {4-dL}, the test is inconclusive.

Where: dL = Lower limit

DU = Upper limit

D* = Durbin Watson.

From our regression result, we have;

d* = 2.37 ; DL = 2.456; DU = 1.15 ;4-dL = 2.938; 4-dU = 2.241

Conclusion:

Since d* < DL, then we reject the null hypothesis of no autocorrelation and accept that there is positive autocorrelation of first order.

4.10.2. Test for Heteroscedasticity

Heteroscedasticity has never been a reason to throw out an otherwise good model, but it should not be ignored either (Mankiw, 1990).

This test is carried out using White's general heteroscedasticity test (with cross terms). The test asymptotically follows a chi-square distribution with degree of freedom equal to the number of regressors (excluding the constant term). The auxiliary model can be stated thus:

$RGDP = \beta 0 + \beta 1NLIP + \beta 2LIP + \beta 3GCF + \beta 4IR + \beta 5PUC + \beta 6BM + \beta 7NX + Vi$

Where Vi = pure white noise error.

This model is run and an auxiliary R2 from it is obtained.

The hypothesis to the test is stated thus;

H0: $\beta i = 0$ {Homoscedasticity}

H1: $\beta i \neq 0$ {Heteroscedasticity}.

The sample size {n} multiplies by the R2 obtained from the auxiliary regression asymptotically follows the chi-square distribution with degree of freedom equal to the number of regressors (excluding constant term) in the auxiliary regression.

Decision Rule:

Reject the null hypothesis if X2cal > X2 at 5% level of significance. If otherwise, accept the null hypothesis. From the obtained results, X2cal = 12.096 < X2 = 15.5, we therefore reject the alternative hypothesis of heteroscedasticity showing that the error terms have a constant variance and accept the null hypothesis showing that the error terms does not have a constant variance.

4.10.3. Test for Multicollinearity

According to (Gujarati, 2003, p. 374) one of the assumptions of linear regression model is that there is no multicollinearity among the explanatory variables. The multicollinearity test helps to identify the correlation between explanatory variables and to avoid double effect of independent variable from the model. The term

Multicollinearity is due to Ragnar Frisch, originally it meant the existence of a "perfect" or exact, linear relationship among some or all explanatory variables of a regression model. The tests for multicolliniarity were carried out using correlation matrix.

Table 14: Multicollinearity Test - correlation analysis of independent variables

	NLIP	LIP	GCF	IR	PUC	BM	NX
NLIP	1.0000						
LIP	0.452	1.0000					
GCF	0.326	0.256	1.0000				
IR	0.348	0.269	0.469	1.0000			
PUC	0.489	0.369	0.423	0.322	1.0000		
BM	0.278	0.334	0.444	0.632	0.322	1.0000	
NX	0.477	0.388	0.475	0.366	0.256	0.423	1.0000

As indicated on the correlation matrix, almost all correlations that have occurred among explanatory variables are weak correlations; this indicates that there is no multicollinearity among the independent variables and hence multicolliniarity was not the problem on the study.

CHAPTER V: CONCLUSIONS & RECOMMENDATIONS

5.1. Summary and Conclusions

The aim of this research is to provide a systematic assessment which is based on statistical methods on a series of data collected for a period of 15 years, from 2000 up to 2014 to show the impact of the insurance business, measured by non-life and life insurance penetration on economic growth of Ethiopia measured by Real Gross Domestic Product. Thus, through Pair wise correlation analysis, it has been established that there is a positive linear association among the variables which is in line with previous empirical analysis conducted on a similar subject.

The empirical evidence of the Augmented Dicky-Fuller unit root test show that Non-Life insurance Penetration, Life Insurance Penetration and net exports appear non stationary at levels. This was concluded as the values of the ADF test statistics are higher as compared with the critical values of the test statistics at the 1%, 5% and 10% level of significance. However, Gross Capital Formation and Inflation rate are stationary at levels. Hence, through differencing, all the variables achieved stationary at first difference. Therefore, the null hypothesis of non-stationarity is rejected and stationarity of all the variables is achieved.

Using the Ordinary Least Square Regression estimate, we obtained a result in conformity with our expectation that Non-life insurance penetration, Life insurance penetration and gross capital formation are positively related to Real Gross Domestic Product. However IR and NX are negatively related. The adjusted Coefficient of Multiple Determinations (adj R^2) of about 93% shows that the explanatory variables adequately describe Real Gross Domestic Product (RGDP) in the short run. The results of student t-test revealed that except Life insurance penetration and Paid up capital, all other independent variables were statistically significant to explain economic growth in Ethiopia. This result is in line to previous studies conducted on the area.

One of the very important finding of this research is that the combined effect of the explanatory variables is statistically significant in explaining economic growth in Ethiopia which is also in line with various theories and empirical evidences. The result of the Johansen Co-integration test depicted that a long run relationship or association ship has existed between economic growth and the development of insurance sector in Ethiopia. This result is consistent with evidences shown previously by many theoretical and empirical studies conducted on developing economies.

Findings of the study shows that life insurance penetration is very insignificant which is directly related to the very poor premium income generated so far. This is mainly attributable to the poor awareness and socio cultural impediments of the society and country's economic performance as life insurance is highly associated to economic growth and per capita income.

5.2. Recommendations

One of the core findings of this study is that the causal relationship between economic growth and insurance development of Ethiopia is very limited.

The findings that government spending on physical capital (requiring insurance cover) plays an important role in economic growth and encourage government to embark on developmental policies that targeted at increasing the level of spending on physical capital stock of the nation. This is in line with the Ethiopian government's current policy of diverting resources from consumption expenditure to infrastructural development such as construction of roads, buildings, Hydro power electrification projects and large scale industries. This all have a positive impact in accelerating the development of insurance sector in the country.

According to the findings of the study, the non-life and life insurance penetration is still at the minimal stage even compared to the neighboring countries such as Kenya. This can be explained by the many challenges the industry has faced. Tackling all the

problems facing the Ethiopian insurance industry is rested mainly on the supervisory body, the National Bank of Ethiopia. According to the researcher's insight, NBE is not in a position to properly address the industry's problems mainly due to capacity problem. Hence, institutional improvements are needed. Capacity building shall be in the form of offering various trainings to staffs and implementing state of the art technology so that it becomes capable to identify the industry's problems and work for the solutions.

Association of Ethiopian Insurers (AEI) is another organ of the insurance industry with poor capacity to integrate all of its members; unable to create smooth playing grounds for insurance companies to cooperate and collaborate on common tasks and fairly compete on services and pricings. These by and large harm the sector at all. Therefore, it is recommended that AEI shall also be strong enough and capable to generate new ideas and forward same to the supervisory body for timely execution. AEI's activities should also be focused on convincing the regulatory body to set "Minimum Premium" to each classes of business similar to Minimum interest rate already set to the Banking industry. This has a positive impact on increasing industry's premium.

One of the best ways to improve insurance penetration and increase its contribution to the Nation's economy is to improve awareness level of the society as a more enlightened person is easier to convince on the advantages of insurance. Moreover, the negative perception about insurance among the members of the public will have to be eradicated and the public should be encouraged to take insurance covers.

More innovative products will also have to be introduced and developed so as to ensure that insurance will attract more people. Expanding insurance services to the rural population and diversifying suitable insurance products that benefits low income groups and narrowing the widening gap in knowledge in view of the international impressive stride in introducing and customized new products and utilization of advanced communication and information technology. This can be achieved by

coming up with insurance covers such as livestock insurance and micro insurance which are targeted for the rural people as more than 70% of the population of the country is living in the rural areas. This covers should be flexible and affordable because they are aimed at low to middle level income earners.

Improved legislations can also be used to increase insurance penetration. It is recommended that in the same way that Third Party Insurance and Employers liability insurance made mandatory by law, other laws can be passed to make certain insurances such as public liability insurance and fire insurance mandatory for business establishments.

The result of the study showed that both non-life and life insurance penetration is at a minimal. According to NBE report, on average more than 30% of the annual premium generated by the industry is ceded to international Reinsurance companies. This is a large outflow of hard currencies as premium is paid in the form of USD. This shall be managed either by increasing the retention capacity of each insurance companies or by establishing a Reinsurance company which will absorb the outflow of hard currency.

As per the findings of the study, the model is fit enough to explain economic growth, although some explanatory variables were insignificant to explain economic growth individually. This is perfectly tallying the practices of the insurance industry. Therefore, the researcher highly recommended other researcher to deal with the issue in depth and forward a policy input to the concerned government authorities for possible remedies.

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