CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

Investment entails any means through which funds are placed with the aim of generating income or profit in future(Ariwa & Ezeudu,2017). Investment involves the allocation of monetary resources to assets that are expected to yield some positive returns over a given planning period. It comprises the sacrifice of present consumption for the prospect of uncertain reward, basically resulting to increase in future output. The principal reason for investment is to enhance the welfare of the investor (Okonkwo, 2004).

Insurance investments entail when Insurance companies collect premiums from policyholders and shareholders' funds which accumulate into large sums of money , invest the funds according to the rules and regulations guiding insurance practice. The insurance companies expect income from such investments which contribute to profit making of the companies. Ezirim (2004) posited that the insurance industry mobilizes funds from the surplus economic agents (such as by premium generation, equity and debt capital) and channel it to deficit agents in the economy(by way of investments, loans and claim payment. It is through this channel that insurance industry affects the economy most in terms of growth and development.

Investment of insurance funds is very important in economic development of any nation. Insurance as institutional investor provides a long term source of finance for investment in the economy thereby contributing to sustainable growth. Insurance serve a number of valuable economic functions that are largely distinct from other financial intermediaries. Through their their investment function insurance facilitate economy of scale in investment and create liquidity which is found to facilitate economic growth(Njegomir &Stojic,2010). By way of financial intermediation insurance products have emerged as a prominent source of long term funds accelerating the pace of aggregate investments through capital market development(Oloke, Durodola &Emeghe, 2015).

Economic development is the process in which the country's real national income increase over a long period of time, development is considered is considered in terms of increase in aggregate output,the quality of labour force, net national income and growth in domestic product per capital.(Ojo, 2012). Economic growth studies have provided insight into why states grow at different rates over time and that influence government in her investment level at which a given economy will grow. Studies on economic growth and the drivers have received attention among scholars but with differing evidences. Economic growth represents the expansion of a country's potential Gross Domestic Product (GDP) or output (Abata, Kehinde & Bolarinwa 2012). A number of Sub-Saharan African countries had relatively favourable development prospects and income levels at the time of independence. However, overtime economic development in the region has been dependent on aid and debt due to mismanagement of fiscal policies and investment policies (Ugwunta, 2014). When the region is compared with those in the Southeast Asia countries, it is obvious and glaring that economic development in sub-Saharan African has been lagging behind. In most recent times many south East Asian countries have higher development and income levels with some being categorised as emerging economies (Ugwunta, 2014). Sub-Saharan African economy has been plagued with several challenges over the years such as management and mismanagement of investments.

The development of Insurance Industry in Nigeria has been on a slow pace, which can be attributed to lack of awareness of importance of insurance, corruption, misappropriation of premiums and non-settlement of claims which led to the public not trusting the insurance industry. It became necessary to

have strong regulation in the insurance industry in order to restore confidence and trust in the industry. Okezie (2012) stated that the need for the regulation borders on the need to maintain efficient and stable insurance markets, ensuring a fair and safe market for profitable insurance business transaction and the provision of adequate protection for policy holders. The first major step at regulating the activities of insurance business in Nigeria was the report of J,C. Obande commission of 1961 which resulted in the establishment of the Department of insurance in the federal Ministry of Trade which was later transferred to the ministry of finance. The report also led to the enactment of the Insurance Companies Act 1961, which came into effect on 4th may, 1967. This was subsequently followed by the Insurance(miscellaneous provisions) Act 1964, Insurance companies Regulation of 1968, Insurance Decree No.59 of 1976 and corollary Regulation, 1977, which were about the first all embracing law for the regulation and supervision of the Insurance sector. There were also Decree No.40 of 1988 and insurance special supervisory fund Decree No. 20 of 1989. Also Decree No.62 of 1992 was established. The National Insurance Supervisory Board(NISB) was the industry's supervisor until in 1997 when Decree No.1 of 1997 established National Insurance commission(NAICOM) (Isimoya,1999). This is a regulatory body of Insurance industry with major objective of ensuring the effective administration, supervision and control of Insurance business in Nigeria. NAICOM also insist that investment of Insurance premium must be done according to law, pertaining to securities and other real assets.

Agwuegbo, Adewole and Maduegbuna (2010) observed that the investments in money and capital market serve as a shield for insurance

companies against predictable underwriting losses. A critical function of insurance operations include the creation of a pool of investable funds through fund mobilization and the investment of the fund in capital market or in direct investment which will propel the economy to achieve allocation efficiency. By creating a large amount of assets placed in the money or capital markets, it contributes to the growth level of goods and services in the economy. Insurance companies together with pension and mutual funds invest into stock, bond, mortgage and real estate markets as well as issue and sell indirect securities to the surplus economic units and subsequently purchase other securities which may be primary in nature from the borrowers of funds (Nwinee & Torbira, 2012).

Organisation of European Community Development (OECD)(2005), after their investigation, revealed that institutional investors, particularly pension funds, mutual funds and insurance have enhanced their role as collectors of savings over the past few decades, which will augment the size of capital markets. According to finance growth nexus theory, financial development promotes economic growth through channel of marginal productivity of capital efficiency of channelling savings to investment, savings rate and technological innovation (Ojo, 2012).

The Insurance industry has been identified as an institution that contributes to the economic development of every nation's economy. They mobilize large amounts of financial resources from premium paid by the policy holders , invest the fund and provide for payment of claims. Insurance collects funds and transfer them to deficits economic units for financing real investment. The nature of funds from insurance business and pension and the

predictable pattern of their cash flow enable insurance companies to play a vital role as institutional investors in the stock market (Chui & Kwot 2008). Nwinne and Torbira (2012) citing Oyejide and Suyode (1976) reported that Insurance companies are well positioned to invest in assets of any maturity, ranging from short term securities to infinite maturity securities such as preferred and equity stocks. Akpakpan (1999) states that as long as the huge funds accumulated by insurance firms are invested, the economy is bound to benefit from their activities and as such, existing jobs will be sustained and new ones created, output will equally increase and price fluctuations will be minimized. It is evident from the above explanation that insurance firms have significant role to play in employment generation, increase in output of goods and service, price stability and improved standard of living in the economy, depending on their investment practice.

Investment of Insurance premium can be effected in the following areas; Investment in Government Securities (IGS), Investment in Stocks and Bonds (ISB), Investment in Real Estate and Mortgage (IRM), Investment in Cash Deposit and Hand (ICH) and Investment in Bills of Exchange (IBE) (Insurance Act, 2003). The legislative constraint on the choice of investment of insurers have social, political and economic advantage, yet this restrictions operate to the disadvantage of the insurers, especially when such outlets are not highly profitable (Akimtola-Bello, 1986). Some even claimed that the restriction is parochial and pin the insurers to bank deposits (Nwankwo, 1991).

There is the current proposal by National Insurance Commission on increasing the capital base of insurance firms to ₦6billion for life insurance, ₦9billion for non life insurance while composite insurance companies(life and

nonlife underwriters) will be ₦15billion. The proposal for review of capital base does not extend to reinsurance companies. There will be no mandatory injection of fresh capital funds by insurers, no cancellation of licence of any is anticipated, but subject solvency control levels.

The nature of business of an insurance company determines the profile of its liability and direction of its investment. Life Assurance companies differ from non-life insurance companies in their investment objectives. The Life Assurance Companies have more funds available for long-term investment, while non-life insurance companies invest in short-term investment due to its liability structure (Arena, 2006). Onoh (2002) states that insurance industry constitutes the next largest mobilization of funds for investment after banks. Insurance premium income is veritable tool for boosting activities at the money and capital markets and for the acquisition of real assets. Again, Ubom(2014) states that insurance funds add value to the world economy through direct contribution to the Gross Domestic Product(GDP), accumulation of savings, financial market development and reducing old age poverty through its products. This work examines effect of insurance companies' investments on the economic development of Nigeria.

1.2 Statement of the Problem

The level of investment of insurance premium in different areas of the Nigerian economy seems to be low which could affect gross domestic product, gross capital formation, infrastructural development, production index, per capita income and employment level. There is seemingly poor perception of insurance in Nigeria and likely limited size of the gross premium income, hence its capacity to invest.

Some related studies have been conducted to examine the effect of insurance investment on the economic growth as well as economic

development; contributions of insurance to economic growth; and relationship between life assurance and economic growth . The researchers used different data, methods, theories and techniques. They have conflicts in the empirical issues. For instance, studies done by Nwinne and Toriba (2012) posited that there is a positive and significant long run relationship between GDP and insurance investment while that of Holsber (1999) found that the causality link between insurance investment and economic growth is bi-directional. Also, Andrew (2013) found out that insurance investment activities and economic growth are not related in the long run in the country of Ethopia. Agwuegbo, Adewole and Maduegbuna (2010) found that Insurance investment activities not only boost the output level of goods and services of the country but also enhance the performance of risk management function of insurance level stabilizing and growing the economy. Igbodika, Ibenta and John (2016) found that Insurance investment has positive and significant effect on Gross Domestic Product. Akintola Bello, (1986) observed that cash and bill of exchange dominated the investment pattern of insurance industry in Nigeria.

Furthermore, as regards to the years of data covered by many the studies, no study has used data up to year 2016, for instance, Nwinne and Toriba (2012) that studied insurance investment covered 1980-2010. Ubom (2014) study on investment portfolio of insurance growth and Economic Development in Nigeria covered a period of 1990-2011. Olaide (2015) who studied empirical investigation on the impact of insurance investment on the economy of Nigeria covered a period up to 2012. Fotune and Lezarsilence (2012) who studied insurance investment and economic development covered up to 2010, and many others.

As result of conflicting findings and not updating data to recent time indicated that the issues concerning the effect of insurance investment on economic development have not yet been resolved. Thus, there is the need to further examine the effect of insurance investment on economic growth, gross capital formation, infrastructural development, Production index, per capita income and employment. The present study improves on the previous ones by restricting the data set for this study and updating the time frame to 2016.

1.3 Objectives of the Study

The broad objective of the study is to examine the effect of insurance investments on the Nigerian economic development. The specific objectives of the study are:

1. To examine the effect of insurance investments on economic growth in Nigeria.
2. To assess the effect of insurance investments on gross capital formation in Nigeria.
3. To assess the effect of insurance investment on infrastructural development in Nigeria.
4. To ascertain the effect of insurance investments on index of industrial production in Nigeria.
5. To evaluate the effect of insurance investments on per capita income in Nigeria.
6. To examine the effect of insurance investments on employment level in Nigeria.

1.4 Research Questions

The research questions are:

1. How have insurance investments influenced economic growth in Nigeria?
2. To what extent have insurance investments affected gross capital formation in Nigeria?
3. To what extent have insurance investments related to infrastructural development in Nigeria?
4. To what extent have insurance investments stimulated index of industrial production in Nigeria?
5. To what extent have insurance investments affected per capita income in Nigeria?
6. How do insurance investments affect employment level in Nigeria?

1.5 Research Hypotheses

The following null hypotheses will be tested in the course of this research:

1. Insurance Investments have no significant effect on economic growth in Nigeria.
2. Insurance Investments have no significant effect on gross capital formation in Nigeria.
3. Insurance Investment no significant relationship with the infrastructural development in Nigeria.
4. Insurance Investments in government no significant effect on production index in Nigeria.
5. Insurance Investments have no significant effect on per capita income in Nigeria.

6. Insurance Investments have no significant effect on employment level in Nigeria.

1.6 Scope of the Study

This study reviewed the components of insurance investments in Nigeria with the aim of ascertaining their effect on economic development of Nigeria. The study covered a period of twenty one years (from 1996 to 2016). The choice of base year of 1996 is as a result of liberalization of the Nigerian economy which was brought about by introduction of the Structural Adjustment Programme (SAP) in 1986. As at 1996 the effect of liberalization on the economy was at its peak. The liberalization made both private and foreign insurance companies to increase their cooperation with international insurance standard.

Subsequently, there were recapitalisation of insurance industry. In 2003, insurance companies capital base was raised from ₦20 million to ₦150 million for life Assurance, ₦70 million to ₦300 million for non-life insurance and ₦150million to ₦350 million for Re-insurance companies. Again, in September, 2005, the capital base of insurance companies were further raised to ₦2 billion for life Assurance companies, ₦3 billion for non-life insurance companies and ₦10 billion for reinsurance companies with effect from 2007 These recapitalizations affected insurance investments in Nigeria.

The reason for the study stopping at year 2016 is because there is no data beyond 2016 as at the time of this study.

1.7 Limitations of the Study

There is problem of obtaining all the necessary data because many of the current government documents and publications have not been published.

However, the researcher made several visits to the offices concerned and collected the available data required.

1.8 Significance of the Study

The study will be of immense benefits to individuals, organizations and various stakeholders in Nigeria who are interested in Insurance companies' investment. Specifically, the study will be of significance to the followings:

Investors: A growing economy requires a lot of investments in different sectors. These investments could be local as well as foreign. Therefore, outcome of this study will assist policy makers in fashioning out policies that will open up insurance investment in other sectors such as mining, agriculture and transport which will result in more economic growth and development of Nigeria.

Government: Insurance Investment is supposed to be regulated and done according to the law. There should be monitoring of the areas to be invested to ensure compliance and effective operation. Therefore the study will assist government and its agencies, for example National Insurance Commission, to effectively monitor the compliance of rules and regulations on insurance companies' investments which will enhance economic development of Nigeria.

Academic: This study will contribute to the volume of literature available on Insurance investment. It will be of much importance to students and lecturers of Insurance, Actuarial science, Banking and Economics. The study will serve as further contribution to knowledge in the areas of insurance, finance and national economic development. Foreigners who have interest in study of insurance and insurance investment in Nigeria will find this study very useful.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Conceptual Review

2.1.1 Concept of Insurance

Irukwu (1977) defined Insurance as a contract between two parties known as the insured and the insurer whereby the insured pay a relative amount of money known as premium to the insurer who undertake to indemnify him at the occurrence of the loss insured based on the terms and conditions of the policy. Again, Chitty (2006) defined Insurance as one whereby one party (called the insurer) undertakes for a consideration to pay money or to provide services to or for the benefit of the other party (called the insured) upon the happening of an event which is uncertain either as to whether it has or will occur at all or as to the time of its occurrence. Chude (2012) affirmed that Insurance involves the transfer of risk from one individual to another, sharing losses in an equitable basis by all members of the group.

Furthermore, Ojo (2012) opined that Insurance is designed to protect the financial wellbeing of an individual company or other entity in case of unexpected loss. Ajayi (2002) posited insurance as a promise of reimbursement in case of loss paid to people or company so concerned about hazards. Akinlo (2013) defined insurance as a device whereby people of similar risk exposure come together for a small sum(premium) in substitution for a large but uncertain sum(up to the amount of the contract) in such a way that the few of them who suffer losses are compensated by the many that escapes losses.

The practice of transferring risk to insurance companies is through the purchase of appropriate insurance policies from the companies and payment of the prescribed premium. By this, the policy holders (i.e. insured) seek protection and coverage from the insurer (insurance firm) against the risk specified in the policy (Ubom, 2010). Nwite (2007), define insurance as a profession where people are trained to insure the risk of individuals, corporate bodies, government and the general public and also teach them on ways of risk management in the university at different department or discipline. Also insurance is defined as an institution that insures the risk of people managed by an expert, settles claims if loss occurs on any risk or specified event.

2.1.2 Historical Background and Development of Insurance in Nigeria

Before the introduction of the modern insurance business in Nigeria there existed (and still exist) forms of insurance that helped society to spread the risk within it, thereby reducing the burden of individuals and their dependants. These insurances can be called traditional social insurance schemes. They include the Esusu/Ajo contribution, age grades, extended family structure, social clubs, kinsman ship, and other various forms of communal contributions which were paid to victim of theft, flood, fire, windstorm and communal clashes. These insurances can be described as ‘‘brothers’-keeper’’ fraternities (Okonkwo, 1998). Badejo (1998) stated that the concepts of insurance in its modern form was introduced into Nigeria by the British in the closing years of the 19th century with the establishment of trading post in what is now known as Nigeria today. The main aim was to protect the expatriates and their businesses. Business of insurance as at then was carried out through agents. But later on, branch offices of oversea companies were established to take over the business. The first major

insurance company in Nigeria was established in Lagos named Royal Exchange Assurance in 1921 (Alabi, 1987).

With the establishment of the Royal Exchange Assurance, the insurance industry started to develop and grow hence the number of insurance firms rose from one in 1921 to 4, 28 and 80 in 1949, 1960 and 1975 respectively. However, the industry was dominated by foreign companies within these periods. The first indigenous insurance companies were the Great Nigeria Insurance Company, the Nigeria General Insurance Company and the Universal Insurance Company. All these companies were established and became operational in1960. This was followed by the establishment of National Insurance Corporation of Nigeria (NICON) in 1960 by the federal government of Nigeria. Since then, the number of insurance companies in the country kept on increasing especially following the oil boom of 1970s. Within these periods, there were no effective laws to regulate the operations of insurance industry in Nigeria.The Insurance Decree of 1976 was the first effective legislation promulgated to regulate insurance business in Nigeria (Onoh, 2002). Following this, were the insurance decree No. 58 of 1991 and insurance decree no. 2 of 1997.

The National Insurance Commission was established in the country through the national insurance commission (NAICOM) Act 1997. The commission was set up to address the issue of ineffective regulation, supervision and control of insurance business in the economy which were largely in the hands of indigenous investors. Since the enactment of the law, the number of insurance firms rose from 28 in 1975 to 104 in 1999 and rose again to 118 in 2000 (Ahmed,2012). With the recapitalization exercise in the

industry in 2005 in which the capital base of insurance firms was increased, the number of insurance companies declined drastically in the country. The new capital base for life insurance companies is ₦2 billion, General insurance i.e. Non-life companies is ₦ 3 billon, Reinsurance companies is ₦10 billon. This exercise changed the landscape considerably as many companies were forced to merged in compliance with the follow-up directive of NAICOM that the requirements were only to be met through mergers acquisition After the 2005 recapitalization exercise, only 49 insurance and 2 reinsurance companies met the new level and were certified by the government in November 2007 (NAICOM, 2012). Based on the new capital base, insurers are to raise their capital according to the risk they underwrite. This is to enable insurer to concentrate on business in which they have core competence.

2.1.3 Concept of Insurance Premium

Section 50 (1) and (2) of Insurance Act 2003 stated that the receipt of an insurance premium shall be a condition preceded to a valid contract of Insurance and there shall be no cover in respect of an insurance risk, unless the premium paid in advance. It further states that an Insurance premium collected by an Insurance broker in respect of an Insurance business transact through the Insurance broker shall be decided to be premium paid to the Insurance involved in the transaction. According to Ogwo, Enwereuzo, Nwite, Ibeabuchi and Eche (2000) Premium is the monetary consideration passing from the insured to the insurer , undertaking to pay the sum insured in the event of the risk insured against happening. Insurance companies use standard rate in arriving at premium depending on the class of business. In Life assurance mortality tables are used to get premium. Others use percentage rate which is used in multiplying the sum insured to get premium payable. Ezekwe, Jimo

and Ezenwa (2014) describe premium as the monetary consideration passing from the insured to the insurer to cover risk. It is a necessary element in the formation of the Insurance contract.

Ogwo, et al (2000) stated that premium comprises of the following elements: average cost of claim (pure premium), administrative expenses such as salary, rent, printing cost, transport requirements, commission payable to intermediaries, reserves and profit making. Udum (2014) mentioned that Insurance premium income as a variable tool for boosting activities of the money and capital markets and for acquisition of real assets. Therefore one can conclude that insurance companies' premium investment has impact on the economic growth of country.

2.1.4 Concept of Insurance Investment

Investment on the other hand, refers to any vehicle into which funds can be placed with the expectation that it will generate positive income and or preserve or increase its value. Investment takes the form of addition to real and financial assets in an economy. This addition is occasioned by the profit maximization principles (Egbeonu,2016).

Legally, insurance investment is specially emphasised in the Insurance Act 2003, section 25(1) states that: An Insurer shall at all times in respect of the insurance transacted by it in Nigeria invest and hold investment in Nigeria assets equivalent to not less than the amount of policyholder's funds in such accounts of the insurer.

(2) Subject to the other provisions of this section, the policy-holders fund shall not be invested in property and securities except:

a) Shares of limited liability companies

b) Shares in other securities of a co-operative society registered under a law relating to co-operative societies.

c) Loan to building societies approved by the commission.

d) Loan on real property, machinery and plant in Nigeria.

e) Loans on life policies within their surrender values.

f) Cash deposit in or bill of exchange accepted by licensed banks and

g) Such investment as may be prescribed the commission.

3) No insurer shall-

a) In respect of its general insurance business, invest more than 35 percent of its assets as defined in subsection (1) of this section in real property.

b) In contract of its life insurance business more than 35 percent of its assets as defined in subsection (1) of the real property.

4) An insurer which contravenes the provisions of this section commits an offence and is liable on conviction to a fine of ₦ 50000.

5) In this section, reference to real property includes reference to an estate in land, lease or right of occupancy under the land use Act.

According to the Insurance Regulatory and Development Authority (Investment) (Amendment) Regulations(2001), life Insurers should invest at least 50 percent fund in Government approved Securities including the 25%in government securities, at least 15% fund in infrastructure and social sector rest of the 35% in other than not approved sector. Similarly, non life insurance also should strictly follow the rules where they should invest at 30% fund in central and state Government securities and other guaranteed securities including at least 20% in central and state government securities, at least 5% they should invest in loan portfolio which should be guaranteed by government not exceeding 30% of the fund.

2.1.4.1 Government Securities

These refer to the funded" internal public debt of the Government(federal, state or local government). They are known as development stock or loans, and usually traded on the Stock Exchange. They are marketable securities issued at par and repayable at par and both the interest, income and the capital are guaranteed, in money terms by the government (Okonkwo, 2004). A Government security is a bond or other type of debt obligation that is issued by government with a promise to repayment upon the securities maturity date. Government securities are usually considered low-risk investment because they are backed by taxing power of a government. The reasons for the issuance of Government securities are that it is issued to raise funds for government expenditures. It is also issued to cover short falls (deficits) in its annual budget. Cities can issue bonds for construction of schools, Libraries, stadiums and other public infrastructural programmes. It can be used to control the supply of money in an economy which will help keep inflation under control. Types of Government securities are Treasury bill/notes, Treasury bonds, Treasury strips, Treasury inflation protection securities (TIPS), saving bonds etc.

2.1.4.2 Stocks and Bonds

Stocks represents shares of a company. These shares give part of the ownership of the company to the shareholder. The shareholder's take in the company is defined by the amount of shares he owns. Stock comes in mid-caps and large caps. The risks of stock trading can be decreased by choosing the stocks carefully, assessing the investments and weighting the risks of different companies. Stocks fluctuate in values. The stock markets is a place where investors go to trade (buy and sell) equity securities like common stocks

and derivatives (options, futures, etc.), stocks are traded on stock exchange markets, the more stocks an investor owns the harder it becomes to maintain proper track of them.(Ibenta,2005).

Bonds: These are fixed income securities, which provides for specific rates or money income to the holders and usually a source of long term financing for a business concept. Bonds are issued by various types of business organizations(corporate bonds), by federal and State governments(government development bonds) or by local governments(municipal bonds). They constitute a good source of funds for projects(Nzota,2002). When you invest in bonds you are essentially loaning your money to a company, or corporation or government. That institution in turn will give you a receipt for your loan along with promise of interest in the form of a bond. Bonds are bought and sold in the open market. Fluctuation in their values occurs depending on the interest rate of the general company. Once a bond hits its maturity date, the principal amount paid for that bond is returned to the investor.

Bond market provides long-term sources of funds which project managers require for their financing needs. Bonds generally have limited risk and thus attract low returns. They are relatively safer investments although this may be illusory and would depend on the ability of the issuer to generate revenue with which to meet the interest payment and also repayment of the initial investment.(Nzota, 2002).

The two types of bonds are:

a) The secured bonds- These are secured by the general credit standing of the issuer in addition to an additional pledge of assets as a security.
b) Unsecured Bonds- These are more commonly referred to as debentures. Any type of assets does not secure them and thus their holders do not hold any lien on any specific property of the company.(Nzota, 2002).

Over time, several scholars have advocated for diversification by investment through bonds. They provided strong arguments in support of diversification through bond markets as a cushioning effect for the pressure on the money market, which if not properly addressed, may have a spiral effect reflected by non investment and reduction of aggregate demand through multiplier effect on the economy. (Nzota,2002, Ibenta,2015 &Pettinger,2012).

2.1.4.3 Mortgages and Real Estates

A mortgage is a security interest in real property held by a lender as a security for a debt, usually a loan of money. A mortgage in itself is not a debt. It is a transfer of an interest in land (or its equivalent) from the owner to the mortgage lender on the condition that this interest will be returned to the owner when the term of the mortgage has been satisfied or performed. In other words, the mortgage is a security for the loan that the lender makes to the borrower. In most jurisdiction mortgages are strongly associated with loans secured on real estate rather than on other property (such as ship) and in some jurisdictions only land may be mortgaged. A mortgage is a standard method

by which individuals and business firms can purchase real estate without the need to pay the full value immediately from their own resources. (Oke,2012). The Mortgage lending process involves conveyance of interest in landed property by the owner(mortgagor) to the lender (mortgagee) for a certain amount of money(loan) with the promise of repayment according to a specified amortization after which the property revert to the owner without further encumbrance(Ojo,2009).

The classical form of real estate debt finance is the mortgage, a loan secured by real property. Mortgage is important due to the need of prospective investors to meet up with the ever inadequate finance for property development. However, the success of lending process has been fraught with high rate of default. According to Olaide(2015), default occurs when a borrower breaches the Mortgage conditions resulting into additional cost to the tenders and usually a major challenge and risk issues in the mortgage lending process. Perhaps the most important concern of the lending institutions is how they will achieve reduced level of default in their mortgage dealings. Real Estate is property consisting of land and the buildings on it, along with its natural resources such as crops, mineral or water, immovable property of the nature an interest vested in it . Also, the business of real estate is the profession of buying, selling or renting land, buildings or housing.

2.1.4.4 Bill of Exchange

Bill of exchange is refered to as the instrument that when given by the drawee to the beneficiciary, it gives the later or to the person who ordered it, the right to request payment of a certain amount of money on a certain date. It is a formal and complete credit instrument that includes the obligation to

pay, without compensation, an amount of money on the due date and at the location mentioned in the instrument(Cristea,2013).

This a written unconditional order by one party (the drawer) to another (the drawee) to pay a certain sum either immediately (sight bill) or on a fixed date (a term bill) for the payment of goods and services received. The drawee accepts the bill by signing it thus covering it into a post-dated cheque and a binding contract. A bill of exchange is also called a draft but while all drafts are negotiable instruments only to order" bills of exchange can be negotiated.

2.1.4.5 Cash in the Bank and Cash at hand

Cash at Bank is the sum of all coins, currency and other unrestricted liquid funds that have been placed on deposit with a financial institution. Cash at bank is considered a highly liquid form of current asset, and when reported on a business' balance sheet, it is combined with cash in hand for accounting purposes (Andrew, 2013). Cash in hand is the money and notes, kept to pay small amounts but not deposited in the bank (Akinlo, 2013).

2.1.5 Investment and Insurance Assets

At a first glance the setup of an insurance company seems to be quite simple. As an intermediary the insurance aids the unfortunate who suffer losses by compensating them from funds collected from many policyholders. But the premiums collected from the clients have to be managed in professional ways to prevent the company from liquidity bottlenecks and the reserves from depreciation .Illiquidity can occur because the receipt of the premiums and the payment of insurance liabilities are temporally independent and the sudden appearance of a disaster can cause a peak demand for financial coverage. The reserve depreciation can be neutralized by the insurers

investment capabilities which is obtained through the activities performed on the financial market. These insurance companies are major investors within the economy. (Ubom,2014).

An interesting endeavour might be to depict the impact of insurance investment on the economy. The manner of how the investment activity is accomplished influences the overall performance of the insurance companies and carries over to the economy at large. Depending on their will to bear entrepreneurial risks, insurers can implement their investment activities in two different ways. First, they can act as a simple funds manager, preventing assets from devaluation, fulfilling claims of those entitled and collecting premium to maintain a satisfactory financial basis. The insurers profits could be a percentage of the premiums collected, dependent on the annual average of assets managed or the company could be set up as a mutual insurance company. Secondly, the insurance companies could be established as a venture providing compensation on occurrence of a certain event. The insurers can achieve additional pay-offs from the difference between the moral hazard of the policyholder and the physical hazard calculated on actuarial basis. In other words, an essential part of the contribution of insurance companies to GDP growth derives from their assets, their utilization on the financial markets via investment and the company's efficiency and contribution to growth. Since 1990 total assets of insurance companies have grown much faster than those of banks (Raikes, 1996). Besides insurance investment growth, insurance asset growth could be investigated with regards to the interaction with economic growth. But in contrast to assets held by banks and bank liabilities insurance

assets/liabilities have some differing peculiarities and likely impact on the economy.

Broadening the investment spectrum: Bank deposits usually define the banks liabilities and coverage can be limited to a certain value. The number of clients is smaller than those of insurers and the average deposit is higher than the average premium paid for insurance contracts. Liabilities of an insurance company depend on the probability of the insured risk and on the unpredictable resulting losses. According to Raikes (1996) “Banks tend to have assets which are difficult to value, whereas insurance companies have uncertain liabilities”. The financial risks are more uncertain and fluctuation can be higher for insurers than for banks .The investment policy is focusing on stability and assets are usually more liquid. Expanding the investment horizon (maturity): Assets held by a company usually reflect the maturity of its liabilities .Insurance liabilities are usually of longer term than those of banks. This is especially true for life insurers or specific risks such as product liability, where the arising liabilities continue for many years and are sometimes not covered by an appropriate investment element. Insurances have to rely on long term investments and hence are particularly qualified to play a large role in financial markets trading long term assets. Furthermore, the “savings substitution effect” enters again when spreading the observation focus onto the customers. Bank customers, who turn from bank deposit to saving products offered by the insurance sector, increase the maturity of their assets as well. It may not be obvious to the customer, but the household direct holdings, which are usually concentrated in shorter maturities, are transformed

into long term managed maturities when incorporated into the insurer's technical reserves(Raikes, 1996).

Increasing investment volume: Insurance companies are major investors into shares, bonds and loans and real estate in Europe. Thus relating total investment by the insurance sector to GDP growth should be a major avenue for analysing the insurance-growth-nexus. Directly and indirectly insurers provide funds for investment and add to demand for the respective financial market instruments. By providing liquidity and depth to the respective markets, they improve the overall performance of the respective markets. Due to higher liquidity, it is much easier for private and institutional investors to access diversified investment portfolios, and to invest in high-risk and high-productivity projects. The possible early monetary realization of asset holdings relieves investors from the struggles of selling risky assets in tight markets. On the one hand this intensifies the pressure on the economy to limit the waste of resources due to the increased competition in the market and on the other hand aids economic growth by smoothening the flow of funds to capital-intensive projects.(Nwinne &Torbia,2012).

Deepening Capital Markets: Given that insurance companies play a major role on stock and bond markets, growth effects attributed to them in the finance-growth-literature may at least partly be derived from insurance companies' investment. So analysing the impact of insurance investment by category (stock, bond, loan, real estate) on the economy is a further area to explore. For example, Catalan, Impavido and Musalem (2000) found evidence for the casual relationship between the development of contractual savings and market development by analysing the progress of market capitalization and

value traded in stock markets and the assets of pension funds and life insurances.

Improving Financial Market Efficiency: In line with discussion on other intermediaries holding assets the positive influence of the increased capital mobilization, the pressure on the domestic interest rate and the advantages of institutions of scale monitoring companies apply to insurance companies as well. Efficiency improvement in the insurance market can put additional pressure onto other financial intermediaries and improve the contribution of the financial sector to real growth (Pagano, 1993; Bosworth & Triplet, 2004). However, average yields and labour productivity for insurers varies substantially across countries. To sum up, the investment activities of insurance companies have various effects onto the capital markets and further onto the economy at large: market development by deepening and widening and knowledge transfer by calculating accurate risk levels. For measuring the impact total insurance assets may be an adequate figure to estimate the quality of capital managed and provided by insurances in the endogenous growth model. Catalan, Impavido and Musalem (2000) investigated capital market development and insurance asset/GDP ratio impact and they found some evidence for positive effect for market capitalization and value traded.

2.1.6. Investment Assets and Portfolio of Insurance Institutions

Insurance firms are contractual financial institutions that specialize in providing insurance cover or protection to their customers against insurable risk. They mobilize large amounts of financial resources from the premium paid by the policy holders and use part of the funds to invest after payment of claims. Insurance firms as institutional investors invest in government

securities, loan and housing or real estate development, among others (Ojo, 2010). For instance, the National Housing Funds, Decree No. 3 of 1992 made it mandatory for all registered insurance companies operating in Nigeria to contribute not less than 20% of their funds to real property development (Onoh, 2002). The various reforms in the finance sector and insurance subsector of Nigeria have expanded the scope and of investment of insurance companies hence, insurance companies hold assets in government securities, stock, and bonds, mortgages and loans, cash and bills receivable and miscellaneous items (Aderigbe, 2004) Hence, they hold portfolio of assets comprising mainly government securities, shares, bonds mortgages and loans, etc.

The investment objectives of insurance companies are mainly safety, liquidity and growth. These objectives which form the framework of investment portfolio structure of these firms are based on the nature of liabilities of the insurance firms, their operational focus and guidelines of the industry regulators which vary from one country to another and the stages of development in the various countries. In view of the investment practices and of portfolio insurance firms, Ahmed (2012) describes them as creator of wealth and mobilizer of funds for National development. National development revolves around economic development and growth . However, Akintola- Bello (1986) observed that cash and bill exchange dominated the investment pattern of the insurance companies in Nigeria while Randle and Abuha (2001) emphasized that the life insurance companies facilitate long term investment rather than short term investments as in the case of non-life insurance company.

2.1.7 Concept of Economic Development and Growth

Generally, Nigeria and most other developing countries of the world are still characterized by unemployment, poverty and low standard of living (Akpakpan & Okpokpong, 2010). As such, the ultimate objective of every modern society in the world is to achieve improvements resulting to some positive changes in the society. Such changes include a reduction in the level of unemployment, a general rise in incomes, reduction in poverty and regional inequalities, increase capacity output of goods and services (i.e. economic growth) and improvement in the quality of life in the society as a whole (Akpakpan,1999).

Economic development is a process in which a country's real national income increases over a long period of time. It is also concerned with the achievement of higher level of per capita income by poor countries and improved conditions of living for people. In the technical sense, economic development refers to a process of economic growth within an economy. The central objectives of the process being higher and rising real per capita income for that economy (Ojo, 2010). Development therefore is considered in terms of aggregate output, the quality of labour force, net national income, the growth in per capita income and output. For any meaningful development to take place, growth must occur in the various sectors of the economy.

Rostow (1960), describes the preconditions necessary for a country to move from low level of development to a level of sustained industrialization and growth. The major focus being on development strategies of building middle class of entrepreneurs, literate work force, adequate infrastructure investments and appropriate institutional environment (Henderson & Pole, 1991). Economic development requires adequate stock and allocation of

capital to the various sectors of the economy. These resources are needed to strengthen the operational capacity of entrepreneurs, firms and provision of infrastructure to encourage private sector investments, initiatives and growth. Insurance companies as mobilizer of funds are expected to play significant role in this process through their investment practices and portfolios.

Economic growth means an increase in the capacity of an economy to produce goods and services compared from one period of time to another (Aiguh, 2003).Also, economic growth is positive change in the output or production of a country or an economy. This description involves all aspects of an economy, from profit to taxes and wages to such things as production rates.(Adigwe, Nwanna & Ananwude, 2015). Considering this description that the only way of ascertaining economic growth would be to calculate it as a numerical value. Economic growth can be calculated as a percentage increase in the Gross Domestic Product of a given economy. The economic growth of a country is directly related to the economic state of affairs of the country which consist of various variables like index of industrial production, inflation rate, money supply, exchange rate, private investment, foreign direct investment and many others which are considered to be backbone of any economy (Adigwe, Nwanna & Ananwude, 2015).

2.1.8 The Contribution of Insurance on the Economic Growth of Nigeria

Insurance sector represents the backbone of Nigeria's risk management system, ensures financial security, as an important component in the financial intermediation chain, and offers a ready source of long term capital for infrastructural projects. The contribution of insurance in the growth and development of an economy cannot be over-emphasized. It mitigates the impacts or risks and positively correlates to growth as entrepreneurs cover

their exposures, otherwise risk-taking abilities are hampered. Thus a strong and competitive insurance industry is a compelling imperatives for Nigeria's economic development and growth (Babalola, 2008). Ezekiel (2010) stated that insurance industries play very important role in the mobilization and utilization of investible resources in an economy. According to him, the industry has been playing a very significant role in the economy in the following areas:

Evaluating insurance consciousness: The advent of an organized insurance industry and the activities of its members have greatly improved the cultivation of insurance consciousness among business houses and individuals. This has reduced the level of risk, which generally encourage enterprises and therefore enhance the growth of the economy.

Mobilization of savings: The activities of the industry particularly life assurance business have encouraged the mobilization of savings which otherwise may not have been channelled to any productive uses such mobilized savings c onstitute an important source of long-term investible funds in the economy. Reduction in the outflow of resources from the country through the retention of insurance and re-insurance premiums within the economy, with a consequent positive effect on the country's balance of payments.

Direct equity investment in industrial enterprises. The industry is a major catalyst in the development of large industrial undertakings, which are capital intensive.

2.1.9 Concept of Infrastructural Development

Infrastructures constitute facilities or structures required for the effective operation of a business, state or economy. Infrastructures include

road, railways, airports, power generator and transmission, ports, communication, water and waste together with social infrastructure, such as hospitals, schools and housing. There are different types and characteristics of infrastructure investment with opportunities in the pipeline that may be attractive to an insurer **(**Buhr, 2003).

Types of Infrastructure: Lowe and Tollis (2015) stated the types of infrastructure to include:

a)Greenfield or Brown field Project

i**)**Greenfield project involves an asset or structure that needs to be designed and constructed where no infrastructure or building previously existed. Investors have to build the infrastructure and involve in their maintenance.

ii)Brownfield projects involve an existing asset or structure that requires improvement, repair and expansion (ie land where a building or construction already exists). The infrastructure asset or structure is usually partially operational and may already be generating income.

b)Constructional (primary) or Operational (secondary) Phase.

i**)** Primary investments are those made at the pre-operational or construction phase before most revenue is generated. High risk is associated with construction phase- project completion and usage risk. The risk-return profile of infrastructure, which is complex to construct is similar to high-risk venture capital projects. However, the risk in projects with a more typical construction phase (such as schools and hospitals) are often bank debt funded, and are lower risk than speculative construction projects given that they are subject to greater controls. Note that a primary investment could be either Greenfield and Brownfield.

ii)Secondary infrastructure investments apply to the operational stage of a project. There is a lower risk as construction has been completed and usage levels have been established; the risk also reduces over time if the project has been proven to be revenue generating. This phase offers reliable long-term returns, although it still carries significant ongoing management challenges. Note that a secondary investment could be either green field or brown field.

c)Availability or Demand based

i)Availability based project are typical where the government or some other sponsors, procure essential facilities or services in return for payments linked to availability rather than usage level (this obligation is defined in the terms of the investment contract). Availability- based investments are typically lower risk investments where equity cash flow can be debt- like in the certainty and timing given that the exposure to the sponsored rather than the profitability of the project. There is often an element of performance risk in the cash flow of availability- based projects typically via performance related deduction from the composite payment. Projects usually include schools, hospitals and government accommodations.

ii) Demand-based project are where the investors bears the revenue risk of the projects (i.e. the investor's income relies on the ability of the project to generate cash). These projects vary widely in risk profile: often they have inflation-linked returns with greater exposure to economic risk and tend to be long term, hence uncertain in the future.(Tiwari, 2016).

Major risks for infrastructure investments

Straub (2003) stated that major risks for infrastructural investments

Consist of:

1) Revenue risk:- This involves being unable to meet its liabilities with the revenue generated by the asset.

2) Gearing risk:- High geared projects are those with high proportion of debt finance. It involves interest rate risk and down grade risk.

3) Infrastructure bond marketabilty risk:- This is the risk that the change in marketability of infrastructure bonds can impact the ability to trade bonds for a more marketable source or cash. Such changes in marketability can be the result of ;

- Increased/reduced of activity in the infrastructure loan market.
- Divergent views on asset prices resulting in wide bid – risk spreads and general market sentiment
- Uncertainty in the wider infrastructure loan market

4) Operationality risk – Under infrastructure loan contract the borrower retains the option to repay or extend the loans at any point. Exercises of these options have the potential to result in a loss of income to the investor.

5) Currency risk – Projects undertaken in a foreign country are subject to the risk of movement in currency exchange rate.

6) Supply chain default risk-It is important that supply chain agreement is drafted tightly and the covenant strength of both main contractor and key sub-contractor are acceptable. The caps and contractors on liability also need to be established appropriately.

7) Environmental risk- Environmental damage caused by an infrastructure project constitution a real risk for investors and mitigation of this risk require extension due diligence.

8) Regulatory, political and social risk- Regulatory changes can affect infrastructure project on a general level as well as change the direction of specific project. In addition consumer fare rises such as road tolls or train fare originally envisioned when the project commenced due to a change in government policy.

9) Operating risk – High than expected operating and maintenance cost coupled with uncertainty over the stability of long-term returns could lead to deductions from the monthly payments and subsequently dilute the income stream.

10) Hand-back risk: The value of the infrastructure asset may be lower than expected at the time of exchange from the contractor to the project sponsor (ie the party providing equity financing).

According to Shindike (2017), infrastructure investment is an interesting option for an insurer's portfolio. There are considerable benefits to such an investment, notably the competitive expected return which could be achieved. The fact that certain infrastructure investment may provide real returns to match inflation-linked or real liabilities and the possibility that some assets could be eligible for the matching adjustment further demonstrate the range of potential benefits that an infrastructure investment portfolio could offer an insurer. But despite these advantages there remain on going management challenges and difficulty in sourcing such infrastructure asset. This scarcity coupled with high demand has a detrimental effect on the benefits and may erode the advantages that infrastructure investments hold over more traditional assets (Tiwari, 2015).

2.1.10 Concept of Employment and Unemployment

Generally, Unemployment is a situation in which those who are able and willing to work at the prevailing wage rate do not find job Also, Unemployment can be defined as the gap between the potential full employment and the number of employed persons (Jajere, 2016). Fajana (2000) opined that unemployment can be described as the state of wordlessness experienced by persons who are member of the labour force who perceived by others as capable to work. The International Labour Organization (ILO) defined unemployment as the proportion of the labour force which was availabile for but did not work at least one labour in the week preceding the end. National Bureau of Statistics (NBS) Nigeria defines unemployment as the proportion of the labour force that is available for work but did not work for at least thirty nine 39 hours in the week proceeding survey period

Unemployment is a result of the inability to develop and utilize the nation manpower resources effectively especially in the rural sections (Jedilou, 2016)

The unemployment rate is the number of an economically active population who are without work but available for and seeking for work including people who have lost their job and those who voluntarily left work. The unemployment rate is a measure of the prevalence of unemployment and can be calculated by dividing the number of unemployed individuals by all individual currently in the labour force. During period of resources an economy usually experienced relatively high unemployment rate. According to international labour organization report, more than 200 million people globally ie. 6% of the world's workforce were without job in 2012 (Global employment trend, 2013 ILO, 2015). An unemployment situation can be

called mass-unemployment when the number of qualified manpower who are unemployed is considerably enough or out number that of those in gainful employment (Jelilou, Onder & Evren, 2016).

Types of unemployment

According to Jajere (2016) types of unemployment, are;

1) Fictional unemployment: This occurs when people are temporally out of work because they are changing jobs**,** this is unavoidable in an economy which both the labour force and the job on offer are continually changing.

2) Seasonal Unemployment is said to occur in a situation in which people are laid off seasonally due to the nature of the job they do e,g agricultural workers in developing countries may be laid off during the growing seasons.

3) Structural Unemployment: This is the unemployment that exists when an economy is in full employment. Structural unemployment occurs where employment in one or more declining industries is falling. It is as a result of natural employment rate itself which can result from change in labour market institution or demographic shift etc. This situation is brought by economic variables, such as the level of aggregate demand and the actual or expected real wage rate.

4) Cyclical Unemployment: This occurs as a result of fluctuations around the natural employment rate which can be attributed to change in the aggregate demand.

According to Shang (2015) for Insurance companies, unemployment and underemployment are important because of not only their impact on the economic assumption but also their direct impact on the insurance business. A deep understanding of unemployment and underemployment can help

actuaries in many areas such as economic forecasts, insurance assumption and risk management. Sodipe and Ogunrinlo (2011) wrote that Adebayo and Ogunrinlo (2006) & NBS (2010) reported that the rate of open unemployment was 12% in March, 2005, it rose to 19.7% in march 2009 while the rate of underemployment lowered to 19% in 1988. Among the youth in the 15-24 age cohorts, the rate of unemployment is over 40% according to the 2010 edition of the labour force sample survey of the National Bureau of Statistics.

2.1.11 Concept of Productivity Index

Vora, Gerhart and Iman (2002) explained that Productivity is an overall measure of the ability to produce a good or service. More specifically, productivity is the measure of how specified resources are managed to accomplish timely objectives as stated in terms of quantity and quality. Productivity may also be defined as an index that measures output (goods and services) relative to the input (labour, materials, energy, etc., used to produce the output). Hence, there are two major ways to increase productivity: increase the numerator (output) or decrease the denominator (input). Of course, a similar effect would be seen if both input and output increased, but output increased faster than input; or if input and output decreased, but input decreased faster than output.

Organizations have many options for use of this formula, labor productivity, machine productivity, capital productivity, energy productivity, and so on. A productivity ratio may be computed for a single operation, a department, a facility, an organization, or even an entire country. Productivity is an objective concept. As an objective concept it can be measured, ideally against a universal standard. As such, organizations can monitor productivity for strategic reasons such as corporate planning, organization improvement, or

comparison to competitors. It can also be used for tactical reasons such as project control or controlling performance to budget. Productivity is also a scientific concept, and hence can be logically defined and empirically observed. It can also be measured in quantitative terms, which qualifies it as a variable. Therefore, it can be defined and measured in absolute or relative terms. However, an absolute definition of productivity is not very useful; it is much more useful as a concept dealing with relative productivity or as a productivity factor.

Productivity is useful as a relative measure of actual output of production compared to the actual input of resources, measured across time or against common entities. As output increases for a level of input, or as the amount of input decreases for a constant level of output, an increase in productivity occurs. Therefore, a "productivity measure" describes how well the resources of an organization are being used to produce input. Productivity is often confused with efficiency. Efficiency is generally seen as the ratio of the time needed to perform a task to some predetermined standard time. However, doing unnecessary work efficiently is not exactly being productive. It would be more correct to interpret productivity as a measure of effectiveness (doing the right thing efficiently), which is outcome-oriented rather than output-oriented. Productivity is usually expressed in one of these three forms: partial factor productivity, multifactor productivity, and total productivity. (Vora, Grhart & Iman, 2002).

2.1.11.1Productivity Measures

It has been said that the challenge of productivity has become a challenge of measurement. Productivity is difficult to measure and can only be measured

indirectly, that is, by measuring other variables and then calculating productivity from them. This difficulty in measurement stems from the fact that inputs and outputs are not only difficult to define but are also difficult to quantify. Any productivity measurement system should produce some sort of overall index of productivity. A smart measurement program combines productivity measurements into an overall rating of performance. This type of system should be flexible in order to accommodate changes in goals and policies over time. It should also have the ability to aggregate the measurement systems of different units into a single system and be able to compare productivity across different units. The ways in which input and output are measured can provide different productivity measures. Disadvantages of productivity measures have been the distortion of the measure by fixed expenses and also the inability of productivity measures to consider quality changes (e.g., output per hour might increase, but it may cause the defect rate to skyrocket). It is easier to conceive of outputs as tangible units such as number of items produced, but other factors such as quality should be considered. Experts have cited a need for a measurement program that gives an equal weight to quality as well as productivity. If quality is included in the ratio, output may have to be defined as something like the number of defect-free units of production or the number of units which meet customer expectations or requirements. The determination of when productivity measures are appropriate performance measures depends on two criteria. The first is the independence of the transformation process from other processes within the organization. Second is the correspondence between the

inputs and outputs in the productivity measurement process.(Vora, Grhart& Iman,2012).

2.1.11.2 Use of Productivity Measures

Productivity is a required tool in evaluating and monitoring the performance of an organization, especially a business organization. When directed at specific issues and problems, productivity measures can be very powerful. In essence, productivity measures are the yardsticks of effective resource use.

Managers are concerned with productivity as it relates to making improvements in their firm. Proper use of productivity measures can give the manager an indication of how to improve productivity: either increase the numerator of the measure, decrease the denominator, or both.

Managers are also concerned with how productivity measures relate to competitiveness. If two firms have the same level of output, but one requires less input thanks to a higher level of productivity, that firm will be able to charge a lower price and increase its market share or charge the same price as the competitor and enjoy a larger profit margin.

Within a time period, productivity measures can be used to compare the firm's performance against industry-wide data, compare its performance with similar firms and competitors, compare performance among different departments within the firm, or compare the performance of the firm or individual departments within the firm with the measures obtained at an earlier time (i.e., is performance improving or decreasing over time?).

Productivity measures can also be used to evaluate the performance of an entire industry or the productivity of a country as a whole. These are aggregate measures determined by combining productivity measures of various

companies, industries, or segments of the economy.(Vora, Grhart & Iman,2012).

2.1.11.3 Productivity Index

Since productivity is a relative measure, for it to be meaningful or useful it must be compared to something. For example, businesses can compare their productivity values to that of similar firms, other departments within the same firm, or against past productivity data for the same firm or department (or even one machine). This allows firms to measure productivity improvement over time, or measure the impact of certain decisions such as the introduction of new processes, equipment, and worker motivation techniques.

In order to have a value for comparison purposes, organizations compute their productivity index. A productivity index is the ratio of productivity measured in some time period to the productivity measured in a base period. For example, if the base period's productivity is calculated to be 1.75 and the following period's productivity is calculated to 1.93, the resulting productivity index would be 1.93/1.75 = 1.10. This would indicate that the firm's productivity had increased to 10 percent. If the following period's productivity measurement fell to 1.66 the productivity index of 1.66/1.75 = 0.95 it would indicate that the organization's productivity has fallen to 95 percent of the productivity of the base period. By tracking productivity indexes over time, managers can evaluate the success, or lack thereof, of projects and decisions.

Also, Productivity Index is the efficiency with which it is produced by a given a set of inputs. Productivity is generally by the ratio of output to input. An increase in the ratio indicates an increase in productivity. Conversely, a

decrease in the output ratio indicates a decline in productivity.(Vora, Grhart& Iman,2012).

2.1.11.4 Factors Affecting Productivity

According to Jhamb (2006), There is quite a variety of factors which can affect productivity, both positively and negatively. These include:

1. capital investments in production
2. capital investments in technology
3. capital investments in equipment
4. capital investments in facilities
5. economies of scale
6. workforce knowledge and skill resulting from training and experience
7. technological changes
8. work methods
9. procedures
10. systems
11. quality of products
12. quality of processes
13. quality of management
14. legislative and regulatory environment
15. general levels of education
16. social environment
17. geographic factors

The first twelve factors are highly controllable at the company or project level. Numbers 13 and 14 are marginally controllable, at best. Numbers 15 and 16

are controllable only at the national level, and 17 is uncontrollable.(Vora, Grhart& Iman,2012).

2.1.11.5 Improving Productivity

Productivity improvement can be achieved in a number of ways. If the level of output is increased faster than that of input, productivity will increase. Conversely, productivity will be increased if the level of input is decreased faster than that of output. Also, an organization may realize a productivity increase from producing more output with the same level of input. Finally, producing more output with a reduced level of input will result in increased productivity. (Vora, Grhart & Iman,2012).

Any of these scenarios may be realized through improved methods, investment in machinery and technology, improved quality, and improvement techniques and philosophies such as just-in-time, total quality management, lean production, supply chain management principles, and theory of constraints.

A firm or department may undertake a number of key steps toward improving productivity. Stevenson (1999) lists these steps to productivity improvement:

- Develop productivity measures for all operations; measurement is the first step in managing and controlling an organization.
- Look at the system as a whole in deciding which operations are most critical; it is over-all productivity that is important.
- Develop methods for achieving productivity improvement, such as soliciting ideas from workers (perhaps organizing teams of workers, engineers, and managers), studying how other firms have increased productivity, and re-examining the way work is done.

- Establish reasonable goals for improvement.
- Make it clear that management supports and encourages productivity improvement. Consider incentives to reward workers for contributions.
- Measure improvements and publicize them.
- Don't confuse productivity with efficiency. Efficiency is a narrower concept that pertains to getting the most out of a given set of resources; productivity is a broader concept that pertains to use of overall resources. For example, an efficiency perspective on mowing the lawn given a hand mower would focus on the best way to use the hand mower; a productivity perspective would include the possibility of using a power mower.

  As a cautionary word, organizations must be careful not to focus solely on productivity as the driver for the organization. Organizations must consider overall competitive ability. Firm success is categorized by quality, cycle time, reasonable lead time, innovation, and a host of other factors directed at improving customer service and satisfaction.

2.1.12 Concept of Per Capita Income

According to Mehta (2017) per capita income refers to the real national income divided by the total population of the country, stated thus:

$$\text{Per capita income} = \frac{\text{Real National income}}{\text{Total population}}$$

If the rate of population surpasses the rate of national income growth, then per capita national income will fall. Similarly if both national product and population grow at the same rate, per capita national product will remain constant. This is not economic development.

Therefore, it is not rise in real national income but rise in real per capita income which may be taken as indicator of development. Hence there is the urgent need to check the growth rate of population and to accelerate the rate of national growth, particularly in underdeveloped countries so that the real capita income will rise.

According to Mehta (2017), Per capita income as an indicator of development has the following limitations:

1. Per capita income does not reflect the standard of living of the people. Per capita income is an average and this average may not represent the standard of living of the people, if the increased national income goes to the few rich instead of giving to the many poor. Thus unless national income is evenly distributed, per capita income cannot serve as a satisfactory indicator of development.

2. If per capita income is the measurement, the population problem may be concealed, since population has already been divided out. The field of enquiry is then unduly narrowed. As Kuznets warns, the choice of per capita, per unit or any similar measure to gauge the rate of economic development carries with it the danger of neglecting the denominator of the ratio.

3. An increase in per capita income may not raise the real standard of living of people. It is possible that while per capita real income is increasing per capita consumption of goods and services might be falling. This happens when the Govt. might itself be using up the increased income for massive military buildup necessitating heavy production of arms and ammunitions.

4. Although an increase in output per head is in itself a significant achievement, yet we cannot equate this with an increase in economic welfare.

Let alone social welfare without additional considerations. Since development is multidimensional education, health, work-leisure ratio etc. are important considerations which do not get reflected in per capita income.

2.2 Theoretical Framework

A theory is a set of interrelated constructs (concepts, propositions and definitions) that presents a systematic view of phenomena by specifying relations among variables with a purpose of explaining and predicting the phenomena. There are many theories relating to insurance investment and economic growth and development such as Finance Growth Nexus Theory and Cooperation Theory. This study is anchored on the Finance Growth Nexus Theory.

2.2.1 Finance Growth Nexus Theory

Finance growth Nexus theory was propounded by Schumpeter J. in 1911. The theory stated that financial services are important for economic development as long as they improve productivity by promoting technological innovation and helping entrepreneurs with the best chance of success in the innovation process. The mobilization of productive savings, efficient resources allocation, re-investment of mobilized financial resources into the economy would facilitate economic growth and development. It further stressed that these effects could create a favourable macro-economic frame work for strong economic growth. As a matter of fact theoretical endogenous growth models which integrated financial development support this theory. According to the finance growth nexus theory, financial development promotes economic growth and development through channels of magnet productivity of capital

efficiency, channeling saving to investment and technological innovation (Levine,1997).

This theory is related to this study because for economic growth and development to subsist, insurance industry must mobilize the accumulated insurance premium and re-invest such funds into the economy, as well as claims payment to boost money supply and capital formation in the economy.

2.2.2 Co-operation Theory

This theory was propounded by Mishra M.N. in 2007. According to him, insurance is a cooperative device. This theory states that if one person is providing for his own losses it cannot be strictly insurance because in insurance, the loss is shared by a group of persons who are willing to cooperate. According to this theory, all the insured pay a premium to join the scheme of insurance. Thus, the insured are co-operating to share the loss of an individual by payment of premium in advance (Mishra, 2007). This theory is related to the study because it is the accumulated premiums that the insurance companies can invest to boost economic growth and development, an objective which this study seeks to achieve.

2.3 Empirical Review

This empirical review is arranged under the two sub headings of Economic growth and Economic development.

2.3.1 Related literature on Economic Growth

Madukwe and Anyanwaokoro (2014) investigated the relationship between life insurance business and economic growth of Nigeria for the period (2001-2011) using pearson's product moment correlation coefficient. The study revealed that there was significant relationship between life assurance business and economic growth of Nigeria. It was also discovered that despite

the high degree of the relationship between life assurance premium and GDP, that Life Assurance premium has not been able to make a meaningful contribution to economic growth of the country. The study concluded that life insurance business has not effectively contributed to the growth of Nigeria's economy due to low consumption and that individuals and corporate organizations have failed to embrace life assurance policies in Nigeria.

Yinusa and Akinlo (2013) analysed 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), Findings from the study revealed 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. The results also showed that physical capital and interest rate both at contemporary and one lagged value have significant positive effect on the economic growth of Nigeria while physical capital and inflation have negative long run relationship with economic growth.

Eze and Okoye (2013) examined the impact of insurance practice on the growth of Nigeria economy. Insurance premium income, total insurance investment and income of insurance development were used as determinants of insurance practice. They employed unit root tests, Johansen co-integration test and error correction model in data analysis and to determine the short and long run effects of the model. The study observed that there is causal relationship between insurance sector development and economic growth in Nigeria. The implication of these findings is that insurance industry would contribute meaningfully to the growth of Nigeria economy in the long run.

The study concluded that there was a significant positive effect of insurance practice on the growth of Nigeria economy.

Ozumba (2013) examined the impact of Insurance on Economic Growth in Nigeria. Data for the period of 1998 to 2007 were used. Co-Integration and Error Correction Model were employed for the analysis. The findings were that Real Gross Domestic Product (economic growth) was positively related to investment in insurance at a correlation of 0.99 and there was a significant relationship between insurance premium and economic growth. The study recommended that policy effort should be directed by government at growing the insurance industry in the country and through such means enhances investment as well as production and employment creation.

Oluoma (2014) examined the impact of life assurance penetration, non-life insurance penetration, total insurance penetration and insurance density on economic growth in Nigeria. The study adopted an ex-post facto research design annualized cross sectional data for 26-year period 1987-2012 were collated from the Central Bank of Nigeria statistical Bulletin, National Insurance Commission and Nigeria Insurers Association. Four hypotheses were proposed and tested using the Ordinary Least Square (OLS) regression model. Descriptive statistics and graph were used to complement the regression results. The results emanating from this study indicated that while life Assurance penetration and insurance density had positive significant impact on economic growth in Nigeria, both total insurance penetration and nonlife insurance penetration had positive but insignificant impact on economic growth in Nigeria under the period of this study. The study therefore recommends among others, that for the insurance industry in Nigeria to exert

more positive impact on Nigeria economy, government policies concerning insurance should focus more on attracting rural communities into the insurance bracket. This will assist at enhancing savings therefore providing funds for investment into the Nigerian real sector.

Shittu (2012) carried a study on financial intermediation and economic growth in Nigeria for the period of 1970 to 2010 using Unit root test, co-integration test, Error Correction Model (ECM) and Engle- Granger causality test. The result observed that the financial intermediaries have significant impact on the growth of Nigerian economy.

Jude (2014) assessed the performance and development of Insurance scheme in Nigeria which is meant to increase greater participation at the grass root in the insurance activities or business. This exploratory paper exhaustively discussed the various insurance policies, its adoption as well as effect in the development of the nation. The paper offered various ways of marketing development insurance scheme in many Nigeria rural communities. One important discovery about the scheme is that it is built on the principle of social welfare and thrift. However, this paper posited that insurance marketers have to be strict in order to succeed using the proposed models. The paper recommended that both government and insurance companies should be deeply involved through appropriate supervisory strategies and education.

Olayungbo (2015) studied the effect of life and non life insurance an economic growth in Nigeria from 1976 to 2013. He adopted Autoregressive Distributed logs (ARDL) and the long run and short run dynamic confirmed the positive and significant contribution of life and non-life insurance on

economic growth in Nigeria. The study concluded that life and non-life insurance acts as complement to economic growth in Nigeria.

Mojekwu, Agwuegbo and Olowokudejo (2011) examined the impact of insurance contribution on economic growth in Nigeria over a twenty year period, between 1981 and 2008 using ordinary least square technique. They proposed to analyse a functional bright unobservable random quantities called factors, the factors loading indicate which common trend is related to which set of time series, the result obtained shows a positive relationship between insurance contribution measured the volume of premium and economic growth in Nigeria.

Olayungbo (2015) investigated the asymmetric nonlinear relationship between insurance and economic growth in Nigeria form 1976 to 2010. Co-integration and casuality test were used. The result showed a robust significant relationship between high Gross Domestic Product(GDP) and low insurance in long run.Also unidirectional causality runs from positive GDP growth to insurance premium growth.Tthe impulse response also showed the presence of an asymmetric relationship between low insurance and high growth.

Ojo (2012) used fixed effect model and co-integration analysis to determine the short-run and long-run relationship between economic growth and insurance sector growth and development in Nigeria. The study spanned from the period of 1986-2009. The result revealed that insurance sector growth and development positively and significantly affects economic growth. The result of the granger causality test indicated that the extent of influence the sector growth had on economic growth was limited and not direct because of some cultural, attitudinal traits and values in the economy.

Omoke(2012) made use of insurance density(premium per capita) as a measure for insurance market activity and real GDP for economic growth in Nigeria between 1970-2008.The study also employed control variables such as inflation and savings refers as other determinants of growth. Johansen co-integration and vector error correction approach were used to estimate the relationship among variables. The findings of the study were that insurance does not reveal any positive and significant effect on economic growth and a low market activities in Nigerian Insurance industry.

Akinlo (2013), in his work on causal relationship between insurance and economic growth in Nigeria over the period 1986-2010. Employed the Vector Error Correction Model (VECM). The co- integration test shows that GDP, premium, inflation and interest and interest rate are co integrated when GDP is the endogenous variables. The granger causality test reveals that there is no causality between economic growth and premium in short run while premium inflation and interest rate Granger cause GDP in the long run which means there is unidirectional causality running from premium, inflation and interest rate to GDP. This means necessary long-term fund for investment and absolving risks.

Owojori and Oluwagbuyi (2011) investigated the contributions of insurance to economic development of Nigeria. The study used descriptive statistics and chi-square statistical tool. The result indicated that insurance investment has positive effect on the economic growth of Nigeria. The study recommended a cheap means of handling risk to the insured in view of the fact that the principle of large number is brought to bear in the principle and operation of insurance.

Olowokwdejo (2011) used a dynamic factor model to estimate the impact of insurance contributions on the growth of Nigerian economy within the period of 1981 to 2008. The result indicated that the functional relationship between the volume of insurance contribution and economic growth in Nigeria is a first order autoregressive model. This model observed that economic growth is positively correlated with insurance contributions. This implies that if insurance contribution increases, economic growth will as well increase.

Oyedotun and Adesina (2015) studied Nexus between Insurance and economic growth in Nigeria. The study applied ordinary least square for the analysis. They discovered that there is relationship between insurance business and economic growth within 1980-2015.

Agwuegbo, Adewole and Maduegbuna (2010) predicted Insurance Investment using factor analytic approach and the implication for economic growth in Nigeria. The study focused on the role played by insurance companies in enhancing the efficient functioning system in Nigeria. It was observed that insurance companies issue and sell indirect financial securities to the surplus economic units and consequently purchase other financial securities, which are primary in nature, from the ultimate borrowers of these funds. The study reported that the Insurance industry in Nigeria holds a reasonable percentage of the county's total investable fund generated by the capital market. These investments in the stock market serve as a shield for insurance against predictable underwriting losses (convened losses) which are more prominent than their return on investment. These findings suggest that insurance investment activities not only boost the output level of goods and

services in the country but also enhance the performance of risk management function of insurance level stabilizing and growing the economy.

Nwinne and Toriba (2012) investigated the empirical relationship between components of insurance investment and economic growth indicator (GDP) of the Nigeria economy as well as the direction of causality between them. The impulse response function of the insurance investment variables to stocks in the economic systems was also examined. They used data for the period 1980-2010 and employing co-integrations, Ordinary Least Square and variance decomposition techniques, the study found a positive and significant long run relationship between GDP and insurance investment in government securities (WHS), stocks and bond (WSB), real estate and mortgage (WRM) and cash deposit and hand (WCD) as well as a unidirectional granger causality from investment in cash deposit and hand (WCD) and GDP. The results of the impulse response and variance decomposition of GDP to stocks emanating from (WGS), WSB,WRM and WCD showed that only stocks remained the dominant source of total variations in the forecast error of the variable. The author recommended that insurance awareness, proper fund management efficient and effective insurance fund allocation investment should be encouraged.

Sambo (2016) studied the effect of insurance portfolio Investment on Nigerian Gross Domestic Product. Multiple Regression model was used to estimate the relationship between the combined variables while linear regression was used for total investment against Gross Domestic Product using Grait 11, 12 for analysis. The findings do not suggest that insurance investment in Nigeria did not go through turbulent times during the scope of

the study. It simply means that more contributions of insurance business from the fund's portfolio would impact on GDP positively. The study recommended that National Insurance Commission should renew its investment guild line to guide the industry towards investment in proper portfolios that would penetrate more returns for the investors. That insurance awareness, appropriate fund management, efficient and effective insurance fund allocation (investment) should be encouraged while insurance policies should be created to accomplish their marked objective in the economy.

Olaide (2015) studied the empirical investigation on the impact of insurance investment on the economy of Nigeria. Data were collected from annual report from annual report and accounts of selected companies and were analyzed using the Statistical Package for Social Science(SPSS), Linear and Multiple Regression analysis were done to deploy the unit root and co-integration. The findings were that there is negative linear relationship between total investment of insurance companies and gross domestic product in Nigeria. There is a positive linear relationship between total investment of insurance companies and unemployment in Nigeria. There is a positive linear relationship between total investment of insurance companies and capital utilization in Nigeria. There is a negative linear relationship total investment of insurance companies on inflation rate in Nigeria. It was recommendation that National Insurance Commission with government should work to see that sources of the period premiums collected and other income generated by the industry are being invested to ensure diversification of fund of insurance industry and the economy.

Oyejide and soyode (1976) investigated the behaviour growth, problems and prospects of insurance company investment in the Nigeria environment and confirmed the fact that life companies are well placed to invest in any maturity assets from which short terms security can be continually reinvested when they mature.

Balogun (2013) analyzed that the effect of insurance industry investment profile in the period 1985 to2007 was effected by interest rate deregulation in Nigeria. The study employed panel regression with year end fund fixed effect to test for asset allocation market timing and limits of liquidity. This study although recent was conducted in a developed country implying that the positive returns on insurance investment may not be significant enough in some less developed countries.

Anaestesia, Omade and Osener (2011), the paper empirically found out the long run relationship between insurance investment and economic growth for the period 1980-2009 in Nigeria, that is the financial sector development and economic growth in Nigeria. The study utilized functional monetary policy measured by applying vector Auto-Regression model technique to test the stationary series of variances . The result showed that money supply has a negative but GDP, and others have positive significant impact on private investment in Nigeria in the short run but the variable became statistically significant on the longrun.This implies that the monetary policy in Nigeria has positively affected the growth of private investment in the Nigeria economy.

Igbodika, Ibenta and John (2016) studied the contribution of insurance investment to economic growth in Nigeria,1980-2014. The study used generalized method of moment(GMM) technique for analyses .Dickey-fuller

and Philip-Person methods were employed to establish stationery of the data and Johansen co-integration tests were done to establish long run effect at 1% and 5% levels of significance. The study discovered that insurance sector investment has positive and significant effect on Gross Domestic product.

Momudu, Ezirim and Abubakar (2016) studied insurance investment Intermediation, index and economic growth: Emperical Evidence from Nigeria. They used cointegration procedure and classical linear regression analytical technique. It was discovered that investment activities of insurance companies jointly exert considerable positive impact on the insurance interrelation index as well as on the GDP growth of Nigeria both in the short run and in the long run. This implies that the investment operation of insurance jointly exerted positive impact both on overall growth.

Omoruyi (1984) made an econometric analysis of the determinants of investment by insurance companies in Nigeria where he developed a model investment on each asset in the portfolio. Accordingly, each asset is made up of a function of insurance fund (or total Assets) deflated with GDP average rate of interest as a proxy for return on investments, premiums/claims ratio and dummy for legislatives years. He used time-series annual data for thirteen years (1969-1981) in acquisition of four major asset namely government securities, stock, shares bonds mortages and loans as well as bills receivables. The study applied Linear and Log linear form of regression technique, It was discovered that there is a good fit for life insurance companies using the log linear specification while the non life and mixed insurance companies had their data showing good fit with the linear form. All the hypothesized varriable

were found to be statistically significant, though some at ten percent significant level.

Akintola –Bello (1986) studied investment behavior of insurance companies in Nigeria. The study observed great variation in the asset holding of life and non-life insurance company owing to the need to match assets with the maturity structure of their liabilities. While non-life companies employed government securities, mortgages and real estate, common stocks and corporate bonds, all of which are long term high income-yielding assets in their portfolio. Although portfolios differ widely in maturity structure and in riskiness between life and non life companies, both hold a wide variety of financial assets. Another perceived area of difference in investments behavior relate to distribution of investments between quoted and unquoted investment. Life companies tended to hold a greater proportion of unquoted investment, though their proportion of quoted investment has been increasing since 1978. For non-life companies while the proportion of unquoted investment declined from 33% in 1978 to 12.I% in 1987, the proportion of quoted investment shows an upward trend.

Beck and Webb (2002) specifically investigated the relationship between Life insurance penetration, insurance density, life insurance percentage in private saving and life insurance percentage in force to Gross Domestic product (GDP) as the dependant variables, while young and old dependency ratio, life expectancy, secondary school enrolment, inflation volatility, banking sector development , real interest rate, others are the explanatory variables. The ordinary least square and fixed effect estimation model was employed on Gross –country and time- series data for 18 countries,

including fourteen (14) European Union (EU) countries over the period 1960-2000. The study reported that anticipated inflation, real interest, secondary school enrolment significantly correlate with the private saving rate. The ratio of life assurance in private saving decreases with an increasing saving rate. They posited that this could be due to the behaviour of the household to limit life insurance expenses and transfer additional income to their savings vehicles. They added that institutional development is an indicator that is positively related to insurance demand.

Haiss and Sumeji (2008) studied the relationship between insurance and economic growth. Identifying the channels of influence to be risk transfer, savings substitutions investment and assets institutional credit derivatives and contagion through the analysis of the fundamental functions of insurance and their implication for the economy. They adopted an endogenous growth model with a modified cob-Douglas production function. They made use of ordinary least square and causality technique on unbalanced Gross country panel date for twenty nine (29) European countries over the 1992 2004 period. Real GDP was regressed against yearly Gross premium income as total sum and split into life and non-life; other explanatory variables include real physical capital stock, human capital stock, inflation rate and interest rate. The study reported positive and significant relationship between real GDP and physical capital. Human capital seems to be negatively related to GDP growth. Interest rate and inflation rate does not significantly correlate with real GDP. Total insurance premium income and non-life insurance consumption negatively and insignificantly effects the growth of the economy, while life insurance premium income has a positive but significant impact on the output

level of goods and services in the economy. This suggests weak evidence for a growth supporting role of insurance.

Ward and Zurbruegg (2000) investigated the direction of casualty between total real insurance premium and real Gross Domestic product for nine (9) OECD economies over the period 1961 to 1996. Using the vicariate vector Auto Regressive Model for Granger causality test and co-integration, they found that total real insurance premium Granger causes real GDP for Canada and Japan but a bi-directional causality was found for Italy. The causality test results for other countries revealed no causal relationship. The result from the error- correction model showed that beside Canada and Japan, causality runs from insurance market to real GDP for Australia and France. The integration test result showed there was no long run relationship between growth in the insurance industry and economic growth for some OECD countries including the UK and the US. The authors opined that there was cultural predispositions towards uncertainty avoidance. The resulting propensity for insurance and the effects of regulations in different countries as well as the insurance density they offer and its dynamic growth serve the possible explanatory for the result obtained.

Zou, Adams and Buckle (2004) studied the Chinese property insurance market, sampling two hundred and thirty five (235) public liability companies for the period 1997 to 1999. They specifically examined the relationship between property insurance propensity and premium as dependant variables and leverage growth opportunities, state and managerial ownership as explanatory variables. Utilizing the heterogeneity fixed effect estimation model on panel data, they found that there is a tendency for companies that are

highly leveraged or have physical assets intensive production to consume property Insurance, while state ownership decreases the demand for insurance. They further reported that increase managerial or foreign ownership and better growth option facilitate the demand for insurance while the size of the company inversely correlate with insurance demand.

Boom (2005) examined the growth supportive functions of banks, stock markets and the insurance sector in Singapore for the years 1991 to 2012. Ordinary Least square technique was adopted for the analysis. The study ran a regression of real GDP and real gross fixed capital formation against total insurance fund, stock market capitalization as percentage of normal GDP and loan to nominal GDP using the vector error correction model on time series data. The results showed short and long run causality running from bank losses to GDP, and a bi-directional causality between real gross fund capital formation and bank loans.

Anderew (2013) examined empirically the relationship between insurance and economy growth in Ethiopia using time series data from 1981 to 2010. Ordinary least square technique was used for the analysis. The study examines long-run historical using econometric tests for co-integration and Granger causality. Granger causality test found evidence that though they have long term relations, these developments of insurance and economic growth in Ethiopia were not causally related during this period. Therefore, the study conclude that insurance is not an important prerequisite for stimulating economic growth and at the same time economic growth do not bring insurance development.

Holsboer (1999) made a rigorous attempt to determine a basis for tracing the impact of insurance on economic growth through the increasing amount of assets and competition between players in the financial sector. Focusing on the changes in the external environment of insurance companies in Europe, he emphasized the prominent role of insurance in the service industry and spotted insurance sector development as a determinant of economic growth. Holsboer (1999) builds the Aaron (1966) model which adopts interest rate, growth of the working population, the economic growth rate benefit of the par-as-you-go pension scheme and benefit of the funded pension system as variable. The study reported that as the population is aging and there is a change from the pay-as-you-go (PAY G) pension scheme to privately funded pension scheme, the insurance industry assets grow and facilitate stocks market. Market development with the attendant increasing supply at long-term saving, this is inform increases investment which stimulates economic growth. He further posited that the causality link between insurance and economic growth is bi-directional.

Kjosevski (2011) the researcher studied the impact of insurance and economic growth with experienced analysis for the duplication of Macedonia for multiple regression, and control for other relevant determinant of economic growth were applied, the data were for a period of 1995-2010 and it was discovered that insurance sector development positively had significant affect on economic growth. The result are confirmed in terms of non-life insurance and total insurance, while the Levine.1997 result showed that life of insurance negatively affect economic growth.

Beenstock ,Dickson and Klajira (1986) studied the determinants of life premium, an international cross sectional analysis (1970-1991). They used ordinary least square technique to analyze the data. It was found that non-life insurance demand is associated with GDP per capita in a sample of 12 industrialized countries between 1970 and 1991.

Outreville (1990) found that non-life insurance was associated positively with GDP per capita and a measurer of financial development (m2/GDP) for a sample of 55 developing countries between 1983 and 1984. Arena (2008) tested whether there is a casual relationship between insurance market activity (life and non-life) and economic growth using the Generalized Method of Moment (GMM) for dynamic models of panel data for 55countries between 1976 and2004. Both life and non-life insurance have a positive and significant casual effect on economic growth.

Webb, Grace and Skipper (2002) examined whether banks, life and nonlife insurers individually and collectively contribute to economic growth by facilitating the efficient allocation of capital using revised Solow-Swan model of economic growth. They used cross-country data for 55 developed and developing countries, excluding ex-communist European economies, for the period 1980-1996. Ordinary Least square estimation and iterated three stage simulation estimation were used. In addition to average penetration of life and non-life insurance, as explanatory variables for GDP per capita growth, they used average growth rate of capita stock per capita, average penetration of banking activity, average level of exports as a share of GDP, average governmental expenditure share of GDP, natural log of initial real GDP per capita and data on proportion of the population over 25 students who

have completed primary school. They found that the exogenous components of banking and life insurance penetration are robustly predictive of increased productivity. Synergy between banks insurers exists, which indicates that banks and insurers collectively provide greater benefits than it would be by summing their individual contributions. Additionally, they found that there is no link between economic growth and non-life insurance. Economic growth affects life insurance penetration while it does not predict banking development.

Kugler and Ofoghi (2005) use the components of net written insurance premium to evaluate a long run relationship between development in insurance market size and economic growth by using Johannes's Trace and Max co integrated tests. In addition, they use Granger causality tests with disaggregated measures of specific classes of long-term and general business insurance for the United Kingdom. Disaggregation data for long-term insurance includes yearly and single premium (including life insurance, annuities, individual pensions and other pensions) for the period 1996-2003 and for general business insurance, includes motor, accident and health, liability, property, for the period 1971-2003. For most of variables and for at least at 50% level of significance, co integration tests confirmed long run relationship between development in insurance market size and economic growth. Causality tests' results showed for eight out of nine markets (the exception is pecuniary loss insurance), that the long run relationship between insurance market size development and economic growth is present rather than there is cyclical effect.

Odhiambo (2011) in a study dynamic causal relationship between financial development and stock market development,bank-based financial development and economic growth and poverty reduction in South Africa for the period of 1960 to 2006" using a Trivariate Causality Model and Error Correction Model (ECM) in data analysis. The study revealed that the hypothesis of finance-led growth do not hold in South Africa and there is distinct unidirectional causal flow. The result also showed that finance had nothing to do with the growth of South African economy.

Marijuana, Sandra and Lime (2009) empirically examined the relationship between insurance sector development and economic growth in 10 transition European Union member countries in the period from 1992 to 2007. They applied fixed –effect panel model and control for other relevant determinant of economic growth endogenity. Their findings showed that, insurance sector development positively and significantly affects economic growth. The results were confirmed in terms of life and non-life insurance, as well as total insurance.

Verma and Bala (2013) employed Ordinary Least Square Regression Model to examine the relationship between the life insurance and economic growth in India. The total life insurance premium (TLIP), and total life insurance investment (TLII), were used as proxy for life insurance and Gross Domestic Product (GDP) is used for the economic growth. The data has been compiled from the Handbook on India Insurance statistics, IRDA annual reports and economic survey for the time period 1990-91 to 2010-11. The Ordinary Least Square regression model is used for data analysis. The Breusch-pagan-Godfrey Serial correlation LM, Heteroskedasticity: Breusch-

pagan-Godfrey, Jarque-Bera, Collinaerity Diagnoses tests were applied to check robustness of the OLS regression model. The results provide empirical evidence that life insurance has both positive as well as significant influence on the economic growth in India.

Hussels, Ward and Zurbruegg (2005) examined short and long dynamic relationship between economic growth, measured by annual real estate GDP, and insurance industry, measured by total real premiums, for nine OECD countries for the period 1961-1996. As additional explanatory variables they used changes in private saving rates, the general government budget surplus ,population size, the general government level of current expenditure and youth plus old age dependency ratios, measured as the proportion of the total population under 16 and over 65 years of age. Based on vicariate (VAR) methodology to test for Granger causality, authors found that the casual relationship between economic growth and insurance market development vary across countries. They did not determine the exact causes although they express their suspicious that possible causes are country-specific nature of cultural, regulatory and legal environment, the improvement in financial intermediation and the moral hazard effect of insurance.

Adams, Anderson and Lindmark (2009) analyzed long-run historical relation between banking, insurance and economic growth in Sweden using time-series data from 1830-1998. They used econometric tests for co-integrations and Granger causality to identify co-joint effects of banking and insurance and economic growth. In addition to the whole period, they used Granger causality tests for three sub-periods (1830-1888, 1889-1948 and 1949-1998). They use log of annual per capita growth in the rate of real GDP

to measure national economic growth, data for the total (central, commercial and savings) annualized amount of real bank lending to the non-bank public on a per capital basis to represent bank credit variable and real annualized value of total premiums (life and non-life) per capita to represent insurance penetration variables. They found that the development of bank lending activity preceded economic growth in Sweden during the nineteenth century and increased the demand for insurance,while Granger causality was reversed in the twentieth century. Additionally, they found that in later sub-periods insurance development fosters demand for banking services but only in times of economic prosperity. Their results for the entire period indicate that banking has the predominant influence on both economic growth than the demand for insurance while insurance market appears to be driven more by the pace of economic growth rather than leading economic development.

Han, Li, Moshiran and Tian (2010) studied the relationship between Insurance development and economic growth using a dynamic panel data model on 77 countries for the period 1994-2005. Ordinary Least square, panel data technique was applied. The insurance density used to measure the development of the insurance is positively correlated in the sample was then divided into developing countries. For developing economies, the development of insurance is more important than that played in the case of developed economies. It was discovered that insurance density with other important component have positive impact on economic growth.

In another panel study Llian and Taha (2011) examined the role of insurance in economic growth using 29 countries between 1999 and 2008. The countries are Austria, Belgium, Canada, Czech Republic, Denmark, Finland,

France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Turkey, South Korea, Luxembury, Holand, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Swizerland, England and United States. The result shows that there is a positive relationship between insurance and economic growth in the sample countries.

Pei-Fen, Chem.-Chiang, Chun-Ping and Chi-Fang(2011), investigated the relationship between the development of the life insurance market (using penetration and density measure) and economic growth within the context of various 'conditional factor' that possibly have the potential to influence such relationship. They employed recent two-step system, Generalized Method of Moments (GMM) for dynamic models of panel data for 60 countries from 1976-2005. The study found that development of the life insurance market has a positive effect on economic growth. Also the result clearly showed that the conditional variables of middle-income countries, sub-saharan Africa, saving, the real interest rate, social security, the stock market turnover ratio and the young dependency ratio alleviate the positive impacts of the development of the life insurance market on growth.

Cristea, Marcu and Carstina(2013), analysed the relationship between insurance and economic growth in Roman compared to the main result in Europe. Pearson correlation coefficient and Linear Regression were adopted. They discovered that there is a high correlation based on the casual link between the insurance penetration and the degree of density and the economic growth measured by GDP per capita.

Lim and Haberman (2003) used Ordinary least regression method on time series data, they determined the dynamic relationship between life

business demand and financial sector development; concentrating on the Malaysian life insurance market over the period 1968 to 2001, the result showed that interest rate for saving deposits and price have positive and significance relationship with life insurance demand.

Chien- Chiang(2011) disaggregated real insurance premium into life and non-life insurance premiums to examine the interrelationship between Insurance market activities and economic activities and economic growth for 10 selected OECD countries between 1979-2006.Panel Unit- root test, heterogeneous panel co-integration tests and panel causality techniques were all used and the conclusion is that there is fairly evidence favoring the hypotheses of a long run equilibrium relationship between real GDP and Insurance market activities. The non-life insurance market activities of life insurance market. The causality test of dynamic panel-based error correction model indicates long run bidirectional causality.

Zouhaier (2014) examined the relationship between the insurance business and the economic growth of 23 OECD Countries over the period 1990-2011 using a static panel data model. The key findings from the empirical analysis showed a positive impact of non-life insurance as measured by the penetration rate on economic growth and a negative effect exerted by the total insurance and non-life insurance as measured the density on economic growth.

Alhasaan and Fiadar (2014) examined long-run causal relationship between insurance penetration and economic growth in sub-Saharan African over the period 1986- 2011.Period OLS, Fixed effect model and Generalized method of moment panel model were employed in the estimation. The

estimations of the dynamic panel data results show that insurance has positive and significance impact on economic growth in sub-Saharan Africa. This shows that premium contributes to economic growth in sub-Saharan Africa which means that a well-developed insurance sector is necessary for the economic development as it provides long-term investments for economic growth and simultaneously strengthening risk taking abilities.

Akinlo and Apanisile (2014), studied the relationship between Insurance and economic growth in sub-Saharan African over the period 1986-2011. Pooled OLS, Fixed Effect Model and Generalized method of moment panel were employed in the estimations of the dynamic panel. Data results showed that insurance had positive and significance impact on economic growth in sub-Saharan Africa which means that a well-developed insurance sector is necessary for the economic development as it provides long-term investment for economic growth and simultaneously strengthening risk-taking abilities. The results also showed that human capital has positive impact on economic growth.

Olayungbo, Akinlo and Mcmillan(2016), examined the dynamic eight African countries for the period of 1970-2013. A Bayesian Time Varing Parameter Vector Auto Regression (TVP-Var) Model with stochastic volatility is used to analyse the short run and the long run among the variables of interest. Using insurance as a measure of insurance to economic growth, they found positive relationship for Egypt, while short run negative effect are found for Kenya, Mauritius and south Africa. On the contrary, negative effects are found for Algeria, Nigeria. Tunisia and Zimbabwe. They recommended

sound financial reforms and wide insurance coverage for insurance development in the selected African Countries.

Liyan, Donghui, Fariborz, and Yanghui (2010). They investigated the relationship between insurance development and economic growth on a dynamic panel data-set of 77 economies for the period 1994-2005.Insurance density is used to measure the development of insurance. They concluded that Insurance development is positively correlated with economic growth. The sample which was divided into developed and developing countries showed that the overall insurance development, Life and non-Life insurance development played much more important role for developing countries than they did for developed counties.

Ndalu (2016), analysed deepening of insurance and economic growth in Kenya, for period of six year from 2003 to 2008. The study employed a casual study design. Secondary data was obtained from published reports of Insurance Regulatory Authority (IRA) and Central Bureau of Statistic (CRS) specifically, the annual Insurance Reports and Economic Surveys respectively.The target population was all the 45 insurance companies registered for operation in Kenya. A simple regression analysis was conducted using statistical package for social sciences (SPSS) to enter and compute the measurements of the simple regression for the study. It was found that Insurance penetration ratio increased by 0.10% to stand at 2.7% in 2008. The long term business accounted for 0-9% and general business accounted for 1.8%. According to the equation established, taking Insurance penetration factor into account constant at Zero economic growth will still be experienced at 8. 395%. The data finding analysed also shows that taking all other

independent variables at Zero, a unit increase in insurance penetration ratio will lead to 1.375%.

Richterkova and Korab (2013) conducted a research on impact of insurance sector activity on economic growth – A Meta-Analysis. Using 10 Published and Unpublished studies, they conducted a Meta-Analysis of the literature on the impact of insurance activity on economic growth, insurance premium is taken as the measure of activity. The combined significance test of individual t-statistics is employed. The calculation of the effect size allowed understand the true effect relying on synthesis of so far published research with significantly higher amount of observation and better precision. Their results confirm positive effect of insurance activity on economic growth and are particularly important for policy makers who set the policy towards subjects in the insurance markets.

Szablicki(2002) conducted a cross-sectional analysis and a panel regression for causality between three different life insurance figures and income and socio-economic country variables for the time period from 1960-1996. Also, the findings emphasised the importance of banking sector development and the results for the role of the income level are in line with the results of previous works. The panel data regression mainly confirmed the results of the cross-section estimations.

Horng, Chang and Wu(2012) studied the relationship among the insurance demand, financial development and GDP of Taiwan. Using a three variable Vector Auto-regressive(VAR) model ,they discovered that there was an equilibrium relationship between the insurance demand, financial development and GDP. Again, they discovered that in short run, GDP was

granger cause of Insurance demand and Financial development was granger cause of GDP. They concluded that financial development promotes the insurance demand.

Ching, Fogid and Furuoka(2010) studied the existence of causal relationship between total assets of general insurance sector and GDP in Malaysia. The study applied the Johasen co-integration test, Granger causality test and vector error correction model(VCM). They discovered that the long-run relationship exist between the total Asset of general insurance and GDP. Also, there was no causal relationship in the short run between the total Assets of general insurance and GDP.

Lee, Lee, and Bin (2013) studied long term and short term relationship between the GDP and real life insurance from 41 countries. The study applied panel seemingly unrelated regression augmented Dickey-fuller(SURADF). It was found that in the long run one unit increasement in the real life premium will raise the GDP. 0.06 units of the life insurance market development determines the economic growth in the long run and in the short term, bidirectional causalities were found between them.

Hou, Cheng, and Yu (2012) analyzed the impact of financial institutions and GDP in 12 Euro-countries. They applied fixed effect model for the analysis. It was found that life insurance penetration and banking development do not have any significant impact on GDP .Also it showed that life insurance and banking development are significant predictor of GDP.

Chang ,T., Lee, Chien-Chang and Chi-Hung (2013) investisgated the causal relationship between the insurance activity and GDP using a data set of 10 OECD countries. The study applied bootstrap panel Granger causality test

and it was found that there was a significant and positive relationship between the overall insurance growth and economic growth for 5 countries of 10 OECD countries.

Ching, Kogid and Furuoka (2010) examined the casual effect of life insurance assets on economic growth, using co-integration analysis with quarterly data drawn from Malaysia for the period 1997 to 2008.The regression results suggest that there is a one way relationship flowing from real GDP. This shows that economic growth indication to life insurance sector such as savings mobilization, risk management and investment do not grow economy.

Ege and Sarac (2011) analyzed the role of Insurance in economic growth of 29 countries. The study employed fixed effect model for the 1999-2008.The study found that insurance investment affect economic growth positivity and significantly.

Monalisain (2012) did a study which revealed that the average Indian spent USD 16.4 on insurance product comprising USD 12.9 for life insurance and USD3.5 for non life insurance product. Also, that all good life insurance companies have huge funds accumulated through the payment of small amount of premium of individuals. The study used secondary data and information from government records related books and articles and descriptive statistics. It also reveals that these funds are invested in wages that contribute substantially for the economic development of the countries in which they do business.

Peter and Kjell (2006) worked on the relationship of insurance and economic growth, a theoretical and empirical analysis. They applied a cross

country panel data analysis annual insurance premium data analysis annual insurance premium data from 29 European countries over the 1992-2004 period. The study used simple ordinary least square technique and Granger causality test. They observed a weak evidence for growth supporting role of life insurance and explain the similarity to recent Banks and stock sector findings.

Hao (2006) studied the relationship between financial intermediation and economic growth using specific data from China over the period of 1985 to 1999.They study employed a linear model and one-step parameter estimates for the Generalized Method of Moment(GMM).The study found that banks as indicators of financial development is significant and negativetely related to growth. It further revealed that financial intermediation has a causal effect and positive impact on the growth through channels of household's savings mobilization and substitution of loans for state budget appropriation. This was attributed to inefficiency in loan distribution and self financing ability of the provincial government.

Kwon (2007) studied life insurance supply and discovered that insurance contributes to economic growth. Indeed, Insurance activity encourage the economic development through various channels. It reduces the costs of the necessary financing, stimulates the investment and innovation by creating an economic environment that is more certain, insurers are strong partners in development of a social protection system of workers in particular in the retirement and health coverage and as institutional investors, the insurers also contribute to the modernization of the financial market and facilities, the accumulation of new capital by firms.

Avram, Nguyen and Skully (2010) have examined the relationship between Insurance and economic growth over the 1980-2006 period using both Ordinary Least Square(OLS) on cross- sectional data and Generalized Method of Moments(GMM) estimations on panel data. They found a positive effect of the insurance (Life and non –life on economic growth. They also showed that at the disaggregated level, life Insurance and non-life premiums per capita have a positively influence on economic growth.

Keke and Houedokou (2013) analysed the contribution of Insurance(life and Non-life Insurance) to economic growth in West African Economic and Monetary Union(WAEMU) countries during the period 1999-2009. The study used the least square Dummy variable correlation and General Method Moment(GMM). They also made a comparative analysis between the WAEMU Countries and those of Central African Economic and Monetary Community (CAEMC).The estimation of a dynamic panel grouping all the countries of the African Franc Zone did not provide clear results on the contribution of Insurance on economic growth in the WAEMU and CEMAC Zone .Findings showed that life insurance has positive and insignificant in WAEMU and CEMAC Zone while the non-life Insurance has a significant effect in both areas.

Ouedraogo, Guerineau, and Sawadogo(2016) studied the relationship between the development of life Insurance sector and economic growth for a sample of 86 developing countries over the period of 1996-2011. They also examined examined the heterogenous effect of life insurance on growth. The study applied panel co-integration test and Vector error correction model. The econometric results showed on the one hand that the development of life

Insurance has a positive effect on economic growth per capita and on the other hand, that this effect varies according to the development life insurance decreases with the level of deposit interest rate, banks. Credit and stock market value traded while the effect is greater in countries with high-quality institutions. Finally , Life Insurance effect on growth is less for Sub-saharan African and British Legal system countries, compared to non- sub-saharan African and non-British Legal System Countries.

Chen, Lee and Lee (2012) analyzed Life insurance effect on economic growth and the condition factors that affect the relationship between life insurance market and economic growth. The study applied ordinary least square and vector error correction model. The growth –nexus varies across the country with different conditions. The findings confirmed that positive impact on economic growth is mitigated in middle-income countries, but amplified in low- income countries. Moreover, both the development of stock market and life insurance market are substitutions rather than complements.

Brown and Kim(1993) studied life insurance consumption per capita for 45countries for the years 1980-1987 with the multiple regression model on cross-sectional data on various country figures, such as income dependency and social security expenses are positively correlated and significant in both years.

Brown, Chung, and Frees (2000) applied a pooled cross-sectional panel model to Motor Vehicle and general Liability insurance in the OECD over the 1986 to 1993 periods. They analyzed liability insurance consumption on a variety of factors including income, wealth and legal system, income and legal system are positively correlated with insurance consumption while loss

probability and wealth are negatively correlated with insurance consumption. They assured that income affects insurance consumption.

Zuebruegg (2000) examined the short and long-run dynamic relationship between economic growth and growth in the insurance industry for OECD Countries. Co-integration analysis on a unique set of annual data for real GDP and total premium issued in each country from 1961 to 1996. Causality tests were also conducted, which accounts for a long run tends within the data. The results from the tests suggests that in some countries, the insurance industry granger cause economic growth and in other countries, the reverse is the case. Moreover, the result indicated that the relationship are contrary specific and any discussion of whether the insurance industry does promote economic growth will be dependent on a number of national circumstances. Been Stock et al (1988) applied pool time series and cross-section analysis on 1970-1989 data covering mainly 12 countries. They employed multiple regression model to analyze the effect of premium for property liability insurance(PLI) on Gross National Product (GNP). Income and Interest rate development and found that premium are correlated to interest rate and GNP, Marginal propensity to insurance (short and longrun) rises with income per- capita and is always higher in the long-run section estimations.

Njegomirv and Stojic (2010) examined the impact of insurance on economic growth and integration of insurance and banking in promoting economic growth of Yugoslavia region used century specific fixed effects models for panel data for the period 2000-2008 allowing each cross sectional unit. To have a different intercept terms serving as an un-observed random

variable that is potentially correlated with observed repressors. The findings showed that positive effect of insurance risk management and indemnification and as institutional investors. In the short run, growth in life (both yearly and single premium), liability and pecuniary loss insurance causes economic growth. Additionally, they found that causality from GDP growth to insurance market size development is more powerful than the causality from the other side.

Raturi (2005) in his empirical work on the use of derivatives by US insurance posited that the derivatives are important risk management tools widely used by financial institutions including insurers. It is not worthy from the paper that derivatives allow investors to trade exposures, diversifying risk and reducing earnings volatility and not surprisingly the market in derivative has grown dramatically over the last fifteen years. Today derivatives have moved beyond the more familiar instrument used for mitigating risk such as as trophy, pollution, whether and inflation. Insurer rely on the derivatives for several purposes, for example, a life insurers with a large portfolio of guaranteed minimum death benefit annuities can hedge against a steep decline in equity markets. Life insurers offering interest rates guarantees on their life saving products can use derivates to hedge against low interest rates. Property-liability(P-L) Insurers can transfer some of their catastrophe risk to the capital market via swap transactions. Furthermore, they can purchase options to sell their equity in a counter party at a pre-negotiation price should they be faced by a liquidity crisis.

Employment/unemployment and Economic growth

Collender and Shaffer (2002) explored the relationship between financial structure and job growth and posit that it could be a possible channel through which financial structure impacts income growth. They found that U.S. nonmetropolitan employment grew faster in 1973-96 where there are fewer locally owned bank offices and a more concentrated initial banking market structure; these linkages were less stable in metropolitan areas. Other findings suggest weak evidence in support of employment growth channel linking bank structure to subsequent economic growth. The findings suggest that job creation is not consistently a major channel by which banking structure stimulates income growth and the corollary is that the macroeconomic benefits of banking structure accrue primarily to those already working, rather than new worker.

Sodipe and Ogunriola (2011) investigated the employment and economic growth relationship in the Nigerian economy. A simple model of employment was formulated and jn estimated using the ordinary least square technique before and after the time series data for the study were corrected for non stationarity using Hodrick-prescott filter. It was discovered that there is a positive and statistically significant relationship between employment growth rate and the Gross Domestic Products (GDP) growth in the economy. The study advocate for increased labour-Promotings investment strategies that will help to reduce the high current open unemployment in Nigeria. Oladeji (1987) Investigated the issue of graduate unemployment in Nigeria while Borisade (2001) examined the structure of educational system and employment relationship in Nigeria. Both concluded that a re-orientation of the educational

system towards the employment needs of the economy would go a long way towards promoting productive employment in Nigeria.

Per Capita Income and Economic Growth

Fagbohun and Adekoya (2016) investigated the impact of investment on long-run per capita income growth in Nigeria within the period 1970 and 2014. There findings revealed other macroeconomic determinants of long-run output per capita growth. This study used the ordinary least square (OLS) estimation technique to establish the lacks based on the sourced time series variables from the Central Bank of Nigeria (CBN). Empirical findings revealed that openness of trade has positive and significant impact on growth rate per capita income in Nigeria. However, growth rate of capital as a percentage of GDP, Government effectiveness measured by government expenditure to GDP and school enrolement rate have indirect relations with growth rate of per capita income of Nigeria.

Wolassa (2011) investigated convergence in real per capita GDP and macro economic policy and stability indicator within the south African Development Community. Empirical test for the period 1992-2009 showed no evidence of absolute beta and sigma convergence in real per capita GDP among the SDC economies. The findings indicate that most of the economies of the member states have shown a tendency of macroeconomic divergence in 2009 in monetary policy, fiscal policy and foreign exchange resources ratio. Since member countries are at varied levels of economic development the goal themselves most must be conditional on the level of convergence in economic structure and hence macroeconomic convergence may not be sustainable.

2.3.2 Empirical literature on Economic Development

The empirical works relating to economic development are examined below.

Ubom (2014) examined the link between investment portfolio of insurance firms and variables of Economic Development such as the growth rate of gross domestic product (GDP), unemployment, capital utilization and inflation rates in Nigeria from 1990 to 2011. Blend of desk, explanatory and descriptive research design were used, Data were analyzed using descriptive and inferential tools. The discoveries were that insurance companies in Nigeria got over 95% of income on yearly basis from premium and accumulated large sums of fund after expenditures on claims but invest less than 1% of such fund. Stocks and bonds, government securities as well as real estate properties and mortgages dominated the investment portfolio of these financial institutions with heavy concentration in the assets of quoted companies. Hence small and medium scale enterprises were not funded. As such insurance firms were not making any significant influence on economic development in the country as evidenced in the marginal growth rate of gross domestic product (GDP) and capital utilization among others. The study recommended that insurance companies should increase their wealth allocation to invest with proper spread and mix to cover small and medium scale enterprises.

Fortune and Lezansi (2012) utilized Nigeria time series to analyse insurance investment and economic development. They used vector Auto regression system on the annual data for the impulse response and variance decomposition analysis to examine the pattern and magnitude of response to shock into the next thirty years. It was and found that the impulse response of gross domestic products (GDP) to shock emanating from government securities, stock and bonds, real estate mortgage and cash and deposit was

inconsistent. The study concluded that although a long run equilibrium relationship exists between the variables the investment from the insurance industry does not seem to assert sufficient influence on the economic growth. It attributed this to lack of awareness of insurance and the extent of management of insurance fund.

Olaide (2015) studied the empirical investigation on the impact of insurance investment on the economy of Nigeria. Data were collected from annual report from annual report and accounts of selected companies and were analyzed using the statistical package for social science(SPSS), Linear and multiple regression analysis were done to deploy the unit root and co-integration. The findings are that there is negative linear relationship between total investment of Insurance companies and gross domestic product in Nigeria. There is a positive linear relationship between total investment of insurance of insurance companies and unemployment in Nigeria. There is a positive linear relationship between total investment of insurance companies and capital utilization in Nigeria. There is a negative linear relationship total investment of insurance companies on Inflation rate in Nigeria. It was recommended that National Insurance Commission and government should work to see that the source of the period premiums collected and other income generated by the industry are being invested to ensure diversification of fund of insurance industry in the economy.

Egbeonu (2016) studied insurance investment portfolio and economic development in Nigeria: A co-integration Analysis (1996-2013). Multiple regression analysis, unit root text, Engle co-integration and Granger causality were used for data analysis. The individual coefficient result of OLS revealed

positive and significant relationship between bills of exchange, investment in stock and bonds while inverse and insignificance relationship was found between investment in government securities; Granger causality result revealed that pattern of relationship between insurance investment portfolio and economic development was demand following(Economic- insurance investment portfolio.

Anthony and Luke (2011) studied the effect of insurance business on the economic development in Nigeria by using descriptive survey and sampling techniques. The finding revealed that insurance companies provide some financial services to some substantial number of people in the economy and that insurance helps in capital accumulation than payment of reparation of losses

Wadlamannati (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 was penetration (life, non-life and total insurance). Using Ordinary Least Square (OLS), co-integration analysis and error correction models (ECM), it was found that reforms in insurance sector do not affect economic activities; but their growth has positive impact on economic growth.

2.4 Summary of Literature

The summary of the reviewed related literature are shown in table1.

Table 1: Summary of literature Exploration.

s/no	AUTHOR(S) AND YEAR	TITLE OF THE STUDY	METHODOLOGY	FINDINGS
1	Sambo, H. S (2016)	Effect of insurance portfolio investment on Nigeria Gross domestic product	Multiple Regression model, Linear regression.	Moral contribution of Insurance business from the fund's portfolio would impact on the GDP positively.
2	Egbeonu (2016)	Insurance investment portfolio and economic development in Nigeria	Analysis multiple regression analysis unit root text Engle co-integration and Granger consulting	1. Positive and significant relationship between bills of

				exchange, investment stock and bonds. 2. Inverse and insignificant relationship between government securities.
3	Momudu, A. Ezirim C.B and Abubakkar Y.O (2016)	Insurance investments inter-mechanism index and economic growth Empirical evidence from Nigeria	Co-integration and classical linear regression analytical technique.	Investment activities of insurance companies jointly exert considerable positive impact on the insurance interrelation index as well as on GDP growth of Nigeria both in short long run.
4	Igbodika, M.N Ibenta, S.N. and John, E.I. (2016)	The contribution of insurance investment to Economic growth in Nigeria in Nigeria (1980-2014)	Generalized method of moment(GMM) technique, Dickey-fuller and Philip pearson method and Johansen co-integration test,	Insurance sector investment has resistance and significant effect on Gross Domestic product.
5	Fagbohun, A and Adekoya O.M. (2016)	Investment as a determinant of per capita income growth in Nigeria: An Empirical Analysis	Ordinary least square estimation technique.	Openness of trade has positive and significant impact an growth impact on growth rate per capita income in Nigeria.
6	Ndalu C (2016)	Financial Deepening of Insurance and Economic growth in Kenya	Simple regression analysis using statistical package for social sciences (SPSS)	There is increase in insurance penetration in Kenya.
7	Hao (2016)	Relationship between financial intermediaries and economic growth	Generalized method of moment (GMM)	Financial institution has casual effect and positive impact on the growth through savings mobilization etc
8	Ouedrago I., Guerinean, S. and sawago, R. (2016)	Life insurance Development and Economic Growth Evidence from Developing countries	Panel Johnasen cointegration test.	Development of life insurance has positive effect on economics growth per capital
9	Eze, O.R and Okoye V. (2015)	Analysis of Insurance and Economic growth in Nigeria using co-integration test and error correction model	Unit root test, Johansen co-integration test and error corrective model	There is a causal relationship insurance sector development and economic growth in Nigeria.
10	Olayungbo, D.O. (2015)	Effect of life and Non life Insurance on Economic growth in Nigeria: Autoregressive distribution Lag (ARDL) Approach.	Autoregressive Distribution Lags (ARDL)	There is a short and Long run positive and significant contribution of life and non life Insurance on the economic growth.
11	Olayungbo D.O. 2015	Insurance and Economic growth nexus in Nigeria: Asymmetric Non-Linear Relationship under Heterogeneous Agents.	Co-integration causality tests	A robust significant between high gross domestic product (GDP) and low Insurance in Long run.
12	Olaide, A.R. (2015)	Empirical investigation on the economy of Nigeria	Statistical packages for social science (SPSS), Linear and multiple regression	Negative linear relationship between total investment of insurance companies and gross domestic product in Nigeria

				There is a positive Linear relationship between total investment of insurance companies and unemployment in Nigeria Positive linear relationship between total investment companies and capital utilization in Nigeria.
13	Oyedotum T.M and Adesina B.D. (2015)	Nexus between insurance business on economic growth in Nigeria	Ordinary least square and Granger causality test	There is relationship between insurance business and economic growth of Nigeria
14	Madukwe, O and Anyanwukoro, M. (2014)	The causal Relationship between Life Insurance Business and Economics growth in Nigeria	Pearson's product moth cuts correlation coefficient	1. There was significant relationship between Life Insurance business and economic growth of Nigeria 2. Life Insurance premium has not model meaningful contribution to economic growth.
15	Alhasan and Fsadar (2014)	Relationship between insurance and Economic growth in sub-Saharan Africa	Ordinary least square fried effect model and Generalized method of moment panel model	Insurance has positive and significant impact on economic growth in sub-Saharan Africa.
16	Akinto and Apanisile (2014)	Relationship between insurance and economic growth in sub-Saharan Africa	Pool ordinary least square (OLS), fixed model and Generalized method of moment panel	Insurance has positive and significant impact on economic growth of sub-Saharan African.
17	Oluoma, R.O. (2014)	Impact of Insurance market activity on Economic growth in Nigeria.	Ordinary last square (OLS) ,regression model	1. Life Assurance petition and Insurance density had positive significant impact on economic growth in Nigeria. 2. Total Insurance penetration and non life. Insurance penetration had position significant impact on economic growth in Nigeria.
18	Ubom U.B (2014)	Investment portfolio of insurance development in Nigeria.	Descriptive and inferential tools	1. Less than 1% of accumulate premium are invested 2. Stocks and bound government securities and real estate dominate the investment portfolio of the institutions
19	Critea, Marou and Casting (2014)	The relationship between insurance and economic growth in Romania A theoretical and empirical analysis	Pearson correlation coefficient and linear Regression	High correlation between the insurance penetration and the degree of density and economic growth.

20	Richerkova, Z and Korab (2013)	Impact of insurance sector activity on economic growth A meta-Analysis	t- statistic	Positive effect of insurance activity on economic growth.
21	Yinusa O. and Akinlo A. (2013)	Insurance development and Economic growth in Nigeria (1986-2050)	Error-correction model (ECM)	1. There is Long-run relationship between insurance development and Economic growth Nigeria. 2. Physical capital and Interest rate have significant positive effect on economic growth in Nigeria. 3. Physical capital and Inflation negative Long-run relationship with economic growth.
22	Akin J. (2013)	The causal Relationship between insurance and Economic growth in Nigeria (1986-2010)	Vector Error correction model (VECM) co-integration test, Granger causality test	1. No causality between economic growth and premium in the short run. 2. Premium, inflation and interest rate Ganger cause GDP in the long-run which means there is unidirectional causality running from premium, inflation and interest rate to GDP.
23	Ozumba C.V. (2013)	Impact of Insurance Economic Growth in Nigeria	Co- Integration and Error correction model	1. Real Gross Domestic product is positively related to investment in Insurance 2. There is a significant relationship between insurance premium and economic growth.
24	Andrew G. (2013)	The relationship of insurance sector development and economic growth Ethiopia	Ordinary last square technique con-integration and granger causality test	Though they have long form relations these developments of insurance and economic growth Ethiopia are not causally related during this period.
25	Balogun I.O. (2013)	Portfolio an appraise of insurance industry of invest profile under	Panel regression and fixed effect test.	Positive returns on insurance investment may not be significant enough in some less developed countries.
26	Verma A and Bala R. (2013)	The relationship between life insurance and Economic growth. Evidence from India	Ordinary least square regression model Breuschpagan Godfrey serial correlation.	Life insurance has both positive as well as significant influence on the economic growth of India.
27	Lee, Chieng Chiang, Lee, Chi-	The link between life	Panel seemingly unrelated	In the long-run increase

	Chien, Chu. Y, Bia (2013).	insurance Activities and economic growth: some new evidence.	regressions augmented Dicky-fuller(SURADF) test.	real life premium will increase the GDP Bidirectional causalities exist.
28	Chang T.Lee, chiengchang and chi-hing (2013)	Does insurance activity promote economic Growth?	Bootstrap panel Granger causality test.	Positive and significant relationship between the over all Insurance growth and Economic growth.
29	Keke, C. and Houedokou, W.F (2013)	Insurance contribution to economic growth in countries of west African Economic monetary union (WAEMU) A Dynamic Data Approach	Least square Dummy variable correlation an d General method moment(GMM)	Life insurance has positive and insignificant in WAEMU and ECAEMC whileNon life has a significant effect in both areas.
30	Shittu, A.I. (2012)	Financial Intermediation and Economic growth in Nigeria	Unit root test, co-integration test Error correction model and Engle Granger causality test.	Financial Intermediaries have significant impact on the growth of Nigeria economy.
31	Nwinne and Tonba (2012)	Empirical evidence of insurance Investment and economic growth in Nigeria	Co-integration ordinary least square, and variance decomposition techniques	Positive and significant long run relationship between GDP and insurance investment and unidirectional granger causality from investment in cash Deposit and hand and GDP.
32	Fortune, N.B and Lazansi L. T (2012)	Empirical evidence of insurance investment and economic growth in Nigeria	Vector auto regression system	1. The impact response of gross domestic product (GDP) to shocks emanating from government securities, stocks and bonds, real estate mortgages and cash and deposit was in consistent. 2. A long run equilibrium relationship exits between the variables investment from the insurance industry does not seem to assert sufficient influence on the economic growth.
33	Omoke, P.C (2012)	Insurance market Activity and Economic growth Evidence from Nigeria.	Johansen co-integration and vector error correction model	1. Insurance sector did not reveal any positively and significant effect on growth in Nigeria. 2. Low insurance market activity in Nigeria.
34	Monalisa, G (2012)	Role of Insurance in economic Development of India	Secondary data and information from government records,related books and article.Descriptive statistics	Life insurance is mainstay of money economic and capable of garnering large sum of money for long period

				of times.
35	Hou, H, Cheng, su-yoin and yu, chin-peng (2012)	Life insurance and Euro Zones Economic Growth.	Fixed effect model	Life insurance penetration and banking development do not have any significant impact on GDP. Life insurance and banking development are significant predictor of GDP.
36	Chen, P.F, Lee, C.C and Lee, C.F (2012)	How does the development of the life insurance market affect economic growth?	Ordinary least square technique	Positive impact on economic growth is mitigated in middle income countries but amplified in low-income countries.
37	Lihan E and Tah (2011)	The relationship between insurance sector and economic growth.	Ordinary least square, fixed model estimation	Positive relationship between insurance sssssand economic growth.
38	Pel-pen,chem.-chiang, chun, ping and chi-fag (2011)	How does the Development of life Insurance market affect Economic growth some Interactional Evidence	Two step system Generalized method of moments (GMM) for panel data	Life insurance market has a positive effect on economic growth.
39	Anaestesia Omade and Osener (2011)	Relationship between insurance investment and economic growth of Nigeria	Vector Auto-regression model technique	Money supply has a negative but GDP and others have positive significant impact on private investment Nigeria.
40	Chien-chiang (2011)	The relationship between insurance market activities and economic growth	Panel unit root heterogeneous panel co-integration panel co-integration test and causality technique.	Long run equilibrium relationship between real GDP and insurance market activities Long-run bidirectional causality.
41	Sodife, O.A. and Ogunrinola O.I (2011)	Employment and Economic Growth Nexus in Nigeria	Ordinary least square technique	Positive and statistically significant relationship between employment growth rate and GDP growth in the economy.
42	Mojekwu J.N. Agwuegbo S.O.N and Olawok Udejo, F.F (2011)	Impact of Insurance contribution to economic growth in Nigeria.	Ordinary last square technique	A positive relationship between Insurance contribution measured by the volume ofpremium and economic growth.
43	Owojori, A.A. and Oluwagbaji I. O (2011)	The effort of Insurance business on economic development in Nigeria	Descriptive statistic and chi-square statistical tool	Insurance investment has positive effect on economic growth of Nigeria.
44	Olowokwojo (2011)	Impact of insurance contribution on the growth of Nigerian economy	Auto regressive model	Economic growth is positively correlated with insurance contribution
45	Kjoserskc J. (2011)	Impact of Insurance on economic growth.	Multiple Regression Analysis.	Insurance sector development positively and significantly affect economic growth.
46	Ching,L.S, Kogi M and Furuoka (2011)	Causal relation between insurance funds and economic growth. Evidence from Malaysian	Johansen cointegration test ,Granger causality and Vector error correction model,	Long-run relationship between the total Asset of General Insurance and GDP.
47	Ege. I., and Sarac T.B (2011)	The relationship between insurance and Economic	Fixed effect model	Insurance investment affected economic

		growth: An economic Analysis.		growth positively and significantly.
48	Anthony and Luke (2011)	the effect of insurance business on the economic development in Nigeria	Descriptive survey and sampling techniques	insurance companies provide some financial services to some substantial number of peoples in the economy
49	Agwuegbo Adewole and maduegbuna (2010)	Predicting insurance investment A factor Analytic Approach	Factor Analytic approach	Insurance industry in Nigeria holds a reasonable percentage of the country's total investable by the capital market.
50	Han Li, D moshiran, F and Jian, Y (2010)	Insurance Development and Economic growth	Ordinary least square, the panel data Technique	Insurance density with other impact component has positive impact on economic growth.
51	Avram, Nguyen Y and Skully (2010)	The relationship between insurance and economic growth(1980-2006).	Ordinary least square (OLS) Generalized method moment (GMM)	A positive effect of the insurance life and non life) on economic growth.
52	Njegomirv and Stojic (2010)	The impact of insurance on economic growth and integration of insurance and banking in promoting economic growth of Yugoslavia region	Specific fixed effect model	1. Positive effect of insurance risk management and indemnification and as institutional investors 2. In the shorts run growth in life, liability and pecuniary loss insurance causes economic growth.
53	Wadlammannati (2008)	Does insurance sector growth and Reforms affect economic development empirical evidence from india	Ordinary least Square (OLS) co-integration analysis and error correction model	Reform in insurance industry do not affect economic activities but their growth has positive impact on economic growth.
54	Adams, Anderson, Landmark (2009)	Commercial Banking, Insurance and economic growth insurance and economic growth insurance (1830-1998)	Co-Integration and Granger causality test	1. Development of Bank tending activity proceeded economic growth insurance, doing the Nineteen century and Increase the demand for Insurance 2. Banking has predominant Influence on economic growth than the demand for Insurance market appears to be driven more by the pace of economic growth rather than leading economic development.
55	Marijuana .C. Sandra L.and Klime P. (2009)	Insurance sector Development and Economic growth in transition countries	Fixed effects panel model	Insurance sector development positively and significantly affect economic growth.
56	Peter, R H and Kjall (2006)	Relationship of insurance and economic growth :A theoretical anaempirical analysis.	Simple ordinary least square and Granger causality test	Weak evidence for growth supporting role of life insurance
57	Arena M (2006)	Does Insurance market promoted economic	Generalized method of moment (GMM)	Non life have a positive and significant casual

		growth and employment in the EU		effect on economic growth.
58	Boom, T.K (2005)	Do commercial Bank stock market and Insurance market promote Economic growth?	Ordinary Least square technique- Vector error correction model	1. Short and long-run causality running from bank losses to GDP and bidirectionall causality between real gross found capital formation and bank loans. 2. There is significant growth to economic by Insurance premium.
59	Hussels. S., Ward, D and zurbruegg R (2005)	Stimulating the demand for insurance	Vicariate (VAR) – Granger causality tests	Causal relationship between economic growth and insurance market development vary across states
60	Kuglar, M. and Ofoghi, R. (2005)	Does insurance promote Economic growth? Evidence from UK.	Johannes's and granger causality tests	1. There is long-run relationship between development in Insurance market size and economic growth.
61	Zou, H. Adam M.B and Buckle, L..(2004)	Corporate Risks and Property Insurance: Evidence from the people's Republic of China.	Heterogeneity fixed effect estimation model	1. Highly Leveraged companies or physical Assets Intensive production companies consume property Insurance. 2. State owned companies decrease the demand for Insurance. 3. The size of the company inversely correlate with
62	Haiss, P and Sumeji K. (2004)	The Relationship between Insurance and Economic growth in Europe: A Theoretical and Empirical analysis	Ordinary least square and causality technique	1. Position and significant relationship between real GDP and physical capital. 2. Human capital is negatively related with GDP 3. Interest rate and Inflation rate does not correlate with real GDP 4. Total Insurance Premium Income and Non-Life Insurance Consumption negatively and insignificantly effects the growth of the economy. 5. Life Insurance premium income has a positive but

				significant impact on the output level of goods and services in the economy.
63	Beck T. and Web .I. (2002)	Economic Demographic and Institutional determinants of life Insurance consumption a closes countries	Ordinary least square and fixed estimate model	1. Anticipated inflation, real interest, secondary school enrolment significantly correlated with the private savings rate. 2. The ratio of life assurance in private savings decreases with an increasing saving rate. 3. Institutional Development positively related to Insurance Demand
64	Szablick R. (2002)	Growth and life insurance market	Ordinary least square technique	
65	Horng, M.S, Chang, Y.W and WU, T.Y. (2002)	Does insurance demand or Financial Development promote Economic Growth: Evidence from and Taiwan	Three –variable Vector Autoregressive(VAR) Model.	There was equilibrium relationship between the insurance demand Financial development and GDP.
	Ward, D. Zurbruegg, R. (2000)	Does Insurance promote economic growth? Evidence from OECD countries	Vicariate vector Auto-Regression model – Granger causality and Integration test	1. Total real Insurance premium Granger Causes real GDP for growth a and Japan but a bi-directional causality for Italy 2. No causal Relationship for other countries. 3. No long-run relationship between growth in the Insurance industry and Economic growth for OECD countries
67	Brown M.J, chung, J.W and Frees, E.W (2000)	International property liability insurance consumption	Pooled cross sectional panel model	Income, wealth and legal system are positively correlated with insurance consumption. Loss probability and wealth are negatively correlated with insurance consumption
68	Outrevill,J.E (1996)	Life Insurance market in developing companies	Ordinary last square Technique	Non Life Insurance is associated positively with GDP per capital and economic financial Development.
	Brown M.J. and Kiruj. (1993)	An international analysis of life insurance demand	Multiple regression model	Income dependency and social security expenses are positively and significant in both year
70	Been, Stock, Dickson and Klajira (1986)	The determinant of life premiums: An	Ordinary least square Technique	Non-life Insurance demand is associated

		International cross-sectorial Analysis (1970-1980)		with GDP per capital
71	Omuruyi (1984)	An econometric analysis of the determinants of investments by insurance companies in Nigeria.	Linear and log linear regression technique.	There is a good fit for life insurance companies which non-life and mixed insurance companies had their data showing good fit with the linear form.

SOURCE: Field Research,2018.

2.5 Gap in the Literature

All the literature reviewed by this study had their period of study ending not more than year 2014. For example, Beck, T and Webb, I.(2002) who studied Economic Demographic and Institutional determinant of life insurance consumption accross countries over a period 1960-2000, Nwinne and Toriba(2012) investigated Empirical evidence of Insurance investment and economic growth in Nigeria for a period of 1980-2010, Ubom(2014) studied Investment portfolio of insurance development in Nigeria for a period of 1990-2011, Egbonu (2016) studied insurance investment portfolio and economic development in Nigeria for a period of 1996-2013, Balogun(2013) analyzed the effect of insurance investment profile for a period 1985-2007, Anaestesia, Omade and Osener(2011) investigated Relationship between insurance and economic growth for a period of1980-2009, Igbodika, Ibenta and John(2016) studied Contributions of Insurance Investment to Economic Growth in Nigeria for a period of 1980-2014, etc. This current study which is on effect of insurance investment on Nigerian economic growth and development is for a period of 1996- 2016. There is a gap between the previous studies and the current study which extended the period of study to 2016.

Also other literature reviewed in this study did not treat effect of insurance investment on economic development using indices like infrastructural development, Industrial production index and per capita income. Therefore this study was extended to year 2016 and above mentioned economic development indices with the intention to make up for the gap in the literature.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

This study adopted an *ex-post facto* research design to examine the effect of insurance investment on economic development of Nigeria. *Ex post facto* or after the fact design attempts to identify a natural impetus for specific outcomes without actually manipulating the independent variable (Onwumere, 2009). This *Ex post facto* design was chosen because the researcher cannot manipulate the data as they are available and published by government agencies/parastatals. The importance of *Ex post facto* research is that it is a realistic approach to solving business and special science problems which involves gathering records of past events. (Agbadudu, 2002). This study covered a period of Twenty one (21) years from 1996 to 2016.

3.2 Sources and Nature of Data

Secondary data for the period 1996 to 2016 were collected from official reports of Central Bank of Nigeria (CBN) and Nigeria Insurance Commission (NAICOM). All the data are on an annual basis as provided in the various official reports and publications of the above mentioned data sources.

3.3 Description of Variables

Economic development is the dependent variable and measured using six indices which are economic growth represented by Real Gross Domestic Product (RGDP), Gross capital formation(GCF) , Infrastructural Development (INFRD), Production Index (PI), Per Capita ncome (PCI) and Employment level

(EMPL). The independent variable which is insurance investments in Nigeria is captured by Insurance Investment in Government Securities (IIGS), Insurance Investment in Stocks and Bonds (IISB), Insurance Investment in Real Estate and Mortgage (IIREM) and Insurance Investment in Bill of Exchange (IIBOE).

3.4 Model Specification and Validity

This specifies the mathematical relationship between the dependent and the explanatory variables. The model of Nwinne and Torbia (2012) on the quantitative relationship between components of insurance investment and economic growth in Nigeria was adopted in this study but with slight modification. The original model of Nwinne and Torbia (2012) is stated as:

$$RGDP = f\ (INGS, IVSB, IVRM, INCD\ ) \quad ----------3.1$$

Where IVGS= Insurance Investment in Government Securities.

IVSB= Insurance Investment in Stocks and Bonds.

IVRM = Insurance Investment in Real Estate and Mortgage.

IVCD = Insurance Investment in Cash Deposit and Hand.

The model was modified to incorporate six measures of economic development via real gross domestic product growth rate, gross capital formation, infrastructural development, production index, per capita income and employment level as well as an explanatory variable in the place of investments in bill of exchange. The models are expressed as:

Model 1

$$RGDPGR = f(IIGS, IISB, IIREM, IIBOE\ ) \quad ----------3.2$$

Model 2

$$GCF = f\ (IIGS, IISB, IIREM, IIBOE) \quad ----------3.3$$

Model 3

$$INFRD = f\ (IIGS, IISB, IIREM, IIBOE) \quad ----------3.4$$

Model 4

$$PI = f\ (IIGS, IISB, IIREM, IIBOE\ ) \quad ----------3.5$$

Model 5

$$PCI = f\ (IIGS, IISB, IIREM, IIBOE) \quad ----------3.6$$

Model 6

$$EMPL = f\ (IIGS, IISB, IIREM, IIBOE\ ) \quad ----------3.7$$

To avoid the possible effect of any outlier and to enhance easy interpretation of findings and obtaining the coefficients of the elasticity of the variables, the models will be transformed to log-linear econometric equation. Thus;

$$LogRGDPGR_t = a_0 + a_1 LogIIGS_t + a_2 LogIISB_t + a_3 LogIIREM_t + a_4 LogIIBOE_t + \varepsilon_t \quad ----------3.8$$

$$LogGCF_t = a_0 + a_1 LogIIGS_t + a_2 LogIISB_t + a_3 LogIIREM_t + a_4 LogIIBOE_t + \varepsilon_t \quad ----------3.9$$

$$LogINFRD_t = a_0 + a_1 LogIIGS_t + a_2 LogIISB_t + a_3 LogIIREM_t + a_4 LogIIBOE_t + \varepsilon_t \quad ----------3.10$$

$$LogPI_t = a_0 + a_1 LogIIGS_t + a_2 LogIISB_t + a_3 LogIIREM_t + a_4 LogIIBOE_t + \varepsilon_t \quad ----------3.11$$

$$LogPCI_t = a_0 + a_1 LogIIGS_t + a_2 LogIISB_t + a_3 LogIIREM_t + a_4 LogIIBOE_t + \varepsilon_t \quad ----------3.12$$

$$LogEMPL_t = a_0 + a_1 LogIIGS_t + a_2 LogIISB_t + a_3 LogIIREM_t + a_4 LogIIBOE_t + \varepsilon_t \quad \text{----------} \quad 3.13$$

Where:

RGDPGR is Real Gross Domestic Product Growth Rate: This is the growth in Nigeria economy from one period to another. The variable was chosen because it captures the actual change in economic growth from previous year to current year. If the economy has grown, it is positive. However, if the economy has not grown, it is negative. Nwinne and Torbia (2012) and Mojekwu, Agwuegbo and Olowokudejo (2011) have applied this index to measure economic growth in Nigeria.

GCF is Gross capital formation: Gross capital formation are assets used in the productive process that a firm holds for over a year. It measures the increase in capital stock less disposal of fixed assets. It is included in the expenditure approach to national income accounting.

INFRD is Infrastructural development: This means public utilities provided to enhance the macroeconomic environment needed to be investors friendly. Government capital expenditure on economic services (Transportation, Communication and Construction) was used as a proxy for infrastructural development.

PI is Production Index: The index of industrial production is the total output generated by the industrial sector in a specified time period. It is the index that captures all industrial activity in Nigeria economy. Huge investment of insurance fund in the capital market increases availability of capital to firms which results in higher production index of the industrial sector.

PCI is Per capita income: Per capita income measures the living standard of the population. It is the income per person over a specified period of

time. In this study, per capita income was measured by dividing the real gross domestic product by the total population.

EMPL is Employment level: Employment is the population in government parastatals, private and other establishments that are engaged/involved in activities like agriculture, fishing, manufacturing, services, public administration, health and social works which may be regular, casual, unpaid or self-generated.

IIGS is insurance investment in government securities: This is the investment made by insurance companies in various government securities such as treasury bills, commercial papers etc. which can be sold at any point in time. This component of insurance investment was applied by Nwinne and Torbia (2012).

IISB is Insurance Investment in Stock and Bonds: This is investment of insurance companies in equities and bonds in the stock market which provide a pool of fund for government infrastructural and industrial development. Holsboer (1999) utilized this measurement.

IIBOE is Insurance Investment in Bills of Exchange: A bill of exchange is simply an investment for a specified period of time that returns a known amount of interest. Mojekwu, Agwuegbo and Olowokudejo (2011) in whose work Akintola-Bello (1986) was cited, observed that cash and bill of exchange dominate the investment pattern of insurance companies in Nigeria.

IIREM is Insurance Investment in Real Estate and Mortgage: Real estate and mortgage investment are investment made by insurance companies in tangible assets such as building, plant and machinery in an attempt to manage

the premium received from the insured public. Nwinne and Torbia (2012) applied this insurance investment component.

a_0 is a constant term, ***E*** is a random error/disturbance term and ***t*** is the time trend; these are normally included in standard time-series specifications to account for the omitted variables as well as unexplained random effects within the model.

3.5 Technique for Data Presentation and Analysis

The data for this research was presented and analysed based on the research specific objectives, questions and hypotheses. Ordinary Least Square (OLS) estimation technique was applied in analysing the data. It was chosen in preference to Two Stage Least Squares (2SLS) as it devoid of limited information. The computer software application E-Views 8.0 was used for the analysis.

Unit Root: In an attempt to estimate whether there is a long run relationship between the various components of insurance investment and economic growth in Nigeria, the Johansen co-integration methodology was applied. However, prior to application, the stationarity of the variables was checked. This is necessary in order to ensure that the parameters are estimated using stationary time series data and that variables are free from stationarity defect has most time series data have. To do this, the Augmented Dicky-Fuller (ADF) and Philip Perron (PP) tests were conducted.

Johansen co-integration test: This step seeks to identify the number of co-integrating relationships that exist among these variables. This paper used the

methodology developed by Johansen (1991), popularly known as the Johansen co-integration test. This test identifies the number of stationary long-run relationships that exist among the set of integrated variables. It offers two tests, the trace test and the eigen value test, with a view to identifying the number of co-integrating relationships.

Granger Causality Test: To determine the effect or the direction of causal relationship in statistical term, this study employed the Granger Causality test to examine the effect of components of insurance investment on economic development. When components of insurance investment help in the prediction of economic growth and development, they are said to be granger caused by insurance investment. Alternatively, economic development are said to be granger caused by insurance investment when the coefficients on the lagged of economic development are statistically significant.

3.6 Criteria for Interpretation

The criteria for interpreting and discussing the result of the analysis were based on three global statistics criteria namely, Adjusted R-Squared, F-Statistic and Durbin Watson test of autocorrelation. According to Ezirim (2016), a model should satisfy these three global statistics as well as relative use of model without which the model is baseless and cannot be relied upon in econometric assumptions.

Coefficient of Determination (R^2): It measures the proportion of the total variation in the dependent variable that is jointly explained by the linear influence of the explanatory variable. The value of R^2 lies between zero and one, i.e., $0<R^2<1$ with values close to 1 indicating a good degree of fit.

F^* Statistics: The F-statistics is used to test whether or not the changes in the dependent variable were statistically and significantly explained by the

independent variable(s). If the probability at which the F- value significant is less than the chosen level of significance, then we accept that independent variable(s) significantly and statistically explained the changes in the dependent variable in the regression equation.

Durbin Watson Statistics: The Durbin-Watson test for autocorrelation compare the calculated d* value from the regression residuals with the dL and du in the Durbin Watson tables and with their transforms (4-dL) and (4-du). The result of the serial correlation LM test overrides the Durbin Watson test of autocorrelation. The serial correlation LM test is superior and preferred to Durbin Watson in testing autocorrelation in any stated model (Ezirim, 2016).

3.7 A Priori Expectation

This refers to the supposed relationship between and or among the dependent or independent variables of the model on the premises of the economic development theory. The result or parameter estimates of the models were interpreted on the basis of the supposed signs of the parameters as established by economic growth theory. Table 2 shows the expected signs of the independent variables in the model.

Table 2: A Priori Expectation

Symbol	Independent Variables	Supposed Signs
IIGS	Insurance Investment in Government Securities	+
IISB	Insurance Investment in Stocks and Bonds	+
IIBOE	Insurance Investment in Bills of Exchange	+
IIREM	Insurance Investment in Real Estate and Mortgage	+

Source: Researcher's Assumption from Economic Growth Theory

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Data Presentation

This section depicts the data on the variables as stated in model specification. The data were sourced from the Central Bank of Nigeria (CBN) statistical bulletins, National Bureau of Statistics (NBS) and National Insurance Commission (NAICOM) annual reports of various issues. The data for insurance investment in government securities, stocks and bonds, bills of exchange and deposit, real estate and mortgage and cash at bank and hand from 1996 to 2016 are presented in Table 3, while Table 4 summarized the data for real gross domestic product growth rate, gross fixed capital formation, infrastructural development, index of industrial production, per capita income and employment level within the same time frame.

Table 3: Insurance Investment in Government Securities, Stocks and Bonds, Bills of Exchange and Deposit, and Real Estate and Mortgage from 1996 to 2016

Year	Government Securities (₦' Million)	Stocks and Bonds (₦'Million)	Bills of Exchange (₦'Million)	Real Estate and Mortgage (₦'Million)
1996	1,546.20	4,047.80	119.30	2,523.20
1997	2,012.00	4,095.40	164.20	2,683.50
1998	4,145.90	3,633.20	3,371.50	212.00
1999	2,987.20	4,174.00	5,780.90	332.70
2000	3,559.00	4,992.90	7,302.00	282.30
2001	3,842.70	6,786.30	10,178.00	359.30
2002	3,752.10	8,350.90	11,881.20	960.30
2003	4,489.20	11,490.30	13,901.20	14,272.80
2004	4,169.10	20,071.90	16,687.10	21,832.20
2005	4,178.10	61,808.80	6,301.10	33,788.20
2006	4,858.10	121,803.10	6,303.00	45,186.30
2007	20,914.80	222,278.90	5,267.80	45,331.90
2008	21,374.90	227,169.10	5,383.70	46,329.20
2009	21,845.20	232,166.80	5,502.10	47,348.50
2010	22,325.80	237,274.40	5,623.20	48,390.10
2011	22,816.90	242,494.50	5,746.90	49,454.70
2012	23,307.46	247,732.38	5,870.46	50,517.98
2013	23,808.57	253,083.40	5,997.26	51,604.12
2014	24,320.45	258,550.00	6,126.20	52,713.61
2015	24,843.34	264,134.68	6,257.91	53,846.95
2016	26,085.51	277,341.41	6,570.81	56,539.30

Source: National Insurance Commission (NAICOM) Reports of various issues 2018

Table 4: Real Gross Domestic Product Growth Rate, Gross Fixed Capital Formation, Index of Industrial Production, Per Capita Income, Employment Level and Infrastructural Development from 1996 to 2016

Year	Real Gross Domestic Product Growth Rate (%)	Gross Fixed Capital Formation (₦'Million)	Index of Industrial Production (Points)	Per Capita Income (Naira)	Employment Level (%)	Infrastructural Development (₦'Million)
1996	3.89	172,105.7	132.50	36,272.71	72.0	117,830.00
1997	2.80	205,553.3	140.60	36,753.98	98.0	169,610.00
1998	2.43	192,984.5	133.90	34,136.99	98.2	200,861.90
1999	0.52	175,735.8	129.10	39,048.04	97.1	323,580.60
2000	5.23	268,894.5	138.90	54,636.87	94.6	111,508.60
2001	6.25	371,897.9	144.10	54,721.64	96.2	259,757.80
2002	12.74	438,114.9	145.20	60,327.50	96.9	215,333.40
2003	8.68	429,230.0	147.00	74,790.56	81.9	979,820.10
2004	9.45	456,970.0	151.20	89,905.61	86.3	167,721.80
2005	6.55	1,178,040.0	158.80	104,673.19	87.8	265,034.70
2006	6.30	2,272,760.0	158.90	129,537.12	85.2	262,207.30
2007	6.82	1,936,950.1	124.80	140,346.98	88.2	367,900.00
2008	6.72	2,050,762.2	117.60	160,681.23	88.1	358,210.00
2009	7.71	3,048,023.0	118.20	159,570.33	87.7	504,290.00
2010	8.71	4,007,832.0	121.50	339,399.84	87.3	506,010.00
2011	5.04	4,207,422.6	132.00	385,269.95	85.1	412,120.00
2012	4.04	10,618,000.0	136.70	421,637.20	80.3	386,900.00
2013	5.20	11,723,000.0	138.24	462,068.03	78.1	505,770.00
2014	5.86	13,593,779.4	139.11	378,376.79	76.1	393,450.00
2015	2.71	14,112,170.0	120.24	378,831.98	73.5	348,750.00
2016	-1.63	15,326,520.0	109.60	358,643.06	86.6	261,280.00

Source: Central Bank of Nigeria (CBN) Statistical Bulletin, 2016 and National Bureau of Statistics (NBS) 2018

Insurance Investment in Government Securities

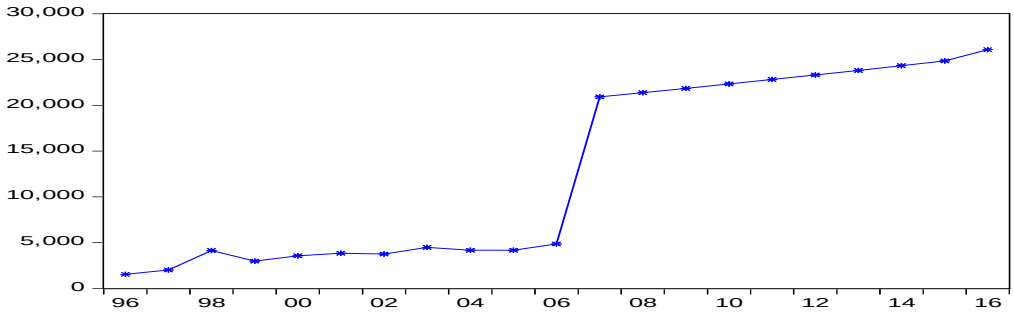
The insurance investment in government securities was ₦1, 546.20 million in 1996, which had risen by 68.17% at the end of 2006 to settle at ₦4, 858.10million. Insurance investment in government securities has continued to rise from 2007 to 2015. From 1996 to 2015, as shown in Table 3, Fig. 1 and 2, insurance investment in government securities gradually rose from ₦1, 546.20million in 1996 to ₦26, 085.51million in 2016.

Insurance Investment in Stocks and Bonds

Insurance investment in stocks and bonds in 1998 was ₦3,633.20 million, a decline of over 11.41% from the ₦4,095.40 million of 1997. In 2002, insurance investment in stocks and bond rose by 50.02% to ₦8,350.90 million from ₦4,174.00 million in 1999. As can be seen in Table 3, Fig. 3 and 4, from

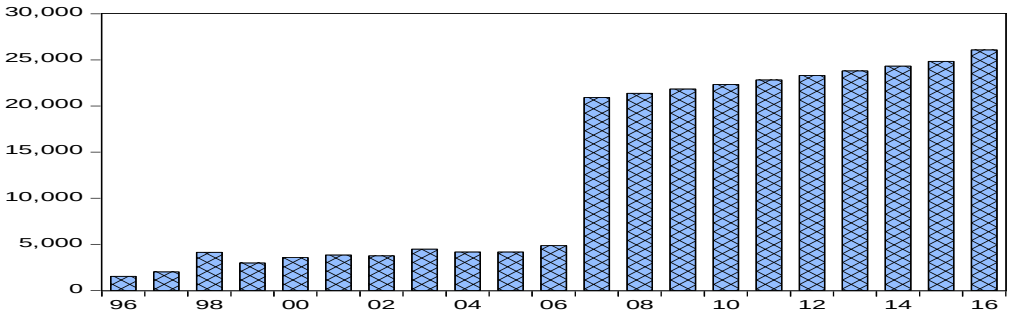
2003 to 2006, insurance investment in stocks and bond rose tremendously, and this increase was maintained as it settled at ₦277,341.41 million by the end of 2016.

Fig. 1: Graphical Trend in Insurance Investment in Government Securities from 1996 to 2016



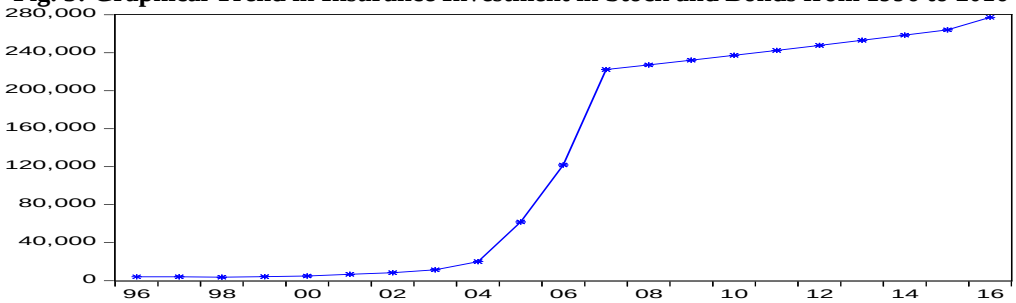
Source: National Insurance Commission (NAICOM); and output data from E-views 9.0

Fig. 2: Bar Chart Trend in Insurance Investment in Government Securities from 1996 to 2016



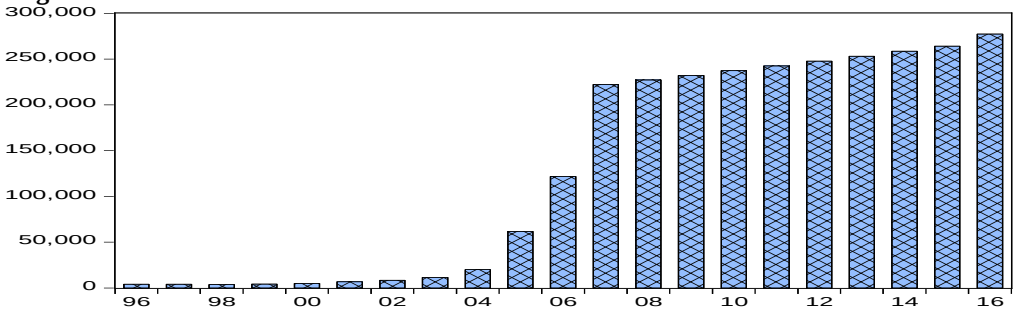
Source: National Insurance Commission (NAICOM); and output data from E-views 9.0

Fig. 3: Graphical Trend in Insurance Investment in Stock and Bonds from 1996 to 2016



Source: National Insurance Commission (NAICOM); and output data from E-views 9.0

Fig. 4: Bar Chart Trend in Insurance Investment in Stock and Bonds from 1996 to 2016

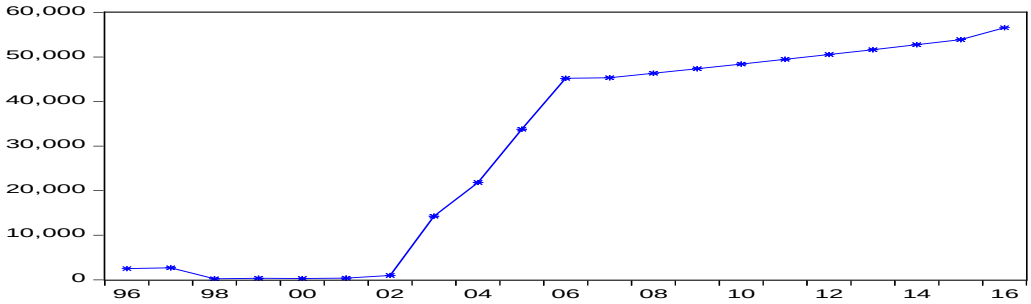


Source: National Insurance Commission (NAICOM); and output data from E-views 9

Insurance Investment in Real Estate and Mortgage

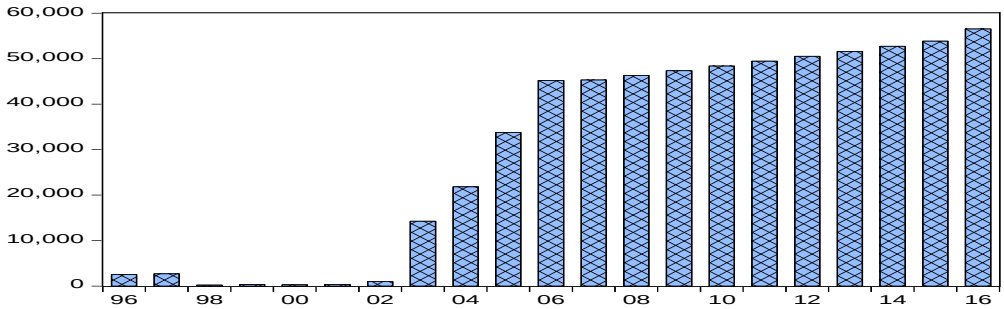
Table 3, Fig. 5 and 6 showed that the insurance investment in real estate and mortgage during the period 1996 and 2016 appreciated considerably, rising from ₦2,523.20 million in 1996 to ₦56,539.30 million in 2016 indicating over 9,490% appreciation. Insurance investment in real estate and mortgage at the end of the year 2010 reached ₦48,390.10 million, an appreciation of 2.15% from 2009, when it was ₦47,348.50 million.

Fig. 5: Graphical Trend in Insurance Investment in Real Estate and Mortgage from 1996 to 2016



Source: National Insurance Commission (NAICOM); and output data from E-views 9.0

Fig. 6: Bar Chart Trend in Insurance Investment in Real Estate and Mortgage from 1996 to 2016

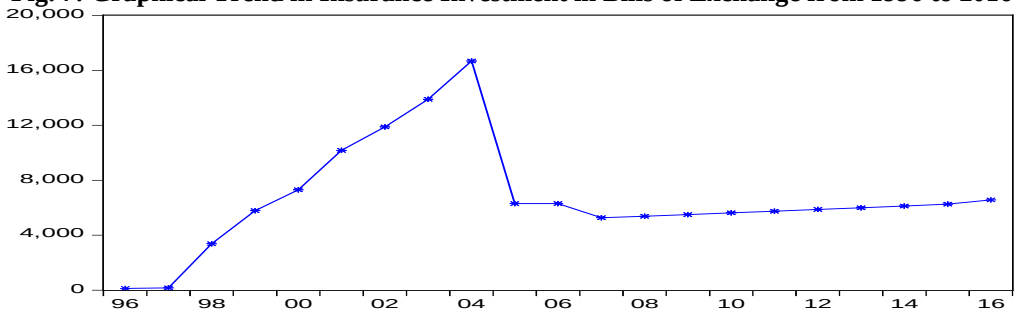


Source: National Insurance Commission (NAICOM); and output data from E-views 9.0

Insurance Investment in Bills of Exchange

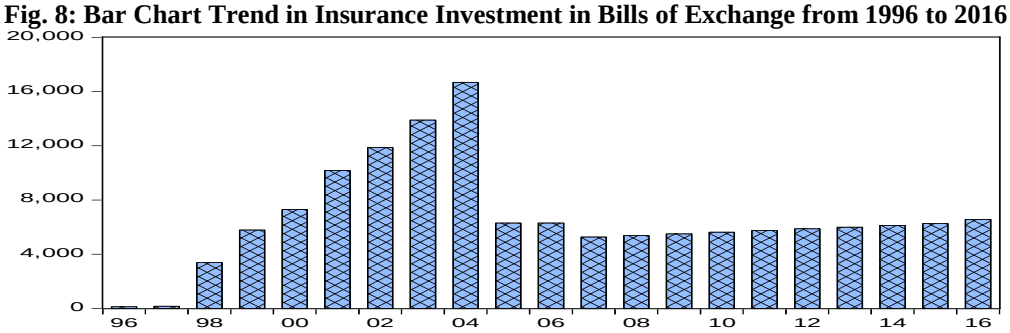
The investment of insurance companies in bills of exchange has fluctuated over time. From ₦119.30 million in 1996, it rise to reach ₦7,302.00 at the end of 2000 then continued to appreciate closing at ₦16,687.10 in 2004. Between 2005 and 2016 insurance companies investment in bills of exchange increased from ₦6,301.10 to ₦6,570.81 million. Table 3, Fig. 7 and 8 illustrate these changes in insurance companies' investment in bills of exchange.

Fig. 7: Graphical Trend in Insurance Investment in Bills of Exchange from 1996 to 2016



Source: National Insurance Commission (NAICOM); and output data from E-views 9.0

Fig. 8: Bar Chart Trend in Insurance Investment in Bills of Exchange from 1996 to 2016



Source: National Insurance Commission (NAICOM); and output data from E-views 9.0

Gross Domestic Product Growth Rate

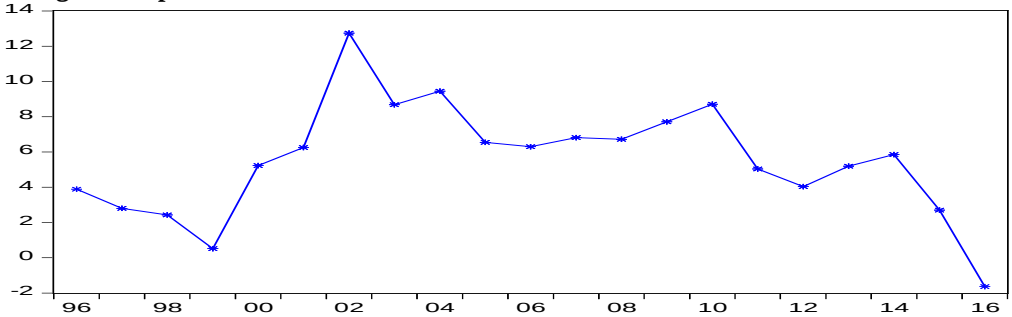
The growth rate of real gross domestic product was 3.89% in 1996, which had risen to 5.32% by the end of 2000. The growth rate of real gross domestic product continued to appreciate as it reached it 12.74% in 2002. From 2002 to 2008, as shown in Table 3, Fig. 9 and 10, the growth rate of real gross domestic product gradually decline from 12.74% in 2002 to 6.72% in 2008. Nevertheless, it rose marginally to 8.71% in 2010 but declined sharply to 2.71% in 2015. That notwithstanding, due to the economic recession in the country in the 2016, the growth rate of the real gross domestic product depreciated to 1.63 compared to 2.71 in the previous year.

Gross Fixed Capital Formation (GFCF)

Table 4, Fig. 11 and 12 show that the gross fixed capital formation during the period between 1996 and 2016 changed considerably, rising from ₦172,105.7 million to ₦15,326,520 million an increase of over 999.01%. The gross fixed

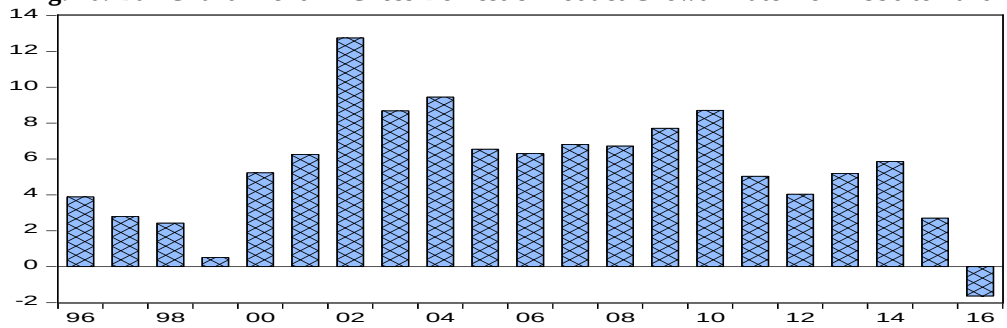
capital formation at the end of the year 2009 reached ₦3,048,023 million, a rise of 32.72% from 2008, when it was ₦2,050,762.2 million.

Fig. 9: Graphical Trend in Gross Domestic Product Growth Rate from 1996 to 2016



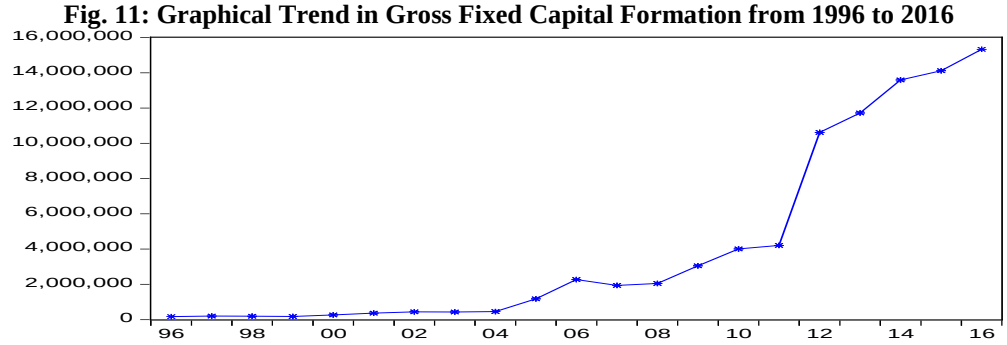
Source: Central Bank of Nigeria (CBN) Statistical Bulletin, 2016

Fig. 10: Bar Chart Trend in Gross Domestic Product Growth Rate from 1996 to 2016



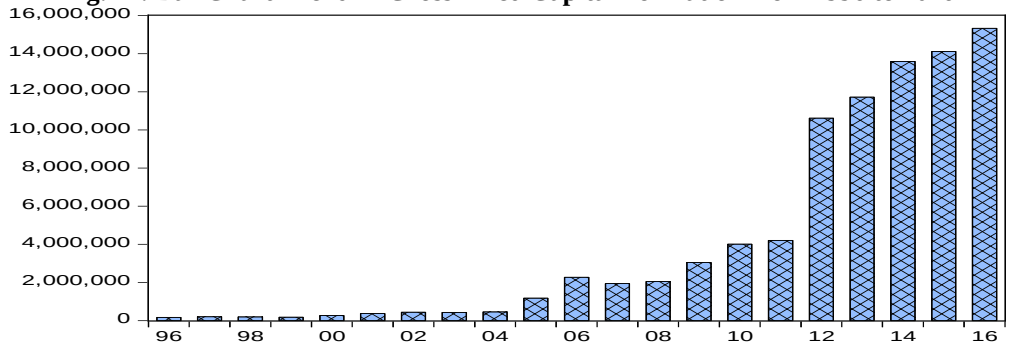
Source: Central Bank of Nigeria (CBN) Statistical Bulletin, 2016

Fig. 11: Graphical Trend in Gross Fixed Capital Formation from 1996 to 2016



Source: Central Bank of Nigeria (CBN) Statistical Bulletin, 2016

Fig. 12: Bar Chart Trend in Gross Fixed Capital Formation from 1996 to 2016

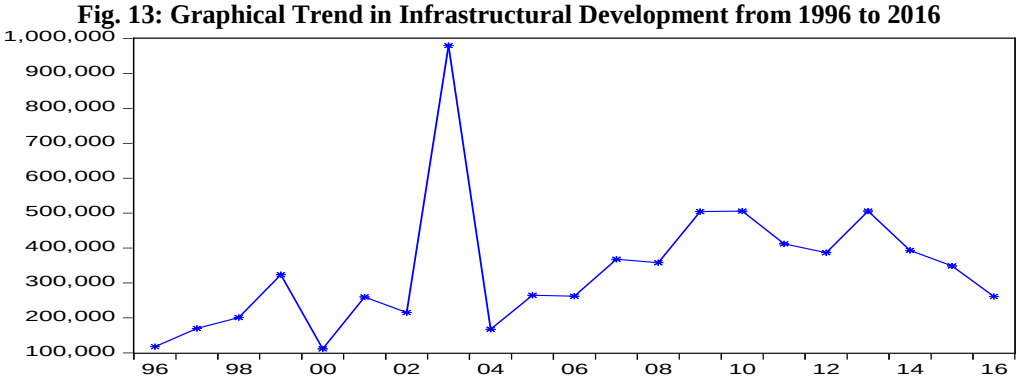


Source: Central Bank of Nigeria (CBN) Statistical Bulletin, 2016

Infrastructural Development

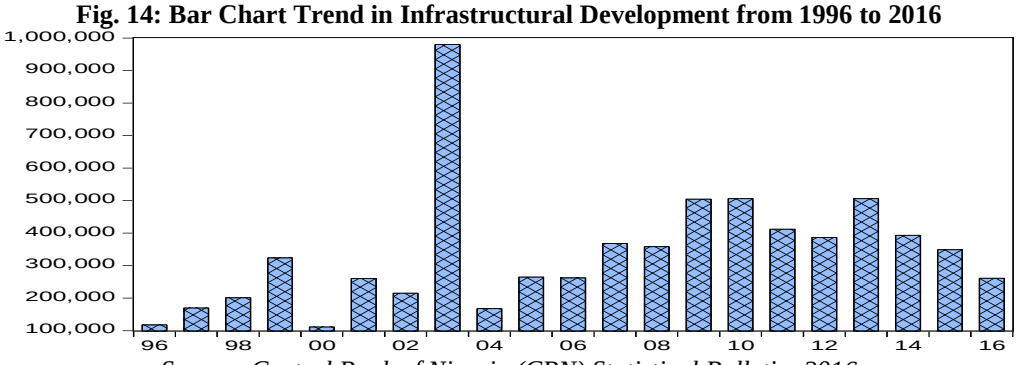
Between 2000 and 2007 the infrastructural development in Nigeria rose from ₦111,508.60 million to ₦367,900 million. Infrastructural development reached a record level of ₦979,820.10 million in 2003. However, infrastructural development continued to decline till 2016 as it was estimated to worth ₦261,280 million. Table 4, Fig. 13 and 14 give a picture of the trends in infrastructural development in Nigeria from 1996 to 2016.

Fig. 13: Graphical Trend in Infrastructural Development from 1996 to 2016



Source: Central Bank of Nigeria (CBN) Statistical Bulletin, 2016

Fig. 14: Bar Chart Trend in Infrastructural Development from 1996 to 2016

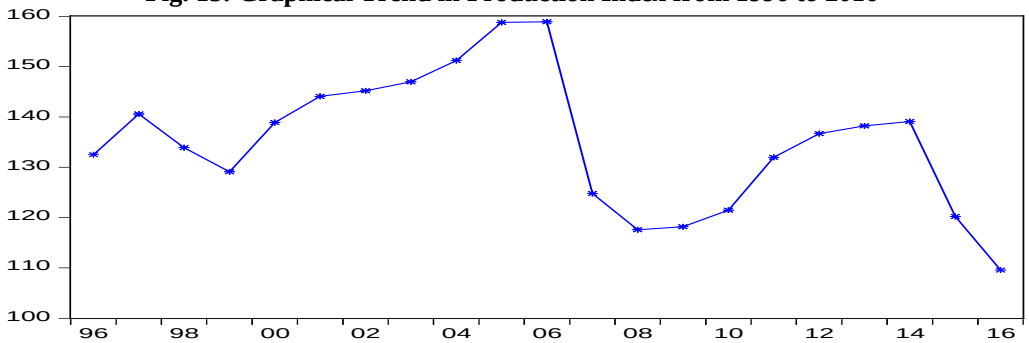


Source: Central Bank of Nigeria (CBN) Statistical Bulletin, 2016

Industrial Production Index

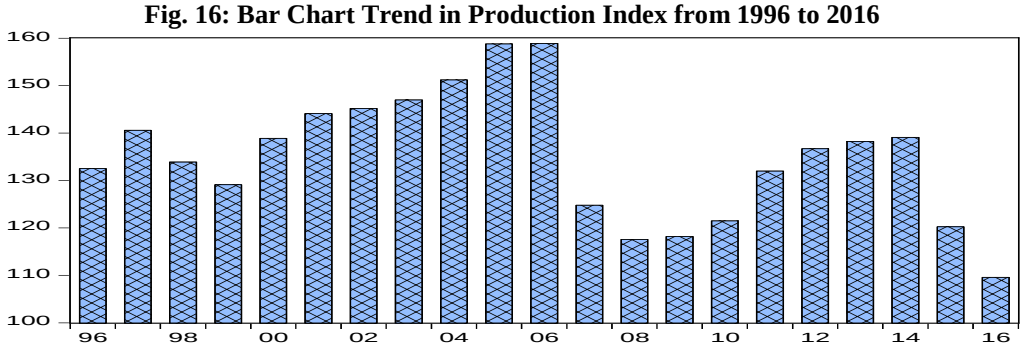
Production index has performed poorly over the period studied, a clear evidence of death of industries. The index of industrial production which was 132.5 points in 1996 has depreciated to 109.6 points despite the marginal increases in some period. From 1996 to 2016 industrial production index was characterized by fluctuation. Table 4, Fig 15 and 16 depict the trend in production index in Nigeria.

Fig. 15: Graphical Trend in Production Index from 1996 to 2016



Source: Central Bank of Nigeria (CBN) Statistical Bulletin, 2016

Fig. 16: Bar Chart Trend in Production Index from 1996 to 2016

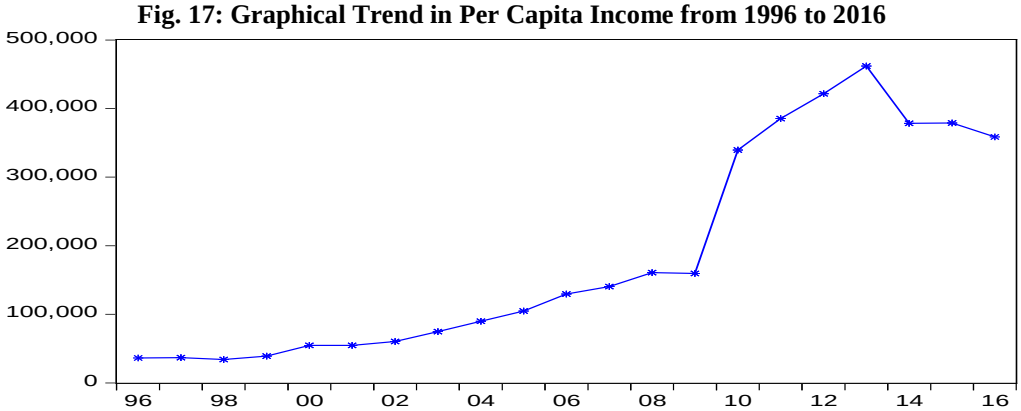


Source: Central Bank of Nigeria (CBN) Statistical Bulletin, 2016

Per Capita Income

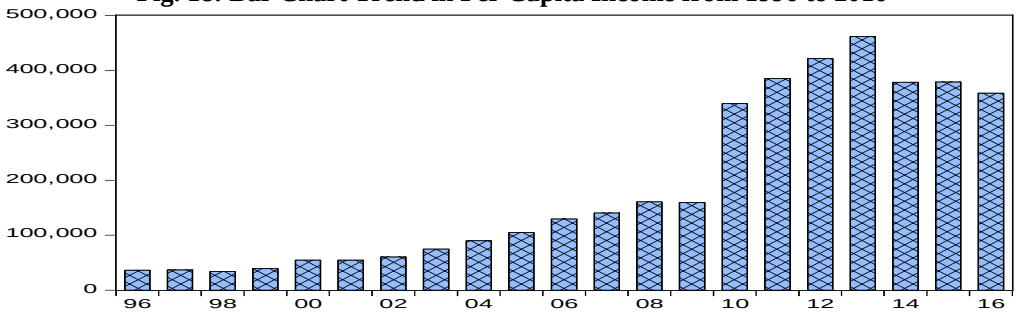
There has been significant rise in the per capita income over the years. From its value of ₦36, 272.71million in 1996 to ₦358, 634.06million in 2016. The per capita income witnessed an upward trend from 1996 to 2013. However, from 2014 to 2016 reveal a downward trend owed to instability and the consequent recession that engulfed the economy in 2016. Table 4, Fig. 17 and 18 give a detail of the movements in per capita income within the period studied.

Fig. 17: Graphical Trend in Per Capita Income from 1996 to 2016



Source: National Bureau of Statistics (NBS)

Fig. 18: Bar Chart Trend in Per Capita Income from 1996 to 2016

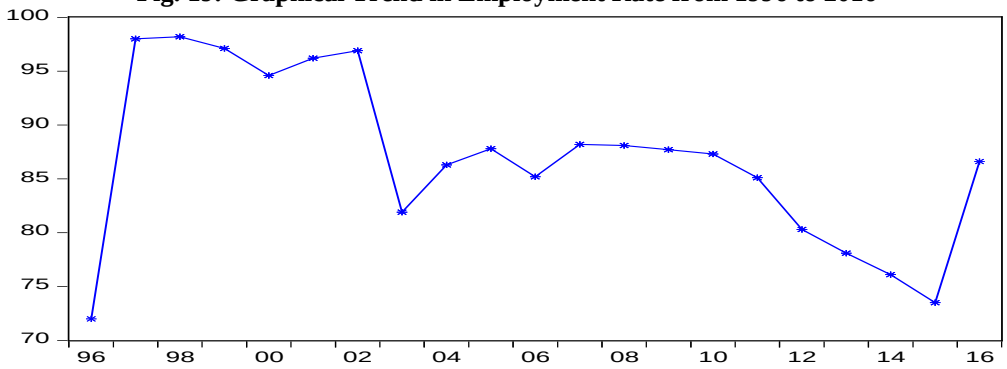


Source: National Bureau of Statistics (NBS)

Employment Rate

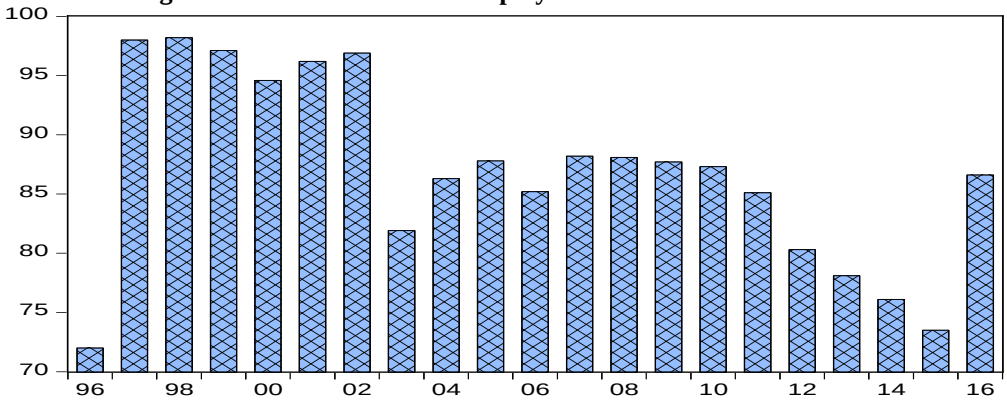
Employment rate in 2006 was 85.2, a fall of 14.20% from 97.3% in 1996. In 2012, employment rate decreased to 80.30 compared to 85.10 in 2011. As can be seen from Table 4, Fig. 19 and Fig. 20, between 2000 and 2007, employment rate tremendously fluctuated. In 2010, employment rate was 87.3 compared to 87.7 in 2009. It marginally increased to 86.6 in 2016 as against 73.5 in 2015.

Fig. 19: Graphical Trend in Employment Rate from 1996 to 2016



Source: National Bureau of Statistics (NBS)

Fig. 20: Bar Chart Trend in Employment Rate from 1996 to 2016



Source: National Bureau of Statistics (NBS)

4.2 Data Descriptive Statistics

Determining the descriptive properties of the data resulted in the evaluation of the mean, median, maximum, standard deviation, skewness, kurtosis, Jarque-Bera, p-value and number of observations as detailed in Table 5. The mean of the data were given as 5.52, 4132702, 338949.8, 135.15, 185696.6, 86.91, 12913.45, 129213.3, 29738.53 and 6682.659 for RGDPGR, GCF, INFRD, PI, PCI, EMPL, IIGS, IISB, IIREM and IIBOE respectively. The median of the data accordingly for RGDPGR, GCF, INFRD, PI, PCI, EMPL, IIGS, IISB, IIREM and IIBOE were depicted as 5.86, 1936950, 323581, 136.70, 129537, 87.3, 4858.10, 121803, 45186.3 and 5997.26. The maximum and minimum values are 12.74 and -1.63 for RGDPGR, 15326520 and 172105.7 for GCF, 979820.1 and 111508.6 for INFRD, 158.9000 and 109.60 for PI, 462068 and 34136.99 for PCI, 98.20 and 72 for EMPL, 26085.51and 1546.20 for IIGS, 277341.4 and 3633.20 for IISB, 56539.30 and 212 for IIREM, 16687.10 and 119.30 for IIBOE.

Table 5: Data Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	P-value	Obs
RGDPGR	5.524762	5.86000	12.74000	-1.630000	3.195369	-0.087144	3.348164	0.132645	0.93583	21
GCF	4132702	193695	15326520	172105.7	5333175	1.145922	2.647789	4.704523	0.09515	21
INFRD	338949.8	323581	979820.1	111508.6	190076.2	1.782638	7.180045	26.41097	0.00000	21
PI	135.1519	136.70	158.9000	109.6000	13.40314	0.005323	2.335732	0.386195	0.82440	21
PCI	185696.6	129537	462068.0	34136.99	153856.5	0.598312	1.672620	2.794617	0.24726	21
EMPL	86.91429	87.3000	98.20000	72.00000	7.988259	-0.200573	2.154373	0.766503	0.68164	21
IIGS	12913.45	4858.10	26085.51	1546.200	10100.86	0.115022	1.084005	3.258464	0.19608	21
IISB	129213.3	121803.	277341.4	3633.200	117845.6	0.011819	1.121580	3.087894	0.21354	21
IIREM	29738.53	45186.3	56539.30	212.0000	23051.31	-0.307581	1.291332	2.885724	0.23625	21
IIBOE	6682.659	5997.26	16687.10	119.3000	3861.150	0.849344	4.111496	3.605842	0.16482	21

Source: Output data from E-views 9.0

The standard deviation are 3.19 for RGDPGR, 5333175 for GCF, 190076.2 for INFRD, 13.4 for PI, 153856.5 for PCI, 7.98 for EMPL, 101000.86 for IIGS, 117845.6 for IISB, 23051.31 for IIREM and 3861.15 for IIBOE. From the skewness statistic, only RGDPGR, EMPL and IIREM that were not positively skewed toward normality. RGDPGR, INFRD and IIBOE were

observed to be leptokurtic in nature. The p-valued of the Jarque-Bera statistics disclosed that the data were not normally distributed with the exception of INFRD. Consequently, another econometric test of normality – Shapiro-Wilk was applied to further ascertain the normality of the data. Thode (2002) as cited by Yap and Sim (2011) stated that Shapiro-Wilk test of normality is the best choice and recommended by researchers for testing the normality of data. The p-values (at 5% significance level) Shapiro-Wilk normality test in Table 6 revealed that the data were normally distributed and inference from model estimations would be considered reliable in statistical term.

Table 6: Shapiro-Wilk Test of Normality

Variables	Shapiro-Wilk Test Statistic	P-value
RGDPGR	0.982991	0.00157
GCF	0.731947	0.00890
INFRD	0.834758	0.00235
PI	0.977606	0.00888
PCI	0.820244	0.00136
EMPL	0.935775	0.00061
IIGS	0.752517	0.00013
IISB	0.763152	0.00012
IIREM	0.793462	0.00052
IIBOE	0.853882	0.00496

Source: Output Data from Gretl Software

4.3 Unit Root Test

In an attempt to ensuring that the data were free from stationarity defects that may encumber the result of the analysis, the unit test of Augmented Dickey-Fuller (ADF), Phillips Perron (PP) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS). The unit root test were performed in three sets for ADF and PP, that is, constant, trend and constant; and none, while the KPSS was performed at only trend; constant and trend. Tables 7 – 8 presents the ADF test results; Tables 9 – 10 PP test results, while Tables 11 – 12 featured the KPSS test results.

Augmented Dickey-Fuller (ADF)

From the ADF stationarity test result in Table 7 , all the data were not stationary at level as estimated in three sets of constant; constant with trend, and none. Subsequently, the first differencing estimation of the data were performed as shown in Table 8 which cleared the data of any stationarity defects. Thus the variables are stationary at first difference, that is, all the variables were integrated at order one, 1(1).

Table 7: ADF Test Result at Level

Variables	Constant	Trend and Constant	None	Remark
RGDPGR	-1.386207 (0.56)	-1.232481 (0.88)	-1.002080 (0.27)	Not Stationary
GCF	1.259635 (0.99)	-0.964324 (0.93)	2.425934 (0.99)	Not Stationary
INFRD	-4.478532 (0.02)**	-4.798769 (0.01)*	-0.675300 (0.41)	Stationary
PI	-2.174800 (0.22)	-2.547199 (0.30)	-0.594869 (0.44)	Not Stationary
PCI	-0.531519 (0.86)	-1.818061 (0.65)	0.795174 (0.87)	Not Stationary
EMPL	-2.955555 (0.05)**	-6.686338 (0.00)*	0.188521 (0.73)	Stationary
IIGS	-0.618865 (0.85)	-2.081697 (0.52)	0.792589 (0.87)	Not Stationary
IISB	-0.806951 (0.79)	-2.476887 (0.33)	0.263551 (0.75)	Not Stationary
IIREM	-0.964544 (0.74)	-2.199191 (0.46)	0.325931 (0.76)	Not Stationary
IIBOE	-2.199887 (0.21)	-2.099231 (0.51)	-0.556905 (0.46)	Not Stationary

Source: Output data from E-views 9.0

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) and (**) denote significance at 1% and 5% respectively.

Table 8: ADF Test Result at First Difference

Variables	Constant	Trend and Constant	None	Remark
RGDPGR	-4.395605 (0.00)*	-4.284801 (0.01)*	-4.497361 (0.00)*	Stationary
GCF	-3.876131 (0.00)*	-4.340643 (0.00)*	-3.150484 (0.00)*	Stationary
INFRD	-7.834705 (0.00)*	-7.741293 (0.00)*	-8.049054 (0.00)*	Stationary
PI	-3.164816 (0.03)*	-3.161659 (0.00)*	-3.190746 (0.00)*	Stationary
PCI	-3.739206 (0.01)*	-3.602400 (0.05)**	-3.458182 (0.00)*	Stationary
EMPL	-6.429043 (0.01)*	-5.616772 (0.00)*	-6.575161 (0.00)*	Stationary
IIGS	-4.326344 (0.01)*	-4.200814 (0.01)*	-3.951121 (0.00)*	Stationary
IISB	-2.445391 (0.04)**	-2.359650 (0.04)**	-2.053424 (0.04)**	Stationary
IIREM	-2.327748 (0.03)**	-2.266261 (0.04)**	-1.881670 (0.05)**	Stationary
IIBOE	-4.155446 (0.00)*	-4.311400 (0.02)**	-4.214593 (0.00)*	Stationary

Source: Output data from E-views 9.0

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) and (**) denote significance at 1% and 5% respectively.

Phillips Perron (PP) Test

Just like the ADF result in Table7, the PP test result in Table 9 discloses that stationarity would be achieved for all the variable at level form estimation. However, the data satisfactorily became stationary at first difference as depicted in Table 10.

Table 9: PP Test Result at Level

Variables	Constant	Trend and Constant	None	Remark
RGDPGR	-1.409405 (0.55)	-1.144051 (0.89)	-0.975582 (0.28)	Not Stationary
GCF	1.259635 (0.99)	-0.964324 (0.92)	2.574303 (0.99)	Not Stationary
INFRD	-4.478532 (0.02)**	-4.829543 (0.00)*	-1.215203 (0.20)	Stationary
PI	-1.300895 (0.61)	-1.753500 (0.68)	-0.570057 (0.45)	Not Stationary
PCI	-0.627204 (0.83)	-1.993247 (0.57)	0.576964 (0.83)	Not Stationary
EMPL	-3.139810 (0.04)**	-6.552913 (0.00)*	0.230672 (0.74)	Stationary
IIGS	-0.609657 (0.85)	-2.081697 (0.52)	0.792589 (0.88)	Not Stationary
IISB	-0.442578 (0.88)	-1.879247 (0.63)	0.856303 (0.89)	Not Stationary
IIREM	-0.610517 (0.85)	-1.653541 (0.74)	0.941472 (0.90)	Not Stationary
IIBOE	-2.213416 (0.21)	-2.099231 (0.52)	-0.573844 (0.46)	Not Stationary

Source: Output data from E-views 9.0

Note: In determining the truncation lag for PP test, the spectral estimation method selected is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denote significance at 1% and 5% respectively.

Table 10: PP Test Result at First Difference

Variables	Constant	Trend and Constant	None	Remark
RGDPGR	-4.397638 (0.00)*	-4.871578 (0.00)*	-4.498400 (0.00)*	Stationary
GCF	-3.904932 (0.00)*	-4.848901 (0.00)*	-3.194753 (0.00)*	Stationary
INFRD	-15.69665 (0.00)*	-23.32776 (0.00)*	-14.60050 (0.00)*	Stationary
PI	-3.166645 (0.03)**	-3.153785 (0.00)*	-3.193976 (0.00)*	Stationary
PCI	-3.733080 (0.01)*	-3.594961 (0.05)**	-3.492063 (0.00)*	Stationary
EMPL	-9.169037 (0.00)*	-7.876746 (0.00)*	-7.368492 (0.00)*	Stationary
IIGS	-4.326336 (0.00)*	-4.200721 (0.02)**	-3.951121 (0.00)*	Stationary
IISB	-2.445391 (0.01)*	-2.359650 (0.03)**	-2.054169 (0.04)**	Stationary
IIREM	-2.286833 (0.03)**	-2.213997 (0.04)**	-1.810351 (0.05)**	Stationary
IIBOE	-4.156106 (0.01)*	-4.311903 (0.02)**	-4.214480 (0.00)*	Stationary

Source: Output data from E-views 9.0

Note: In determining the truncation lag for PP test, the spectral estimation method selected is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denote significance at 1% and 5% respectively.

Kwiatkowski-Phillips-Schmidt-Shin (KPSS) Test (Stationarity Test)

In an effort to further affirming the results of the ADF and PP test, the KPSS unit root test was performed. The KPSS result in Table 11 reveals that the variables were stationarity at level. However, when estimated at first difference, stationarity was not realized for all the variables. Conclusively, the unit root test as performed via ADF, PP and KPSS unveil that the data have no stationarity defect that may affect the reliability of the result of the analysis.

Table 11: KPSS Test Result at Level

Variables	Constant	Trend and Constant	Remark
RGDPGR	0.170792 (0.00)*	0.163955 (0.71)	Stationary
GCF	0.527995 (0.00)*	0.162461 (0.00)*	Stationary
INFRD	0.355117 (0.00)*	0.098518 (0.10)	Stationary
PI	0.262193 (0.00)*	0.090459 (0.05)**	Stationary
PCI	0.551745 (0.00)*	0.124578 (0.00)*	Stationary
EMPL	0.431353 (0.00)*	0.079714 (0.01)*	Stationary
IIGS	0.573649 (0.00)*	0.097286 (0.00)*	Stationary
IISB	0.572500 (0.00)*	0.087597 (0.00)*	Stationary
IIREM	0.569768 (0.00)*	0.098921 (0.00)*	Stationary
IIBOE	0.124470 (0.00)*	0.127827 (0.73)	Stationary

Source: Output data from E-views 9.0

Note: The spectral estimation method selected for KPSS test is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively.

Table 12: KPSS Test Result at First Difference

Variables	Constant	Trend and Constant	Remark
RGDPGR	0.258041 (0.65)	0.051399 (0.35)	Not Stationary
GCF	0.419531 (0.03)**	0.064696 (0.03)**	Stationary
INFRD	0.187336 (0.91)	0.165345 (0.66)	Not Stationary
PI	0.136344 (0.65)	0.055104 (0.29)	Not Stationary
PCI	0.127211 (0.14)	0.117748 (0.84)	Not Stationary
EMPL	0.169287 (0.67)	0.129678 (0.44)	Not Stationary
IIGS	0.087315 (0.13)	0.087682 (0.84)	Not Stationary
IISB	0.119855 (0.03)**	0.113975 (0.72)	Stationary
IIREM	0.122317 (0.01)*	0.121610 (0.21)	Stationary
IIBOE	0.199317 (0.61)	0.097144 (0.34)	Not Stationary

Source: Output data from E-views 9.0

Note: The spectral estimation method selected for KPSS test is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively.

4.4 Sensitivity Analysis

Serial Correlation LM Test

Estimating a model where the variables are serially correlated often leads to biased regression output. Subsequently, this was mitigated by the checking the presence of serial correlation among the variables using the serial correlation LM test as detailed in Table 13. From the result in Table 13, the variables in the models are not serially correlated as the p-values are insignificant at 5% level of significance, hence would produce reliable result.

Table 13: Serial Correlation LM Test

Model Estimations	F-statistic	P-value
RGDPGR →IIGS + IISB + IIREM + IIBOE	2.726707	0.1226
GCF → IIGS + IISB + IIREM + IIBOE	0.299829	0.5933
INFRD → IIGS + IISB + IIREM + IIBOE	0.003307	0.9550
PI → IIGS + IISB + IIREM + IIBOE	0.184201	0.6769
PCI → IIGS + IISB + IIREM + IIBOE	0.066971	0.7999
EMPL → IIGS + IISB + IIREM + IIBOE	0.427942	0.5244

Source: Output data from E-views 9.0

Heteroskedasticity Test

One of the assumptions made about residuals or error in OLS regression is that the error have the same but unknown variance. In the event that this assumption is violated, then there is the presence of heteroskasticity in the model. Heteroskasticity of Harvey was applied to check the violation of this OLS regression assumption. The insignificant p-values at 5% level of significance in Table 14 is an indication that there is no presence of heteroskasticity in the models.

Table 14: Harvey Heteroskedasticity test

Model Estimations	F-statistic	P-value
RGDPGR →IIGS + IISB + IIREM + IIBOE	1.890356	0.1599
GCF → IIGS + IISB + IIREM + IIBOE	0.511683	0.7631
INFRD → IIGS + IISB + IIREM + IIBOE	1.191584	0.3623
PI → IIGS + IISB + IIREM + IIBOE	0.082567	0.9936
PCI → IIGS + IISB + IIREM + IIBOE	0.066971	0.7999
EMPL → IIGS + IISB + IIREM + IIBOE	0.800351	0.1042

Source: Output data from E-views 9.0

Ramsey RESET Test

The Ramsey Reset specification provides a way of testing whether there exists some significant non-linear relationship in a regression model. From the Ramsey Reset specification result in Table 15 (p-values of the f-statistics for all the models are insignificant at 5% significance level), there exists no significant non-linear relationship between the variables in the model which point that the models were well-specified.

Table 15: Ramsey Reset Specification

Model Estimations	t-statistic	Df	P-value
RGDPGR →IIGS + IISB + IIREM + IIBOE	0.959340	13	0.3549
GCF → IIGS + IISB + IIREM + IIBOE	1.354444	13	0.1987
INFRD → IIGS + IISB + IIREM + IIBOE	0.288241	13	0.2395
PI → IIGS + IISB + IIREM + IIBOE	0.977074	10	0.3516
PCI → IIGS + IISB + IIREM + IIBOE	1.779625	13	0.0985
EMPL → IIGS + IISB + IIREM + IIBOE	0.351231	13	0.7310

Source: Output data from E-views 9.0

Multicollinearity Test

When there is a very high degree of association/correlation between the independent variables, estimating such model would produce strange/misleading result when attempting to study how well each individual independent variables can most effectively be utilized to predict the dependent variable. The presence of multi-collinearity was checked through the estimation of the correlation matrix. As can be seen in Table 16, the highest correlation between the independent variables was observed for IIGS and IIREM (0.19). This suggests that the estimation of IIGS, IISB, IIREM and

IIBOE against the dependent variables will not produce skewed or misleading results.

Table 16: Correlation Matrix

	RGDPR	GCF	INFRD	PI	PCI	EMPL	IIGS	IISB	IIREM	IIBOE
RGDPGR	1.00000	-0.396	0.24689	0.4133	-0.190	0.04331	-0.15294	-0.14599	-0.06022	0.56260
GCF	-0.39579	1.0000	0.16863	-0.398	0.8782	-0.59289	0.78811	0.78169	0.72921	-0.10267
INFRD	0.24689	0.1686	1.00000	-0.096	0.3134	-0.31009	0.34541	0.31466	0.34191	0.28959
PI	0.41328	-0.398	-0.09631	1.0000	-0.365	0.10656	-0.65242	-0.57318	-0.37090	0.37086
PCI	-0.19016	0.8782	0.31338	-0.365	1.0000	-0.59393	0.88349	0.88304	0.8368	-0.09456
EMPL	0.04331	-0.593	-0.31009	0.1066	-0.594	1.00000	-0.48619	-0.52462	-0.58089	0.07512
IIGS	-0.15294	0.7881	0.34541	-0.652	0.8835	-0.48619	1.00000	0.18093	0.19129	-0.15932
IISB	-0.14599	0.7817	0.31466	-0.573	0.8830	-0.52462	0.18093	1.00000	0.15178	-0.19874
IIREM	-0.06022	0.7292	0.34191	-0.371	0.8369	-0.58089	0.19129	0.15178	1.00000	-0.08422
IIBOE	0.5626	-0.103	0.28959	0.3709	-0.095	0.07512	-0.15932	-0.19874	-0.08422	1.00000

Source: Output data from E-views 9.0

4.5 Long Run Relationship

The unit root test that was performed with ADF, PP and KPSS have shown that the variables have no stationarity defect that may likely affect the result of the estimation. This gives room for ascertaining the presence of a long run relationship using the traditional Johansen co-integration approach. The result of the Johansen co-integration estimations in Tables 17 - 22 evidence the existence of a long run relationship between economic growth, gross capital formation, infrastructural development, production index, per capita income and employment level; and insurance investment in Nigeria as expressed via insurance investment in government securities, stock and bonds, real estate and mortgage; and bills of exchange.

Table 17: Johansen Co-integration Result for RGDPGR, IIGS, IISB, IIREM & IIBOE

Unrestricted Co-integration Rank Test (Trace) RGDPGR, IIGS, IISB, IIREM & IIBOE				
Hypothesized Number of CE(s)	**Eigen Value**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.998090	233.0023	69.81889	0.0000
At most 1*	0.990149	114.0537	47.85613	0.0000
At most 2	0.536839	26.26950	29.79707	0.1208
At most 3	0.435837	11.64557	15.49471	0.1747
At most 4	0.039703	0.769745	3.841466	0.3803
Unrestricted Co-integration Rank Test (Maximum Eigen Value) RGDPGR, IIGS, IISB, IIREM & IIBOE				
Hypothesized Number of CE(s)	**Eigen Value**	**Maximum Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.998090	118.9485	33.87687	0.0000
At most 1*	0.990149	87.78421	27.58434	0.0000
At most 2	0.536839	14.62393	21.13162	0.3161
At most 3	0.435837	10.87583	14.26460	0.1605
At most 4	0.039703	0.769745	3.841466	0.3803

Trace test and Max-eigenvalue test indicate 2 co-integrating eqn(s) at the 0.05 level;
** denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values.*

For economic growth and insurance investment (Table 17), the trace and maximum eigen value statistics each revealed two (2) co-integrating equations; gross capital formation and insurance investment (Table 18) two (2) co-integrating equations; infrastructural development and insurance investment (Table 19) four (4) co-integrating equations; production index and insurance investment (Table 20) five (5) and Four (4) co-integrating equations; per capita income and insurance investment (Table 21) five (5) and three (3) co-integrating equations, while employment level and insurance investment (Table 22) five (5) co-integrating equations at 5% level of significance.

Table 18: Johansen Co-integration Result for GCF, IIGS, IISB, IIREM & IIBOE

Unrestricted Co-integration Rank Test (Trace) GCF, IIGS, IISB, IIREM & IIBOE				
Hypothesized Number of CE(s)	**Eigen Value**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.999483	241.5270	69.81889	0.0000
At most 1*	0.975080	97.73574	47.85613	0.0000
At most 2	0.564928	27.58650	29.79707	0.0881
At most 3	0.461853	11.77388	15.49471	0.1681
At most 4	5.42E-05	0.001030	3.841466	0.9744
Unrestricted Co-integration Rank Test (Maximum Eigen Value) GCF, IIGS, IISB, IIREM & IIBOE				
Hypothesized Number of CE(s)	**Eigen Value**	**Maximum Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.999483	143.7912	33.87687	0.0000
At most 1*	0.975080	70.14925	27.58434	0.0000
At most 2	0.564928	15.81261	21.13162	0.2360
At most 3	0.461853	11.77285	14.26460	0.1195
At most 4	5.42E-05	0.001030	3.841466	0.9744

Trace test and Max-eigenvalue test indicate 2 co-integrating eqn(s) at the 0.05 level;
** denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values*

Table 19: Johansen Co-integration Result for INFRD, IIGS, IISB, IIREM & IIBOE

Unrestricted Co-integration Rank Test (Trace) INFRD, IIGS, IISB, IIREM & IIBOE				
Hypothesized Number of CE(s)	**Eigen Value**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.993547	205.6574	69.81889	0.0000
At most 1*	0.977191	109.8376	47.85613	0.0000
At most 2*	0.673432	38.00663	29.79707	0.0046
At most 3*	0.579182	16.74340	15.49471	0.0323
At most 4	0.015555	0.297872	3.841466	0.5852
Unrestricted Co-integration Rank Test (Maximum Eigen Value) INFRD, IIGS, IISB, IIREM & IIBOE				
Hypothesized Number of CE(s)	**Eigen Value**	**Maximum Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.993547	95.81976	33.87687	0.0000
At most 1*	0.977191	71.83099	27.58434	0.0000
At most 2*	0.673432	21.26323	21.13162	0.0479
At most 3*	0.579182	16.44552	14.26460	0.0222
At most 4	0.015555	0.297872	3.841466	0.5852

Trace test and Max-eigenvalue test indicate 4 co-integrating eqn(s) at the 0.05 level;
** denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values*

Table 20: Johansen Co-integration Result for PI, IIGS, IISB, IIREM & IIBOE

Unrestricted Co-integration Rank Test (Trace) PI, IIGS, IISB, IIREM & IIBOE				
Hypothesized Number of CE(s)	**Eigen Value**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.999798	272.9737	69.81889	0.0000
At most 1*	0.962358	111.3122	47.85613	0.0000
At most 2*	0.776939	48.99906	29.79707	0.0001
At most 3*	0.456739	20.49315	15.49471	0.0081
At most 4*	0.374010	8.900000	3.841466	0.0029
Unrestricted Co-integration Rank Test (Maximum Eigen Value) PI, IIGS, IISB, IIREM & IIBOE				
Hypothesized Number of CE(s)	**Eigen Value**	**Maximum Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.999798	161.6615	33.87687	0.0001
At most 1*	0.962358	62.31314	27.58434	0.0000
At most 2*	0.776939	28.50591	21.13162	0.0038
At most 3	0.456739	11.59315	14.26460	0.1269
At most 4*	0.374010	8.900000	3.841466	0.0029

Trace test and Max-eigenvalue test indicate 5 and 4 co-integrating eqn(s) at the 0.05 level;
** denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values*

Table 21: Johansen Co-integration Result for PCI, IIGS, IISB, IIREM & IIBOE

Unrestricted Co-integration Rank Test (Trace) PCI, IIGS, IISB, IIREM & IIBOE				
Hypothesized Number of CE(s)	**Eigen Value**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.999527	238.9930	69.81889	0.0000
At most 1*	0.961615	93.51357	47.85613	0.0000
At most 2*	0.539122	31.57201	29.79707	0.0309
At most 3*	0.422296	16.85418	15.49471	0.0310
At most 4*	0.287067	6.428987	3.841466	0.0112
Unrestricted Co-integration Rank Test (Maximum Eigen Value) PCI, IIGS, IISB, IIREM & IIBOE				
Hypothesized Number of CE(s)	**Eigen Value**	**Maximum Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.999527	145.4794	33.87687	0.0000
At most 1*	0.961615	61.94156	27.58434	0.0000
At most 2	0.539122	14.71783	21.13162	0.3092
At most 3	0.422296	10.42519	14.26460	0.1855
At most 4*	0.287067	6.428987	3.841466	0.0112

Trace test and Max-eigenvalue test indicate 5 and 2 co-integrating eqn(s) at the 0.05 level;
** denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values*

Table 22: Johansen Co-integration Result for EMPL, IIGS, IISB, IIREM & IIBOE

Unrestricted Co-integration Rank Test (Trace) EMPL, IIGS, IISB, IIREM & IIBOE				
Hypothesized Number of CE(s)	**Eigen Value**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.999884	332.3930	69.81889	0.0001
At most 1*	0.994300	160.2865	47.85613	0.0000
At most 2*	0.884432	62.10907	29.79707	0.0000
At most 3*	0.535965	21.10898	15.49471	0.0064
At most 4*	0.290506	6.520861	3.841466	0.0107
Unrestricted Co-integration Rank Test (Maximum Eigen Value) EMPL, IIGS, IISB, IIREM & IIBOE				
Hypothesized Number of CE(s)	**Eigen Value**	**Maximum Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.999884	172.1065	33.87687	0.0001
At most 1*	0.994300	98.17740	27.58434	0.0000
At most 2*	0.884432	41.00009	21.13162	0.0000
At most 3*	0.535965	14.58812	14.26460	0.0444
At most 4*	0.290506	6.520861	3.841466	0.0107

Trace test and Max-eigenvalue test indicate 5 co-integrating eqn(s) at the 0.05 level;
** denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values*

4.6 Short Run Dynamics

Estimating the short run dynamics becomes imperative having established the presence of a long run relationship between the economic development fundamentals and insurance investment in Nigeria. In essence, the short run dynamics evaluates the variation in the dependent variable attributed to the co-integrating vectors trying to return to equilibrium. The short run dynamics was determined using the Vector Error Correction Model (VECM) and the results summarized in Tables 23 – 28. The ECM in Table 23 dispels the expected negative sign suggesting that there is a tendency by the model to correct and move towards the equilibrium path following disequilibrium in each period. Only 3.84% of the error generated in the previous year is corrected in the current year but this not statistically significant at 5% significance level. For the long run association between gross capital formation and insurance investment, Table 24 reveals that the ECM showed the expected negative sign envisaging that error correction is taking place but insignificant. Just 0.6% error accumulated in past period is corrected in present year.

Table 23:Vector Error Correction Model for RGDPGR, IIGS, IISB, IIREM & IIBOE

Variables	Coefficient	Standard Error	T-Statistic
C	-0.276025	1.02582	-0.26908
D(RGDPGR(-1))	-0.196499	0.34280	-0.57322
D(IIGS (-1))	4.37E-05	0.00102	0.04275
D(IISB(-1))	-8.73E-06	0.00017	-0.05168
D(IIREM(-1))	1.37E-05	0.00042	0.03286
D(IIBOE(-1))	0.000184	0.00038	0.48396
ECM (-1)	-0.038469	0.08737	-0.44029
	R-squared	0.089968	
	Adj. R-squared	-0.365048	
	F-statistic	0.197725	
	Log likelihood	-45.09949	
	Akaike AIC	5.484157	
	Schwarz SC	5.832108	

Source: Computer output data using E-views 9.0

Table 24: Vector Error Correction Model for GCF, IIGS, IISB, IIREM & IIBOE

Variables	Coefficient	Standard Error	T-Statistic
C	1315168.	666612	1.97291
D(GCF(-1))	0.012979	0.27942	0.04645
D(IIGS (-1))	-59.10615	316.602	-0.18669
D(IISB(-1))	-2.175702	49.1558	-0.04426
D(IIREM(-1))	-138.7952	223.232	-0.62175
D(IIBOE(-1))	-159.9354	176.378	-0.90677
ECM (-1)	-0.006833	0.01283	-0.53253
	R-squared	0.118731	
	Adj. R-squared	-0.321904	
	F-statistic	0.269454	
	Log likelihood	-295.1705	
	Akaike AIC	31.80742	
	Schwarz SC	32.15537	

Source: Computer output data using E-views 9.0

Table 25: Vector Error Correction Model for INFRD, IIGS, IISB, IIREM & IIBOE

Variables	Coefficient	Standard Error	T-Statistic
C	81690.56	86173.2	0.94798
D(INFRD(-1))	-0.408895	0.22077	-1.85211
D(IIGS (-1))	-40.37069	93.5481	-0.43155
D(IISB(-1))	6.067357	15.6183	0.38848
D(IIREM(-1))	-38.19879	26.4978	-1.44158
D(IIBOE(-1))	-7.011703	25.3689	-0.27639
ECM (-1)	-0.022931	0.14785	-0.15510
	R-squared	0.525660	
	Adj. R-squared	0.288490	
	F-statistic	2.216382	
	Log likelihood	-257.7041	
	Akaike AIC	27.86359	
	Schwarz SC	28.21154	

Source: Computer output data using E-views 9.0

Table 26: Vector Error Correction Model for PI, IIGS, IISB, IIREM & IIBOE

Variables	Coefficient	Standard Error	T-Statistic
C	4.422021	4.39438	1.00629
D(PI(-1))	0.263668	0.33899	0.77781
D(IIGS (-1))	0.003235	0.00158	2.04524
D(IISB(-1))	-0.000563	0.00023	-2.48472
D(IIREM(-1))	-0.000672	0.00134	-0.49945
D(IIBOE(-1))	-0.001017	0.00100	-1.02061
ECM (-1)	-0.020019	0.02024	-0.98908
	R-squared	0.458593	
	Adj. R-squared	0.187890	
	F-statistic	1.694080	
	Log likelihood	-65.60615	
	Akaike AIC	7.642752	
	Schwarz SC	7.990703	

Source: Computer output data using E-views 9.0

With respect to infrastructural development and insurance investment, Table 25 divulges that the ECM also depicted the supposed negative sign, evidencing there are adjustments to stability in the short term. However, this is not statistically significant owing to the t-statistic value of -0.15. Only 2.29% of error generated in previous years that was corrected in current year. Table 26 presents the ECM result on the long run relationship between production index and insurance investment. As can be seen in Table 26, the ECM exhibited the expected negative sign which implies that there is tendency by the model to move toward equilibrium owing to disequilibrium in previous period. Just 2.0% error from past period that was addressed in present period, and this is insignificant at 5% level of significance.

Table 27: Vector Error Correction Model for PCI, IIGS, IISB, IIREM & IIBOE

Variables	Coefficient	Standard Error	T-Statistic
C	18427.71	24085.3	0.76510
D(PCI(-1))	0.080913	0.29153	0.27754
D(IIGS (-1))	0.166877	9.51932	0.01753
D(IISB(-1))	-0.030867	1.45391	-0.02123
D(IIREM(-1))	-0.830089	7.92546	-0.10474
D(IIBOE(-1))	-1.500547	5.96192	-0.25169
ECM (-1)	-0.001765	0.01472	-0.11991
	R-squared	0.014137	
	Adj. R-squared	-0.478794	
	F-statistic	0.028680	
	Log likelihood	-231.1106	
	Akaike AIC	25.06427	
	Schwarz SC	25.41222	

Source: Computer output data using E-views 9.0

On the speed of adjustment for per capita income and insurance investment model, Table 27 insights that the ECM depicted the supposed negative sign and is significant at 5% significance level. The ECM evidences per capita income and insurance investment model adjust to equilibrium following disequilibrium in past periods. The revelation from the long run relationship between employment level and insurance investment is that the ECM dispels

the expected negative sign. The p-value is statistically insignificant thus there is empirical evidence that the model moves towards equilibrium due to imbalances in the previous years with 0.15% previous year error corrected in current year.

Table 28: Vector Error Correction Model for EMPL, IIGS, IISB, IIREM & IIBOE

Variables	Coefficient	Standard Error	T-Statistic
C	-1.965156	2.86950)	-0.68484
D(EMPL(-1))	0.006767	0.21568)	0.03138
D(IIGS (-1))	0.000367	0.00093)	0.39412
D(IISB(-1))	-3.15E-05	0.00014)	-0.22129
D(IIREM(-1))	0.000463	0.00089)	0.51959
D(IIBOE(-1))	0.000293	0.00062)	0.46844
ECM (-1)	-0.001531	0.03145)	-0.04868
	R-squared	0.093535	
	Adj. R-squared	-0.359698	
	F-statistic	0.206373	
	Log likelihood	-56.73534	
	Akaike AIC	6.708984	
	Schwarz SC	7.056935	

Source: Computer output data using E-views 9.0

4.7 OLS Regression Relationship

The short run relationship between the dependent and independent variables was determined using the conventional Ordinary Least Square (OLS) approach. The outputs were interpreted using the global utility (coefficient of Adjusted R-squared, F-statistic and Durbin Watson statistic) and relative statistics criteria (coefficient of the constant and independent variables).

Economic Growth and Insurance Investment

The model relative statistics in Table 29 revealed that there is a negative insignificant relationship between insurance investment in government securities, real estate and mortgage and the rate at which the gross domestic product grows, a positive insignificant relationship was seen between insurance investment stock and bonds and growth rate of gross domestic product. The relationship between insurance investment in bills of exchange

and economic growth was found to be significant at 5% level of significance. The coefficient of the constant 1.792438 is an indication that holding insurance investment in government securities, stock and bonds, real estate and mortgage and bills of exchange, economic growth would appreciate by 1.79%. A unit rise in insurance investment in government securities, real estate and mortgage result in 0.001% and 0.0003% reduction in economic growth. A unit rise in insurance investment in stock and bonds and bills of exchange lead to 0.0002% and 0.0005% increase in economic growth.

Table 29: OLS for Gross Domestic Product Growth Rate and Insurance Investment

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.792438	1.795490	0.998300	0.3351
IIGS	-0.001006	0.000542	-1.854873	0.0848
IISB	0.000151	7.61E-05	1.986778	0.0669
IIREM	-0.000368	0.000177	-2.079210	0.0565
IIBOE	0.000500	0.000221	2.256663	0.0405
R-squared	0.596530	Mean dependent var		5.606500
Adjusted R-squared	0.452433	S.D. dependent var		3.255777
S.E. of regression	2.409202	Akaike info criterion		4.839794
Sum squared resid	81.25958	Schwarz criterion		5.138513
Log likelihood	-42.39794	Hannan-Quinn criter.		4.898107
F-statistic	4.139793	Durbin-Watson stat		2.329965
Prob (F-statistic)	0.016155			

Source: Computer output data using E-views 9.0

The Adjusted R-squared value of 0.452433 indicates that insurance investment in government securities, stock and bonds, real estate and mortgage and bills of exchange explained 45.24% variations in economic growth within the period studied. The F-statistic of 4.139793 and p-value of 0.016155 showed that insurance investment significantly influenced variations in economic growth. The Durbin Watson statistic of 2.3 showed that there is no element of autocorrelation in the model.

Gross Capital Formation and Insurance Investment

Table 30 shows that insurance investment in government securities has insignificant negative relationship with gross capital formation, while there is

a positive relationship between insurance investment in stock and bonds, real estate and mortgage, bills of exchange and gross capital formation. The constant coefficient of the model provided that gross capital formation would be ₦36, 738.75million if insurance investment in government securities, stock and bonds, real estate and mortgage and bills of exchange are held constant. A percentage increase in insurance investment government securities leads to ₦34.58 million reduction in gross capital formation. On the other hand, a percentage increase in insurance investment in stock and bonds, real estate and mortgage, bills of exchange lead to ₦8.06 million, ₦4.67 million and ₦2.94 million rise in gross capital formation respectively. From the Adjusted R-squared in Table 29, 92.14% changes in gross capital formation was attributed to the joint effect of insurance investment in government securities, stock and bonds, real estate and mortgage and bills of exchange. The F-statistic of 45 and p-value of 0.0000 show that insurance investment statistically and significantly explained the variation in gross capital formation in the period under review. The Durbin Watson value of 2.2 reflects no autocorrelation in the model.

Table 30: OLS for Gross Capital Formation and Insurance Investment

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	36738.75	1126748.	0.032606	0.9744
IIGS	-34.58033	328.8842	-0.105144	0.9178
IISB	8.062180	44.02283	0.183136	0.8573
IIREM	4.667288	94.81377	0.049226	0.9614
IIBOE	2.943340	136.2473	0.021603	0.9831
R-squared	0.942104	Mean dependent var		4330732.
Adjusted R-squared	0.921427	S.D. dependent var		5391926.
S.E. of regression	1511406.	Akaike info criterion		31.53830
Sum squared resid	3.20E+13	Schwarz criterion		31.83702
Log likelihood	-309.3830	Hannan-Quinn criter.		31.59662
F-statistic	45.56256	Durbin-Watson stat		2.270463
Prob (F-statistic)	0.000000			

Source: Computer output data using E-views 9.0

Infrastructural Development and Insurance Investment

As expected, regression result in Table 31 reveals that insurance investment in government securities, real estate and mortgage and bills of exchange have positive but insignificant relationship with infrastructural development, insurance investment in stock and bonds negatively and insignificantly relates with infrastructural development. From the coefficient constant, infrastructural development would amount to ₦42, 915.93 million when insurance investment in government securities, stock and bonds, real estate and mortgage and bills of exchange are kept constant. A rise in insurance investment in government securities, real estate and mortgage and bills of exchange would improve infrastructural development by ₦67.59 million, ₦18.66 million and ₦19.59 million respectively. A percentage appreciation in investment in stock and bonds depreciates infrastructural development by ₦8.11 million.

Table 31: OLS for Infrastructural Development and Insurance Investment

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	42915.93	117406.3	0.365533	0.7202
IIGS	67.59522	35.42192	1.908288	0.0771
IISB	-8.112522	4.758409	-1.704881	0.1103
IIREM	18.66260	10.38309	1.797403	0.0939
IIBOE	19.58867	15.56844	1.258230	0.2289
R-squared	0.469327	Mean dependent var		350005.8
Adjusted R-squared	0.279802	S.D. dependent var		187958.7
S.E. of regression	159510.2	Akaike info criterion		27.04093
Sum squared resid	3.56E+11	Schwarz criterion		27.33965
Log likelihood	-264.4093	Hannan-Quinn criter.		27.09924
F-statistic	2.476323	Durbin-Watson stat		1.828187
Prob (F-statistic)	0.083093			

Source: Computer output data using E-views 9.0

The Adjusted R-squared which shows the percentage variation in the dependent variable attributed to explanatory variable(s) infers in Table 30 that about 27.98% change in infrastructural development within the period studied was as a result of fluctuation in insurance investment in government securities,

stock and bonds, real estate and mortgage and bills of exchange. This explained variation in infrastructural development is statistically insignificant at 5% as affirmed by F-statistic of 2.476323 and p-value of 0.083093. The Durbin Watson value of 1.8 is within the acceptable range of no autocorrelation.

Production Index and Insurance Investment

Table 32 reveals that insurance investment in government securities and bills of exchange have negative insignificant relationship with production index, whereas insurance investment in stock and bonds and real estate and mortgage have insignificant positive relationship with production index. When insurance investment in government securities, stock and bonds, real estate and mortgage and bills of exchange are held constant, production index would be valued at 220.58 points. A percentage rise in insurance investment in government securities and bills of exchange lower production index by 0.002 points and 0.0003 points respectively, a unit rise in insurance investment in stock and bonds and real estate and mortgage increase production index by 1.80 pints and 0.0005 points respectively.

Table 32: OLS for Production Index and Insurance Investment

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	220.5817	20.20276	10.91839	0.0000
IIGS	-0.002427	0.001518	-1.598808	0.1382
IISB	1.80E-05	0.000208	0.086157	0.9329
IIREM	0.000502	0.000412	1.219399	0.2482
IIBOE	-0.000257	0.000948	-0.270684	0.7916
R-squared	0.886516	Mean dependent var		135.4171
Adjusted R-squared	0.834932	S.D. dependent var		14.82561
S.E. of regression	6.023428	Akaike info criterion		6.699754
Sum squared resid	399.0985	Schwarz criterion		6.993830
Log likelihood	-50.94791	Hannan-Quinn criter.		6.728986
F-statistic	17.18598	Durbin-Watson stat		1.323681
Prob (F-statistic)	0.000072			

Source: Computer output data using E-views 9.0

The adjusted R-square reveals that 83.49% variation in production index was accounted by insurance investment in government securities, stock and bonds, real estate and mortgage and bills of exchange. The p-value (0.00) of the f-statistic (17.19) suggests that insurance investment in government securities, stock and bonds, real estate and mortgage and bills of exchange significantly explained the variation in production index. The Durbin Watson coefficient of 1.3, though not quite close to the bench mark of 2.0 does not depicts any possibility of autocorrelation based on the serial correlation result in Table 12 which unveiled that the variables in the models are not serially correlated.

Per Capita Income and Insurance Investment

The inferences from the output in Table 33 are that government securities, stock and bonds, real estate and mortgage and bills of exchange have insignificant positive relationship with per capita income in Nigeria. Holding government securities, stock and bonds, real estate and mortgage and bills of exchange would amount to ₦4, 806.64. A percentage increase in government securities, stock and bonds, real estate and mortgage and bills of exchange lead to ₦1.26, ₦0.17, ₦0.35 and ₦0.81 increase in per capita income respectively. The result in Table 33 discloses the coefficient of the adjusted R-square as 0.901289. This mean that 90.13% changes in per capita income was as a result of joint variation in government securities, stock and bonds, real estate and mortgage and bills of exchange, and this is highly significant at 5% significance level following the p-value (0.00) and f-statistic (35.69). There is no element of autocorrelation in the model as divulged by the Durbin Watson value (1.85).

Table 33: OLS for Per Capita Income and Insurance Investment

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4806.643	35438.59	0.135633	0.8940
IIGS	1.260840	10.55568	0.119447	0.9066
IISB	0.176525	1.408100	0.125364	0.9020
IIREM	0.352263	3.039222	0.115906	0.9094
IIBOE	0.807808	4.361633	0.185208	0.8557
R-squared	0.927265	Mean dependent var		193167.8
Adjusted R-squared	0.901289	S.D. dependent var		153895.5
S.E. of regression	48351.46	Akaike info criterion		24.65371
Sum squared resid	3.27E+10	Schwarz criterion		24.95243
Log likelihood	-240.5371	Hannan-Quinn criter.		24.71202
F-statistic	35.69605	Durbin-Watson stat		1.848539
Prob (F-statistic)	0.000000			

Source: Computer output data using E-views 9.0

Employment Level and Insurance Investment

As depicted in Table 34, Insurance Investment in government securities, real estate and mortgage and bills of exchange have negative insignificant relationship with employment level, while there is a positive relationship between insurance investment in stock and bond and employment level in Nigeria. . Keeping insurance investment government securities, stock and bonds, real estate and mortgage and bills of exchange constant, employment level would be 94.81%. Employment level would depreciate by a magnitude of 0.0008%, 0.0004% and 0.0003% following a unit appreciation in insurance investment government securities, real estate and mortgage and bills of exchange respectively.

Table 34: OLS for Employment Level and Insurance Investment

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	94.81802	15.19261	6.241063	0.0000
IIGS	-0.000843	0.000964	-0.874438	0.3966
IISB	0.000113	0.000131	0.863255	0.4025
IIREM	-0.000483	0.000293	-1.650569	0.1211
IIBOE	-0.000399	0.000416	-0.961240	0.3527
R-squared	0.746980	Mean dependent var		87.66000
Adjusted R-squared	0.656616	S.D. dependent var		7.407990
S.E. of regression	4.341004	Akaike info criterion		6.017413
Sum squared resid	263.8204	Schwarz criterion		6.316133
Log likelihood	-54.17413	Hannan-Quinn criter.		6.075727
F-statistic	8.266341	Durbin-Watson stat		1.620844
Prob (F-statistic)	0.000812			

Source: Computer output data using E-views 9.0

A percentage increase in insurance investment in stock and bonds causes a 0.0001% upsurge in employment level. With respect to the adjusted R-squared, insurance investment government securities, stock and bonds, real estate and mortgage and bills of exchange explained 65.66% changes in employment level in Nigeria, and this is statistically significant as unveiled by the p-value (0.00) and f-statistic (8.26). The Durbin Watson value of 1.6 absolves the variables in the model of autocorrelation problem.

4.8 Variance Decomposition

In an effort to determine which of the independent variables in each model exerts greater influence on economic growth, gross capital formation, infrastructural development, production index, per capita income and employment level, the variance decomposition was conducted and the result condensed in Tables 35 – 40. The result in Table 35 shows that insurance investment in stock and bonds caused more variation in economic growth. This is followed by insurance investment in government securities, insurance investment in real estate and mortgage and finally insurance investment in bills of exchange. Nevertheless, the variation in economic growth was more explained by fluctuation in economic growth itself.

Table 35: Variance Decomposition of RGDPGR

Period	S.E.	RGDPGR	IIGS	IISB	IIREM	IIBOE
1	3.194833	100.0000	0.000000	0.000000	0.000000	0.000000
2	3.722247	88.69641	2.382225	8.850791	0.016737	0.053836
3	4.094350	82.09470	2.702697	13.43168	1.687660	0.083267
4	4.156886	80.34950	3.000612	14.75369	1.768865	0.127331
5	4.228444	80.93864	2.904570	14.30061	1.719851	0.136326
6	4.266568	81.16617	2.877009	14.05404	1.768212	0.134572
7	4.283322	81.13783	2.893294	13.96187	1.873178	0.133822
8	4.295552	81.02926	2.936355	13.96236	1.932391	0.139633
9	4.308474	80.72766	3.024735	14.14453	1.950136	0.152944
10	4.327320	80.16288	3.131290	14.59795	1.937603	0.170277

Source: Data output via E-views 9.0

Based on the variance decomposition result in Table 36, insurance investment in real estate and mortgage was most powerful in explaining the variation in gross capital formation in Nigeria relative to insurance investment in government securities, insurance investment in stock and bonds and insurance investment in bills of exchange, while the variation in gross capital formation was better explained by fluctuation in gross capital formation in Nigeria. With regard to infrastructural development, Table 37 discloses that insurance investment in government securities was stronger in determining the level of infrastructural development. This is followed by insurance investment in real estate and mortgage and insurance investment in stock and bonds, while the least is insurance investment in bills of exchange.

Table 36: Variance Decomposition of GCF

Period	S.E.	GCF	IIGS	IISB	IIREM	IIBOE
1	1757475.	100.0000	0.000000	0.000000	0.000000	0.000000
2	2181900.	99.64997	0.015816	0.327188	0.003305	0.003723
3	2524418.	98.98428	0.043073	0.758949	0.210899	0.002804
4	2779122.	98.45314	0.140756	0.658928	0.743595	0.003580
5	2980620.	98.45305	0.125771	0.751671	0.666398	0.003113
6	3149847.	98.21274	0.190778	0.994906	0.597213	0.004365
7	3306264.	96.81643	0.585384	0.906490	1.686508	0.005185
8	3436968.	95.87408	0.728885	0.840154	2.548885	0.007996
9	3562499.	94.80087	0.977234	1.004621	3.200780	0.016493
10	3685947.	93.23804	1.314138	1.842534	3.572646	0.032641

Source: Data output via E-views 9.0

Table 37: Variance Decomposition of INFRD

Period	S.E.	INFRD	IIGS	IISB	IIREM	IIBOE
1	167326.6	100.0000	0.000000	0.000000	0.000000	0.000000
2	303289.0	44.61593	43.20862	1.845960	10.31070	0.018797
3	322733.9	39.48128	43.72619	5.470261	11.30337	0.018904
4	335846.3	37.00552	44.97585	5.703263	12.27871	0.036654
5	336845.5	36.78698	45.04024	5.916589	12.21406	0.042129
6	337850.4	36.59317	45.25643	5.886249	12.21903	0.045128
7	340564.3	36.04995	45.72431	5.848760	12.33222	0.044761
8	344705.8	35.26896	46.47978	5.743000	12.46390	0.044369
9	347713.0	34.67573	47.01033	5.701542	12.56669	0.045706
10	350901.2	34.06701	47.57389	5.632970	12.67927	0.046856

Source: Data output via E-views 9.0

As can be seen in Table 38, insurance investment in real estate and mortgage was very influential in determining the level of production index in Nigeria. In

the second and third place is insurance investment in stock and bonds and insurance investment in government securities, while insurance investment in bills of exchange depicted the least influence. Nevertheless, variation production index was attributed changes in production index itself. It was evident in Table 39 that insurance investment in real estate and mortgage was more vital in explaining the changes in per capita income, and subsequently followed by insurance investment in stock and bonds and insurance investment in government securities, while in the last place is insurance investment in bills of exchange. Lastly, in Table 40, employment level was greatly influenced by insurance investment in government securities followed by insurance investment in real estate and mortgage, and stock and bonds, while insurance investment in bills of exchange was the least in causing employment level.

Table 38: Variance Decomposition of PI

Period	S.E.	PI	IIGS	IISB	IIREM	IIBOE
1	5.824037	100.0000	0.000000	0.000000	0.000000	0.000000
2	8.631383	92.89556	6.025378	0.340489	0.738271	0.000305
3	9.115751	83.44326	7.807692	4.283032	4.404646	0.061371
4	9.985642	83.89018	6.607770	5.582535	3.864381	0.055136
5	12.89536	64.27027	4.744252	9.811673	21.14024	0.033562
6	13.66649	57.86688	5.502142	13.89182	22.70856	0.030600
7	13.92910	58.53319	5.892316	13.67447	21.86484	0.035179
8	14.85252	52.40569	5.182832	20.49363	21.87883	0.039022
9	15.74924	46.78706	5.530948	26.61822	21.02566	0.038119
10	16.02570	45.57806	6.276745	27.79898	20.30695	0.039263

Source: Data output via E-views 9.0

Table 39: Variance Decomposition of PCI

Period	S.E.	PCI	IIGS	IISB	IIREM	IIBOE
1	55534.29	100.0000	0.000000	0.000000	0.000000	0.000000
2	67055.64	99.93610	0.017536	0.001486	0.044801	7.98E-05
3	69201.43	99.61588	0.236663	0.035311	0.111236	0.000913
4	70135.29	97.59313	0.716134	1.157774	0.523666	0.009292
5	70800.66	95.82811	0.969052	2.587326	0.605505	0.010005
6	71323.17	94.43998	1.283118	3.419399	0.842695	0.014810
7	73578.50	88.73916	2.485057	3.220013	5.533333	0.022435
8	75006.36	85.39315	2.883007	3.310014	8.373527	0.040305
9	76766.08	81.53224	3.352922	6.274671	8.765318	0.074852
10	80039.13	75.00273	3.949491	12.83830	8.094271	0.115213

Source: Data output via E-views 9.0

Table 40: Variance Decomposition of EMPL

Period	S.E.	EMPL	IIGS	IISB	IIREM	IIBOE
1	5.634499	100.0000	0.000000	0.000000	0.000000	0.000000
2	6.026381	94.47331	4.288168	0.147367	1.091152	2.68E-07
3	6.078049	93.50483	4.451760	0.723391	1.313259	0.006760
4	6.203702	92.49188	5.222541	0.722772	1.555060	0.007748
5	6.269666	91.51158	5.949976	0.748263	1.782473	0.007706
6	6.287103	91.33813	6.060827	0.746575	1.846680	0.007784
7	6.321988	90.45340	6.698439	0.767634	2.072765	0.007759
8	6.336281	90.06668	6.945899	0.776710	2.202964	0.007749
9	6.342306	89.94284	6.975247	0.857234	2.216295	0.008384
10	6.347255	89.89967	6.978761	0.896797	2.215879	0.008898

Source: Data output via E-views 9.0

4.9 Impulse Response Function

In an attempt to understand how economic growth and development variables conducted and the results detailed in Tables 41 – 46. From Table 41, economic growth responds positively to any shock in insurance investment in government securities, stock and bonds and bills of exchange only in the long run but negatively in the short run as evidenced in period 1 – 10. Economic growth responds positively to shocks in insurance investment in real estate and mortgage in short run but negatively in the long run respond to changes in insurance investment, the impulse response function was

Table 41: Impulse Response Function of RGDPGR

Period	RGDPGR	IIGS	IISB	IIREM	IIBOE
1	-415.9970	137.3265	0.000000	0.000000	0.000000
2	-292.9348	427.9769	1045.475	30.75105	225.7849
3	-278.6448	135.3157	373.6110	-38.71740	-210.7475
4	-418.2079	-22.71914	-145.9530	80.61518	117.1130
5	-2231.266	109.9898	-1040.839	1914.159	49.37663
6	934.0228	166.8633	124.5575	474.7818	131.1880
7	1268.012	721.6425	1208.620	301.1475	245.2185
8	881.3605	895.1735	1778.412	-12.66381	309.7813
9	31.79294	840.7844	1763.528	-171.0138	302.4332
10	-848.1946	675.5705	1421.927	-137.7764	302.4505

Source: Data output via E-views 9.0

For gross capital formation as shown in Table 42, gross capital formation responds virtually positively to any shock in insurance investment in government securities, real estate and mortgage, and bills of exchange both in

short and long run, while with regards to stock and bonds, it is mixed/interwoven. As revealed in Table 43, infrastructural development responds negatively to any change in insurance investment in government securities, real estate and mortgage, and bills of exchange both in short and long run but positively to insurance investment in stock and bond.

Table 42: Impulse Response Function of GCF

Period	GCF	IIGS	IISB	IIREM	IIBOE
1	1757475.	0.000000	0.000000	0.000000	0.000000
2	1286587.	-27440.32	-124805.5	-12544.31	-13313.44
3	1250573.	44631.27	-181077.4	115250.0	1192.437
4	1138460.	90146.64	-50269.07	209742.1	9890.151
5	1068932.	17385.59	126042.9	-42092.13	-195.3387
6	998775.5	88059.79	178691.9	7020.001	12511.08
7	916057.0	212279.2	-19543.42	353703.2	11566.46
8	861387.6	148696.9	-12384.52	341664.6	19434.66
9	840351.8	194738.9	168092.6	324237.9	33892.42
10	797467.7	233488.5	350471.0	281359.8	48388.62

Source: Data output via E-views 9.0

Table 43: Impulse Response Function of INFRD

Period	INFRD	IIGS	IISB	IIREM	IIBOE
1	167326.6	0.000000	0.000000	0.000000	0.000000
2	-114199.1	-199361.8	41206.69	-97386.93	4158.111
3	-9109.289	-76150.17	63243.01	-47844.09	-1549.191
4	-24838.44	-72010.68	27114.52	-45565.66	4653.272
5	-880.5195	-19374.30	-16744.73	-3029.518	-2541.378
6	5309.558	-23497.52	2341.398	-9406.149	-1925.973
7	6609.904	-37093.45	8055.716	-18874.73	-636.4022
8	-9752.948	-46854.36	6350.121	-22504.56	-896.7277
9	-4140.345	-40115.69	8334.124	-19591.05	-1593.816
10	-4776.655	-41725.35	6523.700	-20457.96	-1560.253

Source: Data output via E-views 9.0

With the inferences from Table 44, production index level responds positively to any shock in insurance investment in government securities, real estate and mortgage, stock and bonds, and bills of exchange in short run but negatively in the long run (period 2 – 10). Table 45 depicts that per capita income responds positively at any point in time (both short and long run) to any shock in insurance investment in government securities, real estate and mortgage, stock and bonds, and bills of exchange. Employment level as presented in Table 46

responds negatively to shock in insurance investment in stock and bonds, and bills of exchange both in short and long run, while for insurance investment in government securities and real estate and mortgage, it is mixed and interwoven.

Table 44: Impulse Response Function of PI

Period	PI	IIGS	IISB	IIREM	IIBOE
1	5.824037	0.000000	0.000000	0.000000	0.000000
2	5.940412	2.118715	0.503654	0.741632	0.015071
3	0.361765	1.413859	1.818076	1.763550	0.225323
4	-3.782945	-0.317579	1.416844	0.439507	0.063087
5	-4.819317	-1.140362	3.278620	-5.594720	0.028864
6	1.097477	1.545083	3.103272	-2.694303	-0.036621
7	2.342274	1.075055	-0.764862	-0.093072	-0.105369
8	1.428169	0.030637	-4.321719	2.417027	-0.133520
9	-0.666528	-1.511847	-4.562344	1.971695	-0.092021
10	-1.002548	-1.549598	-2.317497	-0.035098	-0.079294

Source: Data output via E-views 9.0

Table 45: Impulse Response Function of PCI

Period	PCI	IIGS	IISB	IIREM	IIBOE
1	55534.29	0.000000	0.000000	0.000000	0.000000
2	37543.68	887.9640	-258.4920	1419.313	-59.90132
3	16639.05	3247.294	1274.427	1820.013	200.3393
4	5488.377	4888.038	7433.668	4520.180	642.9126
5	1744.147	3653.724	8529.089	2143.231	210.8165
6	740.8458	4086.088	6651.983	3537.724	501.8574
7	-5.824088	8322.485	616.6728	16021.72	679.1306
8	152.0439	5259.352	3448.910	13096.85	1026.143
9	735.3307	5949.122	13548.01	6741.819	1464.074
10	388.3269	7444.865	21276.43	1413.242	1723.310

Source: Data output via E-views 9.0

Table 46: Impulse Response Function of EMPL

Period	EMPL	IIGS	IISB	IIREM	IIBOE
1	5.634499	0.000000	0.000000	0.000000	0.000000
2	1.600797	1.247936	0.231344	0.629505	0.000312
3	-0.482768	0.295388	-0.462299	0.298122	-0.049972
4	1.026237	0.604437	-0.104524	0.336639	-0.022016
5	-0.612922	0.573512	-0.126362	0.319669	-0.006872
6	-0.363049	0.238420	-0.031162	0.171120	-0.006892
7	0.219448	-0.530563	-0.108168	-0.313821	-0.004944
8	0.091595	-0.333872	-0.070942	-0.236692	-0.003147
9	-0.137796	-0.130811	-0.181615	-0.083936	-0.016168
10	0.197718	0.076132	-0.128364	0.034988	-0.014574

Source: Data output via E-views 9.0

4.10 Granger Causality Analysis

The effect of insurance investment on economic development in Nigeria was ascertained using the granger causality technique. The choice of the granger causality approach is that it is structured to show the predicting power of a variable on the other which is obviously absent in the traditional OLS regression method. Table 47 reveals that insurance investment in government securities, stock and bonds, real estate and mortgage and bills of exchange have no significant effect on economic growth in Nigeria as there is unidirectional or bidirectional relationship between the variables in question at 5% level of significance. However, it was observed that it is the rate at which the economy grows that significantly affect insurance investment in real estate and mortgage. From Table 48, there is no causal relationship between insurance investment and gross capital formation, that is, insurance investment in government securities, stock and bonds, real estate and mortgage and bills of exchange have no significant effect on gross capital formation in Nigeria.

Table 47: Granger Causality for Economic Growth and Insurance Investment

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
IIGS does not Granger Cause RGDPGR	20	1.25583	0.2780	No Causality
RGDPGR does not Granger Cause IIGS		0.00198	0.9650	No Causality
IISB does not Granger Cause RGDPGR	20	1.23893	0.2812	No Causality
RGDPGR does not Granger Cause IISB		0.57147	0.4600	No Causality
IIREM does not Granger Cause RGDPGR	20	1.27762	0.2740	No Causality
RGDPGR does not Granger Cause IIREM		16.4214	0.0008	Causality
IIBOE does not Granger Cause RGDPGR	20	1.10472	0.3079	No Causality
RGDPGR does not Granger Cause IIBOE		0.00070	0.9793	No Causality

Source: Data output via E-views 9.0

Table 48: Granger Causality for Gross Capital Formation and Insurance Investment

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
IIGS does not Granger Cause GCF	20	3.64298	0.0733	No Causality
GCF does not Granger Cause IIGS		0.36272	0.5549	No Causality
IISB does not Granger Cause GCF	20	3.18549	0.0921	No Causality
GCF does not Granger Cause IISB		0.08063	0.7799	No Causality
IIREM does not Granger Cause GCF	20	2.41707	0.1384	No Causality
GCF does not Granger Cause IIREM		0.34706	0.5635	No Causality
IIBOE does not Granger Cause GCF	20	0.00204	0.9645	No Causality
GCF does not Granger Cause IIBOE		0.26130	0.6158	No Causality

Source: Data output via E-views 9.0

Table 49: Granger Causality for Infrastructural Development and Insurance Investment

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
IIGS does not Granger Cause INFRD	20	1.99274	0.1461	No Causality
INFRD does not Granger Cause IIGS		0.10544	0.7494	No Causality
IISB does not Granger Cause INFRD	20	1.83041	0.1938	No Causality
INFRD does not Granger Cause IISB		0.23497	0.6341	No Causality
IIREM does not Granger Cause INFRD	20	1.11718	0.3045	No Causality
INFRD does not Granger Cause IIREM		0.25574	0.6196	No Causality
IIBOE does not Granger Cause INFRD	20	0.62283	0.4409	No Causality
INFRD does not Granger Cause IIBOE		2.50762	0.1317	No Causality

Source: Data output via E-views 9.0

As can be seen in Tale 49, insurance investments through insurance investment in government securities, stock and bonds, real estate and mortgage and bills of exchange have no significant effect on infrastructural development in Nigeria owing to the absent of causality running from either direction. With regard to production index, Table 50 depicts that there is bidirectional relationship between insurance investment in stock and bonds, insurance investment in real estate and mortgage and production index at 5% level of significance. This implies that investment in stock and bonds, and insurance investment in real estate and mortgage have significant effect on production index on one hand, and on the other hand, production index also significant affects investment in stock and bonds, and insurance investment in real estate and mortgage.

Table 50: Granger Causality for Production Index and Insurance Investment

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
IIGS does not Granger Cause PI	20	2.50193	0.1321	No Causality
PI does not Granger Cause IIGS		3.23630	0.0898	No Causality
IISB does not Granger Cause PI	20	4.57988	0.0471	Causality
PI does not Granger Cause IISB		18.2112	0.0005	Causality
IIREM does not Granger Cause PI	20	4.34273	0.0500	Causality
PI does not Granger Cause IIREM		5.14564	0.0366	Causality
IIBOE does not Granger Cause PI	20	2.12516	0.1631	No Causality
PI does not Granger Cause IIBOE		0.00030	0.9864	No Causality

Source: Data output via E-views 9.0

Table 51: Granger Causality for Per Capita Income and Insurance Investment

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
IIGS does not Granger Cause PCI	20	5.36312	0.0333	Causality
PCI does not Granger Cause IIGS		0.58953	0.4531	No Causality
IISB does not Granger Cause PCI	20	5.66251	0.0293	Causality
PCI does not Granger Cause IISB		0.12769	0.7252	No Causality
IIREM does not Granger Cause PCI	20	3.81326	0.0675	No Causality
PCI does not Granger Cause IIREM		0.44366	0.5143	No Causality
IIBOE does not Granger Cause PCI	20	0.00019	0.9891	No Causality
PCI does not Granger Cause IIBOE		0.58050	0.4566	No Causality

Source: Data output via E-views 9.0

Table 51 evidences of unidirectional relationship between insurance investment in government securities, stock and bonds and per capita income as it run from investment in government securities, stock and bonds to per capita income at 5% level of significance. This is indication that investment in government securities, stock and bonds have significant effect on per capita income in Nigeria. Finally, from Table 52, a unidirectional relationship exists between insurance investment in government securities, stock and bonds, and real estate and mortgage at 5% significance level. By implication, insurance investment in government securities, stock and bonds, and real estate and mortgage exert significant influence on employment level in Nigeria within the period studied.

Table 52: Granger Causality for Employment Level and Insurance Investment

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
IIGS does not Granger Cause EMPL	20	8.90392	0.0083	Causality
EMPL does not Granger Cause IIGS		0.46994	0.5023	No Causality
IISB does not Granger Cause EMPL	20	9.29414	0.0073	Causality
EMPL does not Granger Cause IISB		0.47464	0.5002	No Causality
IIREM does not Granger Cause EMPL	20	11.5745	0.0034	Causality
EMPL does not Granger Cause IIREM		0.06216	0.8061	No Causality
IIBOE does not Granger Cause EMPL	20	2.18338	0.1578	No Causality
EMPL does not Granger Cause IIBOE		2.47573	0.1340	No Causality

Source: Data output via E-views 9.0

4.11 Test of Hypotheses

Decision Rule: If the p-value of f-statistic in granger causality test is significant at 5% level of significance, the null hypothesis is rejected. On the other hand, the null hypothesis is accepted if the p-value of f-statistic in granger causality test is insignificant at 5% level of significance.

Restatement of Hypotheses

Hypothesis One

H_0: Insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange have no significant effect on economic growth in Nigeria.

H_1: Insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange have significant effect on economic growth in Nigeria.

Table 53: Test of Hypothesis One

Estimated Model	f-statistic	P-value	Decision
RGDPGR →IIGS+IISB+IIREM+IIBOE			
IIGS	1.25583	0.2780	Accept H_0 and Reject H_1
IISB	1.23893	0.2812	Accept H_0 and Reject H_1
IIREM	1.27762	0.2740	Accept H_0 and Reject H_1
IIBOE	1.10472	0.3079	Accept H_0 and Reject H_1

Source: Granger Causality Output in Table 47

Table 53 shows that the p-values of the f-statistic for insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange rate are insignificant at 5% level of significance. In effect, the null hypothesis that insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange rate have no significant effect on economic growth in Nigeria is accepted, while the alternate hypothesis rejected.

Hypothesis Two

H_0: Insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange have no significant effect on gross capital formation in Nigeria.

H_1: Insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange have significant effect on gross capital formation in Nigeria.

Table 54: Test of Hypothesis Two

Estimated Model	f-statistic	P-value	Decision
GCF →IIGS+IISB+IIREM+IIBOE			
IIGS	3.64298	0.0733	Accept H_0 and Reject H_1
IISB	3.18549	0.0921	Accept H_0 and Reject H_1
IIRE	2.41707	0.1384	Accept H_0 and Reject H_1
IIBOE	0.00204	0.9645	Accept H_0 and Reject H_1

Source: Granger Causality Output in Table 48

As can be seen in Table 54, there is no causal relationship between insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange rate and gross capital formation in Nigeria. There is no evidence of causality running insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange rate to gross capital formation. To this effect, the null hypothesis that insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange rate have no significant effect on gross capital formation in Nigeria is accepted, and the alternate hypothesis rejected.

Hypothesis Three

H_0: Insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange have no significant effect on infrastructural development in Nigeria.

H_1: Insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange have significant effect on infrastructural development in Nigeria.

Table 55: Test of Hypothesis Three

Estimated Model	f-statistic	P-value	Decision
IINFRD →IIGS+IISB+IIREM+IIBOE			
IIGS	1.99274	0.1461	Accept H_0 and Reject H_1
IISB	1.83041	0.1938	Accept H_0 and Reject H_1
IIREM	1.11718	0.3045	Accept H_0 and Reject H_1
IIBOE	0.62283	0.4409	Accept H_0 and Reject H_1

Source: Granger Causality Output in Table 49

The causality result in Table 55 depicts that causality does not flows from insurance investment in government securities, stock and bonds, real estate

and mortgage, and bills of exchange to infrastructural development at 5% level of significance. By implication, insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange have significant effect on infrastructural development. In this regard, the null hypothesis that Insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange have no significant effect on infrastructural development in Nigeria is accepted, while the alternate hypothesis rejected.

Hypothesis Four

H_0: Insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange have no significant effect on production index in Nigeria.

H_1: Insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange have significant effect on production index in Nigeria.

Table 56: Test of Hypothesis Four

Estimated Model	f-statistic	P-value	Decision
PI →IIGS+IISB+IIREM+IIBOE			
IIGS	2.50193	0.1321	Accept H_0 and Reject H_1
IISB	4.57988	0.0475	Reject H_0 and Accept H_1
IIREM	4.34273	0.0500	Reject H_0 and Accept H_1
IIBOE	2.12516	0.1631	Accept H_0 and Reject H_1

Source: Granger Causality Output in Table 50

From the causality output in Table 56, it is vivid that it is only insurance investment in stock and bonds, and real estate and mortgage that have significant effect on production index owing the fact that the p-values of 0.0475 and 0.0500 are less than 0.05. Therefore, the null hypothesis that insurance investment in stock and bonds, and real estate and mortgage have no

significant effect on production index is rejected, while that of insurance investment in government securities and bills of exchange are accepted.

Hypothesis Five

H_0: Insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange have no significant effect on per capita income in Nigeria.

H_1: Insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange have significant effect on per capita income in Nigeria.

Table 57: Test of Hypothesis Five

Estimated Model	f-statistic	P-value	Decision
PCI →IIGS+IISB+IIREM+IIBOE			
IIGS	5.36312	0.0333	Reject H_0 and Accept H_1
IISB	5.66251	0.0293	Reject H_0 and Accept H_1
IIREM	3.81326	0.0675	Accept H_0 and Reject H_1
IIBOE	0.00019	0.9891	Accept H_0 and Reject H_1

Source: Granger Causality Output in Table 51

Looking at the result in Table 57, insurance investment in government securities, stock and bonds have significant effect on per capita income as the the p-values of 0.0333 and 0.0293 are less than 0.05. Consequently, null hull hypothesis that insurance investment in government securities, stock and bonds have no significant effect on per capita income is rejected, whereas that of insurance investment in real estate and mortgage and bills of exchange are accepted.

Hypothesis Six

H_0: Insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange have no significant effect on employment level in Nigeria.

H_1: Insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange have significant effect on employment level in Nigeria.

Table 58: Test of Hypothesis Six

Estimated Model	f-statistic	P-value	Decision
EMPL →IIGS+IISB+IIREM+IIBOE			
IIGS	8.90392	0.0083	Reject H_0 and Accept H_1
IISB	9.29414	0.0073	Reject H_0 and Accept H_1
IIREM	11.5745	0.0034	Reject H_0 and Accept H_1
IIBOE	2.18338	0.1578	Accept H_0 and Reject H_1

Source: Granger Causality Output in Table 52

The result in Table 58 depicts that insurance investment in government securities, stock and bonds, and real estate and mortgage exert significant effect on employment level in Nigeria. In the light of this, the null hypothesis that insurance investment in government securities, stock and bonds, and real estate and mortgage have no significant effect of on employment level in Nigeria is rejected, while that of null hypothesis insurance investment on bills of exchange is accepted.

4.12 Discussion of Findings

The positive relationship that exists between the various components of insurance companies investment in Nigeria and economic growth as evidenced in Tables 17 – 22 is an indication that the investment of insurance companies via approved platforms positively affect economic growth in Nigeria. This means that insurers as providers of insurance coverage and indemnification have positive influence on economic growth, thus, as we have expect insurance companies contribute to economic growth both as institutional investors and insurance risk managers. This result agrees with the work of Ariwa and Ezeudu (2017), Egbeonu (2016), Momudu, Ezirim and Abubakar (2014), Sambo (2015) and Nwinne and Toriba (2012) that insurance

investment in government securities, stocks and bonds and real estate and mortgage relate positively with economic growth of Nigeria. The finding does not suggest that insurance investments in Nigeria did not go through turbulent times during the scope of the study. It simply means that more combination of insurance business from the funds' portfolio would impact on the RGDP positively during the period under consideration. Furthermore, investment performance of insurance companies would improve Nigeria's RGDP and as a result economic growth in the country. The insurance investment in bills of exchange was found to be significant at 5% level of significance suggesting that each time insurance companies increase investment in bill of exchange, economic growth would be increased by 0.0004%. This result agrees with the finding of Akintola-Bello (1986) who observed that cash and bill of exchange dominate the investment pattern of insurance companies in Nigeria.

The presence of a long run relationship between insurance investment in government securities, stocks and bond and real estate and mortgage as reflected in Tables 17 – 22 agrees with an earlier study by Nwinne and Toriba (2012) that there is a long run relationship between insurance investment in government securities, stocks and bonds, real estate and mortgage and economic growth in Nigeria. On the other hand, it disagrees with the study of Aderew (2013) that insurance investment activities and economic growth are not related in the long run in the context of Ethiopia. From Tables 48 - 50, it is observed that insurance investment in government securities, stock and bonds, real estate and mortgage significantly affects production index, per capita income and employment level in Nigeria. Put differently insurance investment in government securities, stock and bonds, real estate and mortgage shape or

determine variation in production index, per capita income and employment level in Nigeria.

The observed signs of the insurances investment portfolios against the dependent variables were interpreted based on the supposed relationship as guided by the theoretical framework. Tables 59 – 64 provide the observed signs of the independent variables.

Table 59: Real Gross Domestic Product as Dependent Variable

Independent Variables	Supposed Signs	Observed Signs	Remarks
IIGS	+	-	Rejected
IISB	+	+	Accepted
IIREM	+	-	Rejected
IIBOE	+	+	Accepted

Source: ARDL Regression Result in Table 47

Table 60: Gross Capital Formation as Dependent Variable

Independent Variables	Supposed Signs	Observed Signs	Remarks
IIGS	+	-	Rejected
IISB	+	+	Accepted
IIREM	+	+	Accepted
IIBOE	+	+	Accepted

Source: ARDL Regression Result in Table 48

Table 61: Infrastructural Development as Dependent Variable

Independent Variables	Supposed Signs	Observed Signs	Remarks
IIGS	+	+	Accepted
IISB	+	-	Rejected
IIREM	+	+	Accepted
IIBOE	+	+	Accepted

Source: ARDL Regression Result in Table 49

Table 62: Production Index as Dependent Variable

Independent Variables	Supposed Signs	Observed Signs	Remarks
IIGS	+	-	Rejected
IISB	+	+	Accepted
IIREM	+	+	Accepted
IIBOE	+	-	Rejected

Source: ARDL Regression Result in Table 50

Table 63: Per Capita Income as Dependent Variable

Independent Variables	Supposed Signs	Observed Signs	Remarks
IIGS	+	+	Accepted
IISB	+	+	Accepted
IIREM	+	+	Accepted
IIBOE	+	+	Accepted

Source: ARDL Regression Result in Table 51

Table 64: Employment Level as Dependent Variable

Independent Variables	Supposed Signs	Observed Signs	Remarks
IIGS	+	-	Rejected
IISB	+	+	Accepted
IIREM	+	-	Rejected
IIBOE	+	-	Rejected

Source: ARDL Regression Result in Table 52

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of findings

Findings arising from the study can be summarized as follows;

1. There is a negative insignificant relationship between insurance investment in government securities, real estate and mortgage, and the rate at which the gross domestic product grows, a positive insignificant relationship was seen between insurance investment stock and bonds and growth rate of gross domestic product. The relationship between insurance investments in bills of exchange and economic growth was significant. Insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange rate have no significant effect on economic growth in Nigeria.
2. Insurance investments in government securities has insignificant negative relationship with gross capital formation, while there is a positive relationship between insurance investment in stock and bonds, real estate and mortgage, bills of exchange and gross capital formation. Insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange rate have no significant effect on gross capital formation in Nigeria.
3. Insurance investments in government securities, real estate and mortgage and bills of exchange have positive but insignificant relationship with infrastructural development while insurance investment in stock and bonds negatively and insignificantly relates with infrastructural development. Insurance investment in government securities, stock and bonds, real estate and mortgage, and bills of exchange have no significant effect on infrastructural development in Nigeria.

4. Insurance investments in stock and bonds and real estate and mortgage have insignificant positive relationship with production index. Insurance investment in government securities and bills of exchange have no significant effect on industrial production index.

5. Insurance investments in government securities, stock and bonds, real estate and mortgage and bills of exchange have insignificant positive relationship with per capita income in Nigeria. Insurance investment in government securities and bills of exchange have no significant effect on per capita income in Nigeria.

6. Insurance Investments in government securities, real estate and mortgage and bills of exchange have negative insignificant relationship with employment level, while there is a positive relationship between insurance investment in stock and bond and employment level in Nigeria. Insurance investment in bills of exchange has no significant effect on employment level in Nigeria.

5.2 Conclusion

This study ascertained how insurance investments have affected economic development in Nigeria. The connection between insurance investments development has received considerable attention owing to the relevant role of finance in the actualization of economic growth and development. From the result emanating from this study, it is concluded that there is a negative insignificant relationship between insurance investments and gross domestic products, gross capital formation, infrastructural development, production index, per capita income and employment.

Insurance investments do not influence economic development in Nigeria in line with theoretical postulation of finance-led economic growth

nexus. This may be due to the nature of insurance development in Nigeria and the financial system in general.

5.3 Recommendations

Based on the above analysis, findings and the implications of the study, the following recommendations are made towards increasing the rate of economic growth, gross capital formation, infrastructural development, industrial production index, per capita income and employment level through insurance investment.

1) The National Insurance commission, Nigeria Insurance Association, National Council of Registered Insurance Brokers, Chattered Insurance Institute of Nigeria and other Associations should use conferences, seminars and media advertisements and publications to enlighten the public on the importance and need for insurance. It will help to create awareness about insurance .This will increase the premium income in insurance as well as investment of insurance companies which will affect gross domestic product.

2) The National Insurance Commission(NAICOM) should increase the capital base of insurance companies that is, further recapitalisation of the insurance industry. This will increase the amount of risk and premium attracted by the industry and hence improves insurance investment which will contribute to gross capital formation in Nigeria\

3) The National Insurance Commission and other policy makers in the industry should make sure that the compulsory insurances are actually made compulsory. The strategy for enforcement is by use law enforcement Agencies

such as the Police, Federal Road Safety Corp and Nigeria Custom Authority and monitoring teams from National Insurance Commission and Insurance Associations who will conduct proper checks on the roads ,ports, corporate bodies, construction sites etc to ensure compliance with the compulsory insurances. Such activities will increase premium due to insurance firms and investment and in turn have positive effect on infrastructural development.

4) Insurance companies should diversify their investment properly and such investments are to be channelled to areas that have the potential of yielding high returns so as to generate much more to equip business firm financially. One of such areas is the stock market through investment in stock and bonds which will affect Industrial production index.

5) The National insurance commission should review laws guiding insurance industry generally in order to have good regulation frame work which will enhance confidence among the public and players in the economic sector. This can increase patronage of insurance products, hence higher premium and investment. Per capita income will be affected positively through increase in domestic products.

6) The National Insurance Commission (NAICOM) should intensify effort in the supervision of the insurance to make sure investment in the approved areas are strictly adhered to, this will increase investment of insurance companies. This could be done by ensuring that supervisory department of National Insurance commission should visit insurance companies on quarterly basis to inspect their books and operations which will contribute to enhance employment level in Nigeria.

5.4 Contribution to Knowledge

This study ascertained the effect of insurance investments on economic development in Nigeria using up-to-date data on the variables of interest. On the basis of literature reviewed in the context of Nigerian environment and based on internet search, this study contributes to knowledge by determining the effect of insurance investment on economic development as against economic growth which is the traditional case in Nigeria. Firstly, this study measured insurance investment in relation to standard of living measured by per capita income. Secondly, the extent of influence of insurance investments have on the level of infrastructural development was ascertained and finally, how insurance investments have propelled the level of employment in Nigeria was empirically determined. With reference to conflicting empirical results, the theoretical assumption of the finance-led economic growth on the positive influence effect of insurance investment on economic growth in Nigeria is hereby not validated by the findings of this research work.

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APPENDIX

Data Descriptive Statistics

	RGDPGR	GCF	INFRD	PI	PCI	EMPL	IIGS	IISB	IIREM	IIBOE
Mean	5.524762	4132702.	338949.8	135.1519	185696.6	86.91429	12913.45	129213.3	29738.53	6682.659
Median	5.860000	1936950.	323580.6	136.7000	129537.1	87.30000	4858.100	121803.1	45186.30	5997.260
Maximum	12.74000	15326520	979820.1	158.9000	462068.0	98.20000	26085.51	277341.4	56539.30	16687.10
Minimum	-1.630000	172105.7	111508.6	109.6000	34136.99	72.00000	1546.200	3633.200	212.0000	119.3000
Std. Dev.	3.195369	5333175.	190076.2	13.40314	153856.5	7.988259	10100.86	117845.6	23051.31	3861.150
Skewness	-0.087144	1.145922	1.782638	0.005323	0.598312	-0.200573	0.115022	0.011819	-0.307581	0.849344
Kurtosis	3.348164	2.647789	7.180045	2.335732	1.672620	2.154373	1.084005	1.121580	1.291332	4.111496
Jarque-Bera	0.132645	4.704523	26.41097	0.386195	2.794617	0.766503	3.258464	3.087894	2.885724	3.605842
Probability	0.935829	0.095154	0.000002	0.824402	0.247262	0.681641	0.196080	0.213537	0.236251	0.164817
Sum	116.0200	86786746	7117946.	2838.190	3899630.	1825.200	271182.5	2713480.	624509.2	140335.8
Sum Sq. Dev.	204.2077	5.69E+14	7.23E+11	3592.883	4.73E+11	1276.246	2.04E+09	2.78E+11	1.06E+10	2.98E+08
Observations	21	21	21	21	21	21	21	21	21	21

Shapiro-Wilk Test of Normality

RGDPGR

Doornik-Hansen test = 2.70196, with p-value 0.258986
Shapiro-Wilk W = 0.982991, with p-value 0.001571
Lilliefors test = 0.106375, with p-value ~= 0.77
Jarque-Bera test = 0.132645, with p-value 0.935829

GCF

Doornik-Hansen test = 24.9872, with p-value 3.75059e-006
Shapiro-Wilk W = 0.731947, with p-value 0.0089e-005
Lilliefors test = 0.256316, with p-value ~= 0
Jarque-Bera test = 4.70452, with p-value 0.0951537

INFRD

Doornik-Hansen test = 10.9294, with p-value 0.00423359
Shapiro-Wilk W = 0.834758, with p-value 0.00234662
Lilliefors test = 0.15966, with p-value ~= 0.17
Jarque-Bera test = 26.411, with p-value 1.84048e-006

PI

Doornik-Hansen test = 0.000151312, with p-value 0.999924
Shapiro-Wilk W = 0.977606, with p-value 0.00887459
Lilliefors test = 0.0838893, with p-value ~= 1
Jarque-Bera test = 0.386195, with p-value 0.824402

PCI

Doornik-Hansen test = 13.8055, with p-value 0.00100501
Shapiro-Wilk W = 0.820244, with p-value 0.00136069
Lilliefors test = 0.231246, with p-value ~= 0
Jarque-Bera test = 2.79462, with p-value 0.247262

EMPL

Doornik-Hansen test = 0.467316, with p-value 0.791632
Shapiro-Wilk W = 0.935775, with p-value 0.000605
Lilliefors test = 0.150352, with p-value ~= 0.24
Jarque-Bera test = 0.766503, with p-value 0.681641

IIGS

Doornik-Hansen test = 24.9467, with p-value 3.82729e-006
Shapiro-Wilk W = 0.752517, with p-value 0.000134228
Lilliefors test = 0.311227, with p-value ~= 0
Jarque-Bera test = 3.25846, with p-value 0.19608

IISB

Doornik-Hansen test = 19.1881, with p-value 6.81322e-005
Shapiro-Wilk W = 0.763152, with p-value 0.000188861
Lilliefors test = 0.261346, with p-value ~= 0
Jarque-Bera test = 3.08789, with p-value 0.213537

IIREM

Doornik-Hansen test = 15.5056, with p-value 0.000429542
Shapiro-Wilk W = 0.793462, with p-value 0.000522087
Lilliefors test = 0.272428, with p-value ~= 0
Jarque-Bera test = 2.88572, with p-value 0.236251

IIBOE

Doornik-Hansen test = 4.42977, with p-value 0.109166
Shapiro-Wilk W = 0.853882, with p-value 0.00495845
Lilliefors test = 0.27346, with p-value ~= 0
Jarque-Bera test = 3.60584, with p-value 0.164817

TESTING OF HYPOTHESES

Unit Root Test Result

Augmented Dickey-Fuller (ADF)

Null Hypothesis: RGDPGR has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.386207	0.5680
Test critical values:	1% level	-3.808546	
	5% level	-3.020686	
	10% level	-2.650413	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RGDPGR)
Method: Least Squares
Date: 05/11/18 Time: 21:05
Sample (adjusted): 1997 2016
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RGDPGR(-1)	-0.301307	0.217361	-1.386207	0.1826
C	1.496438	1.410781	1.060716	0.3028

R-squared	0.096457	Mean dependent var	-0.276000
Adjusted R-squared	0.046260	S.D. dependent var	2.730065
S.E. of regression	2.666171	Akaike info criterion	4.893804
Sum squared resid	127.9525	Schwarz criterion	4.993377
Log likelihood	-46.93804	Hannan-Quinn criter.	4.913241
F-statistic	1.921569	Durbin-Watson stat	1.753316
Prob(F-statistic)	0.182617		

Null Hypothesis: RGDPGR has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.232481	0.8751
Test critical values:	1% level	-4.498307	
	5% level	-3.658446	
	10% level	-3.268973	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RGDPGR)
Method: Least Squares
Date: 05/11/18 Time: 21:07
Sample (adjusted): 1997 2016
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RGDPGR(-1)	-0.267346	0.216917	-1.232481	0.2345
C	2.576981	1.668350	1.544628	0.1408
@TREND("1996")	-0.121935	0.103179	-1.181788	0.2536

R-squared	0.165051	Mean dependent var	-0.276000
Adjusted R-squared	0.066822	S.D. dependent var	2.730065
S.E. of regression	2.637274	Akaike info criterion	4.914850
Sum squared resid	118.2387	Schwarz criterion	5.064210
Log likelihood	-46.14850	Hannan-Quinn criter.	4.944006
F-statistic	1.680266	Durbin-Watson stat	1.952422
Prob(F-statistic)	0.215828		

Null Hypothesis: RGDPGR has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.002080	0.2729
Test critical values:	1% level	-2.685718	
	5% level	-1.959071	
	10% level	-1.607456	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RGDPGR)
Method: Least Squares
Date: 05/11/18 Time: 21:08
Sample (adjusted): 1997 2016
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RGDPGR(-1)	-0.092347	0.092155	-1.002080	0.3289

R-squared	0.039979	Mean dependent var	-0.276000
Adjusted R-squared	0.039979	S.D. dependent var	2.730065
S.E. of regression	2.674936	Akaike info criterion	4.854434
Sum squared resid	135.9503	Schwarz criterion	4.904221
Log likelihood	-47.54434	Hannan-Quinn criter.	4.864153
Durbin-Watson stat	2.004835		

Null Hypothesis: GCF has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		2.425934	0.9942
Test critical values:	1% level	-2.685718	
	5% level	-1.959071	
	10% level	-1.607456	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GCF)
Method: Least Squares

Date: 05/11/18 Time: 21:09
Sample (adjusted): 1997 2016
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GCF(-1)	0.132459	0.054601	2.425934	0.0254

R-squared	0.016778	Mean dependent var	757720.7
Adjusted R-squared	0.016778	S.D. dependent var	1449186.
S.E. of regression	1436978.	Akaike info criterion	31.24269
Sum squared resid	3.92E+13	Schwarz criterion	31.29248
Log likelihood	-311.4269	Hannan-Quinn criter.	31.25241
Durbin-Watson stat	2.149784		

Null Hypothesis: GCF has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.964324	0.9268
Test critical values:	1% level	-4.498307	
	5% level	-3.658446	
	10% level	-3.268973	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GCF)
Method: Least Squares
Date: 05/11/18 Time: 21:10
Sample (adjusted): 1997 2016
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GCF(-1)	-0.113119	0.117304	-0.964324	0.3484
C	-849181.6	744712.4	-1.140281	0.2700
@TREND("1996")	191531.3	95123.35	2.013505	0.0602

R-squared	0.257969	Mean dependent var	757720.7
Adjusted R-squared	0.170672	S.D. dependent var	1449186.
S.E. of regression	1319737.	Akaike info criterion	31.16124
Sum squared resid	2.96E+13	Schwarz criterion	31.31060
Log likelihood	-308.6124	Hannan-Quinn criter.	31.19040
F-statistic	2.955054	Durbin-Watson stat	2.227895
Prob(F-statistic)	0.079174		

Null Hypothesis: GCF has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		1.259635	0.9973
Test critical values:	1% level	-3.808546	
	5% level	-3.020686	
	10% level	-2.650413	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GCF)
Method: Least Squares
Date: 05/11/18 Time: 21:11
Sample (adjusted): 1997 2016
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GCF(-1)	0.085977	0.068255	1.259635	0.2239
C	450524.6	401668.8	1.121632	0.2768

R-squared	0.081008	Mean dependent var	757720.7
Adjusted R-squared	0.029953	S.D. dependent var	1449186.
S.E. of regression	1427317.	Akaike info criterion	31.27513
Sum squared resid	3.67E+13	Schwarz criterion	31.37470
Log likelihood	-310.7513	Hannan-Quinn criter.	31.29457
F-statistic	1.586680	Durbin-Watson stat	2.194441
Prob(F-statistic)	0.223890		

Null Hypothesis: INFRD has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.478532	0.0024
Test critical values:	1% level	-3.808546	
	5% level	-3.020686	
	10% level	-2.650413	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INFRD)
Method: Least Squares
Date: 05/11/18 Time: 21:12
Sample (adjusted): 1997 2016
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFRD(-1)	-1.021643	0.228120	-4.478532	0.0003
C	357425.8	89330.76	4.001150	0.0008

R-squared	0.527028	Mean dependent var	7172.500
Adjusted R-squared	0.500752	S.D. dependent var	273235.0
S.E. of regression	193060.9	Akaike info criterion	27.27404
Sum squared resid	6.71E+11	Schwarz criterion	27.37361
Log likelihood	-270.7404	Hannan-Quinn criter.	27.29348
F-statistic	20.05725	Durbin-Watson stat	2.061174
Prob(F-statistic)	0.000290		

Null Hypothesis: INFRD has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.798769	0.0055
Test critical values:	1% level	-4.498307	

5% level	-3.658446	
10% level	-3.268973	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INFRD)
Method: Least Squares
Date: 05/11/18 Time: 21:13
Sample (adjusted): 1997 2016
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFRD(-1)	-1.174070	0.244661	-4.798769	0.0002
C	286585.4	99307.22	2.885847	0.0103
@TREND("1996")	11723.56	8029.420	1.460075	0.1625

R-squared	0.579731	Mean dependent var	7172.500
Adjusted R-squared	0.530287	S.D. dependent var	273235.0
S.E. of regression	187263.2	Akaike info criterion	27.25590
Sum squared resid	5.96E+11	Schwarz criterion	27.40526
Log likelihood	-269.5590	Hannan-Quinn criter.	27.28506
F-statistic	11.72512	Durbin-Watson stat	1.980190
Prob(F-statistic)	0.000631		

Null Hypothesis: INFRD has a unit root
Exogenous: None
Lag Length: 1 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.675300	0.4110
Test critical values:	1% level	-2.692358	
	5% level	-1.960171	
	10% level	-1.607051	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 19
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INFRD)
Method: Least Squares
Date: 05/11/18 Time: 21:14
Sample (adjusted): 1998 2016
Included observations: 19 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFRD(-1)	-0.097547	0.144449	-0.675300	0.5086
D(INFRD(-1))	-0.514413	0.212415	-2.421734	0.0269

R-squared	0.337809	Mean dependent var	4824.737
Adjusted R-squared	0.298857	S.D. dependent var	280514.9
S.E. of regression	234887.2	Akaike info criterion	27.67090
Sum squared resid	9.38E+11	Schwarz criterion	27.77031
Log likelihood	-260.8735	Hannan-Quinn criter.	27.68772
Durbin-Watson stat	2.167890		

Null Hypothesis: PI has a unit root
Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.594869	0.4469
Test critical values:	1% level	-2.685718	
	5% level	-1.959071	
	10% level	-1.607456	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(PI)
Method: Least Squares
Date: 05/11/18 Time: 21:16
Sample (adjusted): 1997 2016
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PI(-1)	-0.010277	0.017276	-0.594869	0.5589

R-squared	0.006261	Mean dependent var	-1.145000
Adjusted R-squared	0.006261	S.D. dependent var	10.61507
S.E. of regression	10.58179	Akaike info criterion	7.604853
Sum squared resid	2127.511	Schwarz criterion	7.654639
Log likelihood	-75.04853	Hannan-Quinn criter.	7.614572
Durbin-Watson stat	1.425030		

Null Hypothesis: PI has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 1 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.547199	0.3047
Test critical values:	1% level	-4.532598	
	5% level	-3.673616	
	10% level	-3.277364	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 19
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(PI)
Method: Least Squares
Date: 05/11/18 Time: 21:17
Sample (adjusted): 1998 2016
Included observations: 19 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PI(-1)	-0.524667	0.205978	-2.547199	0.0223
D(PI(-1))	0.495745	0.234559	2.113519	0.0517
C	76.77397	29.92664	2.565405	0.0215
@TREND("1996")	-0.581559	0.415743	-1.398841	0.1822

R-squared	0.362326	Mean dependent var	-1.631579
Adjusted R-squared	0.234791	S.D. dependent var	10.67434
S.E. of regression	9.337507	Akaike info criterion	7.490620
Sum squared resid	1307.836	Schwarz criterion	7.689449

Log likelihood	-67.16089	Hannan-Quinn criter.	7.524269
F-statistic	2.840994	Durbin-Watson stat	1.885794
Prob(F-statistic)	0.073202		

Null Hypothesis: PI has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.174800	0.2207
Test critical values:	1% level	-3.831511	
	5% level	-3.029970	
	10% level	-2.655194	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 19
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(PI)
Method: Least Squares
Date: 05/11/18 Time: 21:18
Sample (adjusted): 1998 2016
Included observations: 19 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PI(-1)	-0.441560	0.203035	-2.174800	0.0450
D(PI(-1))	0.506105	0.241350	2.096977	0.0522
C	59.02818	27.90338	2.115449	0.0504

R-squared	0.279141	Mean dependent var	-1.631579
Adjusted R-squared	0.189033	S.D. dependent var	10.67434
S.E. of regression	9.612632	Akaike info criterion	7.507972
Sum squared resid	1478.443	Schwarz criterion	7.657094
Log likelihood	-68.32574	Hannan-Quinn criter.	7.533210
F-statistic	3.097869	Durbin-Watson stat	1.824584
Prob(F-statistic)	0.072913		

Null Hypothesis: PI has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.174800	0.2207
Test critical values:	1% level	-3.831511	
	5% level	-3.029970	
	10% level	-2.655194	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 19
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(PI)
Method: Least Squares
Date: 05/11/18 Time: 21:37
Sample (adjusted): 1998 2016
Included observations: 19 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PI(-1)	-0.441560	0.203035	-2.174800	0.0450
D(PI(-1))	0.506105	0.241350	2.096977	0.0522
C	59.02818	27.90338	2.115449	0.0504

R-squared	0.279141	Mean dependent var	-1.631579
Adjusted R-squared	0.189033	S.D. dependent var	10.67434
S.E. of regression	9.612632	Akaike info criterion	7.507972
Sum squared resid	1478.443	Schwarz criterion	7.657094
Log likelihood	-68.32574	Hannan-Quinn criter.	7.533210
F-statistic	3.097869	Durbin-Watson stat	1.824584
Prob(F-statistic)	0.072913		

Null Hypothesis: PCI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.531519	0.8652
Test critical values:	1% level	-3.808546	
	5% level	-3.020686	
	10% level	-2.650413	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(PCI)
Method: Least Squares
Date: 05/11/18 Time: 21:38
Sample (adjusted): 1997 2016
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PCI(-1)	-0.038193	0.071856	-0.531519	0.6016
C	22880.55	16612.32	1.377325	0.1853

R-squared	0.015453	Mean dependent var	16118.52
Adjusted R-squared	-0.039244	S.D. dependent var	46863.18
S.E. of regression	47773.89	Akaike info criterion	24.48099
Sum squared resid	4.11E+10	Schwarz criterion	24.58056
Log likelihood	-242.8099	Hannan-Quinn criter.	24.50042
F-statistic	0.282512	Durbin-Watson stat	1.759895
Prob(F-statistic)	0.601558		

Null Hypothesis: PCI has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.818061	0.6577
Test critical values:	1% level	-4.498307	
	5% level	-3.658446	
	10% level	-3.268973	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(PCI)

Method: Least Squares
Date: 05/11/18 Time: 21:39
Sample (adjusted): 1997 2016
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PCI(-1)	-0.298858	0.164383	-1.818061	0.0867
C	-8501.529	23923.98	-0.355356	0.7267
@TREND("1996")	7384.055	4238.099	1.742304	0.0995

R-squared	0.164623	Mean dependent var	16118.52
Adjusted R-squared	0.066343	S.D. dependent var	46863.18
S.E. of regression	45281.98	Akaike info criterion	24.41669
Sum squared resid	3.49E+10	Schwarz criterion	24.56605
Log likelihood	-241.1669	Hannan-Quinn criter.	24.44584
F-statistic	1.675042	Durbin-Watson stat	1.628063
Prob(F-statistic)	0.216772		

Null Hypothesis: PCI has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		0.795174	0.8766
Test critical values:	1% level	-2.685718	
	5% level	-1.959071	
	10% level	-1.607456	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(PCI)
Method: Least Squares
Date: 05/11/18 Time: 21:40
Sample (adjusted): 1997 2016
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PCI(-1)	0.037600	0.047285	0.795174	0.4363

R-squared	-0.088309	Mean dependent var	16118.52
Adjusted R-squared	-0.088309	S.D. dependent var	46863.18
S.E. of regression	48888.63	Akaike info criterion	24.48118
Sum squared resid	4.54E+10	Schwarz criterion	24.53097
Log likelihood	-243.8118	Hannan-Quinn criter.	24.49090
Durbin-Watson stat	1.716695		

Null Hypothesis: EMPL has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		0.188521	0.7304
Test critical values:	1% level	-2.685718	
	5% level	-1.959071	
	10% level	-1.607456	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EMPL)
Method: Least Squares
Date: 05/11/18 Time: 21:42
Sample (adjusted): 1997 2016
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EMPL(-1)	0.003777	0.020033	0.188521	0.8525

R-squared	-0.007354	Mean dependent var	0.730000
Adjusted R-squared	-0.007354	S.D. dependent var	7.792311
S.E. of regression	7.820910	Akaike info criterion	7.000186
Sum squared resid	1162.166	Schwarz criterion	7.049972
Log likelihood	-69.00186	Hannan-Quinn criter.	7.009905
Durbin-Watson stat	1.417871		

Null Hypothesis: EMPL has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.686338	0.0001
Test critical values:	1% level	-4.498307	
	5% level	-3.658446	
	10% level	-3.268973	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EMPL)
Method: Least Squares
Date: 05/11/18 Time: 21:43
Sample (adjusted): 1997 2016
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EMPL(-1)	-0.981475	0.146788	-6.686338	0.0000
C	96.93186	14.14873	6.850925	0.0000
@TREND("1996")	-1.036405	0.203343	-5.096829	0.0001

R-squared	0.733686	Mean dependent var	0.730000
Adjusted R-squared	0.702355	S.D. dependent var	7.792311
S.E. of regression	4.251237	Akaike info criterion	5.869778
Sum squared resid	307.2413	Schwarz criterion	6.019138
Log likelihood	-55.69778	Hannan-Quinn criter.	5.898935
F-statistic	23.41725	Durbin-Watson stat	1.589435
Prob(F-statistic)	0.000013		

Null Hypothesis: EMPL has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.955555	0.0567
Test critical values:	1% level	-3.808546	

5% level	-3.020686
10% level	-2.650413