Insurance Investment and Real Sector of the Economy in Nigeria, 1996-2020. Co-Integration and Error Correction Model Approach

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ABSTRACT

This study examined the insurance investment and real sector of the economy in Nigeria from 1996 – 2020. The major objective of the study is to examine the cointegration and error correction of insurance investment on the government securities, insurance investment on the stocks and bonds, insurance investment on the bill of exchange and insurance investment real estate and mortgage on real sector of the economy represented by real gross domestic product in Nigeria. The study employed auto regressive distributed lag model using data extracted from CBN statistical bulletin over the period of 1996-2020 via cointegration and error correction estimates. Result reveals that insurance investments on government securities, Insurance Investments on stocks and bond, insurance investment in real estate and mortgage and insurance investments on bill of exchange all had positive and significant impact on have positive and non-significant impact on real sector of the economy in Nigeria; Also, there existed cointegration relationship among the variables of interest which lead to error correction model It was clear that the error emanating from departure in equilibrium can be corrected over time The result specifically lead to conclusion that a there are rational relationship between the insurance investment and real sector of the economy both in the short run and long run which will bring increase in growth of financial institution and boost the economic development of Nigeria. The study recommended that investor should improve their investment on insurance bonds, stock, security and policy loan, it was further recommended that there should be a means of educating the masses and organization on insurance as an investing financial institution not just for life and property protection. The above recommendation will result to more insurance deepening and economic development in Nigeria as an implication.

1. Introduction

Insurance is a form of risk management in which the insured transfers the cost of potential loss to another entity in exchange for monetary compensation known as the premium Isimoya (2013) defined insurance as a social scheme which provides financial compensation for the effects of a misfortune. It transfers the risk of financial losses as a result of specified but unpredictable events from an individual or entity to an insurer in return for a fee or premium. If a specified event occurs, the individual or entity can claim compensation or a service from the insurer. Insurance is therefore a means of reducing uncertainty. Buying an insurance policy for a smaller, known premium, removes the possibility of a larger loss. By pooling premiums and insured events, between groups of policyholders and/or over time, the financial impact of an event that could be disastrous for one policyholder is spread among a wider group.

Central Bank of Nigeria Statistical Bulletin (2019) provides that among the assets insurance industry invested in were government securities, stocks, real estate and bills of exchange. Each represents a separate avenue for the industry to channel fund into the economy. Investment in government securities refers to buying into debt financial instruments offered by the federal government. Investors often buy government securities to either benefit from the cash flow of the coupon payment or to add a conservative, risk-free investment to their diversified portfolio (Kilroy, 2019). Buying government securities means that insurance companies are lending to the federal government for a specified period of time. Investment in stocks and bonds involves buying equities of both public and private limited liability companies. The worthiness of equity is based on the present share price or a value regulated by the valuation professionals or investors (Byju, 2021). Stocks give you partial ownership in a corporation. Investment in Real Estate deals with land along with any permanent improvements attached to the land, whether natural or man-made—including water, trees, minerals, buildings, homes, fences, and bridges. Investment in bills of exchange cover the support the insurance industry gives to facilitate international trade. Aside offering risk covering measures the insurance industry can take up such investment to either profit or save a situation. A Bill of Exchange is a written order used primarily in international trade that binds one party to pay a fixed sum of money to another party on demand or at a predetermined date (Hargrave, 2021). It is a short-term negotiable financial instrument consisting of an order in writing addressed by one person (the seller of goods) to another (the buyer) requiring the later to pay on demand (a sight draft) or at a fixed or determinable future time (a time draft) a certain sum of money to a specified person or to the bearer of the bill. The Bill of Exchange originated as a method of settling accounts in international trade. Total investment of the insurance industry refers to the aggregate of all investment made by the insurance industry on local and foreign opportunities. It covers their investment in both tangible and non-tangible things.

Note that investment in insurance business is concerned with the application of insurance funds which are not immediately required for expenditure or for payment of insurance claims and benefits (Chiejina, 2017). To expand their profitability, insurers invest part of the premium they generate across a wide range of opportunities (Zacks, 2017). Due to the long-term nature of their liabilities, sizeable reserves, and predictable premiums, insurance service providers serve an important function as institutional investors providing capital to infrastructure and other long-term investments as well as professional oversight to these investments (Brainard, 2008). Thus, the insurance industry is positioned to mobilize funds that can be channeled into productive investments and also acts as a catalyst of economic growth. With the real sector a sub-set of the wider economy and insurance industry able to facilitate economic growth, this study undertakes to evaluate whether the insurance industry is able to do so through the real sector.

Over the years, many studies abound on insurance research. Most of the works on insurance measures the impact of insurance to the economy. Impact of insurance investment on the economy, Impact of insurance and pension business activities on the economy, Causal relationship between insurance market activities and economic growth, Others measures the effect of insurance practice on economic growth.

However, other studies in the empirical evidence was carried out on the impact of capital market activities on economic growth, Other evaluated the impact of capital market indices on economic growth, some went further to evaluate the impact of stock market development to economic growth, still some others studied the impact of foreign direct investment on either the economic growth or capital market efficiency. All these studies highlight what had been empirically done.

Therefore, what was left undone to the best of my knowledge is that, none of the studies mentioned above investigated the impact of insurance investment on real sector of the economy in Nigeria on the long run. Insurance investments are proxied by insurance investment in government securities, Insurance investment in stocks and bonds, Insurance investment in in real estate and mortgage and finally on bill of exchange while real sector economy was proxied by real gross domestic product. Hence, it is a problem that this study wants to research on so as to fill this important gap. If this gap is filled, it will contribute to knowledge and form the very foundation of this study. The broad objective of the study is to examine the cointegration and error correction model Insurance investment on real sector economy in Nigeria, 1996-2020.

2. Review of Related Literature

2.1 Conceptual Review

Government Securities

Government Securities are debt instruments sold to fund an independent government's operations (Kilroy, 2019). By using this form of funding, governments can avoid increasing taxes or issuing spending cuts. Investors often buy government Securities to either benefit from the cash flow of the coupon payment or to add a conservative, risk-free investment to their diversified portfolio. Government securities are government debt issuances used to fund daily operations, and special infrastructure and military projects (Boyle, 2020). They guarantee the full repayment of invested principal at the maturity of the security and often pay periodic coupon or interest payments. Government securities are considered to be risk-free as they have the backing of the government that issued them.

Stocks and Bonds

A Stock is a general term used to describe the ownership certificates of any company (EconomicTimes, 2021). A Share, on the other hand, refers to the Stock Certificate of a particular company. Holding a particular company's share makes you a shareholder. Stocks give you partial ownership in a corporation, while bonds are a loan from you to a company or government. The biggest difference between them is how they generate profit: stocks must appreciate in value and be sold later on the stock market, while most bonds pay fixed interest over time (Davis, 2021). Stocks represent partial ownership, or equity, in a company. When you buy stock, you're actually purchasing a tiny slice of the company

Real Estate

Real Estate is the land along with any permanent improvements attached to the land, whether natural or man-made—including water, trees, minerals, buildings, homes, fences, and bridges (Chen, 2021). Real Estate is a form of real property. It differs from personal property, which are things not permanently attached to the land, such as vehicles, boats, jewelry, furniture, and farm equipment. Real Estate is a real or tangible asset in the sense that it has physical components. Real Estate is also bestowed with a bundle of rights.

Bills of Exchange

Virtually all countries of the world are engaged in trade with one another. Apart from the flow of goods and services between countries, there is also the flow of income and capital. **Bill of Exchange** is defined as an unconditional order in writing, addressed by one person to another, signed by the person giving it, requiring the person to whom it is addressed to pay on demand, or at fixed or determinable future, a sum certain in money or to the order of a specified person or to a bearer

2.2 Theoretical Review

Endogenous Growth Theory

The endogenous growth theory is an economic theory which argues that economic growth is generated from within a system as a direct result of internal processes. Endogenous growth theory emerged in the 1980s as an alternative to the neoclassical growth theory. It was propounded by Economist Paul Romer in 1986. The endogenous growth theory

provides that financial intermediation could affect economic growth through three channels namely: changing productivity of capital, savings funnelled to investment and savings rate.

2.3 Empirical Review

Anastasia, Omade, and Osemen (2011) examines the long run relationship of private 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 measure by applying Vector Auto- Regression Model technique to test the stationary series of variables and 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 variables became statistically significant in the long run. This implies that the monetary policy in Nigeria has positively affected the growth of private investment in the Nigeria economy. This paper concurs with the finding because investments are meant to boost any economy.

Fortune and Lezansi (2012) utilized Nigerian time series data to investigate insurance investment and economic development. They used vector Autoregressive system on the annual data for the period 1980 to 2011. The study also employed the impulse response and variance decomposition analysis to examine the pattern and magnitude of response to shocks into the next thirty years and found that the impulse response of gross domestic product (GDP) to shocks emanating from government and securities, stocks and bonds, real estate mortgages and cash and deposits was inconsistent.

Arena (2008) worked on the empirical study and causal relationship between insurance market activity and economic growth which covers 56 countries (both developed and developing ones) in the period 1976 to 2004. He used the generalized method of moment for dynamic models of panel data and his results showed a positive and significant effect of total, life and non-life insurance market activity on economic growth.

Haiss and Sumegi (2008) also applied a cross country panel data analysis from 29 European countries in the period 1992 to 2005 to study the relationship between insurance companies and economic growth in Europe. Using ordinary least squares estimates and time fixed effects, he observed that there is a positive impact of life insurance in GDP growth in 15 European countries; while general insurance has a larger impact in Central and Eastern Europe.

Wadlamannati (2008) examined the effects of insurance growth and reforms along other relevant control variables on economic development in India within the period 1980 to 2006. He used the penetration (life, general and total insurance) of insurance to measure the growth of insurance. Using ordinary least square, co-integration analysis and error correction models, the study showed that reforms in the insurance sector do not affect economic activities; but their growth has a positive impact on economic growth.

Eze and Okoye (2013) carried out an analysis of the effect of insurance practices on economic growth of the Nigerian Economy from 1980 to 2011. They employed, Johansen co-integration test and error correction model in data analysis and they observed that insurance premium capital has significantly impacted on economic growth. Also, the level of total insurance investment has significantly affected economic growth. Moreover, there is a causal relationship between insurance sector development and economic growth in Nigeria. They conclude that there is a significant positive effect of insurance practice on the growth of the Nigerian economy.

Kolape and Adeboye (2018) examined the impact of Capital market indices on Nigeria economic growth,1986-2019 Ordinary least square regression. Result reveals that capital market activities had a positive and significant impact on the economy within the period under study.

Owusu and Odhiambo (2014) employed the ARDL bounds testing approach on multi-dimensional stock market development proxies to examine the long-run relationship between stock market development and sustainable economic growth in Ghana, they found that stock market has no positive effect on economic growth both in the short and long run. However, the studies also found and concluded that an increase in credit to the private sector, rather than stock market development is the driver of the real sector economic growth in Ghana.

Okonkwo, Ogwuru, and Ajudua, (2014) looked at determining the role and contributions of the stock market to economic growth in Nigeria by using data from 1981-2012 and the Johansen co-integration test to estimate the long-

term equilibrium relationship among the variables. They concluded that, the stock market size remains a very important indicator in measuring the stock market impact on economic growth. The study reveals that the Nigerian stock market size, with an average of 250 listed companies, exacts significant influence on economic growth and that economic growth and stock market capitalization have no causal relationship.

Victor and Kenechukwu (2013) examine the capital market contribution towards economic growth and development, the Nigeria experience, were gross domestic product was considered dependent variable and all share index, market value and market capitalization as independent variable for the period 2001-2010. Their findings show that capital market has impacted significantly on the economy during the period under review.

Zafar, Mashood and Abbas (2013) examined the relationship between FDI and its influences on the development of stock market of the host country, Evidence from the host country using cointegration and granger causality technique. Result reveals that that FDI influences positively and significantly stock market performance both in the short and long run. Also, there is a unidirectional causality running from FDI to stock market performance in Pakistan.

Dhiman and Sharma (2013) investigated the impact of the flow of FDI on India capital market using correlation and ordinary least square regression. Result reveals that there is positive and significant correlation existing between FDI and Capital market in India and also there is a positive and significant impact of FDI to capital market performance in India.

Balogun (2013) analyzed the extent to which insurance industries investment profile in the period 1985 to 2007 was affected by interest rate deregulation in Nigeria. The study employed panel regression with year and 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 insurance investments may not be significant enough in some less developed countries.

2.4 Gap in Literature

From the empirical evidence carried out above, some of the reviews that was carried out on insurance centers on impact of insurance on the economic growth and or Insurance investment and economic growth. Others were investigating the impact of capital market activities or other investment portfolios and economic growth. However, this study deviated from the numerous empirical evidence which includes insurance and economic growth, insurance investment and economic growth or capital market activities to economic growth to create a gap. The gap created is that this study examined the impact of insurance investment to Nigeria capital market operations, 1996-2019.

Most of the works done on insurance investment was done using panel survey, granger causality generalized method of moment regression as well as ordinary least square regression, this study adopted auto regressive distributed lag model which form the high light of the knowledge gap which this study attempts to fill.

3. Methodology

Research Design

This study adopted ex-post facto design. Ex-post facto design is a quasi-experimental study examining how an independent variable. This design ideally fits this work as it is not possible of permissible to manipulate the characteristics of the variable under study.

Sources of Data

The data used for this work is secondary data and drawn from already existing sources. Central Bank of Nigeria (CBN) statistical bulletins, Journal and other published works represents the source of the data. The data sets used are annualized time series. The data collected from already published data from national bureaucratically statistical bulletin which will aid in forecasting of this work.

Model Specification

A multi linear regression model was used for this study. The type of multi linear regression model regression model used for this study was auto regressive distributed lag model. This model will adapt the model used by Owusu and Odhimbo (2014) but remodified to accommodate all the variables under study and analyzed the model using ARDL instead of OLS. Thus:
REGDP =F (INSINVGS, INSINVSB, INSINVBE). This is thrown into regression equation, thus

$RGDP_t = \beta_o + \beta_I INSINVGS_t + \beta_2 INSINVSB_t + \beta_3 INSINVBE_t + \beta_4 INSINVRE_t \ldots\ldots E_t$

Where RGDP = Real gross domestic product, INSINVGS- Insurance investment on Government securities, INSINVSB= Insurance investment on stock and bonds, INSINVBE= Insurance investment on Bull of exchange, NSINVRE= Insurance investment on real estate and mortgage

B_0 = Center of origin, E-Error terms, T- Time series data.
$\beta_I, \beta_3, \beta_2$ = Coefficient of determination
Approri Expectation: $\beta_I, \beta_3, \beta_2 > 1$

4. Data Presentation and Analyses

Table 4.1 Table Showing Variables of Insurance Investments and Economic Growth Rates In Nigeria, 1996-2019

YEAR	RGDP	INSINVGS	INSINVSB	INSINVRE	INSINVBE
1996	3,779.13	1,546.16	4,047.81	2,523.20	119.30
1997	4,111.64	2,012.01	4,095.38	2,683.50	164.17
1998	4,588.99	4,145.88	3,633.17	211.95	3,371.47
1999	5,307.36	2,987.21	4,174.04	332.65	5,780.93
2000	6,897.48	3,558.95	4,992.87	282.34	7,302.03
2001	8,134.14	3,842.71	6,786.26	359.33	10,178.02
2002	11,332.25	3,752.08	8,350.85	960.31	11,881.22
2003	13,301.56	4,489.21	11,490.31	14,272.79	13,901.24
2004	17,321.30	4,169.09	20,071.86	21,832.18	16,287.07
2005	22,269.98	4,178.06	61,800.82	33,788.15	6,301.14
2006	28,662.47	4,858.10	121,813.13	45,186.77	6,303.01
2007	32,995.38	20,914.81	222,278.92	45,331.91	5,267.78
2008	39,157.88	21,374.94	227,169.06	46,329.21	5,383.67
2009	44,285.56	21,845.18	232,166.78	47,348.45	5,502.11
2010	54,612.26	22,325.78	237,274.44	48,390.12	5,623.16
2011	62,980.40	22,816.95	242,494.48	49,454.70	5,746.87
2012	71,713.94	9,301.07	88,290.01	22,455.47	6,819.57
2013	80,092.56	10,375.64	93,906.16	23,784.29	7,773.35
2014	89,043.62	10,854.85	100,321.21	25,291.49	8,112.17
2015	94,144.96	12,233.35	107,758.76	29,461.36	8,306.44
2016	101,489.49	13,072.42	116,390.81	35,288.46	8,301.23
2017	113,711.63	14,108.01	126,517.90	42,207.69	8,219.73

2018	127,762.55	15,310.36	138,491.06	47,006.86	5,732.53
2019	127,762.55	19,022.63	170,633.69	48,880.62	5,563.95

Sources, CBN Statistical bulletin,2019

where
RGDP = Real Gross domestic product
INSINVGS = Insurance industry investment in government securities
INSNSINVSB = Insurance industry investment in stocks and bonds
INSINVRE = Insurance industry investment in real estate
INSINVBE = Insurance industry investment in bills of exchange

Table 4.2 Table Showing Exact Values of the Variables of Insurance Investments Measures in Million Naira and Economic Growth measured in Billion Naira in Nigeria,1996-2019.

YEAR	RGDP	INSINVGS	INSINVSB	INSINVRE	INSINVBE
1996	377.913	15.4616	40.4781	25.232	1.193
1997	411.164	20.1201	40.9538	26.835	1.6417
1998	458.899	41.4588	36.3317	2.1195	33.7147
1999	530.736	29.8721	41.7404	3.3265	57.8093
2000	689.748	35.5895	49.9287	2.8234	73.0203
2001	813.414	38.4271	67.8626	3.5933	101.7802
2002	1133.25	37.5208	83.5085	9.6031	118.8122
2003	1330.156	44.8921	114.9031	142.7279	139.1024
2004	1732.13	41.6909	200.7186	218.3218	162.8707
2005	2226.998	41.7806	618.0082	337.8815	63.0114
2006	2866.247	48.581	1218.131	451.8677	63.0301
2007	3299.538	209.1481	2227.789	453.3191	52.6778
2008	3915.788	213.7494	2271.691	463.2921	53.8367
2009	4428.556	218.4518	2321.668	473.4845	55.0211
2010	5461.226	223.2578	2372.744	483.9012	56.2316
2011	6298.04	228.1695	2424.945	494.547	57.4687
2012	7171.394	93.1017	882.9001	224.5547	68.1957
2013	8009.256	103.7564	939.0616	237.8429	77.7335
2014	8904.362	108.5464	1003.212	252.9149	81.1217
2015	9414.496	122.3335	1077.588	294.6136	83.0644
2016	10158.95	130.7242	1163.908	352.8846	83.0123
2017	11371.16	141.0801	1265.179	422.0769	82.1973
2018	12776.26	153.1036	1384.911	470.0686	57.3253
2019	12776.26	190.2263	1706.337	478.8062	55.6395

Sources, Own computation,2019

RGDP = Real Gross domestic product
INSINVGS = Insurance industry investment in government securities
INSNSINVSB = Insurance industry investment in stocks and bonds
INSINVRE = Insurance industry investment in real estate
INSINVBE = Insurance industry investment in bills of exchange

Table 4.3. Log Transformed Exact Data Showing the True Value of the Variables in Naira Eqiuvalent Representing the Real Sector, (Rgdp) and Insurance Investment Represented by (Insinvgs, Insinvsb, Insinvre, Insinvbe)

	LNRGDP	LNINSINVGS	LNINSINVSB	LNINSINVRE	LNINSINVBE
1996	5.9343	2.7383	3.7007	3.2281	0.1764
1997	6.0189	3.0017	3.7123	3.2897	0.4957
1998	6.1288	3.7247	3.5923	0.7511	3.5179
1999	6.2742	3.3969	3.7314	1.2019	4.0571
2000	6.5363	3.5720	3.9105	1.0379	4.2907
2001	6.7012	3.6487	4.2174	1.2790	4.6228
2002	7.0328	3.6248	4.4249	2.2620	4.7775
2003	7.1930	3.8042	4.7440	4.9609	4.9352
2004	7.4571	3.7302	5.3019	5.3859	5.0929
2005	7.7084	3.7324	6.4265	5.8226	4.1433
2006	7.9607	3.8832	7.1050	6.1133	4.1436
2007	8.1015	5.3430	7.7087	6.1165	3.9641
2008	8.2727	5.3648	7.7282	6.1383	3.9859
2009	8.3958	5.3865	7.7500	6.1601	4.0077
2010	8.6054	5.4083	7.7718	6.1818	4.0294
2011	8.7479	5.4300	7.7935	6.2036	4.0512
2012	8.8778	4.5336	6.7832	5.4143	4.2223
2013	8.9883	4.6420	6.8448	5.4716	4.3532
2014	9.0942	4.6871	6.9109	5.5330	4.3955
2015	9.1500	4.8067	6.9824	5.6856	4.4196
2016	9.2261	4.8730	7.0595	5.8661	4.4189
2017	9.3388	4.9493	7.1423	6.0451	4.4091
2018	9.4553	5.0311	7.2333	6.1528	4.0487
2019	9.4553	5.2482	7.4421	6.1712	4.0188

SOURCES, FROM E-VIEW 10.0 OUTPUT, 2021.

Where

LNRGDP = Log Real Gross domestic product.
LNINSINVGS = Log Insurance industry investment in government securities.
LNINSNSINVSB = Log Insurance industry investment in stocks and bonds.
LNINSINVRE = Log Insurance industry investment in real estate.
LNINSINVBE = Log Insurance industry investment in bills of exchange.

Tests of Unit Root Using Augmented Dickey Fuller

In an attempt to confirm the order of integration of the series under study thereby confirming their suitability for a linear combination in the form of a model, the unit root test following the form specified as **augmented dickey fuller** was used. Table 4.4 below represents a summary of the unit root result that was stationary.

Table 4.4 Summary of Unit Roots Test Results

Variable	ADF STAT	Critical Values @ 5%	Probability Value	Inference
LNRGDP	-3.8701	-3.6328	0.0316	i(1) stationary
LNINSINVGS	-4.6425	-3.6328	0.0066	i(1) stationary
LNINSINVSB	-2.3769	-1.9572	0.0200	i(1) stationary
LNINSINVRE	-4.9238	-3.6908	0.0052	i(1) stationary
LNINSINVBE	-4.5061	-2.9980	0.0018	i(0) stationary

Source: Author's e-view 10 output with data in Appendix One.

From the result of Augmented dickey-fuller unit root test results as contained in table 4.2.1, LNRGDP is integrated at order 1(1) at trend and intercept, LNINSINVGS is integrated at order 1(1) at trend and intercept, LNINSINVSB is integrated at order 1(1) at none, LNINSINVRE is integrated at order (1) at trend and intercept, while LNINSINVBE is also integrated at order 1(0) at trend and intercept. Considering this combination of orders of integration, 1(1), 1(1), 1(1),1(0),1(0), the Ordinary Least Square Regression model was forgone in preference for the Autoregressive distributed Lag model which accommodates such stationary property combination. The sample size of the study is also good enough for the ARDL because its estimates remains robust and consistent in the face of not too large sample size, and finally very good for data characterized with structural brakes. All the variables used in this study were all log transformed so as to bring down the data size and maintain linearity.

Basic Descriptive Statistics/ Standard Tests for Normality

The statistical properties of the data sets are seen as vital determinants of their behaviors when used in econometric analyses. On the basis of this, the researcher presented in this section, the basic descriptive statistics called Normality test of the variables under study.

Table 4.5 Basic Descriptive Statistics/ Standard Tests for Normality

	LNRGDP	LNINSINVGS	LNINSINVSB	LNINSINVRE	LNINSINVBE
Mean	7.944008	4.356744	6.084165	4.686398	3.940794
Median	8.187155	4.587869	6.877922	5.609359	4.143464
Maximum	9.455344	5.430089	7.793564	6.203642	5.092957
Minimum	5.934664	2.738360	3.592691	0.751180	0.176471
Std. Dev.	1.204303	0.842855	1.605157	1.952864	1.162754
Skewness	-0.356088	-0.212526	-0.506075	-1.059304	-2.551562
Kurtosis	1.713420	1.739800	1.554392	3.460532	8.572397
Jarque-Bera	3.162483	2.768774	3.114232	4.779527	7.093484
Probability	0.009174	0.002967	0.000743	0.001651	0.000000
Sum	190.6562	104.5619	146.0200	112.4736	94.57905
Sum Sq. Dev.	33.35795	16.33931	59.26018	87.71460	31.09595
Observations	24	24	24	24	24

Source: Author's E-view 10 output

The table has to do with the measures of central tendency, spread and variations that was calculated on the various series of dataset used in the study. The mean of the distribution measures aggregating tendency of the data. From the table above, the mean of LNRGDP is 7.9, LNINSINVGS 4.3, LNINSINVSB 6.1, while that of LNREM and LNBE are4.7 and 3.9 respectively. Median measures the circulation or spreads of the variables in the distribution are LNRGDP is 8.1, LNINSINVGS 4.5, LNINSINVSB 6.8, while that of LNINSINVRE and LNINSINVBE are 5.6 and 4.1 respectively. The maximium of the distribution has to do with the measurement of variation tendency of the data. The minimum of LNRGDP is 9.4, LNINSINVGS 5.4, LNINSINVSB 7.7, while that of LNINSINVRE and LNINSINVBE are 6.2 and 5.1 respectively the minimum

of LNRGDP is 5.9, LNINSINVGS 2.7, LNINSINVSB 3.5, while that of LNINSINVRE and LNINSINVBE are 0.75 and 0.17 respectively From the table, all the variables are negatively skewed to the left evidencing the degree of their departure to the line of symmetry. The Kurtosis of the distribution on LNINSINVRGDP, LNINSINVGS, and LNINSINVSB are all less than 3 meaning that they are Leptokurtic and are not peaked, while that of LNINSINVREM and LNINSINVBE are more than 3 which is the sign of Mesokurtic. Jarque-Bera statistics is of particular interest which is a test for normality. The Jarque-Bera statistics shows all the variables, LNRGDP, LNINSINVGS, LNINSINVSB, LNINSINVRE, and LNINSINVBE are tending to 3 which are sign of Mesokurtic, meaning they are all normally distributed. It is also important to note that the probability values of the variables are all significant showing they are well distributed.

Table 4.6 Table Showing Cointegration and Error Correction

ARDL Error Correction Regression
Dependent Variable: D(LNRGDP)
Selected Model: ARDL (2, 0, 2, 2, 0)
Case 5: Unrestricted Constant and Unrestricted Trend
Date: 07/14/21   Time: 18:45
Sample: 1996 2019
Included observations: 22

ECM Regression
Case 5: Unrestricted Constant and Unrestricted Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.488700	0.228911	6.503399	0.0001
@TREND	0.009977	0.003614	2.760583	0.0201
D (LNRGDP (-1))	-0.495516	0.169067	-2.930883	0.0150
D (LNINSINVSB)	0.162686	0.037852	4.297935	0.0016
D (LNINSINVSB (-1))	-0.066226	0.031633	-2.093597	0.0627
D(LNINSINVRE)	0.008480	0.011641	0.728463	0.4830
D (LNINSINVRE (-1))	0.074414	0.013698	5.432679	0.0003
Coint Eq (-1) *	-0.177328	0.033027	-5.369225	0.0003

R-squared	0.867487	Mean dependent var		0.156198
Adjusted R-squared	0.801231	S.D. dependent var		0.078236
S.E. of regression	0.034880	Akaike info criterion		-3.598496
Sum squared resid	0.017033	Schwarz criterion		-3.201754
Log likelihood	47.58346	Hannan-Quinn criter.		-3.505036
F-statistic	13.09287	Durbin-Watson stat		2.355454
Prob(F-statistic)	0.000036			

* p-value incompatible with t-Bounds distribution.

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	4.118368	10%	3.03	4.06
K	4	5%	3.47	4.57
		2.5%	3.89	5.07
		1%	4.4	5.72

t-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-5.369225	10%	-3.13	-4.04
		5%	-3.41	-4.36
		2.5%	-3.65	-4.62
		1%	-3.96	-4.96

Source: E-view 10.0

Discussions

From the table above, there is evidence of cointegration, when the coefficient of the cointegration equation is negative showing it converges to long run equilibrium, hence the is error correction which will take 5 years,8 months and 8 day to correct the error and return the error to long run equilibrium.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CointEq(-1)*	-0.177328	0.033027	-5.369225	0.0003

5. Findings and Conclusion

Insurance investment in government security positively and non-significantly impact the real gross domestic product in Nigeria, 1996-2020.Insurance investment in stocks and bonds positively and non-significantly impact the real gross domestic product in Nigeria, 1996-2020. Insurance investment in bill of exchange positively and non-significantly impact the real gross domestic product in Nigeria, 1996-2020. Insurance investment in real estate and mortgage positively and non-significantly impact the real gross domestic product in Nigeria, 1996-2020.Insurance as a financial system is getting practically popular with economic development experts. Undoubtedly, Business of insurance in Nigeria strongly affects the countries financial development and play a significant role in the development of the financial system and economic growth. Hence, these variables are the insurance investment factors which insurance managers should strategically be conscious of whenever they are planning and forecasting future insurance business in Nigeria.

Recommendation

Government should endeavor to regulate the activities of insurance investment so that they can invest more on government securities. Financial development such as increase in insurance investment in stocks and bonds will be encouraged so as to increase the financial performance of insurance in Nigeria and enhance intermediation activities. Monetary authorities should endeavor to combat constructively the effect of inflation, regulate inflation rate so that private sectors will patronizes insurance sector policies effectively. In the form of bill of exchange whenever they are available as a means of project financing.

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