INSURANCE INVESTMENT PORTFOLIO AND ECONOMIC DEVELOPMENT IN NIGERIA: A CO-INTEGRATION ANALYSIS (1996 – 2013)

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Abstract
The study empirically investigated the pattern of flow between insurance investment portfolio and economic development in Nigeria; data was extracted from CBN statistical bulletin and World Bank record 2013, various econometric tools were used to performed the analysis; multiple regression analysis, unit root test, Engle – Granger co-integration and Granger Causality. The individual coefficient result of OLS revealed positive and significance relationship between bills of exchange, investment in stocks and bonds, while inverse and insignificance relationship was found between investment in Government securities; Granger causality result revealed that the pattern of relationship between insurance investment portfolio and economic development was demand following (Economic development → Insurance investment portfolio). It is therefore recommended that insurance sector awareness be increase and encourage in the country.

Keywords: Insurance investment portfolio, Granger causality, Engle-Granger co-integration.

Introduction

Insurance companies play intermediating role in accelerating economic development in Nigeria, through various insurance policies, they collect funds from the deficit unit and transfer them to the surplus unit in the economic; such surplus fund can also be invested in various financial securities and real estate projects in the country. Though the main objectives of insurance firms is to protect her clients from various insured risks and to pay necessary compensations to clients who suffer losses in accordance to the policy purchased by such clients; it is expected that funds generated from the sale of various policies are accumulated for investment purposes in the economy.

Economic development is the process in which the country's real national income increases over a long period of time, development 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, 2013). Generally, developing countries like Nigeria are mostly characterized by unemployment, little investment in economic and social overheads, poverty and overall low per capital income of the citizenry (Akpakpan et' al, 2010). Therefore, the ultimate objective of every government is to promote the development of the economy via investment in economic and social overheads, increase in SMEs, and improvement in domestic product per capital in the country.

Statement of problem

Investment by insurance companies in accelerating economic development has stimulated interest among few researchers, various empirical result shows that insurance portfolio investments contribute negatively to the growth of the economy, the pattern of relationship

between the duo is mostly demand following (Economic development → insurance portfolio investment); only few empirical studies such as: (Tamunonimim, Udak, 2014) revealed strong and positive significance relationship between insurance investments and economic development in Nigeria. The study will empirical determine the exact pattern of relationship between the insurance investment in accelerating economic development in Nigeria.

Research Questions

The relevance of insurance investments in the country will bring to the fore the following research questions:

- What is the exact pattern of relationship between investment in government securities and domestic product per capital?
- How does insurance investment in stock and bonds affect domestic product per capital?
- What is the underlining factors affecting the relationship between investment in real estate mortgage and domestic product per capital?
- What is the relationship between bills of exchange discounting and domestic product per capital?

Research Hypothesis

Ho: there is no positive and significance relationship between investments in government securities and domestic product per capital.

Ho: there is no relationship between investment in stock and bonds and domestic product per capital.

Ho: there is no significance relationship between investment in real estate mortgage and domestic product per capital.

Ho: there is no positive and significance relationship between bills of exchange discounting and domestic product per capital.

Research Objectives

- To empirically determine the exact pattern of relationship between investment in government securities and domestic product per capital.
- To investigate the relationship between investment in stock and bonds and domestic product per capital
- To examine the relationship between investment in real estate mortgage and domestic product per capital.
- To determine the relationship between bills of exchange discounting and domestic product per capital.

Theoretical and Empirical Review

The regulatory framework of insurance investments policies center on two broad models; the Prescriptive Model and the Prudent – Man Model. The prescriptive model is defined as a situation whereby the institutional investors' asset allocation decisions are influence by mandated investment pattern. The prudent –man model is the direct opposite of prescriptive

model, there are no mandated investment pattern, but the solvency related to eligible assets must be followed by admissibility limits.

The regulatory framework of insurance investments center on solvency regulations, valuation limit, minimum amount of fund to be invested in different categories, restriction on the maximum amount of investment in certain classes of assets.

The big push theory of economic development advocated by 'Professor Paul Rosenstein postulates that every economy requires high level of minimum investment to accelerate economic development.

Mojekwu et' al (2011) determine the impact of sector development and economic growth, granger causality test was used in the analysis, the result revealed strong and positive relationship between insurance companies' contributions and economic growth.

Similar study was also conducted by Anthony and Luke (2011), the findings revealed strong and positive relationship between insurance sector contribution and economic growth.

Uduak Ubom (2014) examine insurance investment portfolio and economic development in Nigeria, data was extracted from CBN statistical bulletin 2013; the period of review spanned between 1990 – 2012. The tools employed for the analysis were descriptive statistics, multiple regression analysis, unit root and granger causality test; the result revealed inverse relationship between insurance investment portfolio and economic growth, he therefore recommended that insurance firms should be given adequate attention in promoting economic growth.

Webb et' al (2002), Ward and Zurbruegg (2000), Kugler and Ofoghi (2005), used co-integration and granger causality test analysis to examine the relationship between insurance sector contribution and economic growth; the result revealed bi-directional relationship between insurance sector and economic growth.

Lim and Haberman (2003) used ordinary least square regression method on time series data, they determine the dynamic relationship between life insurance 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 savings deposits and price have positive and significance relationship with life insurance demand. The result is in consonance with the findings of Webb, Grace and Skipper (2002).

Haiss and Sumegi (2008) studied the relationship between insurance and economic growth, internal growth model with a modified cob – Douglas production, the tools used was ordinary least square and causality test on unequal cross country panel data for twenty nine European countries over the 1992 to 2004 periods. Economic growth was proxy by Gross domestic product; the result revealed positive and significance relationship between GDP and physical capital while negative relationship between human capital and GDP was found.

Nwinee Barisua and Torbira Lene (2012) studied insurance investment and economic growth in Nigeria, the econometric tools employed were ordinary least square, co-integration, variance decomposition and impulse response to analyze the time series data of 1980 to 2010; the result showed positive and significance long run relationship between GDP and insurance investment in Nigeria.

Insurance portfolio investment in Nigeria has stimulated much interest among researchers in recent time, many studies on the above subject have produced difference results relating to the significance of insurance investment in accelerating economic development in Nigeria, this study will attempt to simplify the contributions of insurance investment towards accelerating economic growth in Nigeria.

Methodology

Various econometric methods such as ordinary least squared, unit root, co-integration and granger causality will be employed to examine the significance relationship between insurance investment portfolio and economic development. Insurance investment portfolio is proxy by stock and bonds, government securities, real estate and mortgage and bills of exchange discounting while economic development is proxy by domestic product per capital.

Model Specification

The model to capture the relevant relationship is produced thus:

DPPC =F (SB, GS, RSM, and BEX) …….equation (1)

Recasting the model into econometric form, we thus produce it as follows:

$DPPC = \alpha_0 + \beta_1 sb + \beta_2 gs + \beta_3 rsm + \beta_4 bex + \mu_t$ ……equation (2)

Where:

DPPC= Domestic product per capital

α_0 = Constant

β = Coefficient or intercept

SB= Stock and Bonds

GS = Government Securities

RSM = Real Estate and Mortgage

BEX = Bills of exchange discounting

μ_t = Error Term

Apriori Expectation

It is expected that stock and bonds, bills of exchange discounting to be positive and significant to economic development at 90% confidence level, investment in government security will not only have inverse relationship but also insignificant while real estate and mortgage will be grossly insignificant to economic development.

$B>0$, $\beta_2<0$, $\beta_3<0$, $\beta_4>0$

Empirical Results and Discussion of Findings

The empirical results will show the pattern of relationship between our variables included in the model, we shall first start with ordinary least square regression analysis and then follow with unit root, co-integration and finally with granger causality.

Short run relationship

Here we employed ordinary least method to determine the short run relationship between the variables; the result is shown in table 4.1 below

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SB	0.065607	0.036487	1.798073	0.0996
GS	-0.333019	0.273175	-1.219072	0.2483
RSM	0.114383	0.078539	1.456386	0.1732
BEX	0.542548	0.106442	5.097131	0.0003
C	31919.08	826.5482	38.61732	0.0000

R^2 = 97.4%, Adjusted R^2 = 96.4%, Durbin Watson =1.97

The result of the OLS revealed that 96% variations in DPPC are caused by adjustments in the independent variables; it shows that our model is fit for the analysis. The Durbin –Watson Statistic which is approximately 2, by the rule of thumb, indicates that our model is absent of serial and auto correlation; to determine the individual relative statistics, bills of exchange, stock and bonds are positive and significance to economic development at 10% level of significance while government securities, real estate and mortgage shows negative, positive and insignificance relationship with economic development.

Stationary Test

We employed Dickey Fuller statistic to determine the equilibrium relationship (stationary) between the variables; the output is shown in table 4.2 below

Variables	ADF@10%	T-Sta	Differencing	Remark
DPPC	-2.875916	-2.728985	1(1)	stationary
SB	-1.775930	-1.604392	1(1)	stationary
GS	-3.386039	-1.604392	1(1)	stationary
RSM	-1.637222	-1.604392	1(1)	stationary
BEX	-3.475337	-1.604392	1(1)	stationary

The result revealed that our variables are stationary at first differencing at 10% significance level indicating equilibrium relationship and the absent of auto-correlation between the variables.

Co-integration Relationship

Here we employed both Engle-granger and Johanse techniques to determine the long run equilibrium relationship between our variables; the result is depicted in table 4.3 below

Dependent	tau-statistic	Prob.*	z-statistic	Prob.*
DPPC	-4.712983	0.1203	-16.76203	0.1983
SB	-5.142089	0.0704	-19.41687	0.0598
GS	-5.114375	0.0729	-19.48128	0.0574
RSM	-3.055994	0.6248	-20.63856	0.0082
BEX	-5.330582	0.0552	-19.92001	0.0438

The result of Engle-Granger Statistics shows four co-integration equations between the variables and a long run equilibrium relationship at 90% level of confidence.

Cause – effect relationship

We employed Granger causality method to examine the pattern of relationship between the variables; the result is shown in table 4.5 below

Null Hypothesis:	Obs	F-Statistic	Prob.
SB does not Granger Cause DPPC	15	3.91572	0.0713
DPPC does not Granger Cause SB		9.00243	0.0111
GS does not Granger Cause DPPC	15	4.36385	0.0587
DPPC does not Granger Cause GS		5.32203	0.0397
RSM does not Granger Cause DPPC	15	0.00224	0.9630
DPPC does not Granger Cause RSM		4.03640	0.0676
BEX does not Granger Cause DPPC	15	2.25478	0.1591
DPPC does not Granger Cause BEX		0.88273	0.3660
GS does not Granger Cause SB	15	47.2979	2.E-05
SB does not Granger Cause GS		48.1127	2.E-05
RSM does not Granger Cause SB	15	49.6224	1.E-05
SB does not Granger Cause RSM		4.80620	0.0488
BEX does not Granger Cause SB	15	0.54049	0.4764
SB does not Granger Cause BEX		0.76300	0.3995
RSM does not Granger Cause GS	15	12.5200	0.0041
GS does not Granger Cause RSM		1.62617	0.2264
BEX does not Granger Cause GS	15	0.15598	0.6998
GS does not Granger Cause BEX		0.29328	0.5980
BEX does not Granger Cause RSM	15	13.1869	0.0034
RSM does not Granger Cause BEX		2.21183	0.1628

The result revealed that economic development induces insurance investment in government securities, real estate and mortgage, stock and bonds, this type of relationship is term demand following (Economic development → insurance portfolio investments); though it expected that the relationship be bi-directional (Economic development ↔ insurance portfolio investments) as shown in the relationship between investment in government securities and economic development in Nigeria.

Conclusion and Recommendation

The relationship between insurance investment portfolios in Nigeria has been of considerable interest to the public and researchers in different sectors of the economy; however, the results of the analysis revealed positive relationship between bill of exchange, stock and bond with economic development, there are also long run equilibrium relationship between the variables.

Though, the finding revealed that economic development stimulates investments by insurance companies which by expectation should have been the reverse; it is therefore recommended that government should increase insurance business awareness, enacting rules to promote confidence in insurance sector will also assist the insurance business in Nigeria.

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