

## STOCK MARKET PERFORMANCE AND INSURANCE SECTOR DEVELOPMENT IN NIGERIA

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### Abstract

*This research sets out to determine the relationship between Nigeria's insurance sector's development and stock market performance. The study, which used annual datasets retrieved from the National Insurance Commission (NAICOM) and Central Bank of Nigeria Annual Statistical Bulletins, covered the years 1981 to 2022. The dependent variable is Insurance Sector Development (proxied by Insurance Penetration rate), while the explanatory variables include All share index, Market turnover, value of transactions, and total yearly market capitalization on the Nigerian Stock Exchange. Additionally, the Dynamic Ordinary Least Squares (DOLS) methodology was used as the analytical tool to achieve the particular goals of this work. The coefficient representing the impact of market capitalization on insurance sector development in Nigeria is positive and at the 1% level, statistically significant, yet the coefficient representing the impact of all-share index on insurance sector development in Nigeria is negative and statistically significant at 1% level. Similarly, the coefficient representing the impact of total value of transactions on insurance sector development in Nigeria is negative and statistically insignificant even at 10% level, while the coefficient representing the impact of market turnover on insurance sector development in Nigeria is significant at the 1% level and negative statistically. Originating from the study's key empirical findings, this research thus recommends that policymakers, portfolio managers, and regulatory institutions provide sufficient precautions that mitigate the unfounded effect caused by adverse shocks emanating in the Nigerian stock market, particularly in the area of making prudent financial choices, there must be a quick and sufficient flow of information to both risk-taking and risk-averse stock market stakeholders, as this will help boost the country's insurance sector's development.*

**Keywords:** Market Performance, Market capitalization, Portfolio Managers, Insurance sector.

### 1. Introduction

Economies all over the world thrive more where there are proper risk management mechanisms in place. The financial market, which includes the stock market and

insurance sector, contributes significantly to the growth of any nation's economy (Omotor, 2011). The financial system is intertwined with all components playing intermediation role by feeding the deficit

unit of the economy from the surplus unit. Given that they facilitate the needs of businesses and individual households, insurance firms are comparable to banks and capital markets (Oke, 2012). A well-developed insurance sector, using metrics of total number of insurance companies, total insurance investment, premiums of both life and non-life insurance and insurance sector penetration rate do positively impact on the economy growth and stock market activities. Insurance companies' role as institutional investors in the stock market helps facilitate growth and development in that sector of the economy.

The stock market remains one of the gauges to show that nation's economy is functional and progressive. Though there are still a lot of debates if the stock exchange is a premium or discount to economic growth. Ezeibekwe (2021) posited that the economy of Nigeria is still in its early stages of development, making the stock market a crucial player in the country's economic expansion. This study aims to examine the impact of the insurance sector's penetration on important stock market performance indexes, such as market capitalization, all share index, transaction value, and market turnover.

Mass of prior studies (Eneisik, Ogbonnaya, & Onuoha, 2021; Enoruwa, Ezuem, & Nwani, 2019; Imade, 2021; Itiveh & Okolie, 2022; Kocha & Iwedi, 2023; Olarinre, Oladunmi, & Omobosola, 2023; Oluwaleye, Usman, & Adeipekun, 2023.) majorly concentrate on stock market development and economic growth in Nigeria, hence, the research focused on the performance of stock market and insurance

sector development in Nigeria and also introduced market turnover ratio as one of the measures of stock market performance. In the same vein, the study adopted dynamic ordinary least squares (DOLS) to analyze the relationship between stock market performance and insurance sector development in Nigeria.

The research is organized into five sections; an introduction and literature review are covered in sections one and two, methodology and findings are discussed in sections three and four, and a conclusion and recommendations are covered in section five.

## 2. Literature Review

**Insurance Sector Development.** It entails the growth, improvement and progression of the insurance industry. This development can encompass various aspects including regulatory frameworks, technological advancements, product innovation, market competition and entire industry efficiency. In this study, insurance penetration rate is the proxy of insurance sector development. The insurance penetration rate (IPR) is one of the commonly used metrics to gauge how well the insurance subsector is growing. Insurance penetration is a metric that quantifies the level of development of an insurance sector (ISD) and is determined by dividing (GPI) by GDP. Gross premium is total premium of an insurance contract before brokerage or discounts are deducted. The proportion of the volume of insurance premiums to GDP is what Ehiogu and Onyekachi (2018) define as the insurance penetration rate; which is the total non-life premium payment and life premium payment to gross domestic product. According to Houa and Cheng (2017), it is

one of the most significant measures of the nation's financial development. The degree of insurance penetration in the domestic sector reveals the relative size and importance of the domestic economy (Olayungbo & Akinlo, 2016).

### **Stock Market Performance**

A developed stock market is one that is sufficiently large and liquid, has a market capitalization that is not concentrated and is sufficiently correlated with the state of the real economy (El Wassal, 2013). There are diverse metrics to measure stock market performance, some commonly used ones are all share index, market capitalization, market turnover and the value of transaction.

### **Market Capitalization and All Share Index**

Morrel (2007) opines that the market share price per share is multiplied by the total number of outstanding shares to determine market capitalization. Changes in share price and number of shares issued cause market capitalization to fluctuate. Investors use a company's market capitalization to determine the value of its shares. Shares of international firms listed exclusively on stock markets, ordinary and preferred shares of domestic corporations, shares without voting rights, and shares of domestic market companies are all included in the market cap value, (Muchaonyerwa, 2011).

The All-Share Index is a set of statistical data that is calculated every year to track changes in the value of commodities and securities. The price of all or some market constituents is used to create the index, which is usually expressed proportionately

different from the baseline time. The performance of a financial market or economy can be determined via indices (Eneisik, Ogbonnaya, & Onuoha, 2021).

**Value of Transaction:** A transaction is valued when the entire number of securities exchanged on the stock market exchange is divided by the GDP. As a proportion of the country's output, it computes the organized trading of company shares and ought to exhibit economic liquidity. Popoola, Ejemeyovwi, Alege, Adu, and Ademola (2017), posited that the aggregate value of the transaction increases the market capitalization ratio.

**Market Turnover:** Guh-Deb and Mukherjee (2008) noted that market turnover is the total number of shares divided by the average number of shares available for sale. This statistic can also be used to gauge how liquid or active a stock market is. Investors in portfolios and other financial vehicles take into account how quickly and readily they can purchase and sell assets when the time comes to make an investment in the stock market.

## **2.2 Theoretical Review and Framework**

The theories related to this study are Arbitrage Pricing Theory (APT), Market Power Theory and Modern Portfolio Theory (MPT). This study is founded on Markowitz (1952) Modern Portfolio Theory. To maximize returns and reduce risks, the theory highlights the significance of diversification investments across diverse asset classes. In order to minimize risk and maximize returns from various investment possibilities, insurance companies frequently adopt this strategy of

investing in a diverse portfolio (Cumming & Weiss, 2009). The Modern Portfolio Theory (MPT) aims to maximize predicted portfolio returns while controlling portfolio risk.

### 2.3 Empirical Review

Andabai and Owei (2023) study insurance sector investment and capitalization of Nigerian exchange group and adopt stationarity test and ordinary least squares. The findings of the study revealed that the overall cost of insurance premiums significantly negatively affects capitalization of the Nigerian exchange group. Bayer et al., (2022) in their study using fifteen emerging countries within the period of 2004-2019 investigated pension funds, insurance companies and stock market development. The study adopted panel cointegration and causality test, the study revealed that stock market and insurance sector have significant impact in the short term and in the long run stock market and insurance sector in Chile, Indonesia, Korea Republic, Philippines, and South Africa have positive relationship. Anis (2021) assessed the impact of Egypt's capital market, insurance industry, and mortgage sector on economic growth using vector autoregressive model between 2005 - 2019. The outcome of the result revealed that the insurance sector measured by insurance premium has no significant impact on economic growth.

Okparaka (2018) on his study of the impact of insurance investment on Nigerian capital market used ordinary least squares regression method to operationalize the objectives of study. The study made use of

ex-post factor research design and the study revealed that insurance investments in stocks, bonds, and government assets have a favorable effect on overall market capitalization. Bassey (2018) used data covering 1981-2014 to assess performance of the Nigerian stock exchange and the insurance industry as evaluated empirically made use of multiple linear regression analysis. The study showed a significant positive. The connection between the investment made by insurance firms and the Nigerian stock exchange's all-share index.

### 3. Data and Methods

The *ex-post* facto research design was employed in this study, as it is appropriate for investigating an event that has already taken place. This decision is based on the intention of the researcher to observe the relationship between variables deductively, without manipulating them (Agbonifoh & Yomere, 1999).

The study focuses on the Insurance sector in Nigeria and examines how stock market performance indicators influence its development. The research sample is limited to specific variables, including market capitalization, all-share index, total value of transactions, market turnover and insurance penetration rate. The analysis covers the period from 1990 to 2022. The study utilized time series data, which will be entirely sourced from published materials such as the Central Bank of Nigeria (CBN) publications and the annual reports of the National Insurance Commission (NAICOM) for different years examined.

All share index	Weighted average market capitalization	Independent variable	Eneisik, Ogbonnaya and Onuoha (2021)
Total value traded	Total value of shares traded on the NGX as stated in its annual report	Independent	Raymond (2014)
Market turnover	Total number of shares divided by the average number of shares available for sale.	Independent Variable	Guh-Deb and Mukherjee (2008).

*Source: Authors' compilation (2023)*

### 3.3 Method of Data Analysis

This study employed the dynamic ordinary least squares (DOLS) econometric technique to analyze the empirical model and investigate the impact of stock market performance on the development of the insurance sector in Nigeria. Time series analysis was conducted to check for any stationarity issues using the unit root test.

## 4. Discussion of Findings

### 4.1 Testing for Stationarity

Granger and Newbold (1974) found that the majority of time series variables trend non-stationarily at their level distribution. Similarly, the parameter estimates derived when such non-stationary variables are used to estimate the behavior of a different variable (dependent variable) in a regression model are incorrect, indicating that they are inappropriate for policy analysis and support. In recognition of this, the Augmented Dickey-Fuller (ADF) unit root tests were used in this study's stationarity tests. The results are presented in Table 4.1.

The primary objective of the stationarity test is to determine whether All share index, Insurance Penetration (IPR) (%),

Total Annual Market Capitalization on The Nigerian Stock Exchange (₦' Billion), Market turnover, and Value of transactions are stationary at levels or at differences. Because the absolute values of both ADF tests were larger than the critical values, the findings from both ADF unit root tests in Table 4.1 jointly reject the null hypothesis of unit root for all variables at their initial difference.

Table 4.1's findings, which are supported by the results of the Augmented Dickey Fuller tests at first difference, show that all the variables under study are stationary at a 1% significance level, suggesting that the null hypothesis that the series is not stationary may be rejected. A common unit root process (same order/first difference integration) is evident in the All Share Index, Insurance Penetration (IPR) (%), Total Annual Market Capitalization on The Nigerian Stock Exchange, Market Turnover, and Value of Transactions across the evaluation period.

This in turn raises the question of whether the estimating method known as Dynamics Ordinary Least Squares (DOLS) is applicable. According to the findings of the stationarity test, all the series were

**Model Specification**

This study makes modifications to the model used by Olokoyo, Oyakhilome, Abiola, and Chika (2021) as stated below:

$$BPV_t = f(MV_t) \dots \dots \dots (3.1)$$

Where:

*BPV* is a vector of *LQR*, *ROA* and *CAD*

*MV* is a vector of *GDPG*, *INF*, *FKF*, *INT*, *EXR* and *TRD*

The above model is modified by incorporating insurance penetration rate as a function of stock market performance indicators. Therefore, the model as modified is stated in its functional form below;

$$IPR = f(MCAP, ASI, VAT, MKTT) \dots \dots \dots (3.2)$$

The function above is expressed in the econometric form below;

$$IPR_t = \beta_0 + \beta_1 MCAP_t + \beta_2 ASI_t + \beta_3 VAT_t + \beta_4 MKTT_t + \epsilon_t \dots \dots \dots (3.3)$$

Where;

*IPR<sub>t</sub>* = Insurance Penetration Rate at time *t*

*MCAP<sub>t</sub>* = Market capitalization at time *t*

*ASIt* = All share index at time *t*

*VAT<sub>t</sub>* = Value of transactions at time *t*

*MKTT<sub>t</sub>* = Market turnover at time *t*

0, 1, 2, 3 and 4 are Parameters

$\epsilon_t$  = Error term

The *a priori* expectation is,

$0 > \beta_0, \beta_1 - \beta_4 > 0$

This implies that a positive relationship is expected between the independent variables (market capitalization, All Share Index, Total value traded and Market Turnover) and the dependent variable (Insurance sector development).

**Measurement and Operationalization of Variables**

**Table 3.1: Operationalization and Measurement of Variables**

Variables	Measurement	Variable Type	Source
Insurance Sector Development	Insurance penetration rate which is calculated by (Total Insurance Premiums / GDP) x 100.	Dependent variable	Ehiogu and Onyekachi (2018)
Market capitalization	Number of Outstanding Shares * Shares at Current Market Price	Independent variable	Morrel (2007)

discovered to be stationary, but not at levels but rather at the first difference I(1). It is evident that all the variables oscillate

around a long-run mean that is roughly zero. The results of the stationarity tests are shown in Table 4.1 Below.

**Table 4.1: Augmented Dickey-Fuller Stationarity Tests Results**

Variables	Test statistic	Critical values			Remarks
		1%	5%	10%	
<b>Panel A. Augmented Dickey Fuller Tests Results at Levels</b>					
ASI	-1.45	-3.62	-2.94	-2.61	Non-stationary
IPR	3.27	-3.60	-2.94	-2.61	Non-stationary
MCAP	3.34	-3.60	-2.94	-2.61	Non-stationary
MKTT	-2.37	-3.60	-2.94	-2.61	Non-stationary
VAT	-2.18	-3.60	-2.94	-2.61	Non-stationary
<b>Panel B. Augmented Dickey Fuller Tests Results at First Difference</b>					
ASI	-6.50	-3.62	-2.94	-2.61	Stationary
IPR	-4.28	-3.61	-2.94	-2.61	Stationary
MCAP	-4.74	-3.61	-2.94	-2.61	Stationary
MKTT	-6.79	-3.61	-2.94	-2.61	Stationary
VAT	-7.70	-3.61	-2.94	-2.61	Stationary

NB: \*\*Significant at 5%, and \*\*\*Significant at 1%.

Source: Authors' Computation (2023) Using E-views 12

**4.2 Cointegration Test: Eagle-Granger and Philip-Ouliaris Approach**

Essentially, cointegration test is used to test for if there is a long-term relationship between the variables in a regression model or not. This study thus employed the single equation method developed in the works of Phillips and Ouliaris (1990) and Engle and Granger (1987), there is a lack of cointegration in all linear combinations.

Engle-Granger (1987) takes into account serial correlations using the parametric ADF methodology, whereas Phillips and Ouliaris (1990) use the nonparametric PP methodology. The Engle-Granger and Phillips-Ouliaris tau-statistics (t-statistics) as well as the normalised coefficient of

autocorrelation (z-statistics) verify the null hypothesis of no cointegration based on the data in Table 4.2. More precisely, neither the tau-statistic nor the z-statistic from either test technique indicated the existence of cointegration at the 5% significance level among the model variables.

The Engle-Granger and Phillips and Ouliaris z-statistics and the Phillips and Ouliaris z-statistic both failed to reject the null hypothesis of no cointegration, as shown in Table 4.2. Because the matching probability values are greater than the 0.05 (5%) level, there is no statistical support for a long-term relationship between the variables in the insurance industry growth model. These results show that there is no

stable long-term relationship among the variables taken into account in the insurance sector growth model, in line with the earlier proposal of Pesaran (1997). The

outcomes of cointegration tests conducted utilizing the Engle-Granger (1987) and Phillips and Ouliaris (1990) techniques are displayed in Table 4.2.

**Table 4.2: Cointegration Test Result: Eagle-Granger and Philip-Ouliaris Approach**

Series: ASI IPR MCAP MKTT VAT

Included observations: 39 after adjustments

Null hypothesis: Series are not cointegrated

		<b>Eagle-Granger approach</b>			
Dependent		tau-statistic	Prob.*	z-statistic	Prob.*
ASI		-5.05	0.03**	-30.94	0.03**
IPR		-2.15	0.92	3.03	1.00
MCAP		-0.59	1.00	-5.01	0.99
MKTT		-3.72	0.30	73.82	1.00
VAT		-3.54	0.38	6.21	1.00
		<b>Philip-Ouliaris Approach</b>			
Dependent		tau-statistic	Prob.*	z-statistic	Prob.*
ASI		-5.10	0.03**	-30.16	0.03**
IPR		-3.43	0.41	-22.78	0.19
MCAP		-4.17	0.15	-23.64	0.16
MKTT		-4.70	0.06*	-27.10	0.07*
VAT		-4.72	0.06*	-27.64	0.06*

NB: \*\*Significant at 5%, and \*\*\*Significant at 1%.

Source: Authors' Computation (2023) Using E-views 12

**4.3 Interpretation of the Dynamic Ordinary Least Squares (DOLS) Estimates**

As previously stated, the main goal of this research (to empirically ascertain the linkage between stock market performance and insurance sector development in Nigeria) was carried out using the Dynamic Ordinary Least Squares (DOLS) method, and the results from the estimations are presented in Table 4.3.



**Table 4.3: Dynamic Least Squares (DOLS) Estimation Results**

Dependent Variable: IPR

Method: Dynamic Least Squares (DOLS)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.16	4.86	2.30	0.03**
LNASI	-3.01	0.96	-3.14	0.01***
LNMCAP	3.09	1.15	2.69	0.01***
MKTT	-0.72	0.16	-4.55	0.00***
LNVAT	-0.45	0.90	-0.50	0.63
R-squared	0.71	Mean dependent var		1.73
Adjusted R-squared	0.46	S.D. dependent var		6.25
S.E. of regression	4.57	Sum squared resid		396.63
Long-run variance	3.23			

NB: \*Significant at 10%, \*\*Significant at 5%, and \*\*\*Significant at 1%.

Source: Authors' Computation (2023) Using E-views 12

From the results presented in Table 4.3, the coefficient representing the impact of market capitalization on insurance sector development in Nigeria was positive ( $\beta_1=3.09$ ) and statistically significant at 1% level (prob.=0.01). Specifically, the result denotes that when there is a 1% rise in the level of market capitalization, *ceteris paribus*, there will be a corresponding increase in the level of insurance sector development in Nigeria by about 3.09%. This result validates apriori expectation.

From the results presented in Table 4.3 also, the coefficient representing the impact of all-share index on insurance sector development in Nigeria was

negative ( $\beta_2=-3.01$ ) and statistically significant at 1% level (prob.=0.01). Specifically, the result denotes that when there is a 1% rise in the level of all-share index, *ceteris paribus*, there will be a corresponding decrease in the level of insurance sector development in Nigeria by about 3.01%. This result however invalidates apriori expectation.

From the results presented in Table 4.3 also, the coefficient representing the impact of total value of transactions on insurance sector development in Nigeria was negative ( $\beta_3=-0.45$ ) and statistically insignificant even at 10% level (prob.>0.10). Specifically, the result

signifies that when there is a 1% rise in the level of total value of transactions, *ceteris paribus*, there will be a corresponding decrease in the level of insurance sector development in Nigeria by about 0.45%. This result though, invalidates a prior expectation.

From the results presented in Table 4.3 also, the coefficient representing the impact of market turnover on insurance sector development in Nigeria was negative ( $\beta_4 = -0.72$ ) and statistically significant at 1% level (prob. < 0.01). Explicitly, the result denotes that when there is a 1% rise in the level of market turnover, *ceteris paribus*, there will be a corresponding decrease in the level of insurance sector development in Nigeria by about 0.72%. This result however invalidates a priori expectation.

## 5. Conclusion And Recommendation

### 5.1 Conclusion

Specifically, the various findings of this study have further revealed the fact that the stock market serves as a critical component of the financial market, and its performance can have a substantial impact on other financial sectors, including the insurance industry as earlier established in the study of Alhassan and Biekpe (2016), while the insurance sector, in turn, contributes to economic growth and financial stability by providing risk management services and mobilizing long-term savings for both individuals and firms in an economy as earlier validated by Adams (2010).

While the study has clearly showed that the development of the insurance sector is crucial to the overall stability and growth

of an economy, the Nigerian insurance industry has faced numerous challenges, including low penetration rate as averred by Adegbite, Aremu, and Adelowokan (2018). Consequently, this study has further established that the various factors that drive the growth and development of the insurance sector in Nigeria include All share index, Total Annual Market Capitalization on The Nigerian Stock Exchange, and Market turnover, while Value of transactions was statistically insignificant in the assessment period.

While it has been theoretically established that a rising all share index signifies improved market conditions, which can enhance investor confidence and attract more investment in the insurance sector (Omotor, 2011), the finding of this study has established otherwise. Thus, even though the all share index has shown a positive trend over the years (Olagunju & Awe, 2012), which could be an essential factor influencing the development of the insurance sector, the influence was found to be negative between 1981 and 2022, as revealed in this study.

Similarly, Total value of transactions, a measure of stock market liquidity, has been proven to also affect the insurance sector's growth. While a high total value of transactions indicates increased market liquidity, which can promote the insurance sector's development by providing more investment opportunities (Asante et al., 2011), a negative and statistically insignificant result was however established in the context of this investigation. This is contrary to the belief that a higher total value of transactions indicates increased liquidity in the market,

which could impact the insurance sector by providing insurance companies with better access to capital and improved ability to meet their financial obligations (Alhassan & Biekpe, 2016).

In addition, Market turnover, another indicator of stock market liquidity, has been proven to be an essential factor affecting the insurance sector's growth. Even though a high market turnover suggests that investors can easily buy and sell securities, which can lead to increased investment in the insurance sector (Alhassan & Biekpe, 2016), a negative result was however established in the context of this investigation, thus negating theoretical apriori expectation. For instance, this result contradicts the notion that high market turnover suggests that investors are actively trading stocks, which may lead to increased investment in insurance companies and contribute to the development of the insurance sector (Adeusi et al., 2017).

## 5.2 Recommendations

These suggestions for policy evaluation are made in light of the study's major findings from empirical research and the results stated previously;

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- 1) This research thus recommends that policymakers, portfolio managers, and regulatory institutions provide sufficient precautions that mitigate the unfounded effect caused by adverse shocks emanating in the Nigerian stock market, particularly in the area of rapid and adequate information transmission.
- 2) This research also suggests that greater consideration should be given to stock price movements since they impact the generation of information for returns and are significant because they provide insight into issues of volatility in stock market behaviour, which can affect insurance market performance.
- 3) Furthermore, for stock market stakeholders who are both risk takers and risk averse, policymakers, investment professionals, and government agencies must put in place adequate safeguards in order to reduce the exaggerated impact of negative shocks caused by significant occurrences such as the financial crisis and public health concerns.

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