EFFECT OF EXCHANGE RATE VOLATILITY ON THE PERFOEMANCE OF INSURANCE SECTOR IN NIGERIA

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ABSTRACT

The research work investigated the effect of exchange rate volatility on the performance of insurance sector in Nigeria for the period of 32 years which is between 1988 and 2019. Secondary data on insurance output to gross domestic product, exchange rate and interest rate which were gathered from Central Bank of Nigeria (CBN) Statistical Bulletin and NAICOM Bulletin 2019. Econometric Measure (E-views) version 9.0 was used to analyse the data. The researcher relies on Ordinary Least Square Estimator (OLS), in evaluating the relationship and impact between the selected variables. The analysis of the ADF and PP unit root tests showed that none of the variables were stationary at level and at first differences; cointegration relationship between exchange rate volatility measures and insurance sector performance measures was confirmed; there is existence of a long-run relationship between variables; there is no granger causality or bi-directional relationship between the variables and vice-versa. The study concluded that exchange rate has a positive and significant relationship with insurance sector in Nigeria. The study therefore recommends that there is need for a defined exchange rate regime and a unified exchange rate within the Nigerian financial system so that the abnormal gains from currency variations (high or low) can be addressed which will directly and positively affect insurance sector.

Keywords: *Exchange Rate. Interest Rate, Insurance Sector, Gross Domestic Product.*

INTRODUCTION

Insurance sector in Nigeria has undergone various developmental reforms and changes in globalization in financial services geared towards market penetration, coverage density, efficiency and performance of the insurance industry (Gupta, Lahiani, Lee and Lee, 2019). Whilst this, the exposure of the insurance sector to movements in exchange rate do not clearly reveal a defined impact on its performance given that the

unpredictable variations in exchange rate would possibly increase both operational and performance uncertainties. These movements in exchange rate are transmitted to domestic prices through imports, exports and domestic good prices in foreign currency, and the lagged association between exchange rate movements and economic performance are due largely to mispricing. In this regard, several authors are of the view that variations in exchange rate would negatively impact the financial performance of firms. The association linking volatility in exchange rate and the performance of the insurance sector is established on the premise that financial development enhances improvement in savings and investment efficiency which drives economic activities toward growth and development (Balcilar, Gupta, Lee, &Olasehinde-Williams, 2018; Balcilar, Olasehinde-Williams, &Shahbaz, 2019; Balcilar, Gupta, Lee, &Olasehinde-Williams, 2020; Kemuma, 2015).Insurance is one of the cornerstones of modern-day financial services sector. In addition to its traditional role of risk transfer, insurance also market activity, as a driver of positive economic growth and as an intermediary. The sector promote development by allowing different risks to be managed more efficiently, promoting long term savings and encouraging the accumulation of capital, serving as a conduit pipe to channeling funds from policy holders to investment opportunities, thereby mobilizing domestic savings into productive investment. Raji (2018) define insurance as a contract that exist between two parties called insured or policyholder who pays a certain sum of money called premium in other to secure risk on his life and property to an insurer who indemnifies the latter whenever loss materializes.

Akpan, and Atan, (2012) was of the opinion that the worldwide financial development offers more opportunities to countries but it also comes with constraints on all economic decisions such as exchange rate, monetary or fiscal policies. Financial conditions affect the impact of nominal exchange rate fluctuations on growth stability mainly through balance sheets effects and impacts on foreign currency-denominated debt in developing and emerging countries The exchange rate fluctuation adversely has effect on the output of insurance product particularly in the developing country, where there is economic exigency and materialistic persuade, the total premium in such country may have low turnover compare to advance country. The net impact of exchange rate fluctuations will depend on the relative importance of competitiveness changes and costs from balance sheets effects. Financial markets

development affects economic performances through efficiency in the allocation of productive resources and adjustment to shocks and may result in a more stable or unstable growth (Dornbusch and Giovannini, 1990). The volatility of exchange rate impacted positively on both the banking and other financial institution on economic performance as the case may be. Looking into several literatures, the banking sector has always been in the front burner when it comes to investigation on exchange rate volatility, this and the conflicting results on exchange volatility raised the curiosity of the researcher to investigate on how exchange rate would affect other non- banking financial institution like the insurance sector, given its traditional and non-traditional activities in an economy.

The fluctuations in exchange rate can be a major cause of risk that many institutions faced mostly insurance sector as part of financial institution; these fluctuations in exchange rate serve as setbacks and reduce the positive economic contribution required by the insurance sector. sequentially have effect on those whose securities are traded on the money market and also engage in foreign transactions as this would possibly expose them to the risk of currency variations. To the insurance sector, the adverse volatility in exchange rates may lead to losses or reduce investment, low rate of insuring public, decline in premium collection and reduced earnings. Like the banking sector and the financial markets, the insurance sub-sector occupies an important position in allocating financial resources from the surplus to the deficit economic units for investment purposes. As a financial intermediary, insurance industry provides risk management services through which funds are mobilized and made available to other economic agents for investment purposes. Insurance sector is faced with uncertainty induced by exchange rate volatility due to the inability to predict the rate of exchange with certainty. The risk and decision to invest in the face of a volatile exchange rate may greatly impact insurance sector performance (Akinlo &Apanisile, 2014; Alhassan &Fiador, 2014; Olayungbo &Akinlo, 2016). Prior to these problems, the study aimed at evaluating the effect of exchange rate volatility on the performance of insurance sector in Nigeria for the period of 32 years which is between 1988 and 2019.

LITERATURE REVIEW

Exchange Rate

Exchange rate is the price of the currency of one country expressed in terms of the currency of another. For example, the Nigeria Naira has exchange rate against the U.S. dollar and many other currencies (Mbutor, 2010). It may be expressed as nominal exchange rate or real exchange rate. The nominal exchange rate is a monetary concept which measures the relative price of two moneys e.g. Naira in relation to dollar (N/$), while the real exchange rate is a real concept that measures the relative price or value of different countries products. An exchange rate system can also be fixed or allowed to fluctuate. A fixed exchange rate is a system in which a country's exchange rate remains constant or stays within some small margin of fluctuation around a constant par value. On the other hand, the floating exchange rate (which is our concern in this study) is an exchange rate system with no government or central bank action to keep it stable (Lambe, 2015).

Interest Rate

Interest rate is the amount of interest due per period, as a proportion of the amount lent, deposited or borrowed (called the principal sum). The total interest on an amount lent or borrowed depends on the principal sum, the interest rate, the compounding frequency, and the length of time over which it is lent, deposited or borrowed. It is defined as the proportion of an amount loaned which a lender charges as interest to the borrower, normally expressed as an annual percentage. It is the rate a bank or other lender charges to borrow its money, or the rate a bank pays its savers for keeping money in an account. For example, if interest rate a company borrows capital from a bank to buy assets for its business. In return, the bank charges the company interest. (The lender might also require rights over the new assets as collateral.). The following are the factors Influencing Interest rates

   i. The government's directives to the central bank to accomplish the government's goals
   ii. The currency of the principal sum lent or borrowed
  iii. The term to maturity of the investment
  iv. The perceived default probability of the borrower
   v. Supply and demand in the market as well as other factors.

Insurance Sector

Insurance is a complicated issue which involve economic and social device for the handling of risks to life and property. He explains that It is social in nature because it represents the cooperation of various individuals for mutual benefits by combining together to reduce the consequence of similar risks. As every new area of risks and since with every passing day a new insurance package is amounted to take care of more and more areas of risks, the insurance booms. Akinlo and Apanisile, (2014) defined insurance as a legal contract, a legal contract which is an agreement between two or more parties who are legally bound to fulfill a promise or a number of promises contained in the contract deed. He further posited that insurance can be classified as a contract made by a company or society, or by the state, to provide a guarantee of compensation for loss, damage, illness, death and so on in return for regular payment. But Alhassan and Fiador, (2014) defined insurance as the business of pooling resources together to pay compensation to the insured or assured (i.e. the policy holder) on the happening of a specified event in return for a periodic consideration known as premium.

The insurance sector is made up of companies that offer risk management in the form of insurance contracts. The basic concept of insurance is that one party, the insurer, will guarantee payment for an uncertain future event. Meanwhile, another party, the insured or the policyholder, pays a smaller premium to the insurer in exchange for that protection on that uncertain future occurrence. As an industry, insurance is regarded as a slow-growing, safe sector for investors. This perception is not as strong as it was in the 1970s and 1980s, but it is still generally true when compared to other financial sectors.

Insurance Sector and Nigeria Economy

The Nigerian Insurance sector is critical to propelling income equality and reducing the poverty level of any society, but the industry's performance has continued to drag amid many factors, such as; low underwriting capacity of players, lack of trust by consumers, poverty and the inadequacy of distribution infrastructure. These factors have jointly contributed to the abysmal level of insurance penetration - the proportion of insurance business to the gross domestic product over the years. The Nigerian Insurance sector remains largely underdeveloped with Insurance penetration still at *c.0.5%* to GDP. The sector which contracted by 18.67% y/y in the Q3 GDP report released by the National Bureau of

Statistics (NBS) is set for a deep recession in 2020. The Covid-19 pandemic effect has increased health, travel, and business disruption claims. These claims, coupled with underwriters' inability to write risks in Q2 and the tapered household income should amplify the sector's expected recession. In a bid to rid the sector of these known drags, the National Insurance Commission (NAICOM), the primary regulator in the industry, launched its recapitalization exercise in May 2019. The plan's proponents intend to improve the industry's minimum paid-up capital in each business segment, thereby solving premium flight issues that have continued to plague the industry. Following the lingering impact of coronavirus, the deadline was adjusted from June 2020 to December 2020 to implement Phase I of the project while the deadline for the second phase's performance was moved to September 2021.

Review of Related Theories
Purchasing Power Parity Theory
Cassel proposed the Purchasing Power of Parity (PPP) theory in the year 1921which states that in an ideal efficient market, identical goods should have one price. That is to say, that a bundle of goods in one country should cost the same in another country after exchange rates are taken into account. The foreign exchange market is considered to be in equilibrium when the deposits of all the currencies provide equal rate of return that was expected. The PPP theorem propounds that under a floating exchange regime, a relative change in purchasing power parity for any pair of currency calculated as a price ratio of traded goods would tend to be approximated by a change in the equilibrium rate of exchange between these two currencies. This means that, when exchange rates are of a fluctuating nature, the rate of exchange between two currencies in the long run will be fixed by their respective purchasing powers in their own nations (Cassel, 1924).

Balance of Payment Theory of Exchange Rates
The balance of payments theory of exchange rate also known as "The Demand and Supply Theory of Exchange Rate "holds that the price of foreign money in terms of domestic money is determined by the free forces of demand and supply on the foreign exchange market. According to the theory, a deficit in the balance of payments leads to fall or devaluation in the rate of exchange, while a surplus in the balance of payments strengthens the foreign exchange reserves, causing an appreciation in the price of domestic currency in terms of foreign

currency. The balance of payments theory simply embraces that the exchange rates are determined by the balance of payments, implying demand and supply positions of foreign exchange in the country concerned.

Brief Empirical Review
Amenawo, Godwin, Glory, Rebecca, Peter, &Alphonsus, (2020)examined exchange rate volatility and how it affects the banking sector has been studied by several authors with little or no consideration of its effects on the performance of the insurance industry in Nigeria. This study applied the vector error correction model to analyze the long-run effects of exchange rate volatility on insurance performance using insurance penetration and insurance density as measures of insurance performance in Nigeria. The period covered by this study is from 1986 to 2018. Findings showed the presence of a significant and positive long-run impact of exchange rate volatility on insurance performance in Nigeria.

Methodology
This study investigated the impact of exchange rate volatility on the performance of insurance products in Nigeria between 1988 and 2019. The study used secondary data on insurance output to gross domestic product, exchange rate and interest rate which were gathered from Central Bank of Nigeria (CBN) Statistical Bulletin and NAICOM Bulletin 2019.

Method of Data Analysis
Data Analysis is the task of methodical using arithmetical and rational methods to define, demonstrate, condense, review and assess data. The study made use of Econometric Measure (E-views) version 9.0 to analyse the data. The researcher relies on Ordinary Least Square Estimator (OLS), in evaluating the relationship and impact between the selected variables.

Model Specification
The functional relationship between the dependent variable and the explanatory variables were expressed in the following model which is an adaptation of a model that has been widely used in previous studies which is

INSGDP = f(EXCH, INTR)

The above functional relationship is translated into an econometric equation as follows:

INSGDP = $\beta_0 + \beta_1$EXCH + β_2INTR + μ

Where:

INSGDP = Insurance Output to Gross Domestic Product

EXCH = Exchange Rate

INTR = Interest Rate

β_0 = intercept or constant

β_1 & β_2, = coefficients of the explanatory variables or factor sensitivities

A priori expectations: β_0, β_1 & β_2, $\neq 0$

μ = the error term

Methods of Data Analysis

The study employed descriptive statistics and multiple regression technique based on the E-views version 9.0 computer software as methods of data analysis for predicting the relationship between the dependent variable and the explanatory based on the model specified above. The multiple regression technique possesses the unique property of best linear unbiased estimator including efficiency and consistency when compared with other estimating techniques. The statistics tested for in the regression equation included the coefficient of determination (R^2), the probability of F-statistics, and the Durbin-Watson statistics. The coefficient of determination (R^2) measures the explanatory power of the predictive variables on the response variable. The probability of F-statistics test for the overall statistical significance of the regression model, which was used to generalize the hypotheses. While the Durbin-Watson statistics was used to test for autocorrelation in the regression equation. Also, heteroscedasticity, normality and serial autocorrelation test will be applied also.

Data Analysis and Interpretation
Table 1: Result of Unit Root Test

Series	ADF	Critical value	Order of Integration
INSGDP	-3.038866*	-2.963972*	I(1)
EXCH	-5.004534*	-2.963972*	I(1)
INTR	-3.016254*	-2.960411*	I(0)

Note: (*) indicates rejection of the null hypothesis of non-stationary at 5 percent significance level based on the MacKinnon critical values.

Source: Authors' Computation from E-View, 2021

The conduct of unit root test is essential to avoid spurious regression results (Gujarati, 2004). The order of integration can also be ascertained with this test using the Augmented Dickey-Fuller (ADF) statistics. The result of unit root test is presented in Table 1 above shows that insurance sector output to gross domestic product(INSGDP), exchange rate (EXCH) are both stationary at first difference while interest rate (INTR) is stationary at level. Therefore, it was concluded that all the variables were stationary and integrated of order zero and one.

Table 2: Breusch-Godfrey Serial Correlation LM Test:

F-statistic	37.31783	Prob. F(2,27)	0.0000
Obs*R-squared	23.49905	Prob. Chi-Square(2)	0.0000

Source: E-View Output, 2021

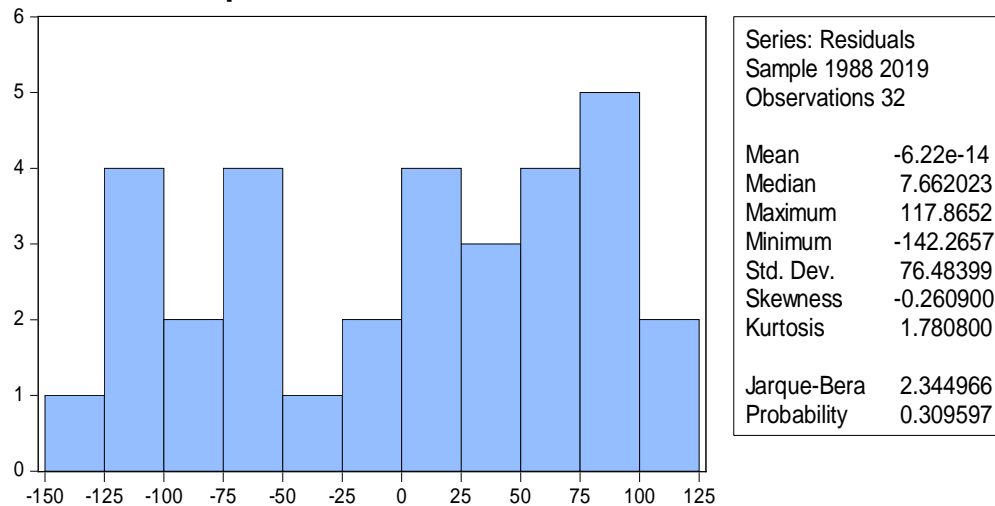**Table 3: Heteroskedasticity Test: Breusch-Pagan-Godfrey**

F-statistic	2.290441	Prob. F(3,28)	0.1000
Obs*R-squared	6.305536	Prob. Chi-Square(3)	0.0977
Scaled explained SS	2.021751	Prob. Chi-Square(3)	0.5679

Source: E-View Output, 2021

Table 2 above shows the Lagrange multiplier (LM) which reveals that there is serial correlation at the chosen lag because the p value is less than 5%. In addition, table 3 shows that the heteroskedasticity test with the chi-square distribution which is statistically insignificant means that we accept

null hypothesis which means that there is absence of heteroskedascticity among the model.

Table 4: Descriptive Result

Series: Residuals Sample 1988 2019 Observations 32	
Mean	-6.22e-14
Median	7.662023
Maximum	117.8652
Minimum	-142.2657
Std. Dev.	76.48399
Skewness	-0.260900
Kurtosis	1.780800
Jarque-Bera	2.344966
Probability	0.309597

Source: E-View Output, 2021

Table 4 above shows Jacque Bera Normality test which shows the probability value of 0.309597 which indicates that the variables are normally distributed and are good for decisions.

Table 5: Regression Analysis Result

Dependent Variable: INSGDP
Method: Least Squares
Date: 08/15/21   Time: 11:50
Sample: 1988 2019
Included observations: 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-17.55738	66.06903	-0.265743	0.7923
EXCHR	1.880180	0.172059	10.92751	0.0000
INTR	-3.956771	3.882111	-1.019232	0.3165

R-squared	0.833297	Mean dependent var		161.8556
Adjusted R-squared	0.821800	S.D. dependent var		187.3262
S.E. of regression	79.07740	Akaike info criterion		11.66779
Sum squared resid	181343.8	Schwarz criterion		11.80520
Log likelihood	-183.6847	Hannan-Quinn criter.		11.71334
F-statistic	72.48091	Durbin-Watson stat		0.278807
Prob(F-statistic)	0.000000			

Source: E-View Output, 2021

Goodness of Fit: The table 5 above shows R^2 value of 0.8332. This indicates that about 83% variation in insurance output to gross domestic product is explained by exchange rate and interest rate. The R^2 value also shows the strength of the model, the closer to one the better the result, (Tabachnick and Fidell, 2007). The adjusted R^2 shows that after adjusting for the degree of freedom, the model could explain about 82% of the systematic variation in insurance output to gross domestic product in Nigeria. In addition, the Durbin-Watson statistics (0.278807) which lies before 1.5 and 2.5 which shows that there is evidence of serial auto-correlation among error terms of variables considered for the study. The overall performance of the model is quite good because the p-value is 0.000 which indicates that the model is significant. This signifies that the model is adequate and fit.

T- Test: The result shows that only exchange rate has a significant impact on the insurance output to gross domestic product with the p value of 0.000. However, interest rate was found to be statistically insignificant which means that interest rate has no significant effect on the insurance output to gross domestic product.

Coefficient of the variables: The value of the constant which stood at -17.55738 means that holding every other variable constant, insurance output to gross domestic product will decrease by 17.56. Exchange rate with the coefficient of 1.880180 indicates that for every unit increase in exchange rate, there will always be 1.88 increase in insurance output to gross domestic product. Interest rate with the coefficient of -3.956771 means that for every unit increase in interest rate, insurance output to gross domestic product will decrease by 3.96. This equally means that exchange rate has a positive relationship with insurance output to gross domestic product while interest rate has a negative relationship with insurance output to gross domestic product.

Table 6: Unrestricted Cointegration Rank Test (Trace)

Date: 08/16/21   Time: 17:39
Sample (adjusted): 1990 2019
Included observations: 30 after adjustments
Trend assumption: Linear deterministic trend
Series: INSGDP EXCHR INTR
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.345277	23.63871	29.79707	0.2161
At most 1	0.197677	10.93243	15.49471	0.2157
At most 2 *	0.134259	4.325100	3.841466	0.0375

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: E-View Output, 2021

The trace likelihood ratio, the results point out that the null hypothesis of no co-integration among the variables is rejected in favor of the alternative hypothesis only at most 2, this is so because the co-integrating equations at 5% significant level, the values are below the critical values at 5% at most 2. However, we reject the null hypothesis in this model . This means there is long run relationship among variables, which implies that a unique long-run relationship does exist among the variables and can be combine in a linear fashion.

Table 7: Granger Causality Result

Pairwise Granger Causality Tests
Date: 08/16/21   Time: 17:40
Sample: 1988 2019
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
EXCHR does not Granger Cause INSGDP	30	1.63841	0.2145
INSGDP does not Granger Cause EXCHR		2.32771	0.1183
INTR does not Granger Cause INSGDP	30	1.23090	0.3091
INSGDP does not Granger Cause INTR		0.44329	0.6469
INTR does not Granger Cause EXCHR	30	1.65174	0.2120
EXCHR does not Granger Cause INTR		0.52798	0.5962

Source: E-View Output, 2021
The Granger table above indicates that all the variables does not granger cause each other, which means that there is uni-directional relationship between the variables and vice versa as there p value is greater than 5% level of significance. Then there is no granger causality or bi-directional relationship between the variables and vice-versa as there P-value is more than 5% level of significance.

Discussion of Result

In the above results, the unit root test indicates that all data were subjected to unit root test, which later revealed that all the variables are good to be used as they are stationary at order of I(0) and I(1). Also, In order to avoid spurious regression analysis, the residuals of the OLS result were subjected to various diagnostic checks such as normality test and stability test. LM test was conducted which reveals that there is serial correlation at the chosen lag because the p value is less than 5%. In addition, heteroskedasticity test revealed that there is no heteroskedascticity among the model. The study revealed that exchange rate has a positive relationship with insurance output to gross domestic product while interest rate has a negative relationship with insurance output to gross domestic product. Also it was found that exchange rate has a significant impact on insurance output to gross domestic product while interest rate has no significant impact on insurance output to gross domestic product. It is concluded with the f statistic that exchange rate has a significant impact on the insurance sector performance in Nigeria.

CONCLUSION AND RECOMMENDATIONS

This study examines the impact of exchange rate volatility on the performance of the insurance sector in Nigeria from the period 1988 to 2019. This study is critical and timely in Nigeria because numerous studies focused on the effect of exchange rate volatility on banking sector, hence, living behind non-financial institutions. the curiosity to investigate what effect exchange rate volatility exerts on an important non-bank financial institution like insurance given the peculiar nature of the Nigerian financial system and insurance business. From the analysis and major findings this study concluded that: The analysis of the ADF and PP unit root tests showed that none of the variables were stationary at level and at first differences; cointegration relationship between exchange rate volatility measures and insurance sector performance measures was confirmed, there is existence of a long-run relationship between variables.

There is no granger causality or bi-directional relationship between the variables and vice-versa. And Lastly, Exchange rate has a positive and significant relationship with insurance sector in Nigeria. Based on this findings, the study therefore recommends that;

There is need for a defined exchange rate regime and a unified exchange rate within the Nigerian financial system so that the abnormal gains from currency variations/mispricing (high or low) can be addressed which will directly and positively affect insurance sector. The insurance industry should strive to build a sector that would be robust enough to absorb any exchange rate volatility that may occur in future. The government should assist the indigenous insurance companies by creating more incentives to facilitate perfect inducement in insuring public.

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