Exchange Rate Misalignment and Insurance Industry Performance in Nigeria

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Abstract
The study examines the impact of the Exchange Rate Misalignment on Insurance Industry in Nigeria. A sample of 28 firms is involved for the period 2007 to 2018 comprising 336 annual observations. To achieve the objective of the study, the research utilises secondary data from the financial audited accounts of insurance firms obtained through the Nigerian Stock Exchange (NSE). The dependent variable is captured using deviation from the average equilibrium exchange rate and insurance industry performance is measured using investment income.. A static panel is employed for the analysis, the observations from each firm are stacked following by first estimating the pool regression model while fixed effect is employed to remove misspecification. The results reveal that the financial performance of insurance industry is influenced by the misalignment of the Exchange rate.

***Key Words**: Insurance industry, Exchange rate & Misalignment*

***JEL Classifications:** O24, G22*

Introduction

In the financial sector, the role of insurance is fundamental to national development (Sinha, 2015; Rottegers, Tandon & Keminker, 2018; Rahman & Islam, 2021). Neilegebreal, (2016); Ul Din, Abu-Bakar & Regupathi, (2017) assert that the importance of the subsector is owing to its risks absorption role. Insurance provides the most active system of covering unforeseen losses arising from accidents of any kind, loss of earnings, sickness, and death, natural calamities, war, and kidnapping (Tyson, 2015; Adeniran & Sodiq, 2018; Hussein & Salam, 2019; Luo, Tong, Lin, & Zhang, 2020). The business world deprived of insurance is untenable in the ever-changing and uncertain universal economy. This is because the subsector offers financial backing, and stands as a stop-gap for the economic loss of a nation (Trophy, 2012; Mohyuldin & Regupatti, 2017; Schmidt, 2018). Besides, in developed and emerging countries, insurance plays a

vital role of stabilising the financial sector and business survival (Haiss, & Sumegi, 2008; Chang et al., 2013; Alber, 2017; Alam, Begum, Masud, Al-Amin, & Filho, 2020). Moreover, insurance firms mobilise funds through premium(s) which are used to minimize the effect of unanticipated economic risks (Chang, Lee & Chang, 2013; Efayana, 2014; World Bank, 2018; Sahmidt, 2018).

In spite of the aforementioned roles, equilibrium exchange rate is central to the effective performance of the subsector. Inylama and Ozouli, (2014) argue that business transactions among nations necessitate a stable exchange rate. The reason behinds this is that subject matter insurance are usually foreign goods which require the equivalent of foreign currency insurance compensation. Therefore, deviation (misalignment) from the equilibrium exchange rate have grave impact on the performance of insurance industry. On the one hand, misalignment upward (appreciation) in the exchange rate improves the value of the premium income in naira and enhances the insurance' claims payment obligations. On the other hand, misalignment downward (depreciation) in the exchange rate reduces the value of premium income thereby making insurance' compensations to the clients difficult (Li, Moshirian, Wee, & Wu, 2009; Neilegebreal, 2016; Willians, 2018; Nagahisarchoghaei, Nagahi, & Soleiman, 2018; Karahan, 2020).

The performance of the insurance industry in Nigeria is appalling among the top 5 insurance industry in Africa. Available data shows that between 2007 and 2018 the Nigerian insurance industry is ranks 71 in the World behinds Algeria 69 position, Kenya's 59, Egypt's 57, Morocco's 49 and South African's 19 position. In terms of market penetration, the Nigerian insurance industry's rating is not encouraging. Out of over 180 million population, insurance industry in Nigeria's penetration is around 1 percent. However, South Africa with the population of 55 million attracts as high as 17 insurance penetration. The insurance industry in Nigeria contribution to the GDP is low compared with the top insurance industries in Africa. While Moroccan and South African insurance industries contribute 3.48 and 14.27 percent to the GDP respectively, the Nigerian insurance industry contributes merely 0.3 percent (Africa Insurance Barometer, 2018).

Table: 1 Performance of Insurance firms in some African Countries

Africa	World Ranked	Premium To GDP	Penetration	Share Of World Market	Population
South Africa	19	14.27	16.99	0.89	55million
Morocco	49	3.48	3.50	0.08	35.7million
Egypt	57	0.64	1.20	0.05	93.3million
Kenya	59	2.8	2.83	0.04	47.3million
Algeria	69	0.8	1.50	0.03	40.3million
Nigeria	71	0.3	1	0.02	187.1million

Source: *Africa Insurance Barometer, (2018)*

There are plethora of studies on the exchange rate and firm performance (Manyok, 2016; Lawa, Zogli, & Dlamini, 2017; Lee, 2017; Nagahisarchoghaei, Nagahi, & Soleimani, 2018; Moyo & Turgut, 2020; Hossin, & Mondol, 2020). However, there are dearth of studies on the impact of exchange rate misalignment on insurance despite the economic importance of the subsector in national development. Insurance absorbs financial risks and guarantees business continuity to boost economic growth. This study, therefore, employs an appropriate measure of insurance performance to investigate the effect of exchange rate misalignment on the insurance industry performance in Nigeria.

The study is particularly important given the misalignment of the exchange rate from equilibrium in Nigeria. The country adopts floating market exchange rate (FME) in 1986 where market forces determine the value of naira in exchange for other currencies. Since the introduction of FME, exchange rate misalignment continues unabated. For instance, in 1986, 1987, 2007, 2014, 2016, 2017 and 2018 the average official value of naira to one dollar stood at 0.008, 12, 80, 127, 125,124 and 305 respectively (CBN, 2018). The exchange rate misalignment builds uncertainty in an economy and reduces business activities. The decline in business activities adversely affects insurance patronage which hindrances performance. The study therefore is relevant for policy makers to design appropriate strategies that stabilise the exchange rate misalignment in order to promote the insurance's roles of funds mobilisation, risks absorption and distribution funds for economy development.

The rest of the study is structured as follows. Section two reviews the empirical literature. Section three describes the research methodology. Section four and five reports and discusses analysis empirical findings as well as conclusions and policy implications.

Literature Review

In the literature, studies abound on the impact of exchange rate on firm performance (Li et al., 2009; Neilegebreal, 2016; Manyok, 2016; Lawa, Zogli, & Dlamini, 2017; Lee, 2017; Nagahisarchoghaei, Nagahi, & Soleimani, 2018; Moyo & Turgut, 2020; Hossin, & Mondol, 2020). The study by Li, Moshirian, Wee, & Wu. (2009), examines the foreign exchange exposure in the U.S. insurance industry. The study aims at exploring the effect of exchange rate movement on the performance of 73 insurance firms in the USA and her seven insurance services largest trade partners U.K., Japan, Switzerland, Netherlands, France, Germany, and Canada from 1990 to 2003. Data is collected from the Research Insight database by COMPUSTAT and International Financial Statistics database. Cash flow is used to measure firm performance. A seasonal random walk model and a log-linear model are employed to carry out the research. The result indicates the exchange rate movement impact the performance of insurance firms as some of the U.S insurance firms' sales in the trade partners' countries. However, insurance performance in U.S responds negatively to exchange rate instability.

Flota (2014) extends the literature by investigating the impact of exchange rate instability on non-financial firms' worth in Mexico for ten years starting from 1994 to 2003. The research explores the effect of exchange rate instabilities on the stock worth of a firm. Data from Mexican Stock Exchange using World scope, S & P. Industry Indices and Data stream on a sample of 71 firms. Employing Panel data to carry out the inquiry, firm performance is captured by stock value while the independent variable is measured by exchange rate. The exchange rate volatility inversely impacts a firm's value. Then on-inclusion of financial firms could have altered the outcome. Manyok (2016) examines the impact of exchange rate movement on the performance of only the commercial banks in South Sudan. The author vestiges the influence of exchange rate fluxes on commercial banks' profitability. A descriptive statistics and multiple linear regression model are employed to analyse data collected through firms' financials and the Central Bank of South Sudan. The dependent variable is measure by the return of asset (ROA) and the independent variable by the exchange rate. There is a negative relationship between exchange rate fluctuations and a firm's performance. The commercial banks only in South Sudan may not represent the firms' performance. On the

contrary, in a study by Jubaedah and Hadi (2016), the result reveals that the exchange rate directly influences the value of a firm. The author examines the effect of financial performance, capital structure, and macroeconomic factors on a firm's value in Indonesia. The sample considered for the analysis is twenty textile companies registered in the Indonesia Stock Exchange. Panel data regression is utilized for the research.

Lee (2017) contributes to the literature when he investigates the influence of exchange rate on the performance of firms that either export or import their products in Korea from the year 2006 to 2014. The research probes the effect of an unstable country's currency on the saving of firms. A sample of over three million is considered on firms whose business activities involve both export and import to ascertain the level of investment. Deriving statistical data from the census on firm's establishments, the author uses a firm-level panel for the analysis. The result indicates no significant link between an unstable exchange rate and a firm's export activities. However, there is a direct relationship between import and exchange rate fluctuation indicating that the appreciation of local currency improves the savings of firms, vice versa.

Williams, (2018) examines the effect of exchange rate fluctuations on a firm's performance in Nigeria. The study aims to examine the influence of exchange rate instability on the return of investment of some selected non-insurance firms listed on the Nigerian Stock Exchange (NSE) for the year 2012 to 2016. The study employs ordinary least square and panel data to carry the analysis of the research. Firm performance is measured by the return of investment and independent variables include exchange rate, inflation, Government expenditure, and liquidity risk. The outcome of the study discloses a negative impact of exchange rate instability on the return of investment. Nagahisarchoghaei, Nagahi, & Soleimani (2018) extend the literature by exploring the impact of Exchange Rate Movements on Indian Firms. The study tests the influence of exchange rate unstable on the firm's performance in India between the years 2011 to 2012 using quarterly time-series events. A sample of 242 top Indian firms listed in the Bombay Stock Market is utilized. The study uses a multivariate regression model for the analysis. The variables used for the measurement of the performance are profitability, internal business growth, capacity utilization, total assets, and stock price. The outcome displays a substantial relationship between the exchange rate and a firm's

performance in India. The result shows that volatility of the exchange rate in India adversely affects the asset and stock value of firms.

Moyo and Turgut (2020) examine the effect of exchange rate and inflation on the financial firm performance. The study explores the impact of exchange rate and inflation on the financial firm performance in South Africa's commercial banks. The research covers four leading commercial banks in South Africa, namely; Standard Bank, Nedbank, Capitec bank, and First exchange rate movement rand bank between the years 2003 and 2019. Using banks' annual financials, the ordinary least square method and panel data model are employed for the analysis. The proxy for independence includes the exchange rate and inflation while return on equity (ROE) captures a financial firm's performance. The result discloses a negative but weak relationship between exchange rate and banks' performance.
The empirical study shows there are studies on exchange rate misalignment and firm performance. However, hardly can any study be sited on exchange rate misalignment and insurance industry in Nigeria. Also, the variables used by the previous studies on exchange rate and the performance of a firm are not suitable for insurance industry.

Methodology

Model Specification

To achieve the objective of the study, a model that relates exchange rate misalignment to insurance industry performance is specified following the study by Lee, (2017) with modification as follows:

$$IIP_{it} = f(EXRE_{it}, TSET_{it}, FMGE_{it}, OWSP_{it}) + \varepsilon_{it} \quad (1)$$

Where the subscript i = the number of the insurance firms i.e. i = 1,..,4, and t = the time period i.e. t = 2007,…2018. IIP represents insurance industry performance, EXRE represents exchange rate misalignment, TSET represents the total asset, FMGE for firm age, and OWSP stands for ownership structure and ε represents the stochastic disturbance term. To put the variable in equation 1 on the same scale of measurement and to remove large fluctuation, total asset and insurance industry performance were logged (Gujarati 2004). Thus equation 1 is re-specified in regression form as:

$$IIP_{it} = \gamma_0 + \gamma_1 TSET_{it} + \gamma_2 FMGE_{it} + \gamma_3 OWSP_{it} + \gamma_4 EXPE_{it} + \varepsilon_{it} \quad (2)$$

γ_0 = intercept while $\gamma_1, ..., \gamma_4$ = various slope coefficients. On apriori, the exchange rate misalignment is expected to be positively or negatively related to insurance industry performance. An increase in the total asset creates an avenue for more

funds for investment thereby enhances performance. Thus, $dIIF/dTSET > 0$. Similarly, the firm age is expected to have a direct and impact on the insurance industry's performance. Hence, $dIIF/dFMGE > 0$. Also, ownership structure is projected to negatively impact the performance of insurance industry performance. The reason is that most decisions by a firm's management where the internal directors are in the possession of the majority of the stocks are expected to be influenced which adversely affects performance. Therefore, $dIIF/dOWSP < 0$

Population, Sampling Method and Data Measurement

The population of the study consists of all the twenty-eight insurance firms listed in the Nigerian Stock Exchange (NSE, 2018). The study employs panel data set of 28 insurance firms from 2007 to 2018 comprising 308 annual observations. The choice of 2007 as the beginning year is because it corresponds with the last insurance firms' recapitalization of 2007 by NAICOM while 2018 is built on the data accessibility.

Specifically, the study makes use of secondary data obtained from published annual reports of the selected firms via Nigerian Stock Exchange (NSE), the total asset measured using Equity plus liabilities plus revenue minus expenses, the exchange rate misalignment is captured using deviation from the average equilibrium exchange rate. The firm age is captured by the number of years that a firm has been in business, and the ownership is proxy with the percentage of shares in the hands of in-house directors of a firm. Insurance industry performance is measured using investment income in billion naira. Insurance unlike other firms where mere increment in the stock or profit is regarded as a performance, the ability to multiply the available premium income is key to measure performance. This is because the performance is usually measured by the ability to generate enough income for prompt claims' payment.

Estimation Technique

The model is estimated using Panel Data regression due to the nature of the data in the study. Precisely, the observations from each firm are stacked following by first estimating the pool regression model. However, the pool regression is known for its limitation of ignoring the time, space, and individual effects which may

lead to misspecification of the model, the model is re-estimated using the fixed effect. To test the statistically significant individual-specific effect, a redundant fixed effect– likelihood is carried out. The random effect is appraised and the Hausman test is employed to determine whether to base the study on either the fixed or random model. However, if it is not significant, the analysis will be based on the pool regression result.

Analysis of Regression Results

The model is estimated using static panel regression analysis. Column 2 reviews the results of pool OLS while column 3 and 4 present the results of fixed and random effect respectively. The result pool OLS reveals that the exchange rate misalignment, the total asset, and firm age have expected apriori while the ownership structure did not display the expected apriori. Only the exchange rate is statistically significant.

Table 2: Pool OLS, fixed effect and random effect on variables under consideration

Variable	Pool OLS Regression	Fixed Effect	Random Effect
C	-6.256595 {1.608637} (0.0001)	0.297122 {1.210240} (0.8062)	0.086950 {1.203707} (0.9425)
Exre	1.120872 {0.102977} (0.0000)	-0.645718 {0.080462} (0.0000)	-0.682721 0.078630 (0.0000)
Fmge	-0.006587 {0.005440} (0.2269)	0.046005 {0.033431} (0.1699)	0.003947 {0.015269} (0.7962)
Logtset	0.007797 {0.005963} (0.1920)	0.004332 {0.007570} (0.5676)	0.012683 {0.004311} (0.0035)
Owsp	0.001467 {0.004439} (0.7413)	-0.001908 {0.004018} (0.6352)	-0.000815 {0.003867} (0.8333)
Adjusted R-squared	0.310587	0.850788	0.341401
S.E. of regression	1.355675	0.630693	0.632363
F-statistic	35.35134	57.09902	40.52608
Prob(F-statistic)	0.000000	0.000000	0.000000

*{ } represents standard error, ( ) represents-value * and ** represent 1 and 5 percent significant level*

Source: *Author's Computation*

However, a main problem of the pool OLS is that it does not consider the specific features of each firm. To put credibility to the estimate of the model, the model was re-estimated using the Fixed Effects Model (FEM) and the results are shown in the column3 of the table 2. Before the interpretation of the coefficients, a test of whether the inclusion of the individual specific effect is statistically significant is carried out using the redundant fixed effect – likelihood ratio. Using the probability value (PV) to test the significance of the fixed effect models, the result shows that the PV is < 0.05 implying that the fixed effect is statistically significant.

Table 3: **Fixed Effect Test**

Effects test	Statistic	Degree of Freedom	Probability
Cross-section F	41.360247	(27.274)	0.0000
Cross-section Chi-Square	497.082793	27	0.0000

Source: *Author's Computation*

Table 4: Hausman Test

Effects test	Statistic	Degree of Freedom	Probability
Cross-section F	0.5197	(3,16)	0.6748
Cross-section Chi-Square	2.2315	3	0.5258

Source: *Author's Computation*

Since the fixed effect is statistically significant as shown in Table 2, the Random Effect model is estimated. Thereafter the Hausman test model is used to select the appropriate model. However, as shown in Table 4, the results of the Hausman test is not statistically significant, hence the analysis of the study is based on the fixed effect model. The results of the fixed effect shows that the coefficients of the variables conform to their apriori expectations. Specifically, exchange rate misalignment exhibits a negative effect on the performance of the insurance industry. The implication is that, deviation from the equilibrium exchange rate downward or upward dictates the value of naira and influences the performance of insurance industry. Misalignment of exchange rate downward diminishes the insurance industry performance. The result is in tandem with study by Lee (2017) which investigates the effect of an unstable country's currency on the saving of firms in Korea.

Likewise, the coefficient of the total asset shows a consistent positive impact on the performance of the insurance industry. This implies that asset particularly

liquid is backup for claims payment which improves performance and in line with study by Olawale, Ilo and Lawal, (2017) on total asset and firm performance. Also, firm age positively influences insurance industry performance. This suggests that a firm with longer years of establishment is expected to perform better than a newly established firm because of the superior business and management experience. The result sustains the apriori expectation and conforms to the studies by Pervan (2017); Sritharan (2020), both on firms age and performance. Also the coefficient of the total asset shows a consistent positive impact on the performance of the insurance industry. Furthermore, the coefficient of the ownership structure displays an expected negative influence on the insurance industry performance which affirms the study on ownership structure and firm performance by Georgeta and Gherghina, (2014).

Conclusion and Policy Recommendations

The study examines the impact of exchange rate misalignment on insurance industry performance for the period 2007 to 2018. The study used 28 insurance firms listed in the Nigerian Stock Exchange (NSE) and adopt panel regression analysis. The result shows that exchange rate misalignment impacts the performance of insurance industry. The implication is that exchange rate misalignment downward (depreciation) hinders the performance of insurance industry. Based on this, the study makes the following recommendations.

Insurance industry in Nigeria should embark on investment diversification within and outside the country. This will increase the value of its investment portfolios and minimise the downward effect of exchange rate misalignment on the subsector's performance. It is further recommended that insurance industry should form a lobbing body on the insurance policy makers particularly committee on insurance in the National Assembly. This will afford the insurance practitioners the opportunity to influence and contribute favourably on macroeconomic issues particularly exchange rate which influences the industry performance.

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