MANAGING FOREIGN EXCHANGE RATE EXPOSURE: THE NIGERIAN PERSPECTIVE (2019 - 2023).

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A B S T R A C T

The increasing interest in the subject of management of foreign exchange exposure in Nigeria has been sequel to the rising transactional, translational and economic risks experienced in the country. Thus, concerns for the incessant devaluation of the naira (increasing foreign exchange rate) continued to mount, explaining the main objective of this study - in attempting to evaluate the most suitable and effective measures and techniques for the management of foreign exchange rate exposures, while attempting to demonstrate the relationship between foreign exchange rate exposures and the economic growth of a developing country like Nigeria. *Expo-facto* design was deployed for this study. Regression analysis, descriptive statistics, residual statistics, Collinearity Diagnostics and Durbin-Watson were the techniques used to analyze data and examine the relationship between the two major variables of the study. The yearly highest foreign exchange rates (Nigerian Naira to a US dollar) – as at the official market; and the yearly average of the quarterly GDP of Nigeria, constituted the datasets, for the period 2019 – 2023 respectively. The study found a statistical and significant relationship to exist between the foreign exchange exposure and economic growth. The study concludes that a better exposure management would be achieved by the country with an efficient use of hedging measures (currency forwards, currency option currency futures, cross-currency swaps, or even 'natural' hedging).

1.0 Introduction

The global interest in the management of foreign exchange exposures spiked in 1973 - when an end in the American dollar's peg on gold and, dismantling of the Bretton wood system were experienced (Papaioannou, 2006). This increased interest on the subject helped to place management of foreign exchange exposures in being a pivotal part of organizational decisions (Allayannis, Ihrig & Weston, 2001). And today, this has evidently translated in making most organizations and multinationals to have a currency exposure (risk) management committee to strategize on foreign exchange mitigations.

From the Nigerian experience, the oil boom between 1970 - 1979 has been pointed most prior studies to be the genesis of high foreign exchange exposures (Ezeogidi, 2020). The oil boom period gave the country massive wealth and erupted an unprecedented high demand for imported products - that were accompanied by both high demand for exchange rate and over-valued pricing of products. Over the years, diverse measures have been suggested by prior researches and, implemented by successive governments, for managing the incessant foreign exchange exposures. Example was the Central Bank of Nigeria (CBN)'s circular and directive on January 31, 2024 - intended to help manage the foreign exchange exposures for banks by requiring them to maintain a limited Net Open Position (NOP) for all the banks' foreign currency assets and liabilities to the tune not exceeding 20% or 0% for short or long shareholders' fund, respectively (CBN, 2024). Yet, Nigeria has continued to experience worsening and higher foreign exchange exposures – resulting from the significant volatility of its foreign exchange rate and devaluation of the Nigerian naira from 365.38 NGN to a dollar in 2019 to 897.50 NGN to a dollar in 2023 (Exchange Rate Org UK, 2023).

Figure 1: Nigerian Naira (NGN) to US Dollar (USD) Exchange Rates (2019 -2023).
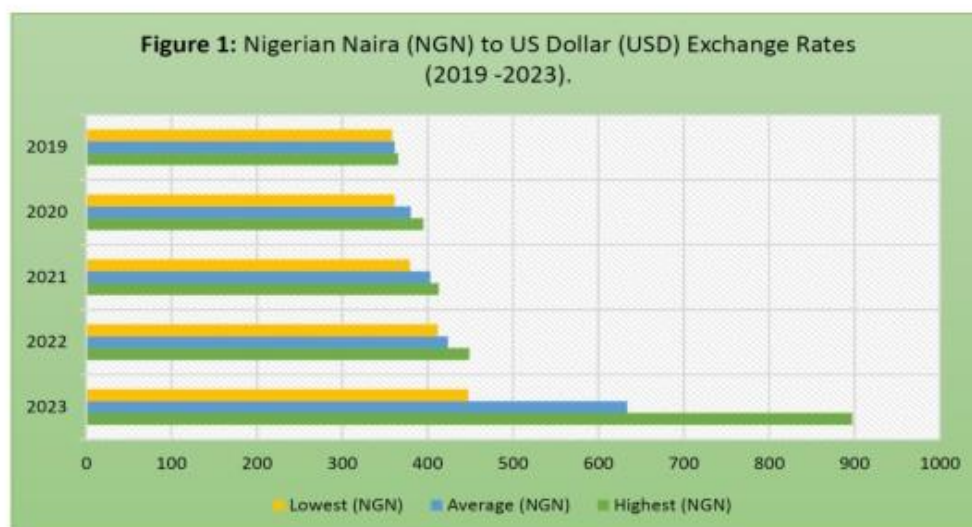
Source: Analysis of the Authors based on Exchange Rate Org UK (2023).

Thus, necessitating the lingering research questions – Is there any significant relationship between foreign exchange exposure and the economic growth of a country? How does developing country like Nigeria experience high foreign exchange rate volatility and exposure of late despite the available and effective exposure management instruments/strategies? Or is it a question of insincerity of purpose and mal-application of 'good' and suggested exposure management instruments/strategies. The questions could go on and on.

This explains why the main objective of this study is to evaluate the most suitable and effective measures/techniques/strategies for the management of foreign exchange rate exposures, while attempting to demonstrate the relationship between foreign exchange rate exposures and the economic growth of Nigeria.

Venkatesh & Hiremath (2021) have opined that high foreign exchange rate exposures affect the economic performance and stability of a country. While for organizations, the adverse effects have been revealed to be felt on the profit margin, value of the firm and its assets, *et cetera* (Papaioannou, 2006). Thus, for the remainder of this research, the delimitation would be centered on the Nigerian experience and perspective. Thus, this study would foster a coherent contribution to the body of knowledge and the economic growth of the country when it would effectively identify and demonstrate the

most suitable and efficient measures for the management of foreign exchange rate exposures.

2.0 Literature Review

Madura (1989) has defined Foreign Exchange Rate Exposure as the risk associated with the unexpected fluctuation with the value of the exchange rate. Papaioannou (2006) opined that it is either the direct loss suffered because of an unhedged risk, or the indirect loss in countries or firms' net profit, assets, liabilities and cash flows emanating from a sudden movement in the foreign exchange. Therefore, management of the foreign exchange rate exposure becomes imperative for minimizing vulnerability. This is the reason Papaioannou (2006) posits that exchange rate exposure management is a crucial component of a country's foreign exchange decisions.

Over the years, the subject of foreign exchange exposure has attracted great interest. Venkatesh & Hiremath (2021) attempted to evaluate the impact of foreign exchange exposure to the growth rate of countries. With datasets covering 1979 – 2018, they measured the vulnerability of developed economies and developing economies and found that foreign exchange exposure significantly and negatively impacts on economic growth – and exacerbated by depreciation. Allayannnis

& Ofek (2001) utilized the S&P 500 Non-financial firms (as at 1993) as samples to investigate what firms apply foreign currency derivative as – for speculation or for hedging? The findings revealed that the utilization of foreign currency derivative for the purposes of hedging significantly mitigates foreign exchange exposure. As such, it is preferred and used by firms. Furthermore, foreign trade and sales are the factors that are identified by them to influence the choice and extent of utilizing derivatives.

Cheng, Chu, Song & Lai (2017) is another study that utilized the foreign exchange exposures (in SGD and American Dollar) of 148 Malaysian firms (reported on their respective published balance sheet from 2006 - 2013), to ascertain the correlation between foreign exchange exposures and firms' value, account receivable and accounts payables. With the application of regression analysis, the study found that a significant relationship exists between the stated variables; only that Malaysian firms were identified as not effectively managing exposures to foreign exchange (USD), using for example, hedging strategies, to improve firms' value.

The study of the foreign exchange rate exposure management was also undertaken by Brown (1999), using an American based HDG Inc. as a case. The study evaluated the firm's exposure management approach and

programme. The study found hedging to be a potent tool the firm utilizes for that purpose – that was also motivated by some concerns, including competitive pricing, asymmetries of information and internal contracting.

Therefore, hedging has been found to remain one of the veritable techniques for the management of foreign exchange rate exposure. Hull (2011) explained currency hedging as the action taken at insulating companies' or countries' businesses against exchange rate going in the angle opposite to their stand in the future market by intentionally taking on the offsetting position in the related currency. According to Allen (2003), the strategies for the management of exposure depend on the size of firm and the types of exposures. For *transactional exposures*, tactical hedging can be utilized by firms to shield currency risk from transactions associated with account receivable and payable in the short-term; while strategic hedging can be deployed for similar transaction but of a long-term (Papaioannou, 2006). Passive hedging can be deployed too, using similar hedging procedure as stated above but are implemented at regular period notwithstanding the future foreign currency expectations.

It is a widely held fact that exchange rate fluctuations affect the balance sheet and firms' valuation of multinationals' subsidiaries significantly. And this risk is what Papaioannou (2006) referred to as *translation (balance sheet) exposure*. The global practice, according to Papaioannou (2006) is to hedge the net assets (total assets minus current liabilities) of subsidiaries that are prognosticated to suffer from exchange rate fluctuations. This could explain why some management of companies pay less attention to this type of exposure mostly because it is acclaimed to have little or no impact on the income statement of their companies.

Economic exposures relate to the risk of the present value of the future cash flow of a company arising from the unexpected fluctuation in the exchange rate, thereby affecting its revenue and operating expenses. And when this risk is accompanied with a cost inflation that is greater than the general inflation, Froot & Thaler (1990) argued, could wipe-out the competitive advantage of a company in the market. Most times, this type of exposure is relatively cumbersome to measure. According to Papaioannou (2006), it can however be managed by developing some financial operation payables in the currency where a parent company is expected to experience currency exposure – that is, in the subsidiary's currency where it witnessed a raised cost inflation.

The greater number of multinationals experiencing foreign exchange exposure, and the resulting significant impact such have on their operations and performance have necessitated they make foreign exchange exposure management a critical part of their decisions. According to Jacque (1996), this decision for organizations is often guided by the following laid-down framework and/or best practices: identification and measurement of the type of exchange rate exposures; the development of strategy (operations, execution, and hedging instrument to utilized, and monitoring of procedures), creation of a unit in the organization's treasury for the proper implementation of hedging strategies; setting up of a control and monitoring measure for exchange risk; and the establishment of a committee that would among other perform risk oversight function, review exposure management policy and determine the rightness of hedging instrument.

Different hedging instruments that can be applied in the foreign exchange management abound in different varieties (Hakala & Wystup, 2002). According to Papaioannou (2006), these instruments could either be OTC (Cross-Currency Swap and Currency Forward) or Exchange-Traded Contracts (currency future and currency options). In the former, cross-currency Swap entails the purchasing of the currency swap while simultaneously paying/receiving fixed/floating interest payment; while currency forward is utilized when a currency contract is purchased at a price determined today, but to be delivered in the future.

In the Exchange-Traded Contracts, currency future is one of the hedging tools. It represents a contract stipulating the quantity of currency (and its priced fixed today) that would be exchange on a disclosed future settlement date. On the other type, Allen (2003) defined call option as the right to procure a certain quantity of currency at a strike price and without the obligation to exercise such right. Whichever of the above instruments, they guarantee that the foreign exchange exposures are fully managed via hedging.

However, some organizations have brandished currency hedging as an expensive instrument for managing foreign exchange exposures. And if this argument holds true for multinationals, then can they consider Madura (1989)'s proposition. That was the argument that motivated Madura (1989) to come up with an instrument he named – 'natural hedging'. According to him, natural hedging can happen when multinationals evaluate and match the inflow and outflow of foreign exchange with consideration of timing and value; the netted offsetting of deb, payables and receivables of its subsidiaries; and the

minimization of transaction exposure by import and/or export trading or invoicing in the parent's currency.

3.0 Research Methodology.

Expo-facto was the research design for this study, mainly because the quantitative data utilized its analysis are already publicly published and available. Regression analysis, descriptive statistics, residual statistics, Collinearity Diagnostics and Durbin-Watson are tools and predictive analytics used to evaluate the data so as to gain some knowledge that would help to achieve the objective of the study. Here, relevant data would be utilized to examine the relationship between foreign exchange

exposure and economic growth; and to analyse its result in evaluating if Nigeria effectively utilize foreign exchange management instruments over the period 2019 - 2023. After some data 'cleaning', the yearly peaked foreign exchange rate (Nigerian Naira to US dollar in the official market, as earlier disclosed in *figure 1*) fluctuations were adopted by this study as the metric for foreign exchange rate exposures; while the yearly average of the quarterly GDP of Nigeria (as displayed in *figure 2* below) stood as a measure of economic growth/performance, for the period 2019 – 2023 respectively.

Figure 2: GDP of Nigeria from 2019 to 2023 (In Million Nigeria Naira).

Source: Analysis of the Authors based on Statista (2023).

3.1 Results of Data Analysis

The analysis of the data was aided by SPSS (version 25), and are as reported and interpreted below:

Table 1: Descriptive Statistics			
	Mean	Std. Deviation	N
GDP	44000000.0000	7382411.53012	5
Exchange_Rate Fluctuations	503.9300	222.07973	5

Sources: Analysis of the Authors based on SPSS.

The above descriptive statistics in *Table 1* revealed the mean of GDP and exchange rate variables to be 44000000.0000 and 503.9300, respectively; while their standard deviations were arrived as 7382411.53012 and 222.07973, respectively. 'N' implies the 5 years interval for the study – from 2019 to 2023.

Table 2: Correlations			
		GDP	Exchange_Rate
Pearson Correlation	GDP	1.000	.772
	Exchange_Rate Fluctuations	.772	1.000
Sig. (1-tailed)	GDP	.	.063
	Exchange_Rate Fluctuations	.063	.
N	GDP	5	5
	Exchange_Rate Fluctuations	5	5

Sources: Analysis of the Authors based on SPSS.

The above *table 2* contains the results of the main regression analysis. It utilizes the Pearson correlation to seek to find the relationship between the dependent (GDP) and the control (exchange rate) variables for this study. The analysis reported a 0.772 (77.2%) coefficient (> 0.5 or 50%), and implying statistically that a strong relationship exists between foreign exchange exposures from the Nigerian naira devaluation (and/or volatility) and the economic growth/performance of the

country. This outcome revealed why the constant naira devaluation and/or foreign exchange volatility is significantly contributing to the high cost of imported products, cost of living and the increasing harsh economic realities in the country.

Table 3: **Model Summary**[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.772[a]	.597	.462	5414883.03612	1.497

a. Predictors: (Constant), Exchange_Rate
b. Dependent Variable: GDP

Source: Analysis of the Authors based on SPSS.

Model summary as depicted in *table 3* discloses, among others, the Durin Watson result (1.497), adjusted R square (0.462), R Square (0.597) and the regression/correlation coefficient (77.2%). These results provided more evidences, and corroborates the strong relationship between the variables for this study - as was earlier established.

Table 4: **ANOVA**[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	130037125115282.450	1	130037125115282.450	4.435	.126[b]
	Residual	87962874884717.580	3	29320958294905.860		
	Total	218000000000000.030	4			

a. Dependent Variable: GDP
b. Predictors: (Constant), Exchange_Rate

Source: Analysis of the Authors based on SPSS.

ANOVA was also utilized for this analysis meanly because, the evidence of any differential between the means of the aforementioned variables was sought for. Thus, from *table 4*, the coefficient of F-value was arrived as 4.435, while the sig. value was reported as 0.126 (1.26%). Therefore, the confidence level (0.05 or 5%) has conspicuously shown to be less than the sig. value, implying that the mean of the GDP variable is not significantly different from the mean of the foreign

exchange variable. This equally supports
the earlier finding.

Table 5: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	31062064 .463	6603602. 779		4.704	.018		
	Exchange_Rate	25674.07 3	12191.30 4	.772	2.106	.126	1.000	1.000

a. Dependent Variable: GDP

Source: Author's Analysis based on SPSS.

Table 5 emerged because Collinearity Diagnostics was utilized. It revealed the collinearity

statistics (1.000) for both tolerance and VIF; standardized and unstandardized coefficients; t-

values (4.704 and 2.106 for constant and exchange rate variable, respectively); and sig-values

(0.018 and 0.126 for constant and exchange rate variables respectively, that align with that

earlier results).

Table 6: Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	Exchange_Rate
1	1	1.930	1.000	.03	.03
	2	.070	5.264	.97	.97

a. Dependent Variable: GDP

Source: Author's Analysis based on SPSS.

In *table 6*, Collinearity Diagnostics was intended to ascertain or compute the degree of variance

in the regression coefficient that is boosted by the earlier correlation result of the predictor

variable. However, the fact that the predictive tool applied is not multiple regression, it would

be disregarded.

Table 7: Residuals Statistics[a]					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	40442856.0000	54104544.0000	44000000.0000	5701691.08939	5
Residual	-4442857.00000	7414384.50000	.00000	4689426.26780	5
Std. Predicted Value	-.624	1.772	.000	1.000	5
Std. Residual	-.820	1.369	.000	.866	5

a. Dependent Variable: GDP

Source: Analysis of the Authors based on SPSS.

The residual statistics in *table 7* only supported the descriptive statistics to disclose not just the mean and standard deviation of the relevant values and variables, but also their minimum and maximum coefficients. This supports an extensive analysis of data used for this study.

Figure 3: Normal P-P Regression Plot
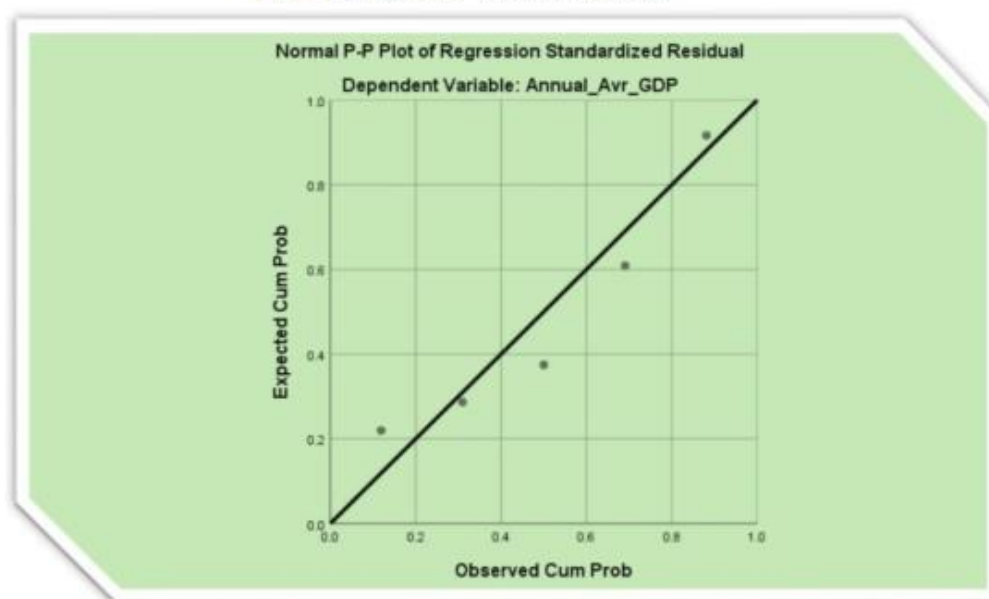
Source: Analysis of the Authors based on SPSS (ver. 25).

The chart in *Figure 3* represents a visual representation of the findings of the analysis made in this study. The proximity of the dots to the line of best fit (as seen in the chart), provides further evidence for the existence of strong relationship between the variables of the study.

Therefore, the revelation from this analysis has been found to be in alignment to those posited by studies like Venkatesh & Hiremath (2021), Chow & Chen (1998), Low & Chan (2017), Ekpo (2023) and Jacob & Rosemary (2019).

4.0 Conclusion.

Sequel to the analysis of this study, it is revealed that a statistical and significant relationship exists between the foreign exchange exposures and the economic growth of Nigeria. This was evident from the regression's output of 0.772 (77.2%), ANOVA's sig-value of 0.126 (1.26%), among others. These outputs imply that as the value of naira falls against the dollar (increase in foreign exchange rate), the value of Nigeria's GDP increases, and vice-versa. The sudden increase within the 5-year period in the foreign exchange rate (from 365.38NGN to 897.50) that is accompanied with the prevalent skyrocketed cost of imported products and cost of living are major indicators to the limited, inefficient or inappropriate utilization or application of hedging instruments by the country as measures for managing exchange rate exposures.

Thus, it is on this basis that this study recommends that Nigeria and other developing countries should utilize the various hedging instruments (such as currency forwards, currency option currency futures, cross-currency swaps or even Madura (1989)'s *natural hedging*) as tools for managing the transaction, translation and economic exposures it could face from fluctuations in foreign exchange.

The significance of this study ranges from the utilization for policy making, to the contribution to extant literature in the subject of foreign exchange exposures. However, there are other opportunities for development of this study. Further studies could attempt similar study with the alternative use of dataset from selected multinationals (as against a country-wide dataset utilized for this study) in evaluating the extent of foreign exchange exposure management measures they adopt; and of the relationship between the foreign exchange exposures experienced and their impact on the overall operational performance.

Declaration of Competing Interest

The researchers for this study declare solemnly that there is no competing interest significant enough to tamper with the results, findings and reporting of this work.

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