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Implications of Exchange Rate Fluctuation and Economic Performance: The Nigerian Experience

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Abstract: The study gauged the influence of exchange rate fluctuations on the Performance of the Nigerian Economy over the time from of 1986 to 2016, utilizing secondary data tracked from the statistical report of the Apex Nigerian bank, and utilizing techniques such as Unit root test, Generalized autoregressive conditional heteroscedasticity (GARCH), Impulse-Response Output and Variance-Decomposition Test to evaluate variables such as Interest rate, inflation rate, exchange rate against a sole indicator of Economic Performance I.e. Gross Domestic Product Growth rate (GDPGR), it was discovered that despite the short run influx of the spill over volatility of Interest rate and inflation rate, there exist no long run volatility influence of interest rate on Economic Performance in Nigeria. It was therefore recommended that the apex financial institution and relevant policy makers should ensure an interest rate system and status that could stimulate growth or production and the nation should endeavour to utilize her interest rate in controlling its output level as it motivates Economic Performance (GDPGR)

Keywords: Interest rate; Volatility; Shocks; Inflation rate; exchange Rate; Gross Domestic Product Growth Rate.

1. Introduction

Due to the need for nations to trade, the role of a central form of exchange is crucial, which brings to light the relevance of exchange rate. The exchange rate as a key phenomenon is usually predicated on the high-powered United State Dollars, The strength of the Exchange Rate is today an impressive bedrock of all financial exercises. Since the selection of the Structural Adjustment Program (SAP) in 1986, Nigeria has moved to different types of gliding administrations of currency exchange rate from the settled/pegged administrations in the vicinity of 1960s and the mid-1980s. Floatation of Exchange Rate has appeared to be desirable over the settled plan mostly because of the responsiveness of the rates to the foreign trade advertise (Nwankwo, 1980; Taiwo and Adesola, 2013).

Preceding the enthronement of Structural Adjustment Program (SAP) in 1986, Naira appreciated in respect to the US dollar, a factor that makes significant open door for fast financial development and strength. Following the start of new monetary projects, the nation started to endure flimsy Exchange Rate that caused a high level of vulnerability in the Nigeria business condition. Domestic financial experts confront gigantic hazard as nobody, regardless of how canny could anticipate the probability of the remote trade showcase execution. The circumstance should similarly affect importation level of the nation. Nigeria as a creating nation endeavoring to enhance its mechanical base needs to outfit its foreign trade market to empower residential speculators import pertinent hardware, types of gear and crude materials for the modern utilization (Abba, 2008; Oloba and Abogan, 2013).

Exchange Rate is the cost of one nation's currency communicated as far as some other currency. It decides the relative costs of locally created products and their remote partners, and in addition the quality of outer area cooperation in transnational business connection. Exchange Rate administration and loan fee stay central issues of discussion in the International fund and additionally in developing countries, with more economies holding on to exchange advancement as imperative for monetary imposition (Obansa *et al.*, 2013). In Nigeria, Exchange Rate includes changes in the time period from the managed to deregulated administrations. Ewa (2011) concurred that the Exchange Rate of the Nigerian currency experienced relative steadiness in the vicinity of 1973 and 1979 amid the oil boom time and when agrarian outputs represented over 70% of the country's gross domestic outputs (GDP). In 1986 when the Federal government embraced Structural Adjustment Policy (SAP) and the nation moved to an adaptable Exchange Rate administration where currency exchange rate is open obviously to the interchange of market constrains but instead the overall framework is the overseen skim whereby financial experts intercede

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occasionally in the foreign trade advertise with a specific end goal to accomplish some key goals (Mordi, 2006). This irregularity in approaches and absence of progression in Exchange Rate arrangements totaled precarious nature of the naira rate (Gbosi, 2005).

Benson and Victor (2012) and Aliyu (2011) noticed that regardless of different endeavors by the legislature to keep up a steady Exchange Rate, the naira has devalued all through the 80's to date. Against this foundation, this exploration think about plans to examine the effect of Exchange Rate on financial development in Nigeria over a time of 31 years (1986 – 2016).

1.1. Problem Statement

Instability in Exchange Rate in Nigeria has been recognized by different researchers as a genuine aim of the low and stale performance of the Nigeria economy. The estimation of the nation's foreign earnings and reserves have been exhausted because of volatilities in the Exchange Rate market. In actuality, which adversely influence production of goods and services in the economy. This low yield similarly influenced the level of output in Nigeria. The foreign hold of Nigeria kept on falling against the convertible monetary forms. In spite of the presentation of different strategies, the currency exchange rate of the Naira has changed consistently amid the unregulated stage. This work consequently attempts to analyze Exchange Rate unpredictability and the production level of the Nigeria economy and proffer significant answers to take care of this issue to advance a practical economy for the general advantage of the general populace of Nigeria.

1.2. Objectives of the Study

Overall, this study examines the influence of exchange rate volatility and spill over on economic growth and performance in Nigeria.

The specific objectives of this study are:

- To examine the influence of Exchange Rate on Growth rate of Gross Domestic Product.
- To investigate the influence of Interest Rate on Growth rate of Gross Domestic Product.
- To ascertain the influence of Inflation Rate on Growth rate of Gross Domestic Product.

This study thus impliedly formulates subsequent questions and hypothesis on the above parameters.

This study therefore rests on the wide premise that given the raging controversy on the theoretical and empirical association between interest rate shocks/volatility on the Economic Performance in Nigeria utilizing further components of interest rate which loops into inflation rate and exchange rate and ploughing the Economic Performance (GDPGR) of the nation as a key performance measure towards deriving a single unit of measurement amongst employed variables.

This examination on Exchange Rate unpredictability and financial execution covers 1986 – 2016 utilizing auxiliary information from Central Bank of Nigeria measurable releases on particular macroeconomic lists. The scientist received the common slightest squares, cointegration together with granger causality procedures in the examination in learning the connection between the factors of premium. This work will be of massive advantage to the legislature and merchants in the remote currency advertise in making long haul financial plans. It will be a working report for potential financial experts to manage them in their speculation choices. The result of this examination will be a stage for additionally contemplates by researchers in this field of information.

Having presented an overview as above, the rest of the study is divided into four distinct sections. The second fragment boons the theoretical framework and literature review. Section three discusses the methodology, while the results and analysis will be presented in section four. The fifth section presents the study's discussions, conclusions and policy recommendations.

2. Theoretical Framework and Literature Review

To ensure a fluid work, this segment is discussed under the following captions.

2.1. Theoretical Framework

2.1.1. Theories of Exchange Rate

A few hypotheses have been developed in the extension of Exchange Rate writing. This examination considerably returns to different foundational professions as respects the advances in Exchange Rate hypothetical linkages. To determine exact quality for it, researchers depend on the hypothetical establishment for the decision of Exchange Rate administrations appropriate for the smooth cruising of the economy.

2.1.2. The Mint equality Theory

This hypothesis discovered its root in the utilization of the global gold institutionalization time. Currency appropriation determined its rate of trade from the gold convertibility rate. The trade estimation of the currency exudes from the standard cost of gold in the global market. Jhingan (2012) underscores that market strengths of interest and supply of gold is the deciding standard of the mint equality Exchange Rate administration.

Exchange Rate is the cost of one nation's currency in connection to another nation. It is the required measure of units of a currency that can purchase another measure of units of another currency.

Optimal Currency Area: The ideal currency region (OCA) hypothesis came into spotlight underway of Mundell (1961) and McKinnon (1963). This hypothesis concentrates on exchange, and adjustment of the business cycle. It depends on ideas of the asymmetry of stuns, the level of receptiveness, and foundational versatility in the work advertise. As indicated by the hypothesis, a settled currency Exchange Rate administration can drive exchange and yield development by diminishing Exchange Rate instability and consequently the cost of supporting, and furthermore energize speculation by bringing down currency premium from loan fees (Dada and Oyeranti, 2012). Consequent hypotheses fixated significantly on budgetary administrations framework adjustment of theoretical monetary conduct as it relates especially to rising economies. As indicated by the hypothesis, a settled administration can build exchange and yield development by giving an ostensible stay and the frequently required believability for currency related approach by dodging market powers driven devaluation, and upgrading the formative propensity of budgetary framework organizations (Barro and Gordon, 1983). Then again, in any case, the hypothesis additionally recommends that a settled administration can likewise defer the fundamental relative value changes and regularly prompt theoretical assaults. Hence, many creating and developing economies experience the ill effects of a "dread of coasting," in the expressions of Calvo and Reinhart (2002), yet their settled administrations additionally frequently end in crashes when there is a "sudden stop" of remote speculation (Calvo, 2003) and capital flight takes after, as was apparent in the East Asian and Latin American emergencies and some sub-saharan African nations.

Of course, there is minimal hypothetical accord on this inquiry of administration decision and consequent monetary development in the advancement financial aspects writing also. While the part of an ostensible stay is frequently underscored, factors extending from showcase profundity (or the absence of it), political economy, foundations et cetera regularly prompt comprehensive recommendations as to which Exchange Rate administration is fitting for a creating nation (Frankel *et al*., 2001; Montiel, 2003).

Indeed, the hypothesis of ideal currency territories goes far toward representing the changeability of trade rates between partitioned national monetary forms. The conclusion that OCA factors can represent watched contrasts crosswise over nations in Exchange Rate inconstancy leaves open the topic of how this consistency comes to fruition. It could emerge in light of the fact that stuns to the remote trade advertise reflect OCA-related elements. Nations' two-sided rates are steady when the stuns they encounter are comparable. On the other hand, weights could be the same, however governments could mediate all the more intensely to restrict Exchange Rate fluctuation versus nations. (Bayoumi and Eichengreen, 1998).

2.1.3. The Purchasing Power Parity Theory

In the work of Pilbeam (2006), Purchasing power Parity (PPP) is for the most part credited to the Gustav Cassell's compositions in the 1920s, despite the fact that its scholarly inceptions goes back to the nineteenth – century British financial analyst David Ricardo. The equilibrating Exchange Rate occuring between two inconvertible monetary forms notes is acknowledged by the assurance of the fairness of the relative variety in the related costs in the two nations. It concerns the relative trade costs between two nations that orchestrates the Exchange Rate of currency. The Exchange Rate changes with value level and the Exchange Rate between two nations is resolved at a point which communicates the fairness status between the individual obtaining forces of the two monetary standards Cassel (1918). The fundamental idea hidden PPP hypothesis is that arbitrage strengths will prompt the balance of merchandise costs globally once the costs of products are measured in a similar currency. It speaks to the use of the "law of one value" which says that within the sight of a focused market structure and the nonattendance of transport costs and different obstructions to exchange, indistinguishable outputs which are sold in various markets will offer at a similar cost when communicated regarding a typical currency.

This is a common practice among many nations in a bid to evolve an optimal exchange rate policy necessary for both domestic price stability and ensuring external balance.

- **Exchange Rates**

Exchange rate can be explained to be a value that a currency has compared to another currency (Krugman, 2000). Tiwari (2003) stated that exchange rate can be divided into two categories, fixed exchange rate and flexible exchange rate. In a fixed exchange rate, it is set by the government, whereas flexible exchange rate is set by the market with or without the influence of the government in the effort to stabilize the monetary. (Kuncoro, 2001).

- **Interest Rates**

Utilizing the economist app GDPGRch, interest rate can be explained to be the value that is gained in the effort of a value that has been saved or invested. These rates will reflect the interaction between exchanges of money (Patterson and Lygnerud, 1999). There is an existence of short and long term interest rates disparities in line with Patterson and Lygnerud (1999). Short term rates is influenced by the Central Bank, thus money is being monopolised accordingly. In long term rates however, shows the condition of the current economy and the possibility of inflation. Both of the rates are linked and work with one another. According to *Certified Public Accountant (CPA) Australia* there are two ways of measuring the risks of interest rates, they are: sensitivity analysis and repricing profiles.

- **Inflation**

Inflation can be easily designated as a persistent increase in price as general, where inflation decreases purchasing power from a currency (McConnel and Brue, 2008). There exist a handful of sources of inflation where aggregate demand increases faster than aggregate supply, therefore increasing the cost of goods and services. The imbalance of aggregate demand and supply is linked to the government's deficit, expansion of bank's interest rates and the increase of foreign demand (Haberler, 1960). Inflation similarly upsurges the price of goods and the price of work labor thus the cost of goods and selling price increases. Inflation possesses very scarce indicators such as Consumer Price Index (CPI), Wholesale Price Index (WPI), and Implicit Price Index (deflator GDP).

2.2. The Association between Exchange Rates and Economic Performance (GDPGR)

Viewing through the Output angle, Udoka and Roland (2012) approve that exchange rate which operates via interest rates is a crucial factor indicating optimistic Economic Performance in a nations, however an increase in exchange rates also shows a increased money supply which would fuel interest rate and promote bank returns. The good news is that their research shows that interest rates do not have a significant impact in optimistic Economic Performance. An increase in interest rates will cause a decrease in real growth rates, this research however is done in Europe (Giovanni *et al.*, 2009).

2.3. Empirical Literature

Aliyu (2011) asserts that energy about Exchange Rate brings about expanded imports and decreased fare while deterioration would grow trade and debilitate import. Likewise, devaluation of Exchange Rate tends to make a move from foreign products domestic merchandise. Consequently, it prompts redirection of wage from bringing in nations to nations sending out through a move regarding exchange, and this has a tendency to have effect on the trading and bringing in nations' monetary development.

Taiwo and Adesola (2013) research the effect of precarious Exchange Rate on bank execution in Nigeria utilizing two intermediaries for bank execution, to be specific credit misfortune to add up to propels proportion and capital store proportion. Government use, loan fee, genuine total national output was added to Exchange Rate as free factors. The two models determined demonstrate that the effect of Exchange Rate on bank execution is touchy to the kind of intermediary utilized for bank execution. Credit misfortune to add up to propel proportion demonstrates that fluctuating Exchange Rate may influence the capacity of currency lenders to oversee advances coming about into abnormal state of awful advances while capital store proportion does not have critical association with Exchange Rate. They set that a steady Exchange Rate is expected to enhance the capacity of the saving currency division to channel credit to the economy.

In a similar vein, Hossain (2002) concurs that Exchange Rate associates the value frameworks of two unique nations by making it feasible for global exchange and furthermore consequences for the volume of imports and fares, and additionally nation's adjust of installments position. Past research on the effect of Exchange Rate on monetary development has achieved differentiating comes about. For example, Empirical confirmation demonstrated that genuine Exchange Rate varieties can influence development results. Edwards and Levy-Yeyati (2003) discovered proof that nations with more adaptable Exchange Rate become speedier. Speedier financial development is essentially connected with genuine Exchange Rate deterioration (Hausmann *et al.*, 2005). Rodric (2009) contends that genuine undervaluation advances financial development, expands the productivity of the tradable area, and prompts an extension of the offer of tradable in local esteem included. He guarantees that the tradable division in creating nations can be too little since it endures more than the non-tradable part from institutional shortcomings and market disappointments. A genuine Exchange Rate undervaluation fills in as a moment best approach to make up for the negative impacts of these twists by upgrading the division's productivity. Higher gainfulness advances interest in the tradable area, which at that point extends, and advances financial development.

Asher (2012) looks at the effect of Exchange Rate variance on the Nigeria financial development for time of 1980 – 2010. The outcome uncovered that genuine Exchange Rate positively affects the financial development. In a comparative report, Akpan (2008) examines remote trade showcase and financial development in a rising oil based economy from 1970-2003 in Nigeria. He found that positive relationship exists between Exchange Rate and monetary development. Obansa *et al.* (2013) additionally look at the connection between Exchange Rate and monetary development in Nigeria between 19702010. The outcome demonstrated that Exchange Rate strongly affects financial development. They reasoned that Exchange Rate progression regarded Nigerian economy as it advance financial development. Azeez *et al.* (2012) additionally explore the impact of Exchange Rate instability on macroeconomic execution in Nigeria from 1986 – 2010. They found that Exchange Rate is decidedly identified with Gross Domestic Product. Adebiyi and Dauda (2009) utilizing blunder rectification display contended in actuality that exchange advancement advanced development in the Nigerian mechanical division and balanced out the Exchange Rate advertise in the vicinity of 1970 and 2006. To them, there was a positive and huge connection between record of modern generation and genuine fare. A one for each penny ascend in genuine fare builds the record of modern generation by 12.2 for every penny. By suggestion, it implies that the arrangement of deregulation affected emphatically on send out through Exchange Rate deterioration.

In any case, past investigations additionally demonstrated that Exchange Rate has no noteworthy impact on monetary development execution. For instance, Bosworth *et al.* (1995) give prove that in an extensive example of

mechanical and creating nations, genuine Exchange Rate unpredictability hampers financial development and lessens profitability development. Ubok-Udom (1999) looks at the issues encompassing the execution of SAP in Nigeria, and reached up a determination that the exceptional components of Nigerian economy diminished the adequacy of currency devaluation in creating alluring impacts. From the investigation of the connection between Exchange Rate variety and development of the residential yield in Nigeria (1971-1995); he communicated development of domestic yield as a direct capacity of varieties in the normal ostensible Exchange Rate. He additionally utilized sham factors to catch the times of currency devaluation. The exact outcome demonstrated that all coefficients of the major illustrative factors have negative signs. Likewise, David *et al.* (2010) look at the impact of Exchange Rate vacillations on Nigerian assembling industry. They utilized various relapse econometric devices which uncovered a negative connection between Exchange Rate unpredictability and assembling area execution.

Aghion *et al.* (2009) found a comparable outcome, yet they additionally demonstrated that the negative impact of genuine Exchange Rate unpredictability on monetary development contracts in nations with more elevated amounts of currency related advancement.

Barkoulas *et al.* (2002) analyze the effect of Exchange Rate vacillation on the volume and fluctuation of exchange streams. They inferred that, Exchange Rate instability demoralizes extension of the volume of exchange in this manner decreasing its advantages. Eichengreen and Leblang (2003) did their examination in 12 nations over a time of 120 years and discovered solid reverse connection between Exchange Rate soundness and development. They presumed that the aftereffects of such estimations unequivocally rely upon the day and age and the specimen. Ogun (2006) thinks about the effects of genuine Exchange Rate on development of non-oil send out in Nigeria by featuring the impacts of genuine Exchange Rate misalignment and instability on the development of non-oil trades. He utilizes the standard exchange hypothesis model of determinants of fare development and two distinct measures of genuine trade misalignment, one of which involves deviation of the acquiring power equality (PPP), and the other which is show based estimation of harmony genuine Exchange Rate (ERER). He watches that independent of the option measures of misalignment utilized, both genuine trade misalignment and unpredictability unfavorably influenced development of Nigerian non-oil sends out. Arize *et al.* (2000) finds a noteworthy negative connection between increments in Exchange Rate instability and fares in creating nations. Servén (2003) demonstrates that genuine Exchange Rate unpredictability adversely influences interest in a huge board of creating nations. This negative effect is altogether bigger in nations with exceedingly open economies and less created currency related frameworks. He likewise discovered confirmation of limit impacts, whereby vulnerability just issues when it is generally high. A comparable report, Eme and Johnson (2012) research the impact of Exchange Rate developments on genuine yield development in Nigeria for the period 1986 – 2010. The outcome uncovered that there is no proof of a solid direct connection between changes in Exchange Rate and yield development. Or maybe, Nigeria financial development has been straightforwardly influenced by currency related factors.

Ogbulu and Torbira (2017) investigate whether there is any linkage manifestation in the exchange rate forwardness in the formal and unofficial foreign exchange markets employing annualized data flow for official foreign exchange rate and parallel foreign exchange rate in Nigeria covering1980-2012. They estimated unit root test, Q-test, BDS and ARCH test to achieve the line dependency and volatility in the series while the Bivariate GARCH improvements were implemented for flow between the official and the parallel foreign exchange markets. The ARCH test results indicate that there is the inflow of volatile attribution in markets and as such, series are volatile in nature. The Bivariate GARCH test for transmission existent between the two markets was not strong enough. This nullify the exchange rate pass-through hypothetical position but is in agreement with the theory of exchange rate disjoint. Overrall, the monetary authorities should endeavour inflow structure and implement desired policies that favours official exchange rate regime in Nigeria to remove the attendant imbalances and dichotomy in the both rates.

Odusola (2006) applied co-integration and error correction model appGDPGRches investigated the reactions of Indian cummulative import demand during the period 1971-1995. The results obtained indicate that import volume is co integrated with relative import price and real GDP. The output of the econometric model estimate shows that import demand in India is largely explained by real GDP and generally less sensitive to import price changes.

Also, Obadan (2006) practicalized with the VECM to test for Marshall-Lerner condition in the exchange rate-balances association in the Baltic States. The condition is found to be met for Lithuania, but not for Estonia, while the results concerning Latria are ambiguous. Although the traditional influencers are sufficient at explaining trade dynamics in Baltic countries, the analysis reveals that a long-run equilibrium association among them exists.

3. Materials and Methods

For purpose of lucidity, this section is further divided into subsections as presented below:

3.1. Research Design

The study design utilized in this research is the Ex-post facto econometrics, which entails where pre-existing variables are matched on the Criterion variable and the variables data are historical or preceding events.

3.2. Model Specification

This study construct and utilized a single interest rate/ exchange rate – economic growth model with two predictor variables linearly in the functional form as follows:

Functional form

GDPGR = *f* (EXCR, INT, INF) ---------- (1)

Where:

GDPGR = Gross Domestic Product Growth Rate
EXCR = Exchange rate
INT = Interest rate:
INF = Inflation rate

This can be mathematically written as:

$GDPGR = \beta_o + \beta_1 EXCR + \beta_2 INF + \beta_3 INR + \mu_i$---------- (2)

Where:

GDPGR = Gross Domestic Product Growth Rate
INT = Interest rate:
INF = Inflation rate
EXCR = Exchange rate
β_0 = Constant Parameter
$\beta_1, \beta_2, \beta_3$ = Estimation parameters
μ = Error terms

3.3. Operational Definition of Variables

Interest rate: This is captured as the cost of the fund, over the study period to which a positive relationship is expected with the criterion variable i.e. Exchange Rate.

Inflation rate: Inflation is defined as a sustained increase in the general level of prices for goods and services. It is measured as an annual percentage increase.

Exchange rate: This is conceptualized as the price of one unit of foreign currency in terms of domestic currency.

Gross Domestic Product Growth Rate: is conceptualized as the percentage change in the Real value of output in Nigeria over the study period.

3.4. Model Estimation Techniques

To investigate the nature of the volatility of the interest rate and intervening variables on Economic Performance, the following tools have to be utilized.

Stationarity Tests: The stationarity of series is necessary to evaluate unit root attributes of the time series. Accordingly, the Augmented Dickey Fuller (ADF) test is employed. The decision is to reject the null hypotheses if the ADF test statistics is absolutely higher than the Mackinnons Critical Values at 1%, 5% and 10% levels of significance (Brooks, 2009).

Generalized autoregressive conditional heteroscedasticity (GARCH): This is a Process is an econometric term established in 1982 by Robert F. Engle: It is usually model as follows:

$Var(yt|yt-1,\ldots,yt-m)=\sigma 2t=\alpha 0+\alpha 1y2t-1+\cdots+\alpha my2t-m.$

Decision Rule: y_t is white noise when $0 \leq \alpha_1 \leq 1$.

Impulse Response: refers to the response of any dynamic system in response to some external change. In both cases, the impulse response describes the reaction of the system as a function of time.

$y_t = y^s + Ay^h_{t-1} + Bu_t$

Variance Decomposition: The variance decomposition designates the amount of information each variable contributes to the other variables in the autoregression. It determines how much of the forecast error variance of each of the variables can be explained by exogenous shocks to the other variables. It is usually model as follows:

$y_t = v + A_1 y_{t-1} + \ldots + A_p y_{t-p} + u_t$

3.5. Data Presentation

Data for this study consist of end of year values of Gross Domestic Product Growth Rate (GDPGR) being a ratio of Nigeria's Economic Performance (GDPGR) to its population, Interest rate, Inflation rate and Exchange Rate They cover the period of 1986 to 2016 (31 years). The data set is presented in table 1 below:

Table-1. Gross Domestic Product Growth Rate (GDPGR), Interest rate (INT), Inflation rate (INF) and Exchange rate (EXCR): 1986 – 2016.

Year	GDP	GDPGR (%)	INT	INF	EXCR
1986	15238	1.89967	10.5	13.7	2.02058
1987	15263.9	0.17024	17.5	9.7	4.01794
1988	16215.4	6.23327	16.5	61.2	4.53673
1989	17294.7	6.65606	26.8	44.7	7.39156
1990	19305.6	11.6276	25.5	3.6	8.03781
1991	19199.1	-0.552	20.01	23	9.90949
1992	19620.2	2.19349	29.8	48.8	17.2984
1993	19928	1.56881	18.32	61.3	22.0511
1994	19979.1	0.25658	21	76.8	21.8861

1995	20353.2	1.87235	20.18	51.6	21.8861
1996	21177.9	4.05203	19.735	14.3	21.8861
1997	21789.1	2.88592	13.5425	10.2	21.8861
1998	22332.9	2.4956	18.2925	11.9	21.8861
1999	22449.4	0.52184	21.32	0.2	92.6934
2000	23688.3	5.5185	17.98	14.5	102.105
2001	25267.5	6.66685	18.2925	16.5	111.943
2002	28957.7	14.6044	24.85	12.2	120.97
2003	31709.5	9.50261	20.71	23.8	129.357
2004	35020.6	10.442	19.18	10	133.5
2005	37475	7.00846	17.95	11.6	132.147
2006	39995.5	6.72597	17.26	8.5	128.652
2007	42922.4	7.31808	16.9375	6.6	125.833
2008	46012.5	7.19929	15.13543	15.1	118.567
2009	49856.1	8.35334	18.99083	13.9	148.88
2010	54612.3	9.53979	17.58562	11.8	150.298
2011	57511	5.30792	16.02131	10.3	153.862
2012	59929.9	4.20589	16.79031	12	157.499
2013	63218.7	5.48779	16.72283	7.96	157.311
2014	67152.8	6.22294	16.54839	7.98	158.553
2015	69023.9	2.7864	16.84845	9.55	193.279
2016	67931.2	-1.5831	16.86833	18.55	253.492

Sources: C*entral Bank of Nigeria, Statistical Bulletin (Various Issues).*

4. Presentation of Results

4.1. Presentation of Stationarity (Unit Root) Test Results

The results of the stationarity tests for all the study variables are presented in table 2 below:

Table-2. Results of Stationarity (Unit Root) test

Variable	ADF t-statistics	Critical Value 5%			Order of Integration	Prob.
		1%	5%	10%		
D(GDPGR)	-7.133460	-3.679322	-2.967767	-2.622989	I(1)	0.0000
D(INT)	-4.860504	-3.737853	-2.991878	-2.635542	I(1)	0.0007
D(INF)	-4.665523	-3.711457	-2.981038	-2.629906	I(1)	0.0010
D(EXCR)	-3.480324	-3.679322	-2.967767	-2.622989	I(1)	0.0004

Source: *Author's compilation.*

Note: D(GDPGR), D(INT), D(INF), and D(EXCR) represent the differenced values of The Gross Domestic Product Growth Rate (GDPGR), Interest Rate (INT), Inflation Rate (INF) and Exchange Rate (EXCR) respectively.

Source: *Authors Computations using E-Views 9*.

From the table above, going by the decision rule above, it could be observed that all variables are stationary at their first difference (1), as the absolute values of their ADF test statistics are all higher than their respective MacKinnon's critical values at 1%, 5% and 10% respectively.

4.2. Generalized Autoregressive Conditional Heteroscedasticity (GARCH)

The study intends to test for the influence of shocks of the predictors on the criterion variables:

Table-3. Results of Volatility test (GARCH):

Criterion Variable: GDPGR
Methods: ML ARCH - Normal distribution (BFGS / Marquardt steps)
Sample: 1986 2014
Number of observations: 29
Convergence achieved after 35 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(4) + C(5)*RESID(-1)^2 + C(6)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
INT	1285.467	121.6754	10.56473	0.0000
INF	118.9682	120.2657	0.989211	0.3226

EXCR	313.1776	21.98631	14.24421	0.0000
	Variance Equation			
C	25776758	37742870	0.682957	0.4946
RESID(-1)^2	0.881661	0.886844	0.994155	0.3201
GARCH(-1)	-0.020071	0.385705	-0.052037	0.9585
R-squared	0.405484	Mean dependent var		51652.18
Adjusted R-squared	0.359752	S.D. dependent var		14858.87
Log likelihood	-306.4043	Hannan-Quinn criter.		21.63372
Durbin-Watson stat	0.583159			

Source: *Authors Computations using E-Views 9*.

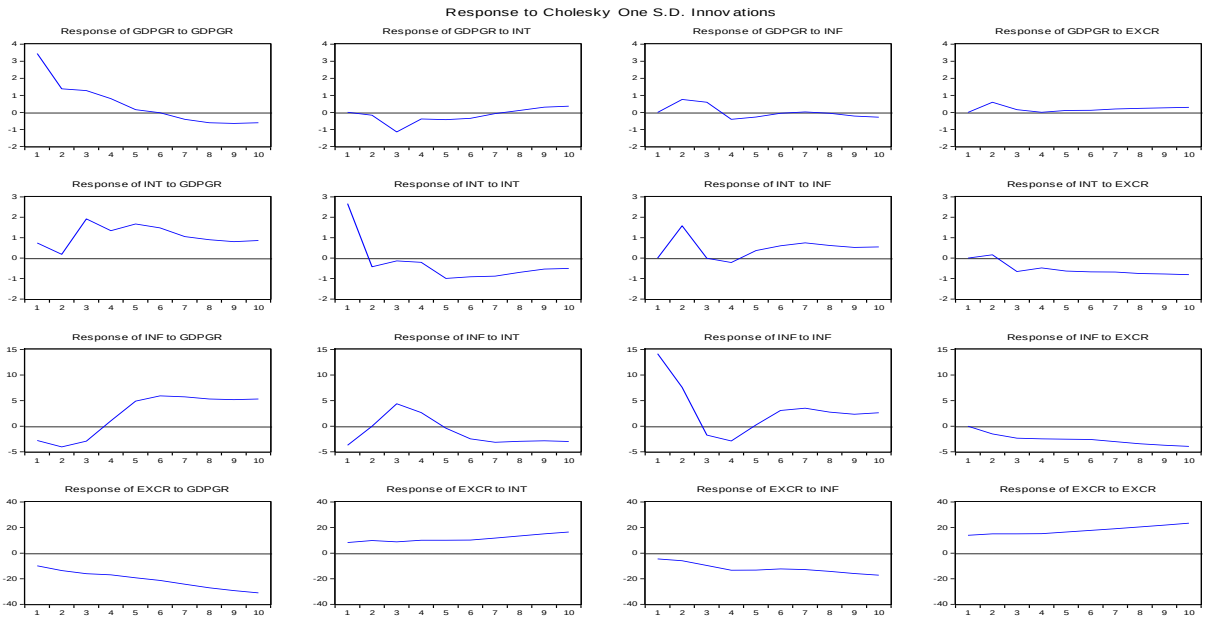
The above output shows that despite the short-run spill over influx of Interest Rate and exchange rate on Gross Domestic Product Per Capita based on the probability level of 0.0000 and 0.0000 respectively, there is an absence of long run association between the interest rate and its moderators on Economic Performance as denoted by Gross Domestic Product Per capita (GDPGR) as the Differentiated GARCH model shows a negative (-0.020071) but insignificant (0.9585 > 0.05) influx of the volatility of The interest rate and its components on Economic Performance in Nigeria and shows that the volatility of the predictor variables only account for 40.5% of variation in the Criterion variable (GDPGR).

4.3. Impulse Response evaluation

Table-4. Impulse Response Output

Response of GDPGR:				
Period	GDPGR	INT	INF	EXCR
1	3.449559	0.000000	0.000000	0.000000
	(0.45295)	(0.00000)	(0.00000)	(0.00000)
2	1.379714	-0.167864	0.753832	0.595511
	(0.85708)	(0.69024)	(0.65345)	(0.69270)
3	1.278400	-1.147884	0.589486	0.159373
	(1.03233)	(0.72198)	(0.68912)	(0.43108)
4	0.805276	-0.393793	-0.407695	0.003073
	(1.13052)	(0.66203)	(0.64003)	(0.46512)
5	0.158337	-0.428343	-0.277862	0.113143
	(1.16185)	(0.67084)	(0.54703)	(0.38288)
6	-0.019499	-0.347456	-0.055016	0.116123
	(1.08698)	(0.61145)	(0.41408)	(0.40195)
7	-0.406040	-0.075449	0.021546	0.200612
	(0.95037)	(0.58446)	(0.39328)	(0.42400)
8	-0.611041	0.115015	-0.050483	0.238620
	(0.85066)	(0.55962)	(0.37387)	(0.44993)
9	-0.650806	0.301376	-0.213330	0.262737
	(0.75950)	(0.54381)	(0.38037)	(0.46144)
10	-0.612307	0.361130	-0.280506	0.298070
	(0.72489)	(0.53087)	(0.39413)	(0.47144)

Source: Authors Computations using E-Views 9.



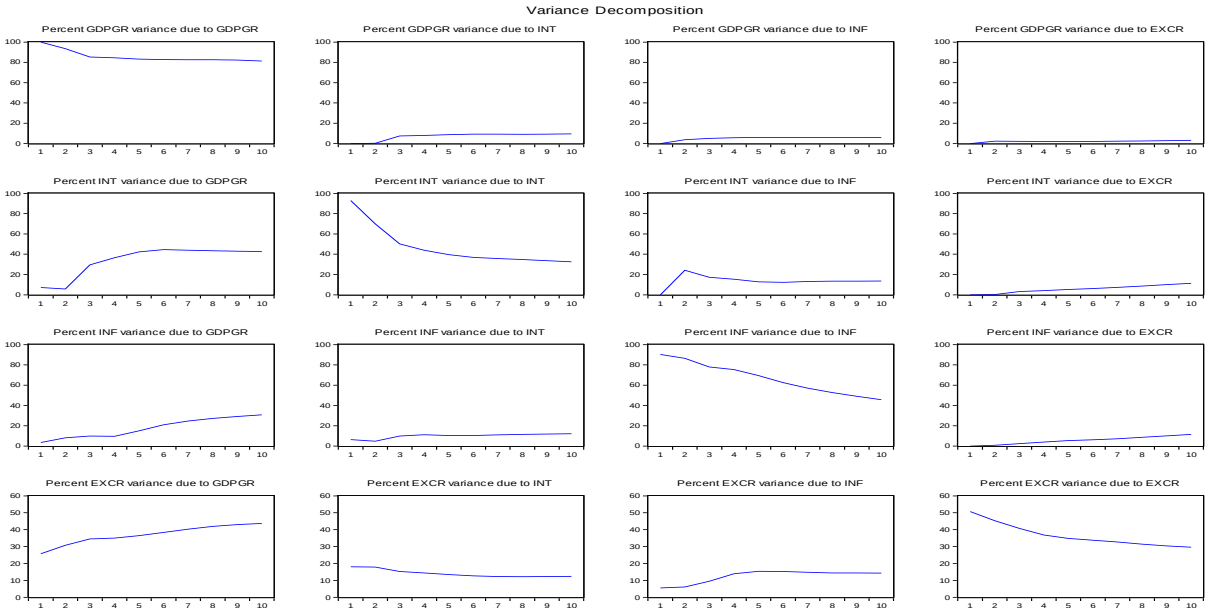
The output above shows that for the short run, only exchange rate demonstrated mixed impulses (i.e. positive and negative impulses) to Gross Domestic Product Growth Rate (GDPGR), but in the long run, all variables develop minute impulses and some variables had static roles as exchange rate showed a unilaterally positive impulse to Gross Domestic Product while interest rate and inflation had negative impulses along the line to Gross Domestic Product Growth Rate, as a response to the varying impulses, the Economic Performance (GDPGR) which started on a positive note headed towards a more negative response, i.e. the mild behaviour of all predictor variables led to a negative response from Economic Performance as denoted by Gross Domestic Product growth Rate (GDPGR).

4.4. Variance Decomposition Evaluations

Table-5. Variance Decomposition Output

Variance Decomposition of GDPGR: Period	S.E.	GDPGR	INT	INF	EXCR
1	3.449559	100.0000	0.000000	0.000000	0.000000
2	3.841112	93.55385	0.190985	3.851548	2.403619
3	4.251939	85.38853	7.444094	5.065308	2.102072
4	4.364487	84.44568	7.879201	5.680014	1.995105
5	4.398557	83.27214	8.705950	5.991423	2.030484
6	4.414173	82.68596	9.264047	5.964641	2.085349
7	4.438039	82.63609	9.193578	5.903018	2.267310
8	4.488015	82.65963	9.055645	5.784938	2.499782
9	4.557543	82.19596	9.218731	5.828881	2.756432
10	4.630773	81.36520	9.537632	6.012910	3.084255

Cholesky Ordering: GDPGR INT INF EXCR
Source: Authors Computations using E-Views 9.



In summary of the above variance decomposition, it can be seen that Interest rate and inflation rate had little to no form of variation over time in the short and long run, but exchange rate had an heightened form of movement, all these behaviours cumulated in a drastic decrement in the behaviour of the performance of the economy i.e. Gross Domestic Product growth Rate (GDPGR) as it dropped from 91.00% in the short run to 81.36% in the long run which also owns to self-shock/ own shock.

Table- 6. Granger Causality Test

Pairwise Granger Causality Tests
Date: 08/09/17 Time: 09:27
Sample: 1986 2016
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
INT does not Granger Cause GDPGR	29	1.94049	0.1655
GDPGR does not Granger Cause INT		0.56043	0.5783
INF does not Granger Cause GDPGR	29	0.42850	0.6564
GDPGR does not Granger Cause INF		1.38126	0.2705
EXCR does not Granger Cause GDPGR	29	0.13660	0.8730
GDPGR does not Granger Cause EXCR		0.58832	0.5631

Source: Authors Computations using E-Views 9.

The above causality shows that the employed explaining variable which includes interest rate, inflation rate and exchange rate do not possess causal relationship with Gross Domestic Product Growth Rate (GDPGR) in Nigeria as seen over the study period which is evidence by the probability level which are seen to be greater than the 0.05 significance level.

4.5. Summary of Findings

The above therefore seeks to explain that despite interest rate, inflation rate and exchange rate short run influence on Economic Performance by their level of independent volatility, they lack long run influence on Economic Performance except exchange rate which displays a great degree of long and short run influence on Economic Performance as proxied by Gross Domestic Product Growth Rate.

5. Discussion, Conclusions and Policy Recommendation

The study evaluated the influence of exchange rate volatility on the Profitability of Performance of the Nigerian Economy over the time from of 1986 to 2016, utilizing secondary data tracked from the statistical reports of the Apex Bank in Nigeria, and utilizing techniques such as Unit root test, Generalized autoregressive conditional heteroscedasticity (GARCH), Impulse Response Output and Variance Decomposition Test to evaluate variables such as Interest rate, inflation rate, exchange rate against a sole indicator of Economic Performance Ice Economic Performance (GDPGR), it was discovered that despite the short run influx of the spill over volatility of Interest rate

and inflation rate, there exist no long run volatility influence of interest rate on Economic Performance in the nation. The results might probably be attributed to the following factors which prevail significantly in Nigeria;

i. The interest rate, inflation rate and exchange rate are homogenous in nature, i.e. they are more likely to possess internal trait than influence or react to Gross Domestic Product growth rate
ii. The prominence and insignificance of the residual as contained in the GARCH shows that there exist other factors not captured in the study that might be driving the Gross Domestic Product Growth Rate (GDPGR).
iii. This other factors could be likened to the parallel economy, i.e. the prevalence of parallel market for foreign exchange in Nigeria which significantly distorts prices, economic planning and monetary policy management in Nigeria.

In the light of these issues raised above, it is recommended that.

- Economic output needs to be bolstered through other means apart from monetary policy induced means such as the interest rate.
- Government should implement a moderate control of the exchange rate to avoid further depreciation of the Naira.
- Government should encourage local entrepreneurs by providing the infrastructures and incentives to aid domestic production and by extension, exports to earn foreign exchange.
- The apex financial institution and relevant public authorities should ensure an interest rate system and status that could stimulate performance of financial institutions in their intermediation function.

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