



## IMPACT OF EXCHANGE RATE FLUCTUATIONS IN INTERNATIONAL TRADE: A CASE STUDY OF CENTRAL BANK OF NIGERIA

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### ABSTRACT

*The research examines impact of exchange rate fluctuation in international trade A case study of CBN Foreign Exchange is the means of payment for international transaction it is made up of convertible currencies that are generally accepted for the settlement of international trade and other external obligation. Just like every other commodity. A market is established which works more like other markets having a supply curve, a demand curve and an equilibrium price and quantity. There are also conditions which are held constant. Since September 1986, when the market that determined exchange rate system was introduced via the second tier foreign exchange market, the naira exchange rate has exhibited the features of continuous depreciation and instability. This instability and continued depreciation of the naira in the foreign exchange market has resulted in declines in the state economic activities, The study would identify the strengths and weakness of exchange rate policy and management, identify those economic variables that are mostly affected by instability in exchange rate and provide the general public with the awareness on the foreign exchange transaction and its impact on the economy. The investigation utilizes the Ordinary Least Square (OLS) technique. The technique is chosen since it is a basic liner regression model. In a straightforward regression model, there is just a single autonomous variable the study recommended that government should develop effective export promotion strategies in order to encourage domestic industries to produce and export more. This would strengthen the country's export base against its import base resulting in a surplus balance of trade.*

**Keywords:** Exchange rate fluctuation, International Trade, Nigeria

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### 1.0 Introduction

Foreign exchange is the means of payment for international transaction. It is made up of convertible currencies that are generally accepted for the settlement of international trade and other external obligation. Just like every other commodity, a market is established which works more like any other market having a supply curve, a demand curve and an equilibrium price and quantity. There are also conditions which are held constant (ceteris Paribus). When these conditions change, the curve shift and there is a change in the equilibrium price quantity. This market for currencies is known as the foreign exchange market.

The foreign exchange market according to the central bank of Nigeria is the medium of interaction between the sellers and buyers of foreign exchange. The seller of foreign exchange constitutes the supply while the buyers of foreign exchange constitutes its demand. The supply of foreign exchange is derived from oil exports, non-oil export, expenditure of foreign tourist in Nigeria, capital repatriation by Nigerians resident abroad etc. The demand for foreign exchange on the other hand consist of payments for imports, financial commitments

to international organizations, external debt service obligations etc. The demand for foreign exchange on the other hand consist of payments for imports, financial commitments to international organizations, external debt service obligations etc.

Before 1958, when the central bank was established and the enactment of the exchange control act of 1962, foreign exchange was earned by the private sectors and held in balances abroad by commercial banks which acted as agents for local exporters. Another feature of this period was that agriculture exports contributed the bulk of foreign exchange receipts. The fact that the British pound sterling was at par with the Nigerian pound sterling with easy convertibility delayed the establishment of an active foreign exchange market.

However by 1958, when the central bank was established and subsequent centralization of foreign exchange authority. In banks, the need for a local foreign exchange market is paramount. Other factors that led to the evolution of the foreign exchange market in Nigeria include:

The changing pattern of international trade institutional changes in the economy. structural shift in production, etc.

By the early 1970's, the official exchange receipt was enhanced following the sharp rise in prices and demand for crude oil exports which had by now displaced agricultural exports. The foreign exchange market experienced a boom during this period and there became a need for the management of foreign exchange resources. However, it was not until 1982 that comprehensive exchange controls were applied.

The exchange control system failed to evolve an appropriate mechanism for foreign exchange allocation. This led to the development of a dual exchange rate system, comprising of the first and second tier foreign exchange market which was adopted in September 1986. The first tier was managed while the second tier was subjected to market forces. Not only has there been a metamorphosis of the institutional frame work from second tier foreign exchange market (SFEM) to foreign exchange market (FEM) to interbank foreign exchange market (IFEM) to Autonomous Foreign Exchange market (AFEM) etc, there have been frequent changes in operational guidelines and procedures. Various pricing methods, marginal and weighted average exchange rates determinations and the Dutch Auction System (DAS) among other have also been adopted.

All those aimed at ensuring more efficient allocation and utilization of scarce foreign exchange resources, to enhance the flow of capital into the country, stimulates domestic industrial production, promote export, increase revenue to the government, help reschedule our foreign debt at more profitable terms etc.

When there are fluctuations in foreign exchange rates, various economic activities are usually affected such as the purchasing power, balance of payment, prices of goods and services, import structure, export earning, government revenue, external reserves among others. These prevailing instability in exchange rates and its effects on various economic variables, will be the areas of concentration of the research work.

## 2.0 Literature Review and Empirical Studies

Bosworth, Collins and Yuchin (1995) in carrying out a research on an enormous example of mechanical and creating nations gave proof that genuine conversion standard unpredictability hampers financial development and lessens efficiency development.

Arise et al (2000) applied the Johansen's co-integration procedure and Error Correction Model to investigate the effect of real exchange rate instability on export for thirteen (13) Less Developed countries. The study was carried out using quarterly data spanning from 1973 – 1996. The result revealed that an upward movement in real exchange rate led to an impactful negative implication on the demand of export in both the short-run and long- run in all thirteen countries.

Mauna and Reza (2001) researched the impact of exchange advancement, genuine swapping scale unpredictability and exchange expansion on chose North African nations, Morocco, Algeria, and Tunisia. By breaking down the genuine conversion scale into principal and financial determinants, and applying standard factual proportions of conversion scale variances and the proportions of conversion scale hazard created by Puree and Steinher (1989), the investigation showed that swapping scale deterioration positively affects the amount of produced sends out while conversion scale misalignment and variance have a negative impact. The general consequence of the examination indicated that all assembling sub-areas are receptive to swapping scale unpredictability, however the level of responsiveness varies across parts.

Broda and Romails (2003) found that genuine conversion scale unpredictability has a noteworthy negative effect on exchange separated products. The investigation utilized a reciprocal exchange model, where the Ordinary Least Square and Generalized Method of Moment strategies were utilized to break down the information. Subsequent to thinking about the bearing of causality, they found out that a 10% expansion in instability pushes down separated item exchange by 0.7%, while a 10% expansion in exchange diminishes swapping scale unpredictability by 0.3%.

Eichengreen and Lablang (2003) finished their assessment in 12 countries over a period of 120 years and found an enormous opposite association between trading scale strength and improvement. They thusly construed that the results of such appraisals immovably depend upon the time period and the model.

Utilizing board assessments for in excess of 180 nations Edwards and Levy Yeyati (2003) discovered proof that nations with more adaptable conversion standard become quicker. Ozturk and Kalyoncu (2009) utilized quarterly information for six nations – South Korea, Pakistan, Poland, South Africa, Turkey, and Hungary – from the period 1980 - 2005 to research the effect of swapping scale unpredictability on exchange streams every nation. Utilizing Engle-Granger remaining based cointegration procedure, the consequences of the investigation indicated a noteworthy negative impact on exchange Pakistan, Poland, South Korea, and South Africa, and a beneficial outcome on Turkey and Hungary.

Mukherjee and Pozo (2011) contemplated the effect of swapping scale unpredictability on the volume of respective exchange from a sample of 200 countries using a Gravity Model for the analysis. The result indicated a negative impact, linking exchange rate instability and the volume of bilateral trade. However, at a very high level of volatility, the effect decreases continuously.

Kogid et al (2012) contemplated the effect of conversion scale on monetary development in Malaysia utilizing time-arrangement information for the period 1971 – 2009. The ARDL Bounds test was utilized to investigate the information. The investigation found that a since

quite a while ago run co-combination exists between swapping scale (ostensible and genuine) and financial development. Consequently, conversion scale significantly affected monetary development.

Korkmaz (2013) broke down the impact of swapping scale on monetary (GDP) for nine European nations; France, Germany, Greece, Italy, Spain, Turkey, Poland, and United Kingdom. The examination utilized yearly information of 2002 - 2011. Utilizing the board information procedure for the examination, the investigation found that there was an immediate connection between conversion scale and financial development for the nine nations.

Serenis and Tsounis (2014) inspected the impact of conversion scale unpredictability on total fares of Croatia and Cyprus during the period 1990 - 2012. Utilizing the ARDL procedure, the outcomes recommended that conversion standard instability positively affects sends out for the two nations.

Tiwari and Sharma (2015) researched the connection between unfamiliar exchange and monetary development of the Chinese economy making use of time-arrangement information from 1980 - 2013. The investigation utilized Co-reconciliation, Granger Causality examination, and Vector Error Correction Mechanism (VECM) to investigate the information. The outcomes affirmed that unfamiliar exchange and GDP were co- coordinated and further demonstrated the presence of a since quite a while ago run harmony relationship, between unfamiliar exchange and Gross domestic product. Jibrin et al (2017) examined the impact of change scale on the Gross Domestic Product (GDP) and other macroeconomic totals for an example of ten (10) ECOWAS part states. The nations were Benin Republic, Burkina Faso, Cape-Verde, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Nigeria, and Sierra Leone. Utilizing the Ordinary Least Square technique for investigation, the examination uncovered that swapping scale significantly affected the GDP in Benin Republic, Guinea Bissau, Liberia, and Nigeria.

Osuntogun et al (1993) in their investigation of key issues in advancing Nigeria's non-oil sends out decided the impacts of conversion standard vulnerability on Nigeria's nonoil trade execution as a side examination. This denoted the spearheading exertion in Nigeria to decide the impact of conversion scale hazards on trades.

Be that as it may, the investigation didn't mull over the cross-value impacts.

Ubok-udom (1999) in his investigation on the familiarity between conversion scale variety and increase in standard of homegrown yielded in Nigeria (1971-1995), investigated the situations encompassing the usage of the Structural Adjustment Program (SAP) in Nigeria and inferred that the impossible to miss high points of the Nigerian economy decreased the viability of money devaluation in making tempting outcomes in the economy. Utilizing fakers' factors to get the times of money devaluation, the exact outcomes uncovered that all the coefficients of the logical factors had negative (-) signs. exchange misalignment; the Purchasing Power balance (PPP) and a model-based appraisal of Equilibrium Real Exchange Rate (ERER). He found that paying little heed to the misalignment measure utilized, both real exchange misalignment and volatility had a negative effect on the growth of Nigeria's non-oil exports.

Akpan (2008) explored the unfamiliar trade market and financial development in a rising oil-based economy from 1970-2003 in Nigeria. The investigation recognized a positive relationship in presence between conversion standard and monetary development.

Adebiyi and Dauda (2009) utilizing blunder revision model distinguished a positive and noteworthy connection between mechanical creation and genuine fare. In this manner a 1% ascend in genuine fare expands the file of modern creation by 12.2%. This implies the arrangement of liberation affected emphatically on send out through swapping scale devaluation.

Aliyu (2010) examined the effect of conversion standard unpredictability on Nigeria's non-oil trades from 1986-Q1 (first quarter) to 2006-Q4 (final quarter), utilizing Vector Error Correction and VAR model. The outcome set up a since quite a while ago run steady and negative connection between Naira conversion standard instability and non-oil sends out in Nigeria. Nonetheless, the outcome was positive for US swapping scale instability and non-oil trades.

David, Umeh and Ameh (2010) analyzed the impact of swapping scale vacillations on Nigeria's muster industry utilizing a various relapse instrument. The outcomes realized a negative connection between conversion standard instability and the construct part execution.

Joseph (2011) applied the Generalized Auto-backward Conditional Heteroscedasticity (GARCH) model to examine the effect of conversion standard unpredictability on exchange Nigeria, utilizing time arrangement information from 1970 - 2009. The examination showed that a negative and factually unimportant transmission existed between conversion scale instability and total exchange.

Oyovwi (2012) considered the impact of conversion standard unpredictability on financial development in Nigeria. The examination utilized time arrangement yearly information from 1970 - 2009. The Generalized Auto-backward Conditional Heteroscedasticity (GARCH) strategy was utilized to create conversion scale unpredictability and non-oil sends out in Nigeria. Nonetheless, the outcome was positive for US swapping scale instability and non-oil trades. The outcomes demonstrated that Exchange rate (EXR) and Oil Revenue (OREV) were emphatically identified with the Real GDP, while Balance of Payment (BOP) was contrarily identified with the Real GDP.

Asher et al (2012) examined the impact of exchange rate fluctuations on Nigeria's economic growth from 1980 to 2010. The result showed that the Real exchange rate has a positive impact on economic growth.

Akpan and Atan (2012) explored the impact of swapping scale development on genuine yield development in Nigeria for the period 1986-Q1 to 2010-Q4. The investigation applied a Generalized Method of Moments procedure for examination and discovered there was no huge connection between changes in genuine swapping scale and yield development. Or maybe it recommended that Nigeria's financial development has been outrightly influenced by money related factors. Consequently, the end was that conversion scale changes are essential yet not sufficient to resuscitate the Nigerian economy.

Usman and Adejare (2012) examined the impact of unfamiliar trade systems on modern development in Nigeria utilizing time arrangement information for the period 1985 - 2005. The factors utilized in the investigation included GDP (the needy variable), World Price Index, Per capita pay, and Net fares as the free factors. Utilizing the OLS and relationship strategies, the investigation reasoned that conversion scale significantly affected monetary development.

Dickson and Ukavwe (2013) used the Error correction and GARCH model to research conversion scale volatilities on exchange varieties Nigeria utilizing yearly time arrangement information from 1970-2010. The aftereffect of the investigation demonstrated that swapping

scale instability isn't critical in clarifying varieties in imports yet was discovered to be measurably huge and positive in clarifying varieties in trades.

Obansa, Okoroafor, Aluko and Millicent (2013) investigated the association between trading scale and money related improvement in Nigeria for the stretch of time 1970 - 2010. The result indicated that transformation standard emphatically influenced monetary turn of events. They appropriately deduced that trading scale movement would advance the development of Nigeria's economy.

Taiwo and Adesola (2013) investigated the impact of tricky exchange rates on bank execution using two delegates for bank execution – credit mishap to add up to propels proportion and capital store proportion. Government consumption, Interest rates and Real GDP were additionally included as autonomous factors, close by Exchange rate. The examination indicated that the effect of transformation scale on bank execution is fragile to the sort of delegate used for bank execution. Advance adversity to mean advances extent shows that unbalanced transformation scale may impact the limit of moneylenders to control credits achieving a raised degree of terrible advances, while capital store extent has no huge relationship with conversion scale.

Usman, Sa'idu and Musa (2013) explored the effect of conversion standard unpredictability on trade in Nigeria. The examination utilized the OLS strategy, Granger causality Test, ARCH and GARCH procedures. The Augmented Dickey-Fuller strategy was utilized for testing for the presence of Unit root. The causality test uncovered a causation among fare and swapping scale in the nation, anyway the causation streams from conversion standard to trades for example Swapping scale causes trade. In accordance with this outcome, ARCH and GARCH test demonstrated that conversion scale is unstable, anyway send out is non-unpredictable.

The examination hence reasoned that swapping scale has positive effect on trades in Nigeria.

Adeniran et al (2014) explored the effect of swapping scale on the pace of financial development in Nigeria for the period 1986 - 2013 utilizing the Ordinary Least Square strategy. Moreover, the examination showed that financing cost and expansion negatively affected monetary development. The examination suggested that the administration ought to energize send out advancement systems so as to keep up an excess parity of exchange; develop adequate infrastructural facilities to attract foreign investment and the development of an effective fiscal and monetary policy.

Akpan et al (2015) utilized the Generalized technique for second (GMM) and concurrent conditions model to investigate the impacts of conversion scale development on Nigeria's monetary development utilizing quarterly information from 1986-2014. The examination uncovered that there is no immediate connection between conversion standard and bring development, rather Nigeria's financial development has been legitimately influenced by money related factors.

It recommended a broad program of exchange rate reforms in line with the exchange rate policy adopted.

Akinlo and Lawal (2015) inspected the effect of swapping scale on modern creation in Nigeria over the period 1986-2010 utilizing the Vector Error Correction model for examination. The examination proposed the presence of a since quite a while ago run connection between mechanical creation record, swapping scale, cash gracefully and expansion rate. It reasoned that swapping scale deterioration had no noteworthy effect on modern yield in the short run at this point had a positive and basic impact as time goes on.

Gatawa and Mahmud (2017) inspected both the short and since a long-time prior run effects of transformation standard unusualness on agricultural charges volume in Nigeria from 1981 – 2014. The GARCH and ARDL strategies were utilized to appraise the instability of the trade rates. The outcomes uncovered that the swapping scale significantly affected the horticultural exports' volume.

### 3.0 Research Methodology

#### 3.1 Model Specification

The study applies an ex post-facto research plan. Kerlinger (1964) characterized ex post facto research as that exploration in which the free factors or factors have just happened and in which the analyst begins with the perception of a needy variable or variable.

The investigation utilizes the Ordinary Least Square (OLS) technique. The technique is chosen since it is a basic liner regression model. In a straightforward regression model, there is just a single autonomous variable.

Mathematically, it is represented as follows.

$$Y = b_0 + b_1X + b_2X_1 + u$$

Where.

Y = The dependent variable;  $b_0$  = the intercept;  $b_1$  = the slope. X = The autonomous variable

Therefore, in line with the above equation, the model for the study becomes.

$$GDP = b_0 + b_1EXR + b_2INT + b_3INF + b_4TB + u$$

Where

the GDP represents the economic growth of Nigeria,

EXR represents the exchange rate.

INT represents interest rate. INF represents inflation rate.

TB represents exports and imports.

u is the stochastic or error term.

The study employs the Augmented Dickey Fuller test, Cointegration and Granger Causality test.

Augmented Dickey Fuller is used to test for the stationarity (or trend stationarity) of time series. That is, it is used to ascertain whether a series is stationary or non-stationary.

Hypothesis for the test is as follows:

H<sub>0</sub>: there is unit root. Series is non-stationary

H<sub>1</sub>: the time series is stationary (or trend stationary)

Co integration tests analyzes the long-run parameters or equilibrium in a system with unit root variables. It follows the assumption that the variance and means of a given series are constants, independent of time. It is used to determine the existence of a correlation between two or more time series in the long run. The test is also used to identify the level of sensitivity exhibited by two more variables to another variable in a given model. The most dominant co integration tests are the Engle-Granger Test, Johansen Test and the Phillips-Ouliaris test.

For this study the Engle-Granger test is applied in the analysis.

The Granger causality test is used to investigate causality between two variables in a time series. This approach employs empirical data to find patterns of correlation between two variables.

#### 4.0 Summary and Recommendations

This study focuses on exchange rate fluctuations and its impact Nigeria's economic growth, with specific focus on its production capacity.

The study carried out its analysis by employing the exchange rate (EXR), interest rate (INT), inflation rate (INF) and trade balance (Tb) as the independent variables and Real GDP as the dependent variable.

All data used are secondary data obtained from the Statistical Bulletin of Central Bank of Nigeria. Inflation rate negatively affects the GDP. The loan cost positively affects the GDP. Exchange receptiveness negatively affects the GDP. In the autocorrelation, we acknowledge the invalid speculation. The assessors have a consistent difference and are well specified.

From the experimental evaluated work, a couple of makers fought that change scale is earnestly related to yield improvement, while a couple of makers battled that it is conflictingly related. Regardless, from observational examination of the assessment, it was found that trading scale is conversely related to yield improvement.

Since exchange rate fluctuation have an impact on the economy. There is need to develop an effective exchange rate regime. An efficient exchange rate policy would help to curtail inflation, improve Nigeria's balance of trade, and boost Nigeria's production capacity. These are key indicators of positive economic growth

Finally, the government should influence the foreign exchange rate, by positive economic reforms that will reduce the adverse effect of unstable foreign exchange rate on the Nigerian economy with respect to trade flow.

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## Appendix

### OLS RESULTS

	RGDP	NOMINAL GDP	INT RATE	INFLATION RATE	EXCHANGE RATE(N_\$)	BALANCE TRADE
Mean	16530063	72355922	11.03846	11.10527	181.3254	3370.098
Median	15263929	71713935	12.00000	11.58110	157.3100	4216.161
Maximum	19927993	1.28E+08	14.00000	16.52350	306.0800	5822.590

Minimum	13779255	28662469	6.000000	5.388000	118.5500	-2230.910
Std. Dev.	2256821.	31873155	2.682595	3.204719	64.94565	2360.724
Skewness	0.419781	0.190876	- 0.702994	0.030420	1.126711	-1.360631
Kurtosis	<b>1.613554</b>	<b>1.867233</b>	<b>2.489149</b>	2.261134	2.768573	3.825957
Jarque-Bera	1.423012	0.773984	1.212125	0.297713	2.779546	4.380712
Probability	0.490904	0.679096	0.545494	0.861693	0.249132	0.111877
Sum	2.15E+08	9.41E+08	143.5000	144.3685	2357.230	43811.28
Sum Sq. Dev.	6.11E+13	1.22E+16	86.35577	123.2427	50615.26	66876226
Observation	13	13	13	13	13	13