EXCHANGE RATE MISALIGNMENT AND PERFORMANCE OF THE NIGERIAN ECONOMY

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Abstract

The study appraised exchange rate misalignment onNigerian economy. The aims were to assess the effect of exchange rate fluctuations on gross domestic product and how inflation, real money supply and trade openness affect gross domestic product in Nigeria. The study anchored on Purchasing Power Parity theory (PPP). Historical research design was used while Augmented Dickey-Fuller (ADF) test, Johansen cointegration test and Pasimonius Error Correction Mechanism (ECM) test and estimation of relevant equations were applied. In this study, exchange rate fluctuation is measured as deviations around the trend which makes it different from other studies. It was discovered that short-run and long-run exist between and among the variables of study. The result revealed that exchange rate misalignments have significant negative relationship with Gross Domestic Product (GDP) in the long run and the short-run. Trade openness was found to have an inverse significant relationship with GDP in the long-run and the short-run while real money supply and inflation were found to have a significant direct relationship with GDP in the long-run and short-run. Policies that will stimulate local production for export and regulation of activities of bureau the change were recommended. Monetary authority should strengthen price stability policies through regulation of money supply in order to limit geometric inflationary trend. Lastly, export diversification should be strengthened to enhance trade openness.

Keywords: Exchange rate misalignment, inflation, real money supply, purchasing power parity, and trade openness

Introduction

The exchange rate or price undergoes numerous changes within a given time. Nowadays, exchange rate misalignment is a contemporary issue in Nigerian economy. The reason is that the

major role of every economic is to maintain a sustainable exchange rate system. Nigeria's currency on the official market will continue to depreciate as long as formal reforms in the foreign exchange market are not efficiently managed and sustained. Exchange rate policy is crucial and have economic implications for a nation's balance of payments equilibrium, gross domestic product growth as well as income distribution. Foreign exchange market plays catalytic role in the growth and development because of its productivity in terms of export expansion, import substitution, foreign exchange earnings and generally enhances the employment rate of a country as well as a linkage to other sectors of the economy.to grow (Okoi, Iheanacho& Suleiman).

Exchange rate is the price of a domestic currency in respect of another foreign currency. Therefore, misalignment of exchange rate is the inability of the rate of exchange to equate the demand for and supply of foreign exchange. It refers to the volatility of real exchange rate in respect to continuing trends (Nyong, 2015). Volatility or misalignment occurs when the values of a given series of financial transactions with that of other countries transform quickly from time to time in an unprecedented manner. It occurs when imports consistently exceed exports in value terms leading to excess demand, pressure on the exchange rate and thriving parallel market for foreign exchange. That is, there is high import of raw materials and consumer goods, increasing import demand, low foreign exchange reserves and declining price of exports. Consequently, when exchange rate depreciates more, the lower the value of the goods and services (salaries and wages) manufactured in a nation through its trading partners (Okoi, Okoi&Akeh, 2022).

The Nigerian economy depends solely on foreign goodsin form of equipment, machinery and other capital goods. Thus, this reveals the degree of dependency of domestic companies on foreign manufactured goods to swing in exchange rates thatpose challenges in the process of production. In a competitive market economy, the currency rate is determined by market forces. It is also determined administratively. The continuous minimal performance of Nigerian economy has been attributed to continuous misalignment of the foreign exchange rate currencies to naira in recent times as a result of market forces of demand and supply, the sharp activities of bureau the change, militancy in Niger delta region, insecurity occasioned by terrorist as well as kidnapping. Many studies on exchange rate fluctuations focused on manufacturing sector of Nigeria. However, this paper focused on Nigerian economy,

emphasis on gross domestic product. This is because gross domestic product provides information concerning the size of the economy and how the economy is performing. Gross domestic product is one of the widely used indicators of economic performance by policy makers, financial market participants and other business executives. The exchange rate fluctuation is measured as deviations around the trend. Moreover, other scholars made used of Autoregressive Conditional Heteroskedasticity (ARCH) model to analyze the effect of exchange rate fluctuations on economic growth in Nigeria. This sophisticated modelthough tenablepose a lot of challenges in comprehending its effects by an average scholar. Therefore, the paper used over-parameterized model, cointegration test, parsimonious tests to analyze the data.

Statement of the problem.

The problems of maintaining stability in exchange rate is a serious concern in developing countries like Nigeria. Above all there have not been significant structural transformation in some economies of developing countries like Nigeria as a result of unsustainable external imbalance and import dependency nature which consequently cause balance of payment deficit. Exchange rate fluctuationshad led tocapacity underutilization, upsurge in the level of financial under development, financial disintermediation and capital flight. Sustained exchange rate volatility leads to currency crises and sharpinstabilities in external reserve. Any economy that forces instability in exchange rates will metamorphose to output contraction and severeeconomic austerity. The form of exchange rate maintained in any given nation has favorable or adverse economic implications through its effects on international trade, output, employment, financial market, inflation as well as domestic and foreign investment. Nigerian economy has remained snail-like structure in terms of development despite the implementation of several structural economic programmes by different democratic regimesfrom 1999 to 2022.The persistent, unsustainable and unrealistic pressureon the demand on foreign exchange has caused the continuous abysmal unreliable economyand the vulnerability of foreign exchange rate. This is the focus of this paper. The major objectives were to investigate the effect of exchange rate misalignment on the performance of Nigerian economy as well as to examine how inflation, real money supply and trade openness impact on the gross domestic productof Nigeria

Theoretical framework

Purchasing Power Parity theory (PPP)

This theory was propounded by Gustau Cassel in 1920. It posits that equilibrium exchange rate between two papers currencies that cannot be converted is resolved by the equality of their purchasing power. That is, the relative price level is a determinant factor of the price of exchange between two nations. (Jhingan, 2007). Assuming Nigeria and Liberia are on inconvertible paper standard and wish to spend₦200 the same parcel of goods can be purchased in Nigeria as can be bought by spending $20 in Liberia. Therefore, according to the purchasing power parity theory, the rate of exchange will be ₦200 = $20. The theory is important because all the explanatory and explained variables deal directly with changes in the relative price levels. This causes changes in exchange rate which is termed misalignment or fluctuations or volatility. Although, one of the defects of this theory is that of computing the rate (price) levels in the Nigeria and Liberia which is beyond this study. The theory is also likely to hold well for goods or commodities which are easily transported between two countries (eg. Gold, assuming this is freely transferable) but likely to befall so for other goods and service which cannot easily be transported because it will distort the parity.

Empirical review

Duru, Uzoechina, Ebenyi&Chukwuka (2021) investigated exchange rate volatility and exports. Autoregressive Conditional Heteroskedasticity (ARCH) model and its extension of generalized ARCH was used. The threshold ARCH and exponential generalized ARCHwere also used to measure exchange rate: The traditional school of thought on exchange rate as well as risk portfolio theories were incorporated in the study. The ARDL method was also engaged to measure the short-run and long-run correlation. It was discoveredthat exchange rate volatility had an inverse and insignificant effect on exports. It was recommended that CBN should formulate fixed stable exchange rate regime and sound financial policies to promote economic integration. The paper was robust but did not incorporate index of exchange rate volatility since ARCH model was used.

Ezie, Sulaiman & Abdelrasaq (2020) evaluated the foreign exchange rate and manufacturing sector growth. The article incorporated Purchasing Parity theory (PPP), the Uncovered Interest

Parity (UIP) and the balance of payment (BOP) model. The research method used was time series experimental research design. The use of OLS regression was adopted. Another preliminary test carried out were unit root test and cointegration test. It was found that exchange rate had significant impact on manufacturing capacity utilization and manufacturing output in Nigeria. The study recommended a pragmatic change in policy of exchange rate management.

Bala & Asemota (2013) investigated exchange rates volatility in Nigeria from 1985 – 2011. The study applied GARCH model to examine the extend of volatility. The exogenous variables used were trade, stock markets and exchange rates. The estimated volatility sub- models used were ARCH, GARCH, EGARCH, PATCH, IGARCH, TGARCH, and CGARCH with volatility-breaks respectively. The data used consists of monthly currencies which were: Naira/US dollar exchange rate, Naira/British Pounds and Naira/Euro currency. It was found that there was presence of volatility in all the currencies used. There was an improvement in assessment of Naira/USD. The study recommended that in analysis of GARCH model, relevant transaction events should be taken into consideration especially major assets prices.

Oaikhenan & Aigheyisi (2015) examined determinants literal exchange rate volatility in Nigeria. The coverage was 1970 – 2013. The methodology used was exponential generalized ARCH model. It was discovered that capital flows, tradeopenness, external resources, fiscal deficit, economic growth and external indebtedness were determinants of exchange rate instability. The result showed that rise in net capital flows, the degree of external reserves, the degree of openness of the Nigerian economy with the world and degree of financial development are significant determinants of exchange rate volatility. In addition, upsurge in crude oil price and gross domestic product growth could assist to ease the fluctuations of the naira exchange rate. It was revealed that foreign debt and monetary development can exacerbate volatility in exchange rate. It was recommended among others that policies that will bring sustainable foreign capital inflow into the economy should be introduced into the global market.

Falaye, Eseyin, Otekunrin, Asamu, Ogunlade, Egbide, Rasak, Moyinoluwa & Eluyela (2020) conducted research on exchange rate and manufacturing sector. The dependent variable used was manufacturing gross domestic product while other exogenous variables were exchange rate, inflation, manufacturing

foreign direct investment, manufacturing capacity utilization rate and imports. Granger causality test aided the analysis. The analysis also involved ADF test and ECM. One of the theories used was purchasing power parity. The manufacturing sector performance had an inverse correlation with exchange rate, manufacturing foreign direct investment and imports. In addition, capacity utilization and inflation rate had a direct relationship with manufacturing sector. The performance of manufacturing sector also had long run correlation as well as causal relationship with the exogenous variables.

Research Methodology

The study used historical research design. The reason being that the event under consideration had already taken place and series of data exist for analysis. Secondary data was used and the control variables in this study were trade openness, real money supply and inflation. These variables have been confirmed by literature as important variables that can influence the economy. The model of the study isformulated below:

GDP= f (EXR, INF, MS, TO)……..Equtn 1

The model in econometric linear form can be expressed as follows:

Log GDP= B_{o+} B_1 EXR+ B_2INF +B_3logMS+B_4TO + ut……Equtn 2

Where:

GDP = Gross domestic product

EXR = Exchange rate fluctuations measured as deviations around the trend

INF = Inflation

MS = Real money supply

TO = Trade Openness

Result and Discussion of findings

Cointegration Result

The result of the trace test in table 1 indicated three (3) cointegrating equations at 5 per cent. This is confirmed in the trace statistic values in the three equations are all higher than the critical values at 5% significant level.We therefore conclude that there is long run relationship among the variables. Similarly, the result ofmaximum eigenvalue test revealed threecointegrating equations at

5 %. This confirms that there is long- run relationship among the variables. The reason being that the maximum eigen value statistic in the three equations are more than its critical values respectively at 5 per cent significance.

Table 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.851604	110.2797	69.81889	0.0000
At most 1 *	0.717693	60.67505	47.85613	0.0020
At most 2	0.435420	27.79132	29.79707	0.0837
At most 3	0.293522	12.92781	15.49471	0.1175
At most 4 *	0.139085	3.893749	3.841466	0.0485

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value
None *	0.851604	49.60462	33.87687
At most 1 *	0.717693	32.88373	27.58434
At most 2	0.435420	14.86351	21.13162
At most 3	0.293522	9.034059	14.26460
At most 4 *	0.139085	3.893749	3.841466

Source: Computation from E-views

The long run estimation

The estimate in table 2 revealed that money supply and inflation had a direct relationship with gross GDP in the long run meaning thatincrease in these exogenous variables will have a significant direct relationship with the economy of Nigeria in the long run. Likewise, trade openness and exchange rate had significant negative relationship with the performance of Nigerian economy in the long –run. Even though, trade openness and inflation do not turn out with the expected sign but had significant effect on GDP.

Table 2. The normalized long-run estimates- endogenous variable: LGDP

Variables	Coefficients	Std. errors
LMS	0.822788	0.02718
INF	0.044969	0.00570
TO	-0.039895	0.03331
EXR	-0.066413	0.03010

Source: Computation from E-views

The short-run estimation

The results of the over-parameterized model (Table 3) revealed a strong explanatory power with R^2 of 0.99 (99 %) and adjusted R^2 of 0.99(99%). Moreover, with the high level of F-statistics of 174.26 showing the overall significance of the exogenous variables. In estimation of the short-run ECM for short-run dynamics, the statistically significant variables were picked and included in the error correction model while the variables that are not significant variables were not considered based on the rule.

Table 3: Over-parameterized analysis

Endogenous Variable: LGDP

Method: Least Squares

Date: 08/19/22 Time: 11:01

Sample (adjusted): 2003 2021

Included observations: 19 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.861676	0.879348	2.117109	0.0878
LMS	0.523134	0.463604	1.128408	0.3104
LMS (-1)	-0.082329	0.706467	-0.116536	0.9118
LMS (-2)	0.199287	0.583155	0.341739	0.7464
LMS (-3)	0.137189	0.400784	0.342301	0.7460
TO	-0.049967	0.015923	-3.137940	0.0257
TO(-1)	-0.007906	0.025947	-0.304678	0.7729
TO(-2)	0.000357	0.016606	0.021497	0.9837
TO(-3)	0.024388	0.021036	1.159357	0.2987
INF	0.006008	0.006667	0.901107	0.4088
INF(-1)	0.004106	0.012071	0.340156	0.7476
INF(-2)	0.012269	0.013583	0.903274	0.4078
INF(-3)	0.020835	0.006662	3.127318	0.0260
EXR	-0.041967	0.024110	-1.740625	0.1422
EXR(-1)	-0.014693	0.024713	-0.594549	0.5780
EXR(-2)	-0.008763	0.027391	-0.319930	0.7620

EXR(-3)	-0.021819	0.021237	-1.027427	0.3513
ECM(-1)	-0.200244	0.518465	-0.386225	0.7152

R-squared	0.998315	Mean dependent var	7.015731
Adjusted R-squared	0.992586	S.D. dependent var	1.785514
S.E. of regression	0.153737	Akaike info criterion	-0.867980
Sum squared resid	0.118176	Schwarz criterion	0.020667
Log likelihood	27.98178	Hannan-Quinn criter.	-0.644488
F-statistic	174.2644	Durbin-Watson stat	2.183415
Prob(F-statistic)	0.000009		

Computation from E-views

Parsimonious short-run analyses

The short-run model revealed a well-behaved fit as presented in table 4. This is because of the big value of R^2 of 0.98668 (98%) and the adjusted R^2 of 0.9827 (98%). This means about 98 % ofthe performance of the economy has been explained by changes in money supply (MS), Trade openness (TO) Inflation (INF) and exchange rate (EXR). Similarly, the high result of F-statistics of 251.86 showed that the overall model is statistically significance which showed a joint significance of exogenous variables in clarifying short –run changes in Nigerian economy. Moreover, the error correction factor has a negative sign and statistically insignificant. The coefficient of the ECM shows that approximately 24 %of the short-run disequilibrium had been corrected each year. In addition, changes in previous three lag period of inflation (INF) has a direct significant relationship with GDP in the short run. The result indicated that trade openness (TO) and exchange rate (EXR)had an inverse significant relationship with GDPin the short-run while money supply (MS) had a significant direct relationship. The result further revealed that a small percentage change (1 %) in the existing period of exchange rate will result in a negative change in the value of the economy by 0.04812 per cent. Likewise, the changes in the existing value of money supply (MS) is significant with direct impact on the economy in the short-run. Furthermore, changes in the recent period of trade openness leads to a significant but negative relationship with the economy in the short-run by 0.042556.

Table 4: Parsimonious tests

Endogenous Variable: LGDP

Method: Least Squares

Date: 08/19/22 Time: 11:20

Sample (adjusted): 2003 2021

Included observations: 19 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.340721	0.556491	4.206212	0.0006
LMS	0.811655	0.037665	21.54929	0.0000
TO	-0.042556	0.017979	-2.366984	0.0301
INF(-3)	0.030153	0.005474	5.507949	0.0000
EXR	-0.048212	0.015987	-3.015638	0.0078
ECM(-1)	-0.243349	0.494849	-0.390724	0.7009

R-squared	0.986680	Mean dependent var	7.015731
Adjusted R-squared	0.982763	S.D. dependent var	1.785514
S.E. of regression	0.234421	Akaike info criterion	0.156066
Sum squared resid	0.934208	Schwarz criterion	0.452282
Log likelihood	4.205242	Hannan-Quinn criter.	0.230563
F-statistic	251.8609	Durbin-Watson stat	1.719119
Prob(F-statistic)	0.000000		

Source: Researcher's computation from E-views

Discussion of Findings

The study on exchange rate fluctuations conducted using co integration test showed that the exogenous variables (Money supply, Inflation, trade openness and exchange rate) have long-run and short-run relationship with the endogenous variable, GDP. Thenormalize long-run estimation confirmed the result and showed that the exogenous variables have long –run effect on the economy. The short-run effect of inflation on gross domestic product is positive. That is, increased inflation will propel a significant change in gross domestic product. Though, this is not in agreement with economic postulation and is in agreement with Oaikhenan & Aigheyisi (2015). The value of trade openness is negative in the short-run and long-run indicating that an increase will lead to a fall in gross domestic product in Nigeria. This is as a result of adverse economic effect as well as insufficient foreign capital flowsfrom interactions among other operating countries. In the same vein, money supply had a direct significant relationship with the GDP both in the short -run and the long-run. This could be linked to the success recorded by economic agents to behave in an optimizing

manner and an upsurge in the volume of money in the hands of consumers and producers by the monetary authorities in Nigeria. This is line Ajao (2015) who investigated exchange rate volatility and Nigerian economy. Lastly, the result further revealed that exchange rate misalignment have a significant but negative relationship with the GDP both in the short-run and the long-run. This is in agreement with hypothetical expectations. That is, a small change in exchange rate will lead to a reduction in GDPof Nigeria all things being equal. This is in tandem with Ajao (2015) who found a long-run and short-run effect of exchange rate volatility on GDP. That is, overall economic performance of Nigeria will decrease by 0.0482 when other variables are assumed constant while the coefficient of error correction factor was found to be slow with 24 % of the short run disequilibrium deemed to be adjusted to long-run equilibrium yearly.

Conclusion and Recommendations

The article investigated the effect of exchange rate misalignment on the performance of Nigerian economy. From the estimates of the analyses, money supply, inflation, trade openness, and exchange rate have significant long-run and short-run effects on the performance of Nigerian economy. Some variables exhibited positive effect while some negative effects on gross domestic product of Nigeria.In conclusion, though exchange rate misalignment is statistically significant in the determination of gross domestic product as confirmed by the study and found to be robust and alternative specification, obviously, not the only major determinant. Other macroeconomic factors also are relevant. Generally, findings from the study agree and disagree with certain economic expectations. It was recommended that policies that will stimulate local production for export and regulating the activities of bureau the change in the economy should be enhanced. Government should stimulate export diversification to facilitate trade openness in the economy as well as policies to streamline geometric rise in general price level.

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