

EXCHANGE RATE, TRADE AND MACROECONOMIC STABILIZATION: EVIDENCE FROM NIGERIA

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ABSTRACT

Stability in exchange rate in the absence of undue vacillations and sound trade policy are essential for macroeconomic stabilization. This paper examines the nexus between exchange rate, international competitiveness and macroeconomic stabilization in Nigeria. This is examined over the period, 1981-2015. Employing cointegration and dynamic error correction modelling techniques, the findings show that exchange rate and trade policy are critical stabilization policy variables. In particular, the results, using Nigerian data, show that rising exchange rate, inflation and interest rate renders macroeconomic stabilization intractably difficult. The other variables- trade and investment are found to have significant positive effects on countercyclical stabilization in Nigeria. Therefore, sound and stable macroeconomic policies needs to be put in place in Nigeria. Importantly, it needs to be supported with good trade and investment policies, along with relevant institutional structures.

Keywords: Exchange rate, Trade, Macroeconomic stabilization, Nigeria.

INTRODUCTION

The effectiveness of exchange rate in promoting competitiveness in international trade and its impact on macroeconomic stability is well established in the development literature. A budding number of literatures posit that while a stable exchange rate promote international competitiveness, it also enhance macroeconomic stabilization. Works by Wickham (1985) and Frenkel (1996) have shown the importance of exchange rate in promoting international competitiveness and the stabilization impact robust international trade.

A large volume of the literature on international trade and finance focuses on the effect of exchange impact on key macroeconomic variables such as investment, productivity, consumption, trade and capital flows, e.t.c, especially in developing and emerging market economies. Accordingly, the impact of different exchange rate regimes on the stability of trade policy is of critical importance in macroeconomic stabilization. Stable trade policies are extremely important both for the economic welfare of the countries concerned and for the preservation of the multilateral trading system.

Given the experience of Latin American and Asian countries in the 1990s reflected in the devastation brought about by the financial contagion during the Asian crisis, and the inglorious role played by the lack of an optimal exchange rate regime in fuelling this crisis, there is no doubt about the explicit importance of the use of an appropriate exchange rate as a nominal anchor, particularly in ensuring macroeconomic stabilization. In particular, a sound exchange rate is important for the stability of international trade and both are critical to driving economic growth to sustainable level. Since an integral part of broad macroeconomic stabilization of developing countries is that of balance of payment equilibrium (external balance), the soundness of exchange rate will promote international competitiveness and both in turn will ensure macroeconomic stabilization.

For the transition economies, the use of commercial policies to ameliorate balance of payments policies is attractive on a number of grounds: it answers domestic and foreign investors' demands for protection; it raises revenue; and it allows governments to target protection so as to benefit some tradables more than others in a way that changes in a unified exchange rate or changes in macroeconomic policy cannot. Nevertheless, such a policy is likely to cause considerable harm to countries whose prices have for so long differed from world market prices and whose economies are, as a result, badly in need of restructuring (Drabek & Brada, 1998).

In the literature, provocative exchange rate instability or vacillation is a macroeconomic maladjustment and such maladjustment could destabilize in international competitiveness and consequently obviate counter-cyclical policy. It is in this regard that this study seeks to examine the empirical nexus between exchange rate, international trade and macroeconomic stabilization in Nigeria. Following this introduction, the paper is organized as follows. Section two consists of literature review which considers key theoretical and empirical issues associated with exchange rate, international trade and stabilization. Section three contains methodology, model specification and data, while section four contains the empirical results and analysis. Section five contains the conclusion and policy recommendations.

LITEARTURE REVIEW

Theoretical Issues

Economic theory provides a relatively little guidance on the relationship between exchange rate and commercial policies. Nevertheless, there are several strands in the literature that provides theoretical illumination on this relationship. The first of these themes concerns the similar nature of trade and exchange rate policies. Trade and exchange rate policies have a common denominator in that they provide a certain degree of protection or support to domestic industries.

There is always a change in the level of the exchange rate that will, at the margin, increase the return to certain exporting or import-competing activities. These marginal activities can be equally promoted or protected by tariffs or subsidies, implying that a certain level of the exchange rate will correspond in the above sense to a given level of the tariff.

However, there are important differences between the economic consequences of these two policy instruments. A unified exchange rate implies a non-uniform protection of firms only if these firms operate with different costs of production. Similarly, protection under a unified exchange rate does not discriminate between domestic and foreign firms while a tariff does. It follows that a change in the real effective exchange rate, which is the exchange rate that matters, will also affect the degree of protection of firms and of their exposure to foreign competition. As a result, firms that receive insufficient protection from the existing exchange rate may press for an increase in tariffs to protect their industries. Such pressure for protection is as likely to come from exporters facing an appreciating exchange rate as it is from firms in import-competing sectors (Drabek and Brada, 1998).

When the exchange rate is used to provide protection to domestic firms, it is mainly done through undervaluation, the analysis of which owes a great deal to the celebrated works of Dornbusch's (1976) theory of overshooting. An undervalued exchange rate protects domestic firms from imports and gives domestic firms greater incentives to export. This is conceptually equivalent to extra protection from imports through tariffs. Similarly, an undervalued exchange rate could be compared to an export subsidy. Thus, balance of payments equilibrium can be achieved through any number of combinations of tariff protection and exchange rate, and whether a currency is undervalued or not depends in large part on whether external equilibrium can be achieved given existing tariff levels.

The determination of equilibrium conditions is vague. Thus, three different concepts of equilibrium are considered. The first concept centres on the current account balance. This concept is suitable under conditions of limited currency convertibility. The second concept refers to balance on the overall balance of payments, and it is applicable in situations characterized by open capital accounts. In this respect, a stable balance of payments implies stable capital flows. The third concept of equilibrium refers to the political-economy-based equilibrium. This refers to policy equilibrium in the presence of various lobbies and interests who press for changes in either the tariff regime or in the exchange rate. The question then is how economic equilibrium can be disturbed, through what channels will calls for protection emerge, and what form they will take.

In theory and evidence, the key issue of exchange rate policy is to set relative prices between tradables and non-tradables, and three important instruments through which government policies can affect domestic relative prices are known. The first method is through a system of multiple exchange rates that corresponds to a system of export and import taxes and subsidies. The second method arises from the existence of market imperfections, which cause rigidities in the nominal prices of goods entering into international trade, and of stickiness of returns to factors employed in the production of these goods. Consequently, the relative protection afforded various industries may differ depending on the nature of market imperfections. In such a case, the domestic currency costs of earning a unit of foreign exchange or of replacing a unit of foreign currency spent on imports will differ among industries as they do in a multiple exchange rate regime. The third method is government influence over the distribution of expenditures among goods or the level of spending relative to income. This amounts to the conduct of macroeconomic policies. In addition to these channels, the conduct of exchange rate policy, which is self-evident is critical. Through any of these methods, the

government may affect domestic relative prices and, therefore, the competitiveness of domestic industries.

In theory, three fundamental ways exist in which the impact of exchange rate regimes on the stability of trade policy can be viewed. The first link relates to the direct effect of exchange rate policies on trade flows and, consequently, on the introduction of commercial policies to modify these flows, usually by means of commodity-specific tariffs and subsidies. The second link has its origin in the direct impact of exchange rate policy on the balance of payments more generally. The third link comes from indirect effects of exchange rate policies on domestic growth and inflation. We shall now turn to each of these aspects in turn.

Disregarding the tariff-cum-subsidy, as infeasible in the present day of liberal economic policies and postponing the discussion of the third, the role of nominal exchange rate the trade instability is easily seen. A change in the nominal exchange rate will affect marginal exporters or producers of import-competing goods who, in turn, may put pressure on the government to increase protection of their industries. However, this is only a part of the story. Governments themselves may be inclined to increase protection because neither the nominal exchange rate nor existing import restrictions may be adequate to maintain the current account in equilibrium. This is so because the current account is not determined by the level of the nominal exchange rate but by the real effective exchange rate (REER), which determines the relative prices of tradables in terms of non-tradeables. Krueger (1997) has shown, that a desired level of the current account balance is linked to a particular level of real domestic expenditures and of the real effective exchange rate. This implies that, under certain circumstances, the level of the nominal exchange rate may provide inadequate protection to domestic industries, resulting in deterioration in the current account imbalance. It is against this background that Krueger and Corden warn of the dangers of a trade

liberalization not accompanied by rational exchange rate policies, in terms of devaluation.

At the time most of the arguments regarding the choice of exchange rate regime and the level of the exchange rate of transition economies were initially, majority of these countries maintained various payments restrictions that precluded a flexible management of the balance of payments. Capital flows were restricted, and governments could not rely on capital inflows to finance current account deficits. As soon as these restrictions were liberalized, the governments' options became broadened. As access to foreign capital improved, it became tempting to disregard the level of the current account imbalance on the assumption that access to foreign capital would remain unimpeded.

The second transmission channel to trade policy is thus the effect of pressures generated by autonomous changes in capital inflows. Since current account deficits are not necessarily undesirable, the question in the absence of capital restrictions is whether capital flows can be sustained. The instability of capital inflows should not necessarily be understood in terms of fluctuations of capital flows as such but rather in terms of fluctuations from the level required to finance the equilibrium current account deficits. The discussion of the effectiveness of taxation of capital flows and the extent to which capital taxation can affect real exchange rates seems to have reached a relative consensus following the pioneering work of Mussa (1984), who argued that capital controls have only a limited capacity to affect the long-run level of the real exchange rate. Their principal effect is to influence the responsiveness of the real exchange rate to various forms of economic disturbances (Drabek & Brada, 1998).

The third type of protectionist pressures arise from the perception of poor macroeconomic performance. Given the link between exchange rate policies on the one hand and the domestic growth of output and inflation on the other, exchange rate policies have been the cause of protectionist pressures. For instance, deteriorating

balance of payments and unemployment could signal macroeconomic instability.

CHOICE OF EXCHANGE RATE REGIMES

An influential approach to the question of which exchange rate regime is more conducive to stable commercial policies is provided by McKinnon (1990). McKinnon made a strong case against a flexible exchange rate positing that it loses its usefulness and becomes highly disruptive. He argued that macroeconomic instability and incentives for protection can become aggravated. The fundamental assumptions of his argument are that there is a scope for financial arbitrage and relatively free trade. The reasons for the emergence of protectionist pressures in an open economy is the appreciation of the nominal exchange rate resulting from a large inflow (of foreign capital attracted by high interest rates needed to finance the fiscal deficit. In practical approach, the solution to this problem is a restriction in domestic spending and, in particular, a reduction in the fiscal deficit to lower interest rates and reduce the incentives for capital inflows.

Drabek and Brada (1998) posit that whenever exchange rates are fixed and the domestic and foreign inflation rates differ, the real effective exchange rate (REER) changes. Accordingly unless the appreciation in the REER is matched by the growth of productivity in the tradeable goods sector, the fixed exchange rate will eventually expose domestic industries to excessive competition from imports, and exports will become increasingly less competitive. Krueger (1997) in this regard, criticizes the use of the nominal exchange rate as an anchor in stabilization programs. In addition, higher domestic rates of inflation necessitate higher domestic rates of interest. The latter will stimulate the inflow of foreign capital, which will increase the inflationary pressures and thus accelerate the appreciation of the REER. Inflation is, thus, undesirable because it can be the origin of protectionist pressures in the absence of

appropriate exchange rate adjustments. Invariably, whenever domestic inflation is in excess of inflation rates elsewhere, the exchange rate must be depreciated or commercial policy must be changed. This is not only based on the need to maintain the competitiveness of domestic industry and to maintain an external equilibrium, but also due to the growing strength of protectionist lobbies as the result of deteriorating competitiveness of domestic industries. Another alternative is a crawling peg that maintains the real effective exchange rate yet imposes some discipline on domestic monetary policy.

The literature on the choice of exchange rate regimes provides more guidance regarding the choice of exchange rate regime in the context of macroeconomic policies, although it touches the relationship between exchange rate regimes and commercial policies only indirectly. Two aspects of macroeconomic policy making that lead to increased pressures for protection are discernible. These include government policies leading to growth deceleration and rising unemployment, and those policies relating to inflation. There has been increasing empirical interest in the choice of the exchange rate regime as an instrument of growth-promoting policies.

Recently, the focus has been on the role of exchange rate policies in transition and, more specifically, on the role of these policies in stimulating the growth of domestic demand and of exports. Apparently, a consensus is being reached that transition economies with stable exchange rates have been able to reverse output declines faster than did those countries that pursued policies of flexible exchange rates. Sachs (1996), shows the impediments to economic growth generated by pegged exchange rates as stemming from various market rigidities in the transition economies that preclude a flexible domestic response to changes in relative prices.

Pegged exchange rates also have tended to stimulate domestic demand for consumer goods and thus contributed to overheating, which itself may have had different origins. Czech Republic provides ample

evidence of how growth of domestic demand rose in the early 1990's, following a rapid rise in wages. However, recent experience on sharp appreciation in the real effective exchange rate has added considerably to the growth of domestic demand for imported consumer goods. Also, the pegged exchange rate combined with inflation higher than in the domestic economy forced up the level of interest rates, thus attracting foreign capital, which also stimulated the growth of domestic aggregate demand. Exchange rate policy thus can stimulate or retard domestic growth and thus affect the intensity of protectionist's pressures. Rapid growth of domestic output is likely to reduce calls for extra protection while slow growth is likely to stimulate them. If growth is not accompanied by balance of payments difficulties or with a rise in unemployment, protectionist pressures are likely to be relatively small.

There is also a growing consensus that stable exchange rates have performed an extremely useful role in stabilizing transition economies (see Sachs, 1996). The inability to suppress inflation, and the inability to lower the level of interest rates and to reduce foreign capital inflows for instance, has intensified inflationary pressures in some transition economies. At the same time, high interest rates have facilitated the financing of current account deficits. Thus, the pressures for additional protection from a more flexible exchange rate policy have been relatively mild. This has tended to delay important policy decisions. However, instability of exchange rate is a symptom of macroeconomic instability in the underlying economic structure (Friedman, 1953).

Finally, Ades, Kiguel, & Laviatan (1993) find that other factors are critical by argue that the initial rate of inflation matters. They find that exchange rate-based stabilizations have been relatively less successful in high-inflation countries where initial booms have been followed by severe recessions. The impact has been the opposite in low inflation countries that started with recessions but were able to recover later. In either case,

exchange-rate-based stabilizations have been associated with recessions and thus with increased emphasis s for protection.

EXCHANGE RATE REGIME AND OPTIMAL MACROECONOMIC STABILIZATION

An extensive theoretical and empirical literature exists on how the choice of an exchange regime will affect macroeconomic stability. While differing methodological approach and theoretical perspectives have been offered as regard the choice of an exchange rate regime, the consensus is that the appropriate exchange rate system will differ with the nature and size of the shock to the economy. Aizenman and Frankel (1981, cited in Ziky, Berensten & Ouchen, 2013) maintain that the optimal exchange regime depends on the characteristics of the shocks and the composition of the production. For the first criterion (the characteristics of the shock), they compute the variance of both real and monetary shocks. When the ratio between the variances of the monetary shock and the real shock approaches infinity (either because the former approaches infinity or because the latter approaches zero), the optimal exchange rate system is that of freely flexible rates. In the same vein, when the same ratio approaches zero (either because the variance of the effective monetary shock approaches zero or because the variance of the real shock approaches infinity), the optimal exchange rate system is that of fixed rates (Aizenman & Frenkel, 1981).

High variance of real shocks, tend to raise the desirability of greater fixity of exchange rates. However, the desirability of exchange rate flexibility increases the larger are the variances of the shocks to the demand for money, supply of money, foreign prices and to purchasing power parities. Small economies, and in particular developing countries, tend to have concentrated production patterns and thus, are likely to

have higher variance of real shocks than more diversified economies. Consequently, these economies will find it optimal to have greater fixity of exchange rates (Aizenman & Frenkel, 1981).

Concerning the second criterion (the composition of the production), when the authors extended the analysis to an economy which produces traded and non-traded goods, it was demonstrated that the desirability of exchange rate flexibility diminishes the higher is the share of non-traded goods relative to traded goods and the lower are the elasticities of demand and supply of the two goods (Ziky et al., 2013).

EMPIRICAL EVIDENCE

In empirical literature, if appreciation of the exchange rate results in the deterioration of trade performance, authorities be tempted, or pressured, to consider a revision of commercial policy. The mirror image of increased protection through higher tariffs is a change in the exchange rate policy. An increased REER will reduce domestic protection and reduced REER will increase it. It follows, therefore, that devaluation of the nominal exchange rate will increase domestic protection (Drabek and Brada, 1998). Brada and Mendez (1988) find evidence in support of a flexible exchange rate regime for an opened economy, characterized by structural destabilizing shocks. Krueger and Corden call for devaluations in countries that have liberalized their trade regimes in order to maintain both the internal balance and the initial current account balance. Edwards (1993) also casts doubt on the effectiveness of fixed nominal anchors arguing that inflationary expectations may be strong in countries with a history of rapid and/or unstable inflation even in the presence of nominal anchors. The argument of Krueger (1997) also supports this view. Empirical evidence by Edwards (1993) has shown that countries that experience instability in their exchange rate policies also experienced instability in commercial policy. In the case of the Czech Republic,

the appreciating REER has contributed to the emergence of a rapidly deteriorating trade and current account imbalance and to the need for an introduction of import restrictions in 1997.

Broda, (2004) examines the nexus between exchange rate, terms of trade and output stabilization in a panel data of 75 countries for the period of 1973-1996. Employing VAR model; the empirical findings show rising exchange rate is positively relate to trade and macroeconomic stabilization. Other studies that found a significant positive relationship between exchange rate and stabilization are Yaqub (2008), Ilegbinosa, Uzomba & Somigri (2012). Oladipupo and Ogheneovo (2012) empirically investigates the impact of exchange rate on the Nigeria External sector (the balance of payments position) using the Ordinary Least Square (OLS) method of estimation for data covering the period between 1970 and 2008. The findings reveal that exchange rate fluctuation has a significant impact on the balance of payments position, thereby ensuring macroeconomic stabilization. Danmola (2013) examines the impact of exchange rate fluctuation on trade and macroeconomic stabilization in Nigeria with the help of Correlation Matrix, Ordinary Least Square (OLS) and Granger Causality test. The findings of the study show that exchange rate fluctuation has a positive influence on trade and consequently stabilization. Based on his findings, he recommended that policies to stabilize the exchange rate towards stabilization should be implemented.

EXCHANGE RATE POLICIES AND REGIMES IN NIGERIA

The major objectives of exchange rate policy in Nigeria are to preserve the value of the domestic currency (i.e. the Naira), maintains a favourable external reserves position and ensure external balance without compromising the need for internal balance and overall goal of macroeconomic stability (CBN, 2012).

Basically, exchange rate policy in Nigeria is aimed at increasing domestic production, enhancing the rise in the level of non-oil exports improving export competitiveness while reducing the demand for imports. It also plays the crucial role of influencing the attainment of other macroeconomic goals of balance of payments stability, reduction in the level of unemployment, attainment of price stability and a sustained rate of economic growth (Akinuli, 1997) cited in Usman (2011).

The fixed exchange rate was in vogue between 1962 and 1986. At the initial stage, the Nigerian currency was pegged at par with pound sterling; but when the British pound was devalued, Nigerian government decided to peg the domestic currency to the dollar at an overvalued rate in order to make imports cheaper for the import substituting industries. They relied heavily on foreign inputs and plants and machinery. In the period, 1971-1985, the increase foreign exchange earnings and the subsequent appreciation of the Naira triggered a number of problems in the external sector, such as rapid erosion of country external reserve. In 1985, the naira was quoted against the US dollar, which became the intervention currency to date.

After 1986, the management of exchange rate became more market – oriented. This started by introducing the second tier foreign rate and foreign exchange allocation for private sector, and was freely determined by forces of demand and supply; while the central bank determines the supplies of foreign exchange on a weekly basis. The introduction of SFEM was followed by depreciation of naira to ensure the efficient allocation of resources. It was envisaged that the depreciation of naira will increase local sourcing of raw materials and bring about growth in manufacturing sector while discouraging the excessive demand for imports as was experience during the fixed exchange era. The SFEM which comprises of first tier and second tier exchange rate was merged into a unified foreign

exchange market (FEM) on July 2, 1987 with all transactions guided market forces.

An autonomous foreign exchange market which was created in 1988 was highly destabilized due to its speculative tendencies and was subsequently merged with (FEM), when the interbank foreign exchange market (IFEM) segment in which authorized dealers were allowed to transact. In spite of various modifications such as introduction of Dutch Auction System (DAS), December 1990, foreign exchange continues to increase. In 1992, IFEM was depreciated by the adoption of completely regulated exchange rate regime. CBN was unable to meet all the demands of authorized dealers. In 1994, the authority reverted to a fixed exchange rate regime in which naira was pegged at N21.9960: \$1. This regime worsened the situation in FEM as naira depreciated sharply and demand for foreign exchange continued to rise. The authority later returned to the dual exchange rate regime in 1995, a combination of official market and autonomous foreign exchange transaction until it was replaced by a new interbank foreign exchange market (FEM) in October 1999. Later the government re-introduced the Dutch Auction System (DAS) on July 2002 purposely to narrow the gap between the official market and parallel market rates and conserve the foreign exchange reserves. Since July 2002, the foreign exchange market became a little restricted by abolishing the interbank transactions, while transactions were made through Dutch Auction System (DAS) which was regarded as a better alternative (Ehinomen and Oladipo, 2012).

Following the adoption of Structural Adjustment Programme (SAP) in 1986, the country has moved from a peg regime to a flexible exchange rate regime. In practice, no exchange rate is clean or pure float, as the prevailing system is the managed float whereby monetary authorities intervene periodically in the foreign exchange market in order to attain some strategic objectives (Mordi, 2006 cited in Azeez, Funso & Ajayi, 2012). Despite various policies by the

government to maintain a stable exchange rate, the naira has depreciated widely. (Benson and Victor, 2012). It depreciated from N0.541 to 1\$ in 1980, N2.02 in 1986, and further to 7.901 in 1990 against the US dollar. The policy of guided or managed deregulation pegged the Naira at N21.886 against the US dollar in 1994. Further deregulation pushed it to N86.322 to \$1.00 in 1999 (Aliyu, 2011). The naira further depreciated to N172 to \$1 in 2012 and to N270 in 2015, on account of the oil price shock in the international market and the resulting negative impulses on external balance. Currently, the naira exchange for about N320 to the US dollar at the official market. Volatility in exchange rate translates to output volatility and make macroeconomic stabilization intractably difficult Ozekhome, 2016).

METHODOLOGY

Model Specification

To investigate the nexus between exchange rate, trade and macroeconomic stabilization, a stylized stabilization model is specified:

$$GRGDP_t = \alpha_0 + \alpha_1 EXR_t + \alpha_2 TRADE_t + \alpha_3 INV_t + \alpha_4 INF_t + \alpha_5 INTR_t + e_t$$

Where;

GRGDP= Growth rate of real GDP (a measure of macroeconomic stabilization)

EXRT= Exchange rate (N/\$)

TRADE= measured: as sum of exports [(X) + imports (M)]/GDP

INV=Real gross domestic capital formation

INF=Inflation rate (measured as the percentage change in the consumer price index)

INTR=Interest rate (Prime lending rate) e_t =Stochastic error term

The Apriori expectations are: $\alpha_1, \alpha_4, \alpha_5 < 0$; $\alpha_2, \alpha_3 > 0$.

The inclusion of interest rate and inflation rate is instructive as they constitute critical macroeconomic stabilisation policy variables.

Method of Estimation and Data Sources

Cointegration and error correction techniques are employed. However, since macroeconomic time series variables are known to be non-stationary, the preliminary unit root test of stationarity using the Augmented Dickey Fuller (ADF) test is used to examine the stationarity status of the variables. Annual time series data covering the period 1981-2015 is used. The relevant data are obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin.

EMPIRICAL RESULTS AND ANALYSIS

The empirical analysis that is performed in this chapter involves the estimation and succinct analysis of the model that was specified earlier. As mentioned earlier, the nature of the study and the empirical tools employed suggest that the time series properties of the data to be used are examined to ensure stability and time invariance in the estimated relationships. There is therefore need to investigate the stationarity of variables in our model.

Unit Root Analysis

A time series is stated as non-stationary if mean and variance of the time series depend over time. On the other hand, a time series is stated as stationary if the mean and variance is constant over time. According to Gordon (1995), most economic time series are non-stationary and only achieved stationarity at the first difference level or at a higher level. Generally, unit root test involves the test of stationarity for variables used in regression analysis. The importance of stationarity of time series used in regression borders on the fact that a non-stationary time series is not possible to generalize to other time periods apart from the present. This makes forecasting based on such time series to be of little practical value. Moreover, regression of a non-stationary time series on another non-stationary time series may produce spurious result. The Augmented

dickey Fuller (ADF) test is employed in order to analyze unit roots in this study. The results are presented in levels and first difference in table 1.

Table 1. Unit Root Test for Variables in levels and First Difference

Variable	ADF Statistic (in Levels)	ADF Test Statistic (in First Difference)	Order of Integration	Remark
ΔGRGDP	-3.291	-6.632**	I(1)	Stationary
ΔEXRT	-0.418	-3.509*	I(1)	“
ΔTRADE	-0.582	-3.457*	I(1)	“
ΔINV	-2.312	-7.233**	I(1)	“
ΔINF	-2.313	-6.638**	I(1)	“
ΔINT	-0.768	-6.195**	I(1)	“

****(**) denotes significance at 5% (1%) level***

A cursory examination of the unit root test results indicate for all the variables, the null hypothesis of no unit root cannot be rejected, implying that the variables are non-stationary at levels. We thereafter take the first differences of the respective variables and perform the unit root test on each of the resultant time series variables. The rationale behind this is that Box

and Jenkins (1994) have argued that differencing non-stationary time series variables makes them stationary. Thus, after first differences, the variables became stationary. This implies that the variables are difference-stationary. They are thus integrated of order one (i.e. I [1]).

Cointegration Test

Having established that the series in the analysis are not stationary in their levels and are characterized by a unit root process, we move on to determine if they are cointegrated. The cointegration test is based on the argument that time series have a relationship exist between a linear combination of such series. The Engle and Granger (1987) two stage method is employed in the cointegration test. The result of the Engle and Granger cointegration test is reported in table 2. In the table, the ADF test statistic value of (-5.713) is greater than the 95percent critical ADF value of -2.957 (in absolute values). This clearly indicates that the residuals are stationary. Indeed, there is cointegration exchange rate, international trade and macroeconomic stabilisation (measured by growth rate of the economy). Thus, a long-run equilibrium relationship exists between macroeconomic stabilisation and the relevant explanatory variables in Nigeria.

Table 2. Results of Engle and Granger Residual Based Cointegration Test

Variable	ADF Test Statistic	95% Critical ADF Value	Remarks
Residual	-5.7134	-2.957	Stationary

Error Correction Results

The results of the error correction is presented in Table 3

Table 3. Error Correction Model Results

Dependent Variable: GRGDP		
Variable	Coefficient	t-ratio
C	-0.039	-1.890
ΔLEXR	-0.123	-2.244
ΔLTRADE	0.272	2.541
ΔLINV	0.031	3.432
ΔLINF	-0.003	-1.325
ΔLINT	-0.004	-2.167
ECM(-1)	-0.823	-2.892
R²=0.93; Adjusted R²=0.91	F-Value=47.62	DW Statistic=1.70

Source: Author's computation (2017).

The adjusted R-squared value of 0.93 indicates that over 91 percent of the systematic variation in stabilization of the Nigerian economy is explained by the explanatory variables. The F- value of 21.6 is very high and easily passes the significance test at the conservative 1 percent level of significance, validating the hypothesis of a significant linear relationship between stabilization and the explanatory variables. The DW statistic of 1.70 shows that there is no

autocorrelation in the model, making the model reliable for structural analysis and policy perspective. All the coefficients of the explanatory variable have the expected apriori signs. The coefficient of exchange rate is significant at the 5 percent level. Thus, rising exchange rate could jeopardize the objective of macroeconomic stabilization as it may have a destabilizing impact on external balance, resulting to balance of payment disequilibrium.

This is particularly the case for oil and commodity export-dependent economies, which are subjected to the vagaries and shock of international market. It reinforces the fact that excessive volatility (instability) in the exchange rate could be detrimental to countercyclical output stabilization in Nigeria. The coefficient of inflation is not significant at the conservative 5percent level of significance. Trade has a positive and significant coefficient at the 5 percent level. This implies that rising inflation rate has a destabilizing effect on countercyclical stabilisation. The coefficient of investment is positive and significant at the 1 percent level, an indication that increase investment has a high growth-inducing and stabilizing capacity. The coefficient of interest rate is significant at the 5 percent level, implying that the interest rate is a significant macroeconomic stabilization variable.

Apart from the diagnostic statistics, the error correction term has the correct negative sign and passes the significance test at the 5 percent level. Thus, any short term disequilibrium (perturbation) in the system will be restored in the long run. Indeed, over 82 percent of the long- run contemporaneous adjustment to equilibrium is completed within the first year.

CONCLUSION

This study has examined the nexus between exchange rate, trade and macroeconomic stabilization in Nigeria over the period 1981-2015, using dynamic error correction estimation approach. The empirical findings

revealed that exchange rate, interest rate, inflation and investment are critical stabilization policy variables in Nigeria. In particular, the empirical findings show that rise in exchange rate, interest rate and inflation makes macroeconomic stabilization intractably difficult. This was shown by their negative and significant coefficients. The effect of increase trade and investment are however found to macro-stabilizing, an indication that they can be used to stabilize the economy. Consequently, government needs to implement sound and stable macroeconomic policies, supported with coherent trade and investment policies that will enhance macroeconomic stabilization and rapid economic growth in Nigeria

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