Exchange Rate, Interest Rate and External Trade Performance in Nigeria

M. A. AHWOREGBA and C.T. EZI

Department of Economics, Faculty of the Social Sciences, Delta State University, Abraka, Delta State, Nigeria.
Corresponding Author Email: mike4promotion@gmail.com

Direct Research Journal of Management and Strategic Studies

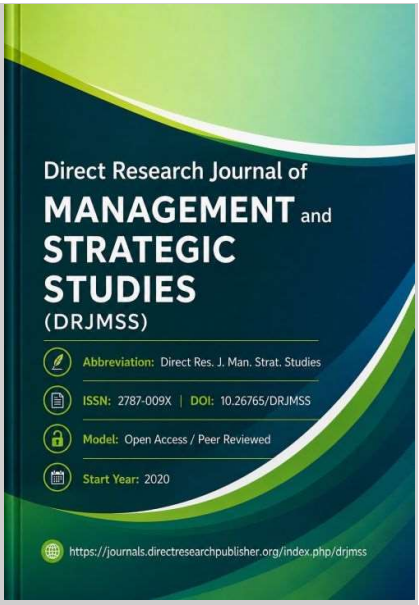
Vol. 7(2), Pp. 116-128, November 2026
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Research Article
ISSN: 2787-009X

Received 18 August 2026, Accepted 30 October 2026, Published 4 November 2026

ABSTRACT

Background: *Exchange rate management remains a critical macroeconomic policy issue in Nigeria, an import-dependent economy heavily reliant on crude oil exports. Despite repeated reforms, external trade performance remains unstable due to exchange rate volatility, inflation, high borrowing costs and oil-price shocks.* ***Aim:*** *This study examined the effects of official exchange rate, market exchange rate and interest rate on external trade performance in Nigeria, controlling for inflation and balance of payments.* ***Methodology:*** *An ex-post facto research design was adopted using annual secondary data covering 1990–2024 (35 observations), obtained from the Central Bank of Nigeria Statistical Bulletin, World Bank World Development Indicators and IMF databases. The Autoregressive Distributed Lag (ARDL) approach was employed following Augmented Dickey-Fuller unit root tests, which revealed a mixture of I(0) and I(1) variables. The selected model was ARDL(2,2,2,2,1,1), based on the Akaike Information Criterion.* ***Results:*** *The bounds test confirmed a long-run relationship ($F = 4.89$), while the error correction term was negative and significant (-0.577, $p = 0.005$), indicating an annual adjustment speed of 57.7%. In the long run, the official exchange rate negatively affected trade performance (-0.347, $p = 0.0001$), whereas the market exchange rate had a positive and significant effect (0.402, $p < 0.001$). Inflation negatively affected trade performance (-0.174, $p = 0.014$), while balance of payments exerted a positive effect (0.686, $p = 0.0001$). Interest rate had no statistically significant effect. Diagnostic tests confirmed model adequacy, with an adjusted R^2 of 0.946 and Durbin-Watson statistic of 2.007.* ***Conclusion:*** *Market exchange rate depreciation and favourable balance of payments improve Nigeria's trade performance, while official exchange rate depreciation and inflation adversely affect it. The study recommends exchange rate unification, inflation control, export diversification and improved external payments management to strengthen sustainable trade performance.*

Keywords: *Exchange rate, interest rate, external trade performance, ARDL, Nigeria*



Citation: Ahworegba, M. A. & Ezi, C.T. (2026). Exchange Rate, Interest Rate and External Trade Performance in Nigeria. Direct Research Journal of Management and Strategic Studies. Vol. 7(2), Pp. 116-128.
https://doi.org/10.4314/drjmss.v7i2.7

INTRODUCTION

Exchange rate management has remained one of the most sensitive and influential areas of macroeconomic policies in Nigeria, largely because of its direct implications for external trade performance and overall economic stability. As an economy that relies heavily on international trade for both consumption and production, Nigeria is particularly exposed to movements in the exchange rate. Changes in the value of the naira affect the prices of imports and exports, the competitiveness of local industries, foreign exchange availability, and the country's balance of

payments position. In this sense, exchange rate functions as a crucial transmission mechanism between the domestic economy and the rest of the world (Jhingan, 2014).

The theoretical link between the exchange rate and trade rests on expenditure switching: a depreciation makes exports cheaper abroad and imports dearer at home, so the trade balance can improve when prices adjust sluggishly (Obstfeld & Rogoff, 2000). Whether this mechanism works in practice depends on how completely exchange rate changes are passed through to prices (Campa & Goldberg, 2005; Gopinath et al., 2010) and on the credibility of the exchange rate regime itself (Reinhart & Rogoff, 2004). Empirical evidence also indicates that a competitive real exchange rate is associated with faster growth in developing countries (Rodrik, 2008; Habib et al., 2017) and that outward-oriented developing economies with low exchange rate distortion and variability grow faster (Dollar, 1992).

Nigeria's trade structure makes exchange rate management especially important. This is because export earnings are dominated by crude oil, while imports consist largely of manufactured goods, capital equipment, refined petroleum products, pharmaceuticals, and food items. This imbalance means that exchange rate depreciation often raises import costs and fuels inflation, while the expected boost to exports remains limited due to weak diversification and low value-added production (Adeniran, Yusuf, & Adeyemi, 2014; World Bank, 2023). As a result, exchange rate movements tend to transmit quickly into domestic prices and production costs, with significant consequences for trade performance.

Historically, Nigeria has operated multiple exchange rate regimes. Prior to the mid-1980s, the country maintained a fixed exchange rate system, supported largely by oil revenues. The collapse of oil prices in the early 1980s exposed structural weaknesses in the economy and led to severe balance of payments pressures. This culminated in the adoption of the Structural Adjustment Programme (SAP) in 1986, which introduced a more flexible, market-oriented exchange rate system aimed at correcting external imbalances and improving export competitiveness (Iyoha & Oriakhi, 2002). Since then, Nigeria has oscillated between various forms of managed float and partial liberalization, reflecting ongoing tensions between market forces and policy control.

In recent years, exchange rate management in Nigeria has been characterized by the coexistence of official and market-based exchange rates. While the official rate is largely influenced by policy interventions, the market rate reflects demand and supply conditions in the foreign exchange market. Several studies have noted that persistent differentials between these rates create uncertainty, distort trade incentives, and encourage rent-seeking and speculative behavior (Oyejide, 2015; IMF, 2022). For exporters, unfavorable official rates can discourage the repatriation of export proceeds, while importers often face difficulties accessing foreign exchange at official windows, leading to higher transaction costs and trade inefficiencies. Nigeria's experience is typical of developing countries in which a managed official rate coexists with a market-determined parallel rate (Kiguel & O'Connell, 1995). Cross-country evidence further shows that officially declared exchange rate regimes often differ from actual exchange rate behaviour (Calvo & Reinhart, 2002; Reinhart & Rogoff, 2004), which is why a single exchange rate variable may not capture policy reality and why this study separates the official rate from the market rate.

Macroeconomic conditions further complicate the exchange rate–trade relationship. High inflation erodes competitiveness by increasing domestic production costs, while elevated interest rates raise the cost of financing trade-related activities. At the same time, Nigeria's balance of payments remains highly vulnerable to external shocks, particularly fluctuations in global oil prices, which directly affect foreign exchange earnings and reserve levels (Central Bank of Nigeria [CBN], 2022; African Development Bank, 2023). These dynamics often force authorities into short-term exchange rate interventions that prioritize stability over long-term trade performance.

In Sub-Saharan Africa, instability in the real exchange rate and in the terms of trade has been shown to depress investment and growth (Bleaney & Greenaway, 2001), while exchange rate uncertainty has an indeterminate effect on trade volumes but raises the volatility of trade flows (Baum & Caglayan, 2010). On the financing side, credit constraints determine which firms can export and how much they export (Manova, 2013), and weaknesses in banks that provide trade finance reduce exports more than domestic sales (Amiti & Weinstein, 2011).

Given these challenges, the effectiveness of exchange rate and interest rate in improving Nigeria's external trade performance remains an open empirical question. While policy reforms have aimed to stabilize the currency and enhance competitiveness, trade outcomes continue to reflect structural constraints and macroeconomic instability. Against this background, examining how exchange rate and interest rate, alongside key macroeconomic variables such, inflation rate, and balance of payments serving as control variables influence Nigeria's external trade performance is both timely and necessary.

This study contributes updated evidence through 2024 that distinguishes the official from the market exchange rate while controlling for interest rate, inflation and balance of payments, using the ARDL bounds approach (Pesaran et al., 2001). The results should be read alongside earlier Nigerian evidence on the real exchange rate and the trade balance (Igue & Ogunleye, 2014).

Statement of the Problem

Despite repeated exchange rate reforms and sustained

policy interventions, Nigeria's external trade performance has remained weak and unstable. The country continues to experience persistent trade imbalances, high import dependence, and limited export diversification, with crude oil still accounting for the dominant share of export earnings. In theory, exchange rate depreciation is expected to improve trade competitiveness by making exports cheaper and discouraging imports. In practice, however, this outcome has not been consistently observed in Nigeria, raising serious concerns about the effectiveness of exchange rate management as a tool for improving trade performance (Adeniran et al., 2014; World Bank, 2023).

One of the most pressing challenges has been the prolonged existence of multiple exchange rate windows. The divergence between official and market exchange rates has created uncertainty in the foreign exchange market, complicating pricing decisions for exporters and importers. Businesses often face difficulties accessing foreign exchange at official rates, while exposure to volatile market rates increases transaction costs and planning risks. Empirical studies indicate that such exchange rate differentials distort trade incentives, weaken confidence in the policy framework, and encourage speculative and rent-seeking behavior rather than productive trade activities (Oyejide, 2015; IMF, 2022). Parallel exchange rate systems have fiscal and macroeconomic consequences that depend on the size of the premium between the parallel and official rates, and the experience of countries that have unified their foreign exchange markets offers policy lessons (Kiguel & O'Connell, 1995). Episodes of sharp depreciation in developing countries have also been linked to weak output growth, rapid domestic credit expansion and high foreign interest rates (Frankel & Rose, 1996).

Macroeconomic instability has further compounded these challenges. This is because high and persistent inflation has continued to erode the competitiveness of domestically produced goods by raising production and distribution costs. At the same time, elevated interest rates have increased the cost of financing trade-related investments, particularly for small and medium-scale enterprises that play a critical role in non-oil exports. These conditions have limited the capacity of domestic firms to respond positively to exchange rate movements, thereby weakening the expected trade benefits of exchange rate adjustments (CBN, 2022; African Development Bank, 2023). High inflation can keep exchange rate pass-through high, because pass-through tends to be lower where inflation is low and stable (Taylor, 2000), so a depreciation in a high-inflation economy feeds quickly into domestic costs. For firms, tight financing conditions are closely linked to export participation and expansion (Greenaway et al., 2007; Manova, 2013). In addition, Nigeria's balance of payments position remains highly vulnerable to external shocks, especially fluctuations in global oil prices. Periods of declining oil prices often translate into reduced foreign exchange earnings, pressure on external reserves, and constraints on trade financing. This vulnerability has forced policymakers to adopt short-term exchange rate controls aimed at conserving foreign exchange, sometimes at the expense of long-term trade efficiency and competitiveness (IMF, 2023; World Bank, 2023). Given these persistent issues, there is still no clear empirical consensus on how exchange rate and interest rate interact with Nigeria's external trade performance controlling for inflation rate, and balance of payments. This gap underscores the need for a comprehensive and evidence-based examination of the relationship between exchange rate, interest rate and external trade performance in Nigeria, using relevant macroeconomic indicators to better inform policy and academic debate.

Objectives of the Study

The general objective of this study is to examine the effect of exchange rate and interest rate on external trade performance in Nigeria controlling for inflation rate and balance of payments. The specific objectives are to:

1. determine the effect of the official exchange rate on external trade performance in Nigeria.
2. examine the effect of the market exchange rate on external trade performance in Nigeria.
3. assess the effect of interest rate on external trade performance in Nigeria.

Research Hypotheses

The following null hypotheses are formulated to guide the study:

- H_{01}: Official exchange rate has no significant effect on external trade performance in Nigeria.
- H_{02}: Market exchange rate has no significant effect on external trade performance in Nigeria.
- H_{03}: Interest rate has no significant effect on external trade performance in Nigeria.

The hypotheses are grounded in the expenditure-switching view of exchange rates (Obstfeld & Rogoff, 2000) and in the credit-channel view of trade finance (Manova, 2013; Amiti & Weinstein, 2011). Together these imply that depreciation should raise the trade balance, while higher borrowing costs should lower it.

Theoretical and Empirical Review

Exchange rates and trade. In traditional open-economy models with sticky prices, a nominal depreciation switches expenditure towards domestic goods and improves the trade balance, whereas models based on local-currency pricing predict weaker trade effects in the short run (Obstfeld & Rogoff, 2000). The strength of the mechanism depends on pass-through. Campa and Goldberg (2005)

find partial pass-through into import prices in the short run and more complete pass-through in the long run, with higher pass-through in countries with greater exchange rate volatility. Gopinath et al. (2010) show that pass-through differs sharply with the currency in which goods are priced (about 25% for dollar-priced goods against 95% for other currencies in US imports). Taylor (2000) argues that pass-through falls when inflation is low and stable, which implies that high inflation sustains it.

Exchange rate regimes and parallel markets. Calvo and Reinhart (2002) show that countries that claim to float mostly do not, while Reinhart and Rogoff (2004), using market-determined parallel rates, find that official classifications often misdescribe actual regimes and that exchange rate arrangements matter for growth, trade and inflation. Kiguel and O'Connell (1995) document that dual and parallel exchange rates are common in developing countries and that their macroeconomic effects depend on the size of the parallel premium. Frankel and Rose (1996) find that currency crashes in developing countries occur when output growth is low, domestic credit growth is high and foreign interest rates are high. Interest rates, finance and exporting. Financial frictions restrict trade because exporters need external capital (Manova, 2013). Amiti and Weinstein (2011) show that the health of banks supplying trade finance matters more for exports than for domestic sales, and Greenaway et al. (2007) show that financial health and export participation are closely linked at the firm level. Melitz (2003) shows that exposure to trade induces only the more productive firms to export, which implies that the supply response to a favourable exchange rate depends on firm productivity and on access to finance.

Evidence for Nigeria and Sub-Saharan Africa. Bleaney and Greenaway (2001) find that real exchange rate instability depresses investment, and terms of trade instability depresses growth, in Sub-Saharan Africa. Rodrik (2008) and Habib et al. (2017) find that real depreciation or undervaluation supports growth mainly in developing countries. Baum and Caglayan (2010) find that the effect of exchange rate uncertainty on trade volumes is indeterminate. For Nigeria, Igue and Ogunleye (2014) examined the effect of the real exchange rate on the trade balance. Studies of the trade balance also increasingly test whether depreciations and appreciations have asymmetric effects (Bahmani-Oskooee & Baek, 2016). The present study adds to this literature by separating the official and market exchange rates and by controlling for interest rate, inflation and balance of payments over 1990–2024.

METHODOLOGY

Research Design

This study adopts an ex-post facto research design, which is appropriate given that the variables examined are historical macroeconomic indicators that cannot be manipulated by the researcher. The design allows for the analysis of cause-and-effect relationships using already existing data. Since the study focuses on examining how exchange rate management and selected macroeconomic variables influence external trade performance in Nigeria over time, the ex-post facto design is suitable for capturing long-run and short-run dynamics among the variables.

Nature and Sources of Data

The study relies on secondary time-series data covering Nigeria. Data are obtained from reputable and official sources, including the Central Bank of Nigeria Statistical Bulletin, World Bank World Development Indicators, and International Monetary Fund databases 2024 publications. These sources are chosen because they provide consistent, reliable, and widely used macroeconomic data suitable for empirical analysis.

Model Specification

To examine the relationship between exchange rate management and external trade performance in Nigeria, this study specifies a functional relationship between external trade performance and selected macroeconomic variables. External trade performance is modeled as a function of official exchange rate, market exchange rate, interest rate, inflation rate, and balance of payments. The functional form of the model is expressed as:

$$ETP = f(OER, MER, INR, INF, BOP)$$

Where:

ETP = External Trade Performance (Balance of Trade)

OER = Official Exchange Rate

MER = Market Exchange Rate

INR = Interest Rate

INF = Inflation Rate

BOP = Balance of Payments

The econometric form of the model is specified as:

$$ETP_t = \beta_0 + \beta_1 OER_t + \beta_2 MER_t + \beta_3 INR_t + \beta_4 INF_t + \beta_5 BOP_t + \mu_t$$

Where:
β_0= Intercept

β_1–β_5= Parameters to be estimated

μ_t= Error term

t= Time period

Methods of Data Analysis

The method of data analysis follows the procedure outlined by Pesaran, Shin and Smith (2001). The method includes the tests for unit root or stationarity, co-integration, and then the model estimation using the Autoregressive Distributed Lag (ARDL) model technique which is an extension of the fundamental Ordinary Least Square regression. Also, the tests for autocorrelation, model stability and model fitness were carried out. The ARDL bounds approach is appropriate because it can be applied whether the regressors are purely I(0), purely I(1) or mutually cointegrated, provided that none is I(2) (Pesaran et al., 2001), a condition met by the unit root results in Table 4.2. Because only 35 annual observations are available, the bounds F-statistic should also be compared with finite-sample critical values, since asymptotic critical values can over-reject the null of no level relationship in small samples (Kripfganz & Schneider, 2020). Exchange rate series are also affected by policy-induced breaks within the sample, and conventional unit root tests can misclassify series with structural breaks; the unit root results should therefore be confirmed with a test that estimates the break date endogenously (Zivot & Andrews, 1992).

RESULTS AND DISCUSSION

Descriptive Statistics

The descriptive statistics provide insights into the central tendencies, variability, distribution shapes, and normality of the six economic variables: namely balance of trade (BOT), exchange rate (OEX), maximum exchange rate (MEX), interest rate (INR), inflationary rate (INF), and balance of payments (BOP). The mean reflects the average value of each variable across the sample. The Balance of Trade (BOT) and Balance of Payments (BOP) both show high means of approximately 1.56 million and 1.09 million, respectively, indicating substantial trade and payment flows. In comparison, the Exchange Rate (OEX) and Maximum Exchange Rate (MEX) have average values of 198.87 and 206.56, respectively, reflecting moderate fluctuations in currency exchange. The Interest Rate (INR) stands at 11.37, indicating a moderately high interest rate on average, while the Inflationary Rate (INF) has an average of 18.89, suggesting relatively high inflationary pressure during the period observed (Table 1). The standard deviation measures the variability of each variable. BOT and BOP both display high standard deviations, 3,005,627 and 2,179,054 respectively, signaling substantial fluctuations in trade and payment balances. Similarly, the Exchange Rate (OEX) and Maximum Exchange Rate (MEX) exhibit moderate variability, with standard deviations of 263.66 and 259.66, respectively. In contrast, the Interest Rate (INR) shows a lower standard deviation of 4.77, suggesting that interest rates have less variability compared to the other economic indicators. Inflationary Pressure (INF), with a standard deviation of 15.90, reveals a relatively high level of volatility, indicating notable fluctuations in inflation during the period. The Balance of Payments (BOP), like BOT, shows a high standard deviation, pointing to significant fluctuations over time. The skewness values provide insight into the direction of the distribution tails. The BOT and BOP variables exhibit negative skewness, with values of -0.61 and -0.74, respectively. This suggests that these distributions are slightly left-skewed, meaning that negative values are more frequent than positive ones. In contrast, OEX and MEX show strong positive skewness, with values of 3.51 and 3.61, respectively. INR displays a moderate positive skew of 1.16, while INF shows a strong positive skew of 2.03, suggesting that the distribution of inflationary pressures is often skewed toward higher values, with periodic inflation spikes. The Jarque-Bera test for normality assesses the normality of each variable's distribution. For BOT, the Jarque-Bera statistic of 4.63 and a *p-value* of 0.0987 suggest that the data is marginally normally distributed, with slight deviations. In contrast, OEX, MEX, INR, INF and BOP show strong departures from normality, with very high Jarque-Bera values and *p-values* that are less than 0.05 critical value. This is an indication of significant deviations due to extreme fluctuations in these variables. The strong positive skewness and very high kurtosis of both exchange rate series in (Table 1) reflect episodes of sharp naira depreciation. Such sharp depreciations in developing countries have been linked to low output growth, rapid domestic credit expansion and high foreign interest rates (Frankel & Rose, 1996). The wide dispersion of the exchange rate and inflation series is consistent with the macroeconomic and exchange rate instability documented for Sub-Saharan Africa (Bleaney & Greenaway, 2001).

Data Analysis

The (Table 2) below shows a summary of Augmented Dickey Fuller (ADF) unit tests carried out on each of the variables. The test is done at 5% critical value as follows:

Unit Root Test

The unit root test above reveals that balance of trade (BOT), market exchange rate (MER), interest rate (INR) and inflation rate (INF) are all stationary at first difference and are said to be integrated of order one, I(1). However,

Table 1: Summary of the Descriptive Statistics.

	BOT	OEX	MEX	INR	INF	BOP
Mean	1559663.	198.8674	206.5631	11.36857	18.89086	1092183.
Median	746916.8	131.2700	133.0000	9.980000	12.90000	810056.8
Maximum	7626154.	1478.970	1479.000	23.99000	72.84000	5745239.
Minimum	-7905599.	8.040000	8.040000	4.700000	5.390000	-6074639.
Std. Dev.	3005627.	263.6574	259.6619	4.772239	15.89614	2179054.
Skewness	-0.605482	3.509664	3.612993	1.157255	2.027151	-0.743781
Kurtosis	4.307306	17.16949	17.79322	3.777512	6.355449	5.090497
Jarque-Bera	4.630912	364.6496	395.2876	8.693828	40.39059	9.600240
Probability	0.098721	0.000000	0.000000	0.012947	0.000000	0.008229
Observations	35	35	35	35	35	35

Source: Author's computation, 2026

Table 2: Summary of Unit Root Test Result

ADF Test statistics					
Variable		**At Level**	**1st Difference**	**Decision**	**Order of Integration**
BOT		-0.6745	-3.6842	Stationary at 1st difference	I(1)
OER		-3.0419	-6.0347	Stationary at Level	I(0)
MER		-2.1018	-7.3483	Stationary at 1st difference	I(1)
INR		-2.9347	-6.9989	Stationary at 1st difference	I(1)
INF		-1.8537	-5.0706	Stationary at 1st difference	I(1)
BOP		-5.5134	-4.2599	Stationary at Level	I(0)
Critical Values	1%	*-3.6702*	*-3.6793*		
	5%	*-2.9639*	*-2.9678*		
	10%	*-2.6210*	*-2.6229*		

Source: Author's Computation, 2026

Table 3: Summary of the ARD Bounds Test.

Test Statistic	**Value**	**K**
F-statistic	4.889547	6
Critical Value Bounds		
Significance	**I0 Bound**	**I1 Bound**
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

Source: Author's computation, 2026

official exchange rate (OER), and balance of payment (BOP) are stationary at level meaning that they are integrated of order I(0). The implication is that we have confirmed the data to have statistical properties that do not vary over time. Based on this result, we test for the existence of a long-run relationship or cointegration amongst the variables. As a result of the order of the integrations (1(0) & 1(1)), we test the cointegration using ARDL Bound test (Table 2). Because ADF tests can misclassify series that contain structural breaks, the I(0) classification of the official exchange rate should be treated with caution and verified with a break-robust test such as that of Zivot and Andrews (1992). The ARDL framework nevertheless remains valid as long as no series is I(2) (Pesaran et al., 2001).

ARDL Bounds test for Cointegration

H_0: No long run relationship exists amongst the variables (no cointegration)
H_1: There is long run relationship amongst the variables

The Bounds test F-statistic is estimated at 4.89 and is greater than the 5% critical value at I(0) and I(1) bounds (2.45 and 3.61 respectively), therefore, we reject the null hypothesis and conclude that the variables are cointegrated or that the variables have long run relationship. The confirmation of the long run relationship between exchange rate and trade performance implies that there is a long run significant effect of exchange rate on trade performance in Nigeria (Table 3). With a sample of 35 observations, the result should be confirmed against small-sample critical values, because bounds tests based on asymptotic values can be oversized in small samples (Kripfganz & Schneider, 2020). The F-statistic of 4.89 exceeds the 5% upper bound of 3.61 in Table 4.3, which supports cointegration under the bounds-testing logic of Pesaran et al. (2001).

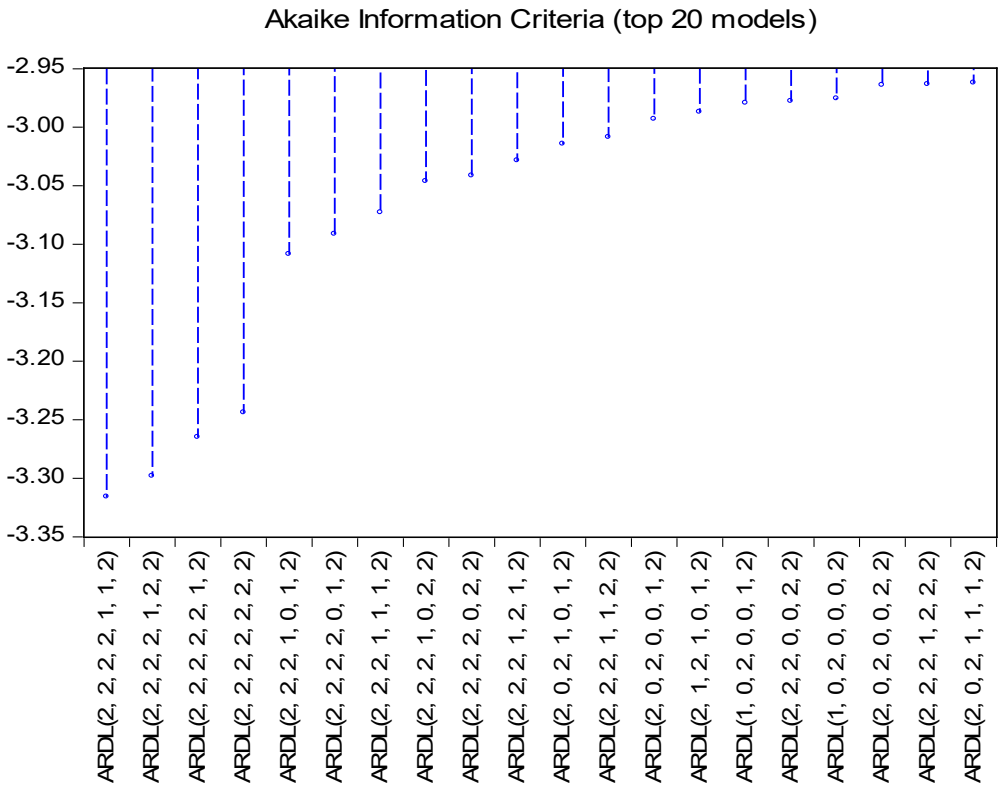


Figure 1*:* Lag Selection Order Criteria

Lag Selection Criteria

The model used the Akaike information criteria to select the appropriate lag for the model. The figure below shows the process: The system selected the top 20 lag models as shown in the figure above. After careful examination, the maximum AIC value of -3.35 which has the lag order ARDL (2,2,2,2,1,1) was selected (Figure 1). This means that the dependent variable trade performance (BOT) has a maximum lag period of 2, the variables official exchange rate (OER), market exchange rate (MER) and interest rate (INR) also have maximum lag periods of 2 while inflation rate (INF) and balance of payment (BOP) have one lag periods each.

Model Estimation

Short Run Model Estimates

The short run estimates show that relationship exist between exchange rate and trade performance (BOT) in the short run period. The estimate includes the lag periods as selected using the AIC criterion as well as the error correction coefficient which shows the speed of adjustment of the model to long run equilibrium. The result of the short run ARDL estimates is shown below: The short run coefficient for BOT(-1) is -0.879145, with a t-statistic of -1.309933 and a p-value of 0.2195, suggesting that the first lag of the balance of trade is not statistically significant at the usual 5% significance level (Table 4). However, BOT(-2) has a coefficient of 1.302331, t-statistic of 2.325777, and a p-value of 0.0424, which is statistically significant at the 5% level. This suggests that the second lag of the balance of trade has a positive and significant effect on the dependent variable, implying that past trade balances play a role in current trade performance. The coefficient for the Official Exchange Rate (OER) is -0.140176, with a t-statistic of -2.550912 and a p-value of 0.0288, indicating that the official exchange rate has a statistically significant negative impact on external trade performance. This suggests that an increase in the official exchange rate (depreciation of the Naira) could reduce external trade performance, possibly making imports more expensive and affecting trade competitiveness. The OER(-1) and OER(-2) coefficients are -0.003100 and -0.056750, respectively. The first lag (OER(-1)) is not statistically significant with a p-value of 0.8697, while the second lag (OER(-2)) is significant at the 5% level, with a negative coefficient (-0.056750) and a t-statistic of -2.471046. This indicates that the second lag of the official exchange rate negatively influences trade performance. The coefficient for the Market Exchange Rate (MER) is -0.080412, with a t-statistic of -0.908536 and a p-value of 0.3850, indicating that the market exchange rate, in its current form, does not significantly affect external trade performance. However,

Table 4: ARDL Short Run Estimates.

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
BOT(-1)	-0.879145	0.671137	-1.309933	0.2195
BOT(-2)	1.302331	0.559955	2.325777	0.0424
OER	-0.140176	0.054951	-2.550912	0.0288
OER(-1)	-0.003100	0.018424	-0.168242	0.8697
OER(-2)	-0.056750	0.022966	-2.471046	0.0330
MER	-0.080412	0.088507	-0.908536	0.3850
MER(-1)	0.063955	0.101342	0.631080	0.5421
MER(-2)	0.248596	0.075749	3.281851	0.0083
INR	0.133163	0.115545	1.152479	0.2759
INR(-1)	-0.044675	0.115835	-0.385679	0.7078
INR(-2)	-0.208068	0.108767	-1.912967	0.0848
INF	0.002602	0.045956	0.056621	0.9560
INF(-1)	-0.102917	0.055715	-1.847207	0.0945
BOP	0.099040	0.071834	1.378733	0.1980
BOP(-1)	0.296784	0.106335	2.791030	0.0191
C	1.887762	1.379810	1.368132	0.2012
CointEq(-1)	-0.576813	0.161342	-3.575106	0.0051
R-squared	0.998643	Mean dependent var		8.572592
Adjusted R-squared	0.946199	S.D. dependent var		0.661403
F-statistic	408.7164	Akaike info criterion		-3.315818
Prob(F-statistic)	0.000000	Durbin-Watson stat		2.007216

Source: Author's computation, 2026

the lags of the market exchange rate (MER(-1) and MER(-2)) show a different picture. MER(-2) has a coefficient of 0.248596, a t-statistic of 3.281851, and a p-value of 0.0083, which is statistically significant at the 1% level. This suggests that the second lag of the market exchange rate positively influences external trade performance, indicating that exchange rate movements in the past play an important role in shaping trade performance. The coefficient for Interest Rate (INR) is 0.133163, with a t-statistic of 1.152479 and a p-value of 0.2759, which is not statistically significant. This suggests that interest rate changes do not significantly affect external trade performance in the short term. The lags of the interest rate (INR(-1) and INR(-2)) show some varying effects. INR(-2) has a statistically significant negative coefficient (-0.208068) with a t-statistic of -1.912967 and a p-value of 0.0848, indicating that higher interest rates in the previous period could have a negative impact on trade performance, but the result is marginally significant (at the 10% level).

The coefficient for Inflation Rate (INF) is 0.002602, with a t-statistic of 0.056621 and a p-value of 0.9560, suggesting that inflation has a negligible effect on trade performance, which is statistically insignificant. The lag of inflation (INF(-1)) has a coefficient of -0.102917, t-statistic of -1.847207, and a p-value of 0.0945, which is marginally significant at the 10% level. This suggests that inflation in the previous period may have a slightly negative effect on trade performance.

The coefficient for Balance of Payments (BOP) is 0.099040, with a t-statistic of 1.378733 and a p-value of 0.1980, indicating that the current balance of payments does not significantly affect external trade performance. However, BOP(-1) has a coefficient of 0.296784, a t-statistic of 2.791030, and a p-value of 0.0191, suggesting that the first lag of the balance of payments has a positive and statistically significant effect on external trade performance. This implies that past balances of payments are crucial in determining the current state of trade performance.

Cointegrating Equation (CointEq (-1)

The coefficient for the cointegrating equation (CointEq (-1)) is -0.576813, with a t-statistic of -3.575106 and a p-value of 0.0051, indicating significant adjustment to the long-term equilibrium relationship. This suggests that deviations from the long-term relationship between exchange rates, interest rates, inflation, and trade performance will adjust back to the equilibrium state at a rate of approximately 57.68% per year. An adjustment speed of about 57.7% per year suggests that the transmission of exchange rate and price shocks to trade outcomes is relatively quick. This is consistent with evidence that pass-through is substantial and higher in economies with volatile exchange rates and inflation (Campa & Goldberg, 2005; Taylor, 2000).

Long Run Model Estimates

The ARDL model also estimates the long run coefficients of the model. This is summarized below: The long run coefficient for the Official Exchange Rate (OER) is -0.346777, and it is statistically significant at the 1% level, with a t-statistic of -5.984299 and a p-value of 0.0001 (Table 5). This negative coefficient suggests that an increase in the official exchange rate, which signifies a depreciation of the Naira against the US dollar, is

Table 5: ARDL Long Run Estimates.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OER	-0.346777	0.057948	-5.984299	0.0001
MER	0.402451	0.052482	7.668400	0.0000
INR	-0.207311	0.200897	-1.031926	0.3264
INF	-0.173913	0.058230	-2.986639	0.0137
BOP	0.686225	0.114713	5.982123	0.0001
C	3.272744	1.641846	1.993332	0.0742

Source: Author's computation, 2026

associated with a decline in external trade performance in the long run. This result suggests that the depreciation of the official exchange rate increases the cost of imports and decreases the competitiveness of exports, which ultimately hampers trade performance. This negative long-run effect is consistent with a pass-through channel in which depreciation of the official rate raises the naira cost of imported inputs and consumer goods faster than it raises export earnings, particularly where pass-through into import prices is high (Campa & Goldberg, 2005) and where imports are priced in a dominant foreign currency (Gopinath et al., 2010). The result should be read alongside earlier Nigerian evidence on the real exchange rate and the trade balance (Igue & Ogunleye, 2014).

The long run coefficient for the Market Exchange Rate (MER) is 0.402451, which is positive and statistically significant at the 1% level, with a t-statistic of 7.668400 and a p-value of 0.0000. This implies that a rise in the market exchange rate, which reflects the depreciation of the Naira in the open market, is associated with an improvement in external trade performance. This suggests that when the market exchange rate increases (the Naira weakens), exports may become more attractive to international buyers due to their relatively lower price, enhancing trade performance. Thus, a devaluation in the market rate appears to boost external trade performance in Nigeria in the long run.

The positive market-rate coefficient supports the expenditure-switching mechanism (Obstfeld & Rogoff, 2000) and is in line with evidence that a competitive real exchange rate supports tradable-sector expansion and growth in developing countries (Rodrik, 2008; Habib et al., 2017). The opposite signs on the official and market rates suggest that the market rate may carry the price signal facing marginal traders, in line with the role of parallel-market premia in developing-country foreign exchange systems (Kiguel & O'Connell, 1995).

The long run coefficient for the Interest Rate (INR) is -0.207311, but it is not statistically significant, with a t-statistic of -1.031926 and a p-value of 0.3264. This indicates that, in the long run, interest rates do not significantly affect external trade performance in Nigeria. Although higher interest rates theoretically raise the cost of borrowing, which could reduce investments in trade activities, the lack of statistical significance suggests that interest rates may not play a significant role in determining trade performance in Nigeria. The insignificance of the interest rate at the aggregate level does not contradict firm-level evidence that financial conditions matter for exporting (Greenaway et al., 2007; Manova, 2013; Amiti & Weinstein, 2011). A policy interest rate may be a weak proxy for the cost and availability of trade finance, because credit constraints operate through bank health, collateral and financial development rather than through the headline rate alone. The coefficient for Inflation Rate (INF) is -0.173913, and it is statistically significant at the 5% level, with a t-statistic of -2.986639 and a p-value of 0.0137. This negative and significant coefficient suggests that, in the long run, an increase in inflation is associated with a decrease in external trade performance. High inflation leads to an increase in the cost of production, reducing the price competitiveness of exports. Additionally, inflation erodes the purchasing power of the local currency, making imports more expensive, which negatively impacts trade performance. Therefore, managing inflation is crucial for maintaining a favorable trade environment. This result agrees with the view that inflation erodes competitiveness and keeps exchange rate pass-through high (Taylor, 2000), and with evidence that real exchange rate instability depresses investment in Sub-Saharan Africa (Bleaney & Greenaway, 2001).

The long run coefficient for Balance of Payments (BOP) is 0.686225, and it is statistically significant at the 1% level, with a t-statistic of 5.982123 and a p-value of 0.0001. This positive coefficient indicates that an improvement in the balance of payments, which reflects a country's net trade and investment income with the rest of the world, is associated with better external trade performance. A positive balance of payments suggests that Nigeria is earning more from trade and foreign investments than it is spending, which strengthens its position in global trade and supports external trade growth.

A stronger external payments position cushions the exchange rate and reserves, which gives the authorities room to smooth exchange rate movements using reserves rather than restrictions (Calvo & Reinhart, 2002).

The constant term (C) has a coefficient of 3.272744 and a t-statistic of 1.993332, with a p-value of 0.0742. This constant term is marginally statistically significant at the 10% level, which indicates that in the absence of changes

Table 6: Diagnostic Tests.

S/N	Test	Probability	Decision
1.	Breusch-Godfrey serial correlation LM test	F-stat = 1.7749 *p-value = 0.4925*	Accept Null (No serial correlation)
2.	Durbin Watson Statistic	2.007	No Autocorrelation
3.	CUSUM Test	CUSUM line is within bands of 5% significance level	Model is stable
4.	R-squared and Adjusted R-squared	0.9986 (99.86%) 0.9462 (94.62%)	The explanatory variables have high explanatory coefficient

Source: *Author's computation, 2026*

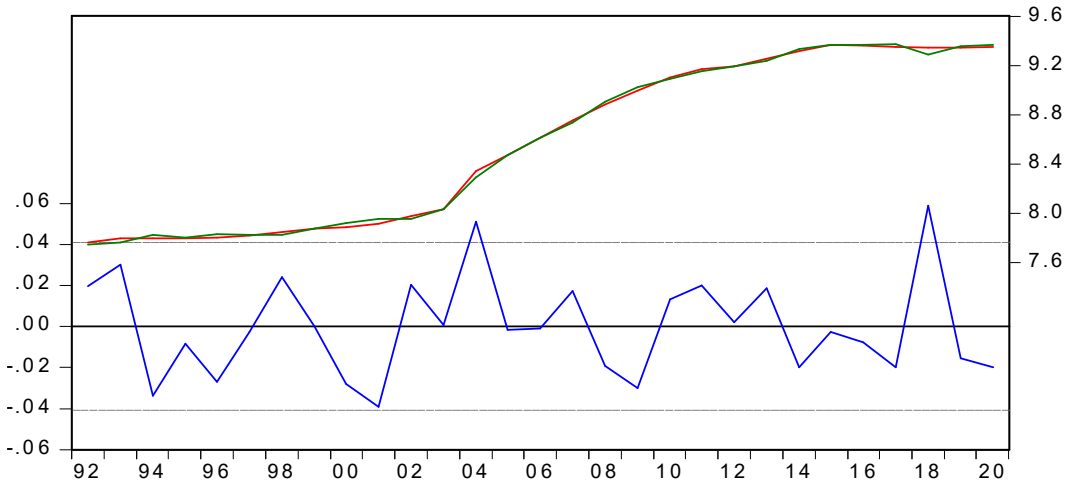


Figure 2: Plot of the Actual and Fitted Regression Line. Actual regression line (a-priori) Fitted regression line

in the explanatory variables, Nigeria's external trade performance could still be influenced by baseline economic conditions or other unobserved factors. While not strongly significant, the positive constant suggests some level of trade performance that exists even without changes in the key factors included in the model.

Post-Estimation Test Results

The post-estimation results show other tests that confirmed the robustness of the model. The test comprises of the Durbin Watson test for autocorrelation, Cumulative Sum test, Coefficient of determination (R-squared and Adjusted R-squared. These tests, as earlier stated, are necessary in order to ascertain the statistical robustness and predictive ability of the model. They are summarized as follows: The post-estimation tests as presented in (Table 6) shows that the error terms of the model are not serially correlated given the *p-value* of the Breusch-Godfrey Serial Correlation LM test which is greater than 0.05 critical value. Also, the Durbin Watson statistic suggests that there is no autocorrelation in the model since the DW value of 2.007 tends towards 2 than to 0 (Table 6). In addition, evidence from the cumulative sum (CUSUM) test affirms the stability and suitability of the model for forecasting since the CUSUM line is within the upper and lower bounds 5% critical value lines. The adjusted R-squared is more suitable for gauging the overall fitness of the model and it has a value of 0.9462 indicating that the exchange rate variables used on the model accounted for up to 94.62% of the variations in trade performance for the period studied. The (Figure 2) further shows the plot of the actual and fitted regression lines. This became necessary as most economic time series analysis do not affirm to a-priori expectation. The actual regression line is closely fitted thus we conclude that our regression estimates are close to a-priori. This means that the result of the short run and long run estimates conforms to the economic realities for the period studied.

Test of Research Hypotheses (Individual Test)

Test of Hypothesis One

H_{01}: Official exchange rate has no significant effect on external trade performance in Nigeria.
t-statistic = -5.984
t-table = $t_{0.025,29}$ = 2.064

Decision Rule: Since the t-statistic is greater than the t-

table value at 5% level of significance, we reject the null hypothesis and conclude that official exchange rate has significant effect on external trade performance in Nigeria.

Test of Hypothesis Two

$H0_2$: Market exchange rate has no significant effect on external trade performance in Nigeria.
t-statistic = 7.668
t-table = $t_{0.025,29}$ = 2.064

Decision Rule: Since the t-statistic is greater than the t-table value at 5% level of significance, we reject the null hypothesis and conclude that market exchange rate has significant effect on external trade performance in Nigeria.

Test of Hypothesis Three

$H0_3$: Interest rate has no significant effect on external trade performance in Nigeria.
t-statistic = -1.032
t-table = $t_{0.025,24}$ = 2.064

Decision Rule: The t-statistic is less than the t-table value at 5% level of significance, therefore, we accept the null hypothesis and conclude that Interest rate has no significant effect on external trade performance in Nigeria. Taken together, the hypothesis tests indicate that the exchange rate, rather than the interest rate, is the main policy channel for trade performance. This is consistent with evidence that exchange rate regimes and real exchange rate levels matter for trade and growth (Reinhart & Rogoff, 2004; Rodrik, 2008).

Summary

This study examines the impact of exchange rate and interest rate on external trade performance in Nigeria from 1990 to 2024. The study focuses on key variables such as the official exchange rate (OER), market exchange rate (MER), interest rate (INR) as the independent variables alongside inflation rate (INF) and balance of payments (BOP) as control variables while the dependent variable is balance of trade which is the proxy used to measure external trade performance. The research employs an Autoregressive Distributed Lag (ARDL) model to analyze both short- and long-run relationships between these variables and Nigeria's external trade performance provided that none of the variables is integrated of order 1(2). The findings reveal that market exchange rate depreciation positively influences external trade performance, making exports more competitive, while official exchange rate depreciation has a negative impact, increasing import costs and reducing trade competitiveness. Interest rate had a negative impact on the balance of trade, suggesting that higher borrowing costs, constrain export-oriented investments and weakens the competitiveness of domestically produced goods. Inflation also has a negative and statistically significant long-run effect on trade performance, as it raises production costs and reduces purchasing power. In contrast, a favorable balance of payments is positively correlated with trade performance, suggesting that Nigeria benefits from improved foreign trade income and investment. The interest rate was found to have an insignificant effect on external trade performance, both in the short and long run. The evidence indicates that the exchange rate is a more potent determinant of trade performance than the interest rate, and that the effects of the official and market rates differ in sign, which cautions against treating them as interchangeable (Kiguel & O'Connell, 1995; Reinhart & Rogoff, 2004).

Conclusion

The conclusion emanating from the findings is that the market exchange rate plays a crucial positive role in improving trade performance, suggesting that depreciation of the Naira in the market makes Nigerian exports more competitive. Conversely, the official exchange rate has a negative effect on trade performance, as depreciation increases import costs and reduces the competitiveness of exports. Interest rate had a negative impact on external trade performance Similarly, inflation negatively affects trade performance by raising production costs and diminishing the purchasing power of the Naira, while the balance of payments positively correlates with improved trade outcomes. The interest rate was found to have an insignificant impact on external trade performance in the long run, suggesting that other macroeconomic factors play a more dominant role in influencing trade dynamics.
The findings highlight the critical role of exchange rate management in shaping Nigeria's external trade performance. Stable exchange rates, effective management of inflation, and fostering a positive balance of payments are crucial factors in enhancing trade performance. The study provides valuable policy insights and emphasizes the need for sustainable economic strategies to bolster Nigeria's position in global trade.
These results imply that policy credibility and convergence between official and market rates matter more than the nominal level of either (Calvo & Reinhart, 2002; Reinhart & Rogoff, 2004). Sustained gains in trade performance will also require supply-side improvements that allow firms to respond to exchange rate signals, namely higher productivity and export diversification (Melitz, 2003; Dollar, 1992), together with macroeconomic stability (Bleaney & Greenaway, 2001; Taylor, 2000). Future research could use nonlinear ARDL to test asymmetric effects of depreciation and appreciation (Bahmani-Oskooee & Baek, 2016) and use disaggregated data to separate oil from non-oil trade.

Recommendations

1. The government and the Central Bank of Nigeria (CBN) should focus on stabilizing the official exchange rate and aligning it more closely with the market rate to reduce the volatility of the Naira. This can be achieved by implementing policies that will stabilize the currency while enhancing competitiveness in international markets. A managed float exchange rate system could be introduced, where the CBN allows some flexibility in the market rate but intervenes when necessary to avoid extreme fluctuations and ensure trade stability. Because countries often manage their rates while claiming to float, the credibility and transparency of the chosen regime are essential.

2. In order to capitalize on the positive effects of the market exchange rate, Nigeria should focus on enhancing its export sectors, particularly in non-oil commodities. Policies that support export diversification, improve productivity, and invest in infrastructure (such as transportation, logistics, and technology) will help increase the volume and value of exports. Real exchange rate competitiveness has been associated with stronger tradable-sector growth in developing countries.

3 The government should work on reducing interest rate to reduce the cost of borrowing to do business, enabling domestic producers to expand production and potentially increase exports and reduce import dependence. Because credit constraints and trade finance availability shape exporting, interest rate reduction should be complemented by measures that improve exporters' access to credit.

4 Inflation control should be a priority for the CBN, as high inflation negatively affects trade performance by eroding the real value of exports and increasing import costs. The government should adopt strict monetary policies aimed at stabilizing prices and reducing inflationary pressures, particularly in critical sectors like food, energy, and raw materials. Low and stable inflation also reduces exchange rate pass-through and protects investment from real exchange rate instability.

5 Exchange rate windows should be unified gradually, backed by adequate reserves and transparent rules, rather than maintaining multiple rates that create parallel-market premia.

6 Policy should support export diversification and firm productivity, since only more productive firms can profit from a favourable exchange rate.

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