Journal of Economic Studies (JES)
Department of Economics,
Nnamdi Azikiwe University, Awka,
Anambra State, Nigeria.

Web: www.nauecojournals.com *ISSN 1119-2259*

IMPACT OF MONETARY AND EXCHANGE RATE POLICIES ON TRADE BALANCE IN NIGERIA

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Abstract

The balance of trade measures the difference between a country's exports and imports. A trade surplus occurs when exports exceed imports, while a trade deficit happens when imports surpass exports. This research explores how monetary and exchange rate policies affect the balance of trade, using various macroeconomic theories such as monetary approach and purchasing power parity. Analyzing time series data from 1981 to 2023, the study examines factors like trade balance, monetary policy rate, real exchange rates, consumer price index, world oil price, investment, GDP, and trade openness. The ARDL model was used to evaluate both the short-run and long-term co-integration of these variables. Results show that, in the short term, the monetary policy rate and real exchange rate do not significantly impact Nigeria's oil or non-oil sectors or overall trade balance. However, in the long term, both have a significant relationship with Nigeria's trade balance. The study suggests that monetary authorities maintain lending interest rates for foreign traders at a single-digit level to improve accessibility and sustainability, thus enhancing international trade and the Federal Government, through the Central Bank of Nigeria, should work to stabilize the foreign exchange market to reduce fluctuations in the nominal effective exchange rate.

Keywords: Monetary policy, Exchange rate policy, trade balance, Nigeria, ARDL
JEL Classification Codes: E40, E43, E52, F31, F41

1.0 Introduction

The balance of trade (BOT) is defined by the IMF (2022) as the difference between a nation's exports and imports, reflecting external sector performance and macroeconomic stability. The WTO (2024) considers BOT crucial for assessing a country's trade position, while institutions like the CBN (2023) and NBS (2024) collect data essential for analysing Nigeria's trade performance. A favourable BOT surplus enhances foreign reserves and stabilizes exchange rates, whereas a deficit signals reliance on external financing. Thus, BOT indicates competitiveness and the effectiveness of macroeconomic management (Bhat & Bhat, 2021). The balance of trade (BOT) should indicate a

strong economy through competitive exports and strategic imports. For Nigeria, this entails optimizing natural resources and boosting industrial and agricultural sectors to maintain a sustainable trade balance and foreign exchange stability, supported by effective monetary and exchange-rate policies (IMF, 2023; World Bank, 2024).

Nigeria's oil sector trade balance fluctuated significantly from 1981 to 2022, starting with a surplus of N10,560.70 million in 1981, peaking at N8,546,302.89 million in 2008, and reaching N14,375,136.87 million in 2022. Nigeria, Africa's second-largest economy and a major oil exporter with vast natural gas reserves, sees agriculture employ nearly 70% of its workforce. Key trading partners include Brazil, China, India, Japan, the U.S., and the EU. Long-term growth is supported by rising oil and gas production and expanding trade within ECOWAS, competing with South Africa for economic leadership (Salawu et al., 2022).

Monetary and exchange rate policies shape a nation's trade balance. Monetary policy influences domestic demand and inflation, while exchange rate policy affects export and import prices, determining trade surpluses or deficits. Central banks manage money supply and interest rates, impacting trade indirectly, whereas exchange rate policy directly influences currency value and competitiveness (Taylor, 2001; IMF, 2021; CBN, 2022). The Marshall–Lerner condition suggests that a weaker domestic currency can improve trade balance if export and import demand are responsive (Krugman & Obstfeld, 2009; Dornbusch et al., 2018). However, excessive monetary expansion can lead to inflation, negating the benefits of depreciation (Friedman, 1953), while tight monetary policy may cause appreciation, worsening trade balance (Obadan, 2006; CBN, 2023). Thus, analysing Nigeria's Balance of Trade (BOT) necessitates considering the interplay of monetary and exchange-rate policies along with structural factors.

The Central Bank of Nigeria (CBN, 2023) defines monetary policy as managing money's value, supply, and cost for price stability and growth, crucial for trade-sensitive emerging economies (Onyeiwu, 2012). Key components include regulating credit, nominal exchange rates, and interest rates (Aderoju & Odunsi-Oyewole, 2019). While the CBN's Monetary Policy Rate (MPR) has varied from 10% in 2006 to 18.75% in 2023, structural issues like fiscal dominance and inflation diminish effectiveness. Rapid money supply growth from fiscal deficits complicates Nigeria's balance of trade, as currency depreciation often worsens it due to reliance on inelastic imports (Adeniran, 2014).

Reforms have failed to address volatility and misalignment affecting

competitiveness. Nigeria's trade surplus dropped from $35.7 billion in 2008 to $3.54 billion in 2009 due to naira depreciation. While depreciation boosted non-oil exports, it raised import costs, worsening trade deficits. From the 1990s to early 2000s, Nigeria enhanced market transparency through the Autonomous and Interbank Foreign Exchange Markets, while the Central Bank managed liquidity and stability. In the 2020s, Nigeria aimed to unify exchange rates to further transparency. The interaction between monetary and exchange rate policies is crucial for external balance. Poor coordination between the Central Bank and fiscal authorities has hampered achieving external stability, controlling inflation, and enhancing trade competitiveness amidst oil dependency and global price fluctuations.

In response to economic challenges, Nigerian governments and the Central Bank of Nigeria (CBN) have implemented monetary and exchange-rate measures since 1986, including exchange rate liberalization, the Dutch Auction System, and devaluations. The CBN has adjusted policy rates, managed liquidity, and utilized macroprudential tools to stabilize prices. Recently, it has focused on exchange-rate unification and targeted initiatives like the Anchor Borrowers' Programme to boost domestic production and reduce import dependence, alongside fiscal policies for import substitution and export expansion (CBN, 2010; CBN, 2023; Federal Ministry of Finance, 2022; IMF, 2023).).

Nigeria's Balance of Trade (BOT) is fragile, with persistent trade deficits due to falling oil prices and currency instability. The naira faces pressure from declining reserves, while inflation and strict monetary policies limit export competitiveness. Trade balance improvements are often temporary and more influenced by oil prices than policy effectiveness, highlighting poor coordination between monetary and exchange-rate strategies. Most research treats these policies separately, overlooking their combined effects on trade balance. This study examines the joint impact of monetary and exchange-rate policies on Nigeria's BOT from 1981 to 2023, addressing gaps in sectoral analysis to inform macroeconomic policymaking for external stability.

2.0 Literature Review

2.1 Theoretical Literature

Monetary Approach to the Balance of Payments

The monetary approach to the balance of payments (MABP) sees trade imbalances as linked to excess domestic money supply. In Nigeria, government borrowing increases imports and worsens trade performance, while contractionary policies can improve it. The monetary approach's strength is its concise explanation of external imbalance

and focus on monetary discipline for stability. However, it has limited applicability to developing economies due to assumptions of perfect capital mobility and stable financial markets, as seen in Nigeria's complex adjustment process. The MABP's focus on monetary discipline is limited in developing countries due to assumptions of perfect capital mobility and stable markets.

The Purchasing Power Parity (PPP) theory

The Purchasing Power Parity (PPP) theory, originating from the Salamanca School and modernized by Gustav Cassel in 1918, connects exchange rates and price levels in fiat systems. It posits that absence of transaction costs allows arbitrage to equalize prices across countries. In Nigeria, inflation differentials and exchange rate policies affect the naira's value, underscoring the need to incorporate inflation and exchange rates when evaluating trade balance. However, PPP's assumptions often falter in developing countries like Nigeria due to transport costs and tariffs, making it more suitable as a long-term benchmark than a short-term predictor, especially given structural constraints and market imperfections.

The J-Curve theory

The J-curve theory by Magee (1973) describes how currency depreciation initially worsens a country's trade balance before eventual improvement due to delayed export responses. In Nigeria, trade performance does not immediately benefit from depreciation due to rising import costs, structural issues, and heavy reliance on oil exports. While the theory aids in understanding exchange rate policy effects, its predictive accuracy is limited in developing economies due to varied adjustment periods and structural rigidities.

The Absorption Approach

The absorption approach, introduced by Sidney Alexander (1952), shifts trade balance analysis to national income and expenditure, asserting that a trade deficit arises when domestic expenditure exceeds national output. Improving the trade balance requires increasing output or reducing absorption through contractionary monetary or fiscal policies. This theory emphasizes managing aggregate demand for external balance rather than solely relying on exchange rate changes. In Nigeria, tighter monetary policy can lower imports and improve the trade balance, especially in the non-oil sector. However, structural challenges such as income inequality, a large informal sector, and weak monetary transmission may limit its effectiveness, alongside uncoordinated fiscal policies.

2.2. Empirical Literature Review

Nwagu, Uzonwanne, and Ezenekwe (2024) examined the impact of the monetary policy

rate on Nigeria's trade balance using time series data from 1981 to 2022. Employing the Auto-Regressive Distributed Lag model, they found no significant short-term effect of the monetary policy rate on the trade balance, but a notable long-term relationship. The study recommends that the government enhance exports by addressing the monetary policy rate's impact.

Yakubu, Ebeh, and Ajayi (2022) analysed the effect of monetary policy on Nigeria's balance of payments using annual data from 1980 to 2019 and the Autoregressive Distributed Lag (ARDL) model. Their findings revealed that the monetary policy rate, exchange rate, inflation rate, money supply, and private sector bank credit all negatively impact the balance of payments. They recommend that the Nigerian government reduce the monetary policy rate to improve the balance of payments.

Tarawalie and Kpana (2022) studied the impact of monetary policy and exchange rate fluctuations on Sierra Leone's trade balance from 1980 to 2000 using the ARDL model. They found that money supply and the real effective exchange rate negatively influence the trade balance, while real GDP positively correlates with it, with real GDP having the most significant long-term effect. Recommendations include ensuring exchange rate stability and aligning money supply growth with domestic demand for non-tradable goods.

Nwagu et al. (2022) analysed the impact of fiscal and monetary policy on Nigeria's trade balance from 1981 to 2018 using co-integration techniques and Ordinary Least Squares estimation. The findings revealed a long-term relationship between monetary policy (broad money supply) and fiscal policy (government spending and taxation) on the trade balance, concluding that these variables did not improve Nigeria's trade balance. The study recommends that the government implement trade policies to boost exports and attract foreign exchange.

Sakanko and Akims (2021) examined the impact of monetary policy on Nigeria's trade balance using the ARDL model with data from 1980 to 2018. They found that real interest rates and the effective exchange rate negatively affect the trade balance in both the short and long term, concluding that monetary policy is vital for maintaining a favourable trade balance.

Oluwa and Olayede (2020) applied the Panel ARDL model to West Africa, revealing that domestic credit and interest rates positively affect exports. This study will specifically assess the effects of exchange rates and monetary policy in Nigeria to improve trade balance through increased domestic credit.

Ogunbiyi, Adegboye, and Agunbiade (2019) examined the impact of monetary

policy on Nigeria's trade balance from 1980 to 2017 using a structural VAR model. Their findings revealed that monetary policy factors, such as exchange and interest rates, significantly influence the trade balance, which is critical for the effectiveness of monetary policy in Nigeria.

Kofoworade (2023) studied the impact of exchange rates on Nigeria's balance of trade and economic growth from 1986 to 2016 using OLS and ECM methods. Analysing Central Bank data, the study found a long-term relationship among economic growth, trade balance, and exchange rate, showing that exchange rates negatively affect trade balance while positively correlating with GDP.

Truong and Vo (2023) analysed the asymmetric effects of exchange rates on Vietnam's trade balance using monthly data from January 2010 to June 2014 and the nonlinear ARDL methodology. They found differing effects of exchange rate decreases and increases on the trade balance over both the short and long term.

Ijirshar, Okpe, and Andohol (2022) examined exchange rate fluctuations on Nigeria's trade from 1986 to 2021, applying both ARDL and NARDL models to assess the J-Curve hypothesis and the Marshall-Lerner condition. Their findings indicated that real exchange rate depreciation significantly negatively affects trade balance and exports short-term but positively long-term, recommending investment incentives for domestic enterprises to reduce import reliance.

Fuard and Shifaniya (2021) analysed the correlation between Nigeria's exchange rate and trade balance from 1977 to 2019 using the Auto-regressive Distributed Lag (ARDL) model. Their findings revealed that inflation positively impacts the trade balance in the short term, while the exchange rate and gross domestic product negatively affect it in the long term. These results support the J-curve phenomenon, indicating that devaluation may initially worsen the trade balance but improve it in the long run.

Nguyen et al. (2021) studied the impact of the exchange rate on Vietnam-U.S. trade during the trade war using monthly data from January 2010 to September 2020 and ARDL/NARDL methodologies. The ARDL analysis found the exchange rate influences trade volumes less significantly than the trade war, revealing a J curve relationship. NARDL results indicated short- and long-term asymmetry in the exchange rate's effect. Overall, the study concluded that the trade war predominantly drives export and import changes.

Aboobucker, Kalideen, and Abdul-Jawahir (2021) examined exchange rates and trade balances in Sri Lanka (1977-2019) using the autoregressive distributed lag (ARDL) model. They found that exchange rates and

GDP negatively affect the trade balance long-term, supporting the J-curve effect and the applicability of the Marshall-Lerner condition.

Vinh and Doung (2019) studied exchange rate volatility's impact on Vietnamese exports from 2000 to 2014, using the ARDL approach. They revealed that exchange rate volatility adversely affects export volume long-term, aligning with the J-curve phenomenon, while increased foreign real income diminishes Vietnamese exports. The study recommends policy implications for managing the exchange rate and boosting exports.

3.0 Methodology

3.1. Theoretical framework

This study employs a hybrid framework of macroeconomic theories to analyse the impact of monetary and exchange rate policies on Nigeria's trade balance in oil and non-oil sectors. It uses an elasticity approach to evaluate trade responses to currency depreciation and incorporates the absorption approach relating trade balance to national income. Additionally, it examines monetary policy effects on demand and highlights the role of money supply and inflation in trade imbalances, relevant for addressing Nigeria's trade deficits and inflation volatility.

3.2: Model specification

Model 1

RQ1: How do monetary and exchange rate policies interact to influence the balance of trade in Nigeria's oil and non-oil sectors?

Model 1A. Baseline (static / reduced-form) specifications

Oil sector trade balance (TB_oil):

$$TB_{oilt} = \alpha_0 + \alpha_1 MP_t + \alpha_2 ER_t + \alpha_3 (MP_t \times ER_t) + \alpha_4 Y_t + \alpha_5 INF_t + \alpha_6 WOP_t + \alpha_7 OPEN_t + \varepsilon_t \quad 3.1$$

Non-oil sector trade balance (TB_non):

$$TB_{nont} = \gamma_0 + \gamma_1 MP_t + \gamma_2 ER_t + \gamma_3 (MP_t \times ER_t) + \gamma_4 GDP_t + \gamma_5 INF_t + \gamma_6 OPEN_t + \gamma_7 INV_t + \varepsilon_t \quad 3.2$$

Note: TB_* can be defined as exports − imports for the sector, or as the sectoral trade balance in real NGN. INV_t = real investment or credit to the private sector (control for investment-driven capital imports relevant to non-oil sector).

Variable definitions & measurement

- **TB_oil_t**: Oil sector trade balance (real NGN); exports_oil − imports_oil. Prefer real (deflated) series; log form (ln) optional.
- **TB_non_t**: Non-oil sector trade balance (real NGN); exports_non − imports_non.

- **MP_t**: Monetary policy indicator. Primary: Monetary Policy Rate (MPR, %). Alternatives/robustness: Δln(M2) or real money supply.
- **ER_t**: Real exchange rate (REER) index or real NGN/USD (higher = depreciation). Use ln (REER) where appropriate and demean before interaction.
- **MP×ER**: Interaction term (product of demeaned MP and demeaned ER). Key coefficient tests complementarity/offset.
- **GDP_t**: Real GDP (ln) — captures domestic absorption/demand.
- **INFt**: Inflation rate (CPI, %).
- **$OPEN_t$**: Trade openness = (exports + imports)/GDP or alternative measures like trade volume/GDP.
- **WOP_t**: World oil price (e.g., Brent $/barrel), real terms; essential for TB_oil.
- **INV_t**: Real gross fixed capital formation or credit to private sector — control for investment-driven imports in non-oil.
- **μ_t, ε_t**: white-noise residuals.

Long-run (cointegrating) relationship

Estimates long-run effects of monetary policy and exchange rate policy and their interaction on Nigeria's non-oil trade balance (TB_oil), controlling for macro fundamentals

$$TB_{oil,t} = \beta_0 + \beta_1 MP_t + \beta_2 ER_t + \beta_3 (MP_t \times ER_t) + \beta_4 GDP_t + \beta_5 INF_t + \beta_6 WOP_t + \beta_7 OPEN_t + u_t \quad 3.3$$

ARDL–ECM Specification (General Form)

$$\Delta TB_{oil,t} = \phi_0 + \sum_{i=1}^{p} \phi_{1i}\, \Delta TB_{oil,t-i} + \sum_{j=0}^{q} \phi_{2j}\, \Delta MP_{t-j} + \sum_{k=0}^{r} \phi_{3k}\, \Delta ER_{t-k} + \sum_{l=0}^{s} \phi_{4l}\, \Delta (MP \times ER)_{t-l} + \sum_{m=0}^{v} \phi_{5m}\, \Delta GDP_{t-m} + \sum_{n=0}^{w} \phi_{6n}\, \Delta INF_{t-n} + \sum_{o=0}^{z} \phi_{7o}\, \Delta WOP_{t-o} + \sum_{u=0}^{y} \phi_{8u}\, \Delta OPEN_{t-u} + \lambda EC_{t-1} + \mu_t \quad 3.4$$

Error-Correction Term (EC)

$$EC_{t-1} = TB_{oil,t-1} - \theta_0 - \theta_1 MP_{t-1} - \theta_2 ER_{t-1} - \theta_3 (MP \times ER)_{t-1} - \theta_4 GDP_{t-1} - \theta_5 INF_{t-1} - \theta_6 WOP_{t-1} - \theta_7 OPEN_{t-1} \quad 3.5$$

The Error Correction model above is to estimate the long-run on trade balance of oil sector.

Model 1B — ARDL (Dynamic Cointegration) with Interaction for TB_non-oil

Estimates short-run and long-run effects of monetary policy and exchange rate policy and their interaction on Nigeria's non-oil trade balance (TB_non), controlling for macro fundamentals.

Long-run (cointegrating) relationship

$$TB_{non,t} = \beta_0 + \beta_1 MP_t + \beta_2 ER_t + \beta_3 (MP_t \times ER_t) + \beta_4 GDP_t + \beta_5 INF_t + \beta_6 OPEN_t + \beta_7 INV_t + u_t \quad 3.6$$

ARDL–ECM Specification (General Form)

$$\Delta TB_{non,t} = \phi_0 + \sum_{i=1}^{p} \phi_{1i}\, \Delta TB_{non,t-i} + \sum_{j=0}^{q} \phi_{2j}\, \Delta MP_{t-j} + \sum_{k=0}^{r} \phi_{3k}\, \Delta ER_{t-k} + \sum_{l=0}^{s} \phi_{4l}\, \Delta (MP \times ER)_{t-l} + \sum_{m=0}^{v} \phi_{5m}\, \Delta GDP_{t-m} + \sum_{n=0}^{w} \phi_{6n}\, \Delta INF_{t-n} + \sum_{o=0}^{z} \phi_{7o}\, \Delta OPEN_{t-o} + \sum_{u=0}^{y} \phi_{8u}\, \Delta INV_{t-u} + \lambda\, EC_{t-1} + \mu_t \quad 3.7$$

Error-Correction Term (EC)

$$EC_{t-1} = TB_{non,t-1} - \theta_0 - \theta_1 MP_{t-1} - \theta_2 ER_{t-1} - \theta_3 (MP \times ER)_{t-1} - \theta_4 GDP_{t-1} - \theta_5 INF_{t-1} - \theta_6 OPEN_{t-1} - \theta_7 INV_{t-1} \quad 3.8$$

The Error Correction model above is to estimate the long-run on trade balance of oil sector.

4.0 Presentation and Discussion of Findings

This section presents the findings for the short run estimation on how monetary and exchange rate policies interact to influence the balance of trade in Nigeria's oil and non-oil sectors.

4.1 Presentation of Results

Oil-sector Short-Run Estimation

The short-run estimation reveals that the third lag of trade balance and the second and third lags of world oil price statistically significant and negatively affect Nigeria's oil sector trade balance, while the second lag of the monetary policy rate and current GDP statistically significant and positively impact it. Specifically, changes in these variables lead to significant decreases and increases in the trade balance. Additionally, the interaction of monetary policy rate and real exchange rate statistically significant and positively moderate or interact with trade balance.

The adjusted R-square of 0.987178 indicates a strong goodness of fit.

Table 4.1: Dependent variable D(TB_oil)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
TB_OIL(-1)	-0.075286	0.190960	-0.394251	0.6970
TB_OIL(-2)	-0.197567	0.132791	-1.487808	0.1504
TB_OIL(-3)	-0.339850	0.147936	-2.297275	0.0310
MPR	30570.70	94728.04	0.322721	0.7498
MPR(-1)	-3102.585	67660.31	-0.045855	0.9638
MPR(-2)	370714.4	79390.59	4.669501	0.0001
MPR(-3)	-129099.6	76866.46	-1.679530	0.1066
REXR	999.4895	5289.292	0.188965	0.8518
MPR*REXR	522.5571	249.0014	2.098611	0.0470
GDP	273.0678	103.7313	2.632454	0.0149
GDP(-1)	-116.6856	101.6095	-1.148373	0.2626
INF	-7909.058	7000.817	-1.129734	0.2702
WOP	63903.02	8321.669	7.679111	0.0000
WOP(-1)	30518.24	11007.31	2.772542	0.0108
WOP(-2)	-18505.64	8246.758	-2.243990	0.0348
WOP(-3)	-24858.31	9525.755	-2.609589	0.0157
C	-3554564.	840220.0	-4.230516	0.0003
R-squared	0.992438	Mean dependent var		5167290.
Adjusted R-squared	0.987178	S.D. dependent var		5234304.
S.E. of regression	592700.0	Akaike info criterion		29.71938
Sum squared resid	8.08E+12	Schwarz criterion		30.43715
Log likelihood	-577.3876	Hannan-Quinn criter.		29.97890
F-statistic	188.6671	Durbin-Watson stat		2.005654
Prob(F-statistic)	0.000000			

Source: Estimation by the Researcher Using E-views 13

Error Correction Model (Long Run Estimation)

Table 4.2: Summary of the Error correction model

Dependent Variable: D(TB_oil)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COINTEQ*	-1.612703	0.147254	-10.95183	0.0000
D(TB_OIL(-1))	0.537417	0.073657	7.296217	0.0000
D(TB_OIL(-2))	0.339850	0.105476	3.222060	0.0031
D(MPR)	30570.70	44253.77	0.690805	0.4950
D(MPR(-1))	-241614.9	53297.40	-4.533333	0.0001
D(MPR(-2))	129099.6	48309.89	2.672322	0.0121
D(GDP)	273.0678	45.61022	5.986987	0.0000
D(WOP)	63903.02	5820.608	10.97875	0.0000
D(WOP(-1))	43363.95	6506.713	6.664495	0.0000
D(WOP(-2))	24858.31	7041.368	3.530324	0.0014
R-squared	0.935622	Mean dependent var		466357.2
Adjusted R-squared	0.916309	S.D. dependent var		1793901.
S.E. of regression	518965.1	Akaike info criterion		29.36938

Sum squared resid	8.08E+12	Schwarz criterion	29.79160
Log likelihood	-577.3876	Hannan-Quinn criter.	29.52204
F-statistic	48.44433	Durbin-Watson stat	2.005654
Prob(F-statistic)	0.000000		
* *p-values are incompatible with t-Bounds distribution.*			

Source: Estimation by the Researcher Using E-views 13

In the ECM regression (Table 4.2), COINTEQ*, leading to the omission of non-contributory variables. A significant negative coefficient (-10.95183) indicates a long-run relationship between trade balance in the oil sector and the interaction of monetary policy rate and real exchange rate in Nigeria.

Short-Run Estimate

Table 4.3: Dependent Variable D(TB_non)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
TB_NON(-1)	-0.312315	0.199927	-1.562144	0.1332
TB_NON(-2)	-0.048158	0.156030	-0.308643	0.7606
TB_NON(-3)	-0.475433	0.159836	-2.974502	0.0072
MPR	-182473.1	84349.52	-2.163297	0.0422
MPR(-1)	187033.4	158491.7	1.180083	0.2512
MPR(-2)	651497.7	223451.7	2.915608	0.0083
REXR	6893.324	3563.022	1.934685	0.0666
MPR*REXR	1322.513	476.0838	2.777900	0.0113
MPR(-1)*REXR(-1)	-585.2371	1086.591	-0.538599	0.5958
MPR(-2)*REXR(-2)	-4254.895	1489.718	-2.856175	0.0095
MPR(-3)*REXR(-3)	-1974.009	505.7936	-3.902795	0.0008
GDP	-176.0334	37.78272	-4.659098	0.0001
INF	1671.162	4644.574	0.359809	0.7226
OPEN	5679.652	4957.916	1.145572	0.2649
OPEN(-1)	-7261.933	5568.689	-1.304065	0.2063
INV	499.7865	130.7986	3.821039	0.0010
INV(-1)	-155.0341	60.97130	-2.542739	0.0189
INV(-2)	-738.9309	216.1809	-3.418114	0.0026
C	3261068.	715941.7	4.554935	0.0002
R-squared	0.996131	Mean dependent var		-3981306.
Adjusted R-squared	0.992815	S.D. dependent var		4868780.
S.E. of regression	412692.8	Akaike info criterion		29.00444
Sum squared resid	3.58E+12	Schwarz criterion		29.80666
Log likelihood	-561.0887	Hannan-Quinn criter.		29.29449
F-statistic	300.3967	Durbin-Watson stat		1.846682
Prob(F-statistic)	0.000000			

Source: Estimation by the Researcher Using E-view 13

Table 4.3 shows that the third lag of the non-oil sector's trade balance, along with the monetary policy rate and the first and second lags of investment, negatively impacts Nigeria's non-oil trade balance. Conversely, the second lag of the

monetary policy rate and investment positively influence it. Specifically, a unit changes in these variables lead to decreases of 0.47, 18.2, 17.6, 15.5, and 73.8 units, respectively, while a unit changes in these variables leads to increases of 65.1 and 50.0 units result from the second lag of the monetary policy rate and investment, respectively. The interaction between the monetary policy rate and exchange rate also affects trade balance. An adjusted R-squared of 0.9928 indicates strong model reliability.

Error Correction Model (Long Run Estimation)

Table 4.4: Summary of the Error correction model

Dependent Variable: D(TB_non)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COINTEQ*	-1.835906	0.174058	-10.54765	0.0000
D(TB_NON(-1))	0.523591	0.089318	5.862129	0.0000
D(TB_NON(-2))	0.475433	0.100239	4.743000	0.0001
D(MPR)	-182473.1	39445.44	-4.625961	0.0001
D(MPR(-1))	-651497.7	105835.4	-6.155766	0.0000
D(MPR*REXR)	1322.513	191.4800	6.906795	0.0000
D(MPR(-1)*REXR(-1))	6228.904	867.9414	7.176641	0.0000
D(MPR(-2)*REXR(-2))	1974.009	287.1052	6.875560	0.0000
D(OPEN)	5679.652	2918.532	1.946065	0.0614
D(INV)	499.7865	58.18275	8.589943	0.0000
D(INV(-1))	738.9309	92.87287	7.956369	0.0000
R-squared	0.935760	Mean dependent var		-365732.3
Adjusted R-squared	0.913609	S.D. dependent var		1194819.
S.E. of regression	351186.3	Akaike info criterion		28.60444
Sum squared resid	3.58E+12	Schwarz criterion		29.06888
Log likelihood	-561.0887	Hannan-Quinn criter.		28.77237
F-statistic	42.24339	Durbin-Watson stat		1.846682
Prob(F-statistic)	0.000000			

Source: Estimation by the Researcher Using E-View 13

In the ECM regression (Table 4.4), COINTEQ*, leading to the omission of some variables. A significant negative coefficient (-10.54765) indicates a long-run relationship between the trade balance in the non-oil sector and the interaction of monetary policy rate and real exchange rate in Nigeria.

4.2 Discussion of Findings/Policy Implications

This study finds that the monetary policy rate has a long-term impact on Nigeria's balance of trade components, including Oil goods and non-oil goods, indicating its influence on trade balance. In the short term, no notable significant impact on the oil sector, non-oil sector, or overall trade balance, suggesting a lack of short-term

relationship between monetary policy and trade balance in Nigeria. This study supports the findings of previous research such as Nwagu, Uzonwanne, & Ezenkwe (2024), Nwagu et al. (2022), and Edokobi, Okpala and Okoye (2021), suggests that the Central Bank of Nigeria may adjust the monetary policy rate, influencing loan seekers and possibly impacting the trade balance. This research indicates that the real exchange rate significantly affects the balance of trade components in Nigeria over the long term, including the oil sector, non-oil sector and the overall trade balance. While the real exchange rate does not, the oil sector, non-oil sector, or the overall trade balance, suggesting no short-term relationship with the aggregate trade balance despite a long-term correlation. This study supports findings from prior research, notably by Kofoworade (2023), Truong and Vo (2023), Ijirshar, Okpe, &Andohol (2022), Fuard and Shifaniya (2021), Aboobucker, Kalideen, & Abdul-Jawahir (2021), and others.

5.0 Conclusion and Recommendations

This study examined the impact of monetary and exchange rate policies on Nigeria's balance of trade from 1981 to 2023 using the ARDL model. It focused on three questions regarding their effects on the trade balance in the oil and non-oil sectors. The analysis of the hypotheses led to several conclusions: Firstly, variations in the monetary policy rate, whether increases or decreases, significantly impact oil and non-oil sectors of Nigeria's balance of trade. Secondly, both the appreciation and depreciation of the exchange rate in Nigeria significantly affect oil and non-oil sector of the trade balance. Based on the findings, the study recommends that:

i. The Central Bank of Nigeria should stabilize the exchange rate while allowing market forces to enhance economic performance through increased production and exports.
ii. The Nigerian government should create a support program for local businesses to improve production capacity and quality, thereby reducing import demand.
iii. The government should offer investment incentives to strengthen local enterprises, boost product quality, and promote exports.
iv. The Central Bank of Nigeria should stabilize the foreign exchange market to reduce fluctuations and foster growth in the real sector, benefiting foreign trade.

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