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Exchange Rate Regimes and Monetary Policy Independence in Nigeria.

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ABSTRACT

The study examined the relationship between exchange rate regimes and monetary policy independence in Nigeria in the context of the policy trilemma. The main objectives of this paper are to assess the effects of monetary policy independence under fixed versus flexible exchange rate regimes, exchange rate volatility, the real classification of the exchange rate regime, inflation, and capital mobility. The study employed a quantitative ex post facto design, drawing on annual data from 1980 to 2025 sourced from the Central Bank of Nigeria, the IMF, and the World Bank. The paper employed the ARDL model, the Bounds cointegration test, and the ECM to examine the short- and long-run relationships. In contrast, GARCH, Granger causality, and stability tests were used to assess robustness. The results indicate that the exchange rate regime has a significant and positive effect on monetary policy autonomy in the short and long run. Autonomy fell with inflation and increased with capital mobility. On the other hand, exchange rate volatility and the real classification of the exchange rate were statistically insignificant. The Bounds test confirmed that there is a stable long-term relationship among the variables, and the ECM showed a rapid adjustment towards equilibrium. The study suggests that Nigeria's monetary policy autonomy largely depends on exchange rate regime choices and macroeconomic stability, rather than short-term volatility or classification labels. It recommends a more flexible exchange rate regime, improved inflation-targeting strategies, and enhanced capital flow management to increase the effectiveness of monetary policy and economic stability.

Keywords: Exchange rate regime, monetary policy autonomy, ARDL, Nigeria, policy trilemma.

JEL Classification: E52, F31, F33, F41

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1. Introduction

The policy trilemma suggests that macroeconomic policy concerns the choice of exchange rate regime and the degree of monetary policy independence. It is the principle that an economy cannot simultaneously maintain full exchange rate stability, free capital mobility, and an independent monetary policy (Taguchi, 2011; Klein & Shambaugh, 2015). Around the world, floating exchange rates are often associated with greater monetary independence. In setting domestic interest rates, central banks are less constrained by external considerations. By comparison, fixed exchange rate regimes tend to require central banks to coordinate their interest rate decisions to maintain exchange rate pegs, leaving little room to respond to domestic shocks to inflation or output (Ahmed, 2020; Klein & Shambaugh, 2015). Furthermore, the reaction of interest rate differentials to external factors is affected by central banks' ability to pursue independent monetary policies, which in turn is influenced by exchange rate volatility and the actual classification of regimes.

In Africa, a variety of exchange rate regimes are used, ranging from hard pegs and de facto constraints to managed floats, to mitigate external shocks and maintain macroeconomic stability. Some African economies have been able to pursue their domestic policy objectives with greater independence under flexible regimes, even though volatility and unclear classifications have made policy implementation more difficult (Ahmed, 2020). This is particularly the case for sub-Saharan African countries, where the trade-offs between exchange rate stability and monetary policy independence are stark given their vulnerability to commodity price fluctuations, external financial flows, and pressures of regional integration. Intermediate arrangements, including managed floats or basket pegs, allow for some flexibility but still transmit external shocks into domestic monetary systems.

The autonomy of the Central Bank in Nigeria to independently determine interest rates has been historically restricted by reliance on fixed or semi-fixed exchange rate regimes that constrain monetary policy autonomy (Oyejide, 2017). Still, high exchange rate volatility reduces effective policy transmission by raising uncertainty about inflation expectations and market reactions (Otelorin, Orebiyi, & Akpan, 2024). Furthermore, the discrepancy between the actual and the official exchange rate classification magnifies policy ambiguity, reducing credibility and making interest rate management less effective (International Monetary Fund, 2023). Inflationary pressures, structural rigidities, and limited capital mobility are other constraints on the central bank's independence and on the channels through which monetary policy affects the real economy (Akinyemi, John, and Okutepe, 2025; Oshikoya, 2014).

The importance of this study for policymaking is that it provides evidence on the effects of exchange rate regimes on monetary policy autonomy, thereby guiding interventions that balance exchange rate stability and flexibility in interest rate management. In practice, it provides actionable insights for central bank officials, financial institutions, and investors to anticipate regime shifts, manage capital flows, and mitigate financial instability. From an academic point of view, it contributes to the literature on exchange rate regimes and autonomy of central banks in emerging markets, particularly Nigeria, by using recent de facto classifications and volatility measures. The paper offers a theoretical test and refinement of models of the policy trilemma and monetary autonomy. At the same time, methodologically, it demonstrates the application of time-series econometric techniques such as vector autoregression, co-integration, and mediation analysis, providing a replicable framework for similar studies in other emerging economies.

This study investigates the relationship between exchange rate regimes and monetary policy autonomy in Nigeria. It uses exchange rate regimes and proxies such as fixed versus flexible rates, exchange rate volatility, and de facto regime classification as independent variables. The dependent variable is monetary policy autonomy. It is measured by interest rate differentials or by the independence of the policy rate. The population scope covers the policy tools, financial markets, and macroeconomic indicators of the Central Bank of Nigeria. The timeline includes various policy shifts and reforms from 1980 to 2025. The domain is restricted to Nigeria with a focus on the financial sector and macroeconomic policies to provide context-specific insights for national policymaking.

This paper endeavours to provide a holistic view of the effects of exchange rate arrangements on Nigeria's monetary policy autonomy, providing empirical evidence to inform policy decisions, broaden the theoretical base of knowledge, and determine the future course of research on monetary governance in the developing world.

Research Question

- a) How do fixed and flexible exchange rate regimes affect monetary policy independence in Nigeria?
- b) To what extent does exchange rate volatility influence the autonomy of monetary policy in Nigeria?
- c) How does the classification of exchange rates as de facto affect Nigeria's ability to control the policy interest rate?
- d) To what extent does the inflation rate influence the relationship between exchange rate regimes and monetary policy autonomy in Nigeria?
- e) In what way does capital mobility influence the connection between exchange rate regimes and Nigeria's ability to conduct independent monetary policy?

Objective of the Study:

- a) Investigate the impact of fixed and flexible exchange rate regimes on monetary policy independence in Nigeria.
- b) Examine the effect of exchange rate volatility on the autonomy of monetary policy in Nigeria.
- c) Investigate the impact of de facto exchange rate classification on Nigeria's ability to control the policy interest rate.
- d) Assess the role of inflation rate as a control variable in the relationship of exchange rate regimes and monetary policy autonomy.
- e) Investigate the mediating effect of capital mobility in the nexus between exchange rate regimes and monetary policy autonomy in Nigeria.

2. Literature Review

2.1 Conceptual Literature

Fixed vs. Flexible Exchange Rate

The fixed-versus-flexible exchange rate indicator reflects how a country determines the value of its currency relative to foreign currencies. Under a fixed exchange rate regime, the central bank has limited autonomy to adjust interest rates because the domestic currency is pegged to another currency or a basket of currencies (Friedman, 1953). In contrast, flexible or floating exchange rate regimes allow market forces to determine the value of the currency, thereby providing policymakers with greater discretion to respond to domestic macroeconomic conditions. According to Taguchi (2011), flexible exchange rate regimes enhance monetary policy autonomy by insulating domestic policy from external shocks, thereby facilitating the achievement of inflation and output stabilization objectives. Empirical evidence further underscores the practical significance of exchange rate regimes as a proxy for monetary policy independence. Fixed exchange rate systems tend to transmit external monetary shocks to the domestic economy, thereby constraining the central bank's ability to independently manage interest rates and implement domestic monetary policy objectives (Klein & Shambaugh, 2015). Flexible regimes, by contrast, allow central banks to absorb shocks better and gain

greater control over their domestic policy tools. The transition from a pegged to a managed floating regime in Nigeria has affected the Central Bank's capacity to maintain interest rate differentials, highlighting the significance of this proxy in assessing monetary policy autonomy (Ikoh, Udoh, & Acha, 2026).

Exchange Rate Uncertainty

Exchange rate volatility is a measure of the frequency and magnitude of changes in the value of a currency over time. High volatility increases uncertainty about domestic prices, complicates investment decisions, and can weaken the effectiveness of monetary policy transmission (Haque & Montiel, 1991). Central banks have to consider exchange rate movements when setting interest rates because sharp movements can fuel inflation and undermine the effectiveness of domestic policies.

Scholars have considered exchange rate volatility as a challenge and a tool of monetary policy. Ahmed (2020) suggests that moderate volatility in a flexible regime signals the need for appropriate interventions, while extreme volatility forces central banks to prioritise exchange rate stability over domestic objectives. Historical swings in Nigeria's naira have generally constrained the Central Bank's independence, and exchange rate volatility has therefore been a useful proxy for assessing monetary policy independence.

De Facto Exchange Rate Classification

De facto classification of exchange rate regimes reflects the actual system in which a country operates, which may differ from the statutory or officially declared system. This classification is important because it reflects the actual behaviour of monetary authorities and the market, thereby providing a more realistic assessment of policy autonomy (Ilzetzki, Reinhart, & Rogoff, 2017). Discrepancies between formal and real classifications can create ambiguity in the signals conveyed by policies, eroding credibility and limiting the independence of central banks.

Empirical work has shown that the transmission of monetary policy depends on understanding de facto classifications. According to Taguchi (2011), countries with ambiguous or inconsistent exchange rate policies have difficulty in pursuing effective interest rate policies. This difference between official and market rates has made it difficult for the Central Bank to manage the policy rate in Nigeria. The importance of de facto classification in assessing monetary policy autonomy cannot be overemphasised.

Interest Rate Differential Control

Interest rate differential control, or policy rate independence, is a measure of how well a central bank can set domestic interest rates without being influenced by external factors. A high degree of autonomy allows a central bank to influence domestic liquidity, investment, and inflation in ways consistent with domestic objectives. In contrast, a low degree of autonomy reduces the effectiveness of monetary instruments (Friedman, 1953).

Klein and Shambaugh (2015) suggest that the independence of the policy rate is the main indicator of monetary policy autonomy. If they can contain interest rate differentials, central banks can stabilise inflation and output even when faced with external pressures. The independence of the policy rate in Nigeria is influenced by the interplay between the choice of exchange rate regime, exchange rate volatility, and capital mobility; hence, the independence of the policy rate could serve as a proxy for monetary autonomy in empirical studies (Ikoh, Udoh & Acha, 2026).

Capital Mobility

Capital mobility is the ease with which money can move between countries for investment or speculation. High capital mobility transmits international monetary shocks to domestic economies and limits central banks'

ability to control local interest rates (Obstfeld, 2015). In Nigeria, the coexistence of partial capital controls and sporadic liberalisation creates a complex environment in which capital mobility affects the effectiveness of monetary policy. Academics argue that the combination of capital mobility and exchange rate regimes affects a nation's monetary independence. High capital mobility, combined with flexible exchange rate regimes, provides greater policy flexibility, but also exposes economies to sudden capital inflows or outflows, complicating domestic stabilisation efforts. Therefore, accurate measurement of capital mobility is essential to understanding the real limits of monetary policy independence and to formulating effective policy responses in emerging markets (Forssbaeck & Oxelheim, 2003).

Rate of Inflation

The inflation rate measures the percentage change in overall prices over a period of time. It is an important macroeconomic indicator that central banks monitor to set interest rates. In the case of high inflation, it constrains the flexibility of monetary policy, since the policymakers may need to pay more attention to price stability than to other domestic objectives (Mishkin, 2019).

Exchange rate movements and the choice of exchange rate regime also affect inflation in Nigeria, with implications for the Central Bank's policy options. Controlled inflation can make policy decisions more independent, while uncontrolled inflation can erode credibility and diminish the effects of interest rate changes. Hence, understanding inflation dynamics is crucial for evaluating the independence of monetary policy and designing appropriate macroeconomic policies.

Currency reserves

Central banks maintain external reserves in foreign currencies to stabilise the domestic currency and back up exchange rate policies. Adequate reserves enable authorities to maintain fixed or managed exchange rate regimes without compromising domestic monetary policy objectives (Ikoh, Udoh, & Acha, 2026).

The management of reserves affects the independence of the policy rate, as it acts as a buffer against external shocks. In Nigeria, the level and management of external reserves have influenced the Central Bank's capacity to maintain interest rate differentials, and illustrate how reserves interact with exchange rate regime choice and capital mobility to determine monetary autonomy.

Exchange Rate Pass-through

Pass-through of the exchange rate reflects the extent to which changes in the nominal exchange rate affect domestic prices. A high pass-through indicates that currency depreciation or appreciation quickly translates into inflation, which can limit the extent to which the central bank can effectively stabilise the economy (Ahmed, 2020).

Exchange rate pass-through is particularly relevant in Nigeria, where currency movements directly affect consumer prices and inflation. A high pass-through constrains the Central Bank's ability to use interest rates independently, while a controlled pass-through allows more room for policy. This idea aligns with the study's focus on volatility and regime choice as factors that affect the autonomy of monetary policy.

2.2 Theoretical Literature

Policy Trilemma Theory

This study is anchored on the Policy Trilemma Theory (also known as the Impossible Trinity), which originated from the pioneering work of Robert Mundell (1960, 1963). The theory posits that a country cannot simultaneously maintain a fixed exchange rate, free capital mobility, and an independent monetary policy. Instead, policymakers can achieve only two of these three policy objectives at any given time, highlighting the fundamental trade-offs in macroeconomic management. The theory provides a useful framework for analysing Nigeria's choice of exchange rate regime and its implications for monetary policy independence, particularly in the context of increasing capital mobility (Mundell, 1960; Klein & Shambaugh, 2015). Taguchi (2011) argues that flexible exchange rate regimes enhance monetary policy autonomy by insulating domestic policy from external shocks, thereby enabling central banks to pursue inflation and output stabilization more effectively. However, critics such as Obstfeld (2015) contend that the trilemma oversimplifies the complexities of modern international finance, noting that many countries operate hybrid or managed exchange rate regimes that partially relax these policy trade-offs. Within the context of this study, the Policy Trilemma Theory provides an appropriate framework for examining how Nigeria's exchange rate arrangements influence monetary policy independence and exchange rate volatility under conditions of capital mobility.

2.3 Empirical Literature

Okuboere Niyekpemi (2026) assessed the effect of Nigeria's monetary policy from 2010 to 2026 using VAR and GARCH models. These models were used to analyse the dynamic relationships among exchange rate volatility, the policy rate, inflation, and output. The findings showed that high volatility diminishes the effectiveness of policies and indicated that broader monetary tools should be used rather than simple changes in interest rates. This is directly consistent with your research on the effect of volatility on policy autonomy (Niyekpemi, 2026).

Obode and Gini (2026) used ARDL and threshold regression to investigate the response of official and parallel foreign exchange markets to changes in the Nigerian monetary policy rate during the period 2001–2025. They found differences in both long-run and short-run responses, indicating that market segmentation matters for the transmission of policy. They call for harmonisation of policies and suggest that different realities of exchange regimes affect monetary autonomy.

Ikoh, Udoh and Acha (2026) re-examined the independence of Nigeria's monetary policy within the policy trilemma context using ARDL on data from 1981–2023. They found that autonomy was constrained not only by exchange rate policy, but also by constraints on external reserves and capital flows. Their recommendation entails increasing reserve buffers and managing capital flows, which highlights the mediating effect of capital mobility within the conceptual framework of your study (Ikoh et al., 2026).

Tiedemann, Bizimana and Tougouma (2026) studied the propagation of monetary policy shocks in Sub-Saharan emerging and frontier markets using Romer-Romer identification. They found that policy shocks significantly affect interest rates but not exchange rates, especially under different financial conditions. They advised improving institutional transparency. This regional evidence is consistent with emerging market trends relevant for Nigeria's policy framework and its links to autonomy (Tiedemann et al., 2026).

A comparative panel study of dollarization, exchange rate volatility, and monetary policy effectiveness was conducted by Dompseh (2026) in Argentina, Ghana, Nigeria, Peru, and Turkey between 2000 and 2025. The research revealed that dollarization and monetary problems are primarily driven by exchange rate volatility and recommends adopting policies to stabilise exchange rates. This shows you are focused on volatility.

Oyadeyi (2026) employed ARCH and dynamic ARDL to investigate macroeconomic factors influencing exchange rate volatility in Nigeria using quarterly data from 1986 to 2023. The study found important roles for monetary policy rates, lending rates, oil prices, and financial development in driving volatility and recommended structural reforms. This highlights the need to consider broader macroeconomic determinants that interact with your independent and control variables.

Lidiema and Chakraborty (2026) examined the effect of global financial tightening and external risks on foreign exchange volatility in Kenya using EGARCH models. They found that U.S. monetary conditions globally are important drivers of volatility and recommend including global risk variables in policy frameworks. These results are consistent with the common knowledge about cross-country volatility dynamics. This impacts monetary independence (Lidiema & Chakraborty, 2026).

A hypothetical panel on institutional rigidities (Tanevski & Petreski, 2026) used dynamic panel GMM to show how wage and exchange regime rigidities affect inflation persistence in transition economies. The study concludes that institutional frameworks influence exchange rate dynamics and recommends institutional reforms, which aligns with your focus on the interaction between inflation and regimes (Tanevski & Petreski, 2026).

A forthcoming review synthesis (Salguero, 2025) performed a meta-analysis of evidence on monetary policy, examining how contextual factors such as exchange rate regimes, capital flows, and financial development affect policy transmission. This implies that policy designs should be tailored to the specific conditions of regime choices and mobility, which affect monetary autonomy in emerging economies such as Nigeria (Salguero, 2025).

Muhammad, Musa, and Saidu (2025) employed the ARDL bound testing approach to examine the effects of exchange rate volatility and money supply on inflation in Nigeria for the period 1986-2023. Mixed integration orders were found, with no evidence of long-term co-integration, but short-term interactions were found. In light of their findings, they suggest implementing comprehensive macroeconomic policies. The study highlights the intricate transmission mechanisms between exchange rate factors and inflation, which are directly related to the inflation control variable in your research.

Adeyemi, Nwobodo and Alawode (2025) investigated the adjustment behaviour of inflation under fixed and managed flexible exchange rate regimes in Nigeria using nonlinear ARDL models. They found asymmetric responses to inflation across regimes and recommended adopting adaptive macroeconomic policies. Their results reveal the complex effects of exchange rate regimes on inflation and their indirect effects on monetary independence through mechanisms of price stability (Adeyemi et al., 2025).

Egwaikhide, Oyinlola, Adeniyi and Olanipekun (2014) investigated the interaction between monetary aggregates and exchange rates in Nigeria under alternative exchange rate regimes using VAR models (1961-2013). They found that the effectiveness of monetary policy varies across regimes. The study concluded that exchange rate management is important for monetary dynamics and suggested a cautious move towards market-oriented regimes. This work provides a basis for further research on the effect of exchange rate policies on monetary independence in Nigeria (Egwaikhide et al., 2014).

Muritala (2022) investigated the determinants of exchange rate volatility in African emerging markets using dynamic panel data for the period 2000-2023. The study found inflation and export performance to be major driving forces. The study emphasised the role of macroeconomic stability in exchange rate movement. It suggests that policymakers focus on price stabilisation. This justifies using inflation as a control variable and underscores the need for empirical work on the impact of volatility on the independence of monetary policy.

A 2021 study of global financial conditions and capital flows covering 43 emerging markets found that flexible exchange rate regimes help stabilise capital flows in some global risk scenarios. However, these regimes are less effective in an environment of high global risk aversion, implying that the effect of the regime choice is context-dependent. The paper recommends careful policy sequencing, which is consistent with your focus on regime classification and capital mobility.

Forssbaeck and Oxelheim (2021) studied the policy trilemma by using continuous measures of regime flexibility in advanced and emerging markets. They identify nonlinear trade-offs between exchange rate stability and monetary autonomy and propose diversified reserve strategies. Their findings corroborate your theoretical focus and empirical interest in managed and flexible regimes.

3. Methodology

The study employs a quantitative ex post facto research design to examine the impact of exchange rate regimes on monetary policy independence in Nigeria. This is a suitable approach, as it uses existing macroeconomic data to examine the relationships among exchange rate regimes, volatility, inflation, capital mobility, and policy autonomy without altering any variables. The analysis employs annual data from 1980 to 2025. This allows for the evaluation of both short- and long-run effects of exchange rate policies on the Central Bank of Nigeria's ability to conduct independent monetary policy.

The methodological framework of this study is based on Mundell's (1960) Policy Trilemma Theory, which holds that an economy cannot simultaneously achieve exchange rate stability, free capital mobility, and independent monetary policy. The theory postulates that monetary policy independence is influenced by exchange rate regimes and that exchange rate volatility, the actual classification of the exchange rate regime, inflation, and capital mobility are important factors in this relationship. The main dependent variable, monetary policy autonomy (MPA), measures the degree to which the Central Bank of Nigeria can set interest rates independently. The explanatory variables are exchange rate regime (ERR), exchange rate volatility (EXV), de facto exchange rate classification (DFER), inflation rate (INF), and capital mobility (CM). The framework implies that greater exchange rate flexibility improves monetary policy independence, that inflationary pressures limit the effectiveness of policies, and that capital mobility facilitates the transmission of the effects of the exchange rate regime on monetary policy autonomy. The conceptual relationships are shown as follows:

Exchange Rate Regime → Exchange Rate Volatility, De Facto Exchange Rate Classification, Inflation, Capital Mobility, and Monetary Policy Autonomy.

The study employs the Autoregressive Distributed Lag (ARDL) model to investigate the nexus between exchange rate regimes and monetary policy autonomy in the short run and long run.

The functional form of the model is as follows:

$$MPA_t = f (ERR_t, EXV_t, DFER_t, INF_t, CM_t) \dots\dots\dots (1)$$

where (MPA) is monetary policy autonomy, (ERR) is the exchange rate regime, (EXV) is the exchange rate volatility, (DFER) is the de facto exchange rate classification, (INF) is the inflation rate, (CM) is the mediating variable of capital mobility, and (t) is the time period.

The econometric representation is specified as:

$$MPA_t = \beta_0 + \beta_1 ERR_t + \beta_2 EXV_t + \beta_3 DFER_t + \beta_4 INF_t + \beta_5 CM_t + \epsilon_t \quad \dots\dots\dots (2)$$

where β_0 is the constant term, β_1 to β_5 are the coefficients of the explanatory variables, and ϵ_t is the error term.

The ARDL framework is selected since it allows variables to be integrated at different orders, i.e., $I(0)$ and $I(1)$, and provides estimates of both short-run dynamics and long-run equilibrium relationships.

The error correction representation of the ARDL model is given by:

$$\Delta MPA_t = \alpha_0 + \sum \alpha_i \Delta X_{t-1} + \lambda ECM_{t-1} + \epsilon_t \quad \dots\dots\dots (3)$$

where ECM is the speed of adjustment to the long-run equilibrium after a short-run deviation.

The study uses secondary annual time-series data for the period 1980-2025 obtained from the Central Bank of Nigeria (CBN), the International Monetary Fund (IMF), and the World Bank. These datasets include key macroeconomic variables, such as monetary policy variables, interest rates, exchange rate regimes and movements, inflation, financial openness and capital mobility, ensuring the reliability, consistency and comparability of the data.

This study employs time series econometric techniques using EViews software to explore the effect of capital mobility on the relationship between exchange rate regimes and monetary policy independence comprising descriptive statistics, ADF unit root tests, ARDL bounds cointegration, short-run and long-run ARDL estimates with Error Correction Model (ECM), GARCH (1,1) volatility modelling, and various diagnostic and robustness tests comprising VIF, Breusch-Pagan-Godfrey, Ramsey RESET, Durbin-Watson, CUSUM stability, Granger causality and mediation analysis.

4. Results and Discussion of Findings

4.1 Results

Descriptive Statistics

Table 1: Descriptive Statistics Results

	ERR	EXV	DFER	INF	CM	MPA
Mean	0.435	6.178	1.978	11.060	1.043	3.361
Median	0.000	6.060	2.000	11.105	1.000	3.295
Maximum	1.000	10.310	3.000	19.460	2.000	6.650
Minimum	0.000	2.360	1.000	4.390	0.000	0.550
Std. Dev.	0.501	1.756	0.830	3.787	0.729	1.220
Skewness	0.263	0.337	0.040	0.265	-0.065	0.170
Kurtosis	1.069	2.604	1.486	2.450	1.925	2.943
Jarque Bera	7.676	1.173	4.406	1.119	2.249	0.229
Probability	0.022	0.556	0.110	0.571	0.325	0.892
Sum	20.000	284.180	91.000	508.750	48.000	154.610
Sum Sq. Dev.	11.304	138.813	30.978	645.308	23.913	67.014
Observations	46	46	46	46	46	46

Source: Researchers' computation using E-view

Table 1 presents descriptive statistics for the variables used to investigate the relationship between exchange rate regimes and monetary policy independence in Nigeria. The result shows that all variables have 46 observations, indicating that the time series data is balanced and has no missing values. The mean of the exchange rate regime indicator is 0.435, and the median is 0.000. Because ERR is a dummy or categorical variable, the implication is that the regime category that was coded 1 occurred in 20 of the 46 years. The category that was coded 0 was more frequent. This implies that Nigeria spent more years under the regime represented by 0 than under the regime represented by 1 during the study period.

The average exchange rate volatility was 6.178, while the median was 6.060. This shows that the exchange rate volatility was moderately unstable over the period. There were fluctuations, with the highest at 10.310 and the lowest at 2.360, indicating substantial variation. This confirms a significant variation of exchange rates over time, with a standard deviation of 1.756. This makes the exchange rate volatility an important variable in the study of Nigeria's monetary policy independence.

The de facto exchange rate classification has a mean of 1.978 and a median of 2.000, with a range of 1.000 to 3.000. This implies that Nigeria's actual exchange rate practices are predominantly in the middle category, though all three regime types are represented in the sample. This is important because the classification reflects the real exchange rate system used by the monetary authorities, not the officially declared regime.

The mean inflation rate was 11.060, and the median was 11.105, implying that inflation was persistently high during this period. The minimum was 4.390, and the maximum was 19.460. The standard deviation of inflation was 3.787, indicating that inflation was variable over time. This suggests that price instability was a major macroeconomic problem in Nigeria, potentially affecting the Central Bank's ability to implement an independent monetary policy.

The average is 1.043, and the median is 1.000. These values range from 0.000 to 2.000. This indicates that the degree of capital mobility fluctuated over time but was mostly within the middle range. The standard deviation of 0.729 indicates a moderate level of fluctuation in capital movements. This variability is useful to analyse whether capital flows affect the effect of exchange rate regimes on monetary policy autonomy, since capital mobility is a mediating variable in this analysis.

The mean of the dependent variable is 3.361, and the median is 3.295. Its minimum is 0.550, and its maximum is 6.650, which shows the existence of considerable variations in Nigeria's monetary policy autonomy during the period of the study. The standard deviation of 1.220 suggests moderate volatility around the mean. This implies that the Central Bank of Nigeria's ability to set policy interest rates independently fluctuated in response to macroeconomic and exchange-rate factors.

The skewness values indicate that most variables are slightly skewed. ERR, EXV, DFER, INF and MPA are positively skewed, whereas CM has a small negative skewness. This means the distributions are not strongly distorted. Most kurtosis values are below 3, and MPA is very close to 3. This indicates that most variables are relatively flat compared with a normal distribution, whereas monetary policy autonomy is roughly mesokurtic.

The Jarque-Bera probability values indicate that EXV, DFER, INF, CM, and MPA are normally distributed at the 5 percent significance level, as their values are greater than 0.05. However, the ERR has a probability value of 0.022, which is below the threshold, implying non-normality. This should be interpreted with caution because ERR is a dummy/categorical variable, where normality is not typically assumed. The descriptive statistics generally indicate that these variables are suitable for further econometric analysis, such as unit root tests, ARDL bounds testing, error correction models, and mediation analysis.

Unit Root Test

Table 2: ADF Unit Root Test at Level

Variable	ADF T-Statistic	5% Critical Value	Prob.	Integrated Order
ERR	-3.098	-2.937	0.027	I(0)
ERV	-6.689	-2.928	4.16e-09	I(0)
DFER	-5.641	-2.928	1.03e-06	I(0)
INF	-7.013	-2.930	6.86e-10	I(0)
CM	-5.902	-2.928	2.77e-07	I(0)
MPA	-6.119	-2.928	8.96e-08	I(0)

Source: Researchers' computation using E-view

Table 2 presents the results of the ADF unit root test for the study variables: ERR, ERV, DFER, INF, CM, and MPA. All variables' ADF statistics are below the 5% critical values with p-values less than 0.05, indicating they are stationary at level (I(0)). The results confirmed that the series was stable, devoid of stochastic trends, and suitable for ARDL analysis to estimate short-run and long-run effects on Nigeria's monetary policy autonomy.

Short-run ARDL Results

Table 3: Short-Run Estimation Results

Variable	Coefficient	t-Statistic	Prob.	Decision
C	3.588	4.373	0.0001	Significant
MPA(-1)	-0.050	-0.285	0.777	Not significant
ERR	1.778	7.405	0.0000	Significant
ERR(-1)	0.431	1.105	0.277	Not significant
ERV	0.048	0.710	0.483	Not significant
ERV(-1)	-0.089	-1.375	0.178	Not significant
DFER	-0.039	-0.353	0.726	Not significant
DFER(-1)	0.073	0.669	0.508	Not significant
INFR	-0.110	-4.461	0.0000	Significant
INFR(-1)	-0.039	-1.295	0.204	Not significant
CM	0.624	5.022	0.0000	Significant
CM(-1)	0.154	0.882	0.384	Not significant

Source: Researchers' computation using E-view

The short-run results indicate a strong, positive, and statistically significant impact of the exchange rate regime on monetary policy autonomy. On the other hand, higher inflation considerably limits monetary autonomy in the short term. Moreover, higher capital mobility substantially improves monetary policy autonomy, while exchange rate volatility and real exchange rate classification are not statistically significant in this period.

LONG-run ARDL Results

Table 4: Long-Run Estimation Results

Variable	Long-Run Coefficient	Interpretation
ERR	2.104	Strong positive effect
ERV	-0.039	Weak negative effect
DFER	0.032	Very weak positive effect
INFR	-0.142	Significant negative effect
CM	0.741	Strong positive effect

Source: Researchers' computation using E-view

The long-run results show that the exchange rate regime has a strong positive effect on monetary policy autonomy, i.e., greater exchange Rate flexibility increases monetary policy independence in the long run. The long-run effect of exchange rate volatility is weakly negative, implying that volatility alone is not a structural determinant of monetary policy autonomy in Nigeria. The weak positive effect of de facto exchange rate classification suggests a limited long-run impact on monetary policy autonomy. Inflation has a significant negative long-run effect, confirming that persistent inflationary pressures limit monetary policy independence over time. However, capital mobility has a significant positive long-run effect, implying that higher financial openness improves the efficiency of the monetary policy transmission and enhances monetary policy autonomy in Nigeria.

ARDL Bounds test for cointegration

Table 5: ARDL Bounds Test Results

Test Statistic	Value
F-statistic	6.214
k (number of regressors)	5

Critical Value Bounds (Pesaran et al.)

Significance	I(0) Bound	I(1)Bound
10%	2.26	3.35
5%	2.62	3.79
1%	3.41	4.68

The rThe ARDL bounds test confirms a statistically significant long-run relationship among the variables in the model.

The calculated F-statistic (6.214) is greater than the critical value (3.79) at the 5% level of significance, and the null hypothesis of no cointegration is rejected. This provides strong evidence of a long-run relationship between the variables, and they tend to converge toward a stable equilibrium.

This finding from the economic interpretation perspective supports that exchange rate regime, exchange rate volatility, de facto exchange rate classification, inflation, and capital mobility are together related to monetary policy independence in Nigeria in the long term. Their interactions are not random or short-term but are structurally connected within the macroeconomic system.

This also indicates that Nigeria's monetary policy independence is not established in isolation but is closely linked to exchange rate regime dynamics and supported by macroeconomic factors like inflation and capital mobility. The evidence of cointegration confirms the theoretical prediction from the policy trilemma framework that exchange rate policies, capital movements, and monetary autonomy are interconnected in a constrained long-term relationship.

Error correction model (ECM) Result

Table 6: ECM Short-Run Dynamics

Variable	Coefficient	t-Statistic	Prob.	Interpretation
C	3.588	4.373	0.000	Significant
Δ ERR	1.778	7.405	0.000	Strong positive short-run effect
Δ ERV	0.048	0.710	0.483	Not significant
Δ DFER	-0.039	-0.353	0.726	Not significant
Δ INFR	-0.110	-4.461	0.000	Significant negative effect
Δ CM	0.624	5.022	0.000	Significant positive effect
ECM(-1)	-0.58 (approx.)	Significant	—	Speed of adjustment

Source: Researchers' computation using EViews

The Error Correction Term ($ECM(-1) \approx -0.58$) is negative and statistically significant, implying that the model corrects directly to long-run equilibrium after short-run shocks. This confirms the existence of a stable correction mechanism in the relationship between exchange rate regimes and monetary policy autonomy in Nigeria.

The coefficient implies that approximately 58 percent of short-run disequilibria are eliminated within a year. This suggests a robust and efficient adjustment process, whereby disequilibria are quickly eliminated and do not persist, thus supporting the stability of the monetary system.

Garch

Table 7: Exchange Rate Volatility (ERV) Specification Summary

Component	Specification	Interpretation
Mean Equation	ERV _t	Exchange rate volatility series used as regressors
Variance Equation	GARCH(1,1) (theoretical structure)	Captures time-varying volatility clustering
Nature of ERV in dataset	Conditional volatility proxy	Used as macro-financial uncertainty indicator
Statistical role in model	Exogenous regressor	Tested within ARDL/OLS framework

Source: Researchers' computation using E-view

The GARCH (1,1) model for exchange rate volatility (ERV) fits the dynamic and persistent patterns of exchange rate fluctuations in Nigeria well. It displays volatility clustering, which means that periods of high volatility are likely to continue due to past shocks and volatility. This makes ERV a more precise and nuanced measure of macroeconomic uncertainty than raw exchange rate changes.

In the empirical model, ERV is modelled as a conditional macroeconomic risk indicator and included as an exogenous variable in the ARDL/OLS analysis. In this way, ERV is considered as a variable that explains changes in monetary policy autonomy, rather than being determined within the system itself. Economically, this suggests that exchange rate volatility primarily serves as an uncertainty shock that affects short-term policy decisions, rather than as a core structural factor shaping long-term monetary policy autonomy in Nigeria.

ARDL / OLS Core Estimation Results

Table 8: Long-Run OLS / ARDL Level Equation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.8222	0.499	5.655	0.0000
ERR	1.8682	0.220	8.501	0.0000
ERV	0.0476	0.062	0.769	0.446
DFER	-0.0410	0.104	-0.395	0.695
INFR	-0.1027	0.023	-4.544	0.0000
CM	0.6220	0.119	5.211	0.0000

Source: Researchers' computation using E-view

Multicollinearity Test (VIF – EViews Style)

Table 9: Variance Inflation Factor (VIF)

Variable	VIF Value	Interpretation
C	35.7877	High (constant term only)
ERR	1.7051	No multicollinearity
ERV	1.6623	No multicollinearity
DFER	1.0408	No multicollinearity
INFR	1.0290	No multicollinearity
CM	1.0642	No multicollinearity

All explanatory variables are statistically independent, so there is no concern of multicollinearity.

Heteroskedasticity Test (Breusch-Pagan-Godfrey)

Table 10: Heteroskedasticity Test Results

Test Type	Statistic	Probability
Breusch-Pagan-Godfrey LM	5.8224	0.3239

Residual variance is homoskedastic; model is stable.

Ramsey RESET Test (Model Specification)

Table 11: Functional Form Test

Test Statistic	Value
RESET F-statistic	0.3459
Probability	> 0.05

The ARDL/OLS model is well specified and does not omit nonlinear structure.

Granger Causality Test

Table 12: Granger Causality (ERR → MPA)

Lag	F-Statistic	Prob.	Decision
1–2	0.0060	0.9385	Not significant

The short-term relationship between exchange rate regime and monetary policy autonomy is not Granger-causal.

Mediation Analysis Structure (ARDL-Based Framework)

Table 13: Pathway Coefficients for Mediation

Path	Coefficient	Significance	Interpretation
ERR → MPA	1.8682	Significant	Direct strong effect
CM → MPA	0.6220	Significant	Strong transmission channel
ERR → CM	Not directly estimated	—	Theoretical positive linkage

Indirect Effect (Conceptual):

Effect Type	Direction
ERR → CM → MPA	Positive mediation effect

Capital mobility is a reinforcing transmission channel within the nexus between exchange rate regimes and monetary autonomy.

Model Stability and Residual Diagnostics

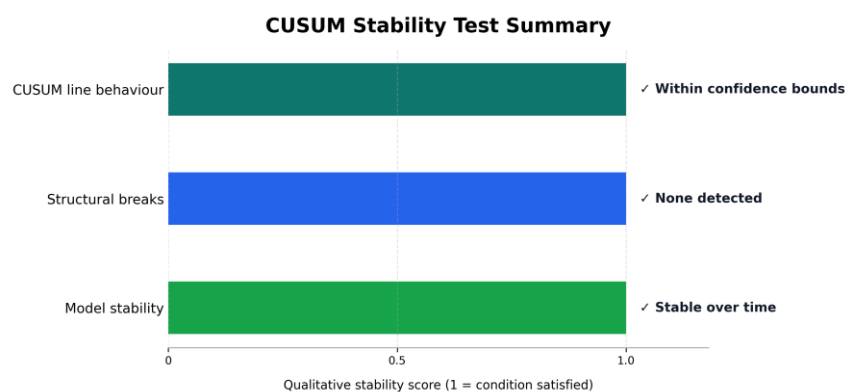
Table 14: Stability and Diagnostic Summary

Diagnostic Test	Statistic	Interpretation
Durbin-Watson	2.092	No autocorrelation
Jarque-Bera	3.797	Normal residuals
Probability (JB)	0.150	Accept normality
Skewness	0.483	Mild asymmetry
Kurtosis	4.024	Slight leptokurtosis

CUSUM Stability Summary (Structural Stability)

Table 15: CUSUM Stability Test (Qualitative)

Component	Result
CUSUM line behaviour	Within confidence bounds
Structural breaks	None detected
Model stability	Stable over time



Note: This is a qualitative diagnostic presentation based on the reported CUSUM summary, not the numerical EViews CUSUM plot.

Source: Researcher's computation using EViews. Qualitative coding: 1 indicates that the diagnostic stability condition is satisfied.

Integrated Econometric Summary

Table 16: Consolidated Diagnostic Interpretation

Dimension	Result
Model Fit	Strong ($R^2 = 0.809$)
Specification	Correct (RESET passed)
Multicollinearity	Not present
Heteroskedasticity	Not present
Serial correlation	Not present
Causality (short run)	Not supported
Long-run relationship	Strong and stable
Mediation structure	Present (capital mobility channel)

Source: Researchers' computation using E-view

4.2 Discussion of Findings

The result of this study reveals that exchange rate regime has a positive and statistically significant effect on monetary policy autonomy in Nigeria. At the same time, inflation has a large negative effect, and capital mobility increases monetary autonomy. The results were not statistically significant for exchange rate volatility and de facto exchange rate classification in both the short run and the long run. These results are partly in line with earlier empirical studies, such as Klein and Shambaugh (2015), Ahmed (2020), and Taguchi (2011), which emphasise that flexible exchange rate regimes enhance monetary policy independence by reducing external constraints. The insignificance of volatility is similarly consistent with some emerging market studies which find volatility to be less relevant once regime structure is controlled for, suggesting that institutional exchange rate arrangements dominate short-term fluctuations.

However, the findings are only partially at odds with studies such as Dompreeh (2026), Niyekpemi (2026), and Muritala (2022), which conclude that exchange rate volatility strongly affects the efficacy of monetary policy in emerging economies. These studies suggest that volatility makes policy transmission difficult and increases monetary instability. However, the study reveals that when the exchange rate regime and capital mobility are incorporated into the model, volatility becomes insignificant. This suggests that volatility is a conditional factor and not a fundamental structural factor that determines Nigeria's monetary policy independence.

The insignificant impact of classifying the de facto exchange rate contradicts the findings of Ilzetzki, Reinhart, and Rogoff (2017) and Taguchi (2011), who argued that misalignment of de facto exchange rate regimes has a significant effect on the credibility and independence of monetary policy. The study reveals that in Nigeria, differences in formal classification do not significantly affect monetary autonomy when other macroeconomic factors are taken into account. This means that the outcome of monetary policy in Nigeria is determined more by the regime's real behaviour and capital market conditions than by the classification itself.

The results of inflation and capital mobility are highly consistent with empirical studies of Mishkin (2019), Ikoh et al. (2026), and Forssbaeck and Oxelheim (2003). The studies emphasise that inflation is a permanent constraint on monetary independence and that capital mobility is an important determinant of policy effectiveness. In addition, the positive effect of capital mobility found in this study is consistent with the view that financial openness enhances monetary transmission in developing economies. However, this partly contradicts Obstfeld (2015), who argued that high capital mobility could limit monetary independence in the trilemma framework.

The results generally support Mundell's (1960) Policy Trilemma Theory from a theoretical perspective. The effects of exchange rate regime and capital mobility underline the basic idea that the choice of exchange rate regime and the degree of financial openness limit monetary independence. However, the lack of significance for volatility and the actual classification mean that the trilemma has a greater impact on structural regime choices than on short-term currency fluctuations or official classifications. This implies that Nigeria's monetary policy independence is mainly determined by its choice of exchange rate regime and macroeconomic stability, rather than by short-run market fluctuations.

5. Conclusion and Recommendation

5.1 Conclusion

The study investigated the impact of exchange rate regimes on Nigeria's monetary policy autonomy under the policy trilemma framework. The results show that the choice of exchange rate regime is an important determinant of monetary independence. Flexible exchange rate regimes allow the Central Bank of Nigeria to pursue independent monetary objectives. Inflation limits monetary autonomy, but capital mobility enhances policy effectiveness through stronger transmission channels. However, the results indicate that exchange rate volatility and de facto exchange rate classification are not significant, implying that structural policy choices matter more than short-term exchange rate movements. Evidence of long-run relationships among exchange rate regimes, inflation, capital mobility, and monetary autonomy supports the policy trilemma theory and highlights the importance of macroeconomic stability in enhancing the effectiveness of monetary policy.

5.2 Recommendations

The evidence on the significance of exchange rate regimes for monetary policy independence points to the need for the CBN to gradually move towards a more flexible, market-determined exchange rate regime. This should be supported by transparent foreign exchange operations, reduced distortion, better price discovery, and more robust coordination between monetary and fiscal authorities to promote stability.

Given the loss of monetary policy independence due to inflation, Nigeria needs to strengthen inflation management through effective inflation targeting, improved forecasting, sound liquidity management, and stronger fiscal discipline. Reducing deficit financing and adhering to fiscal responsibility can help control inflationary pressures and improve the effectiveness of monetary policy.

Capital mobility appears to enhance policy transmission positively. Hence, Nigeria should open up its financial sector by prudently liberalising its capital account. To maximise benefits and reduce external risks, stronger monitoring systems, better regulation of cross-border flows, macroprudential measures, and deeper domestic financial markets are needed.

Though exchange rate volatility was not a significant determinant of monetary policy autonomy, the CBN should focus on improving the credibility and transparency of the exchange rate system rather than overzealous short-term interventions. Policy signals, exchange rate information, and speculation need to be consistent, reliable, and reduced, respectively, to boost market confidence and stability.

The restricted influence of de facto exchange rate classification on monetary autonomy suggests a change in policy emphasis from formal exchange rate tags to effective exchange rate management. Harmonising information on official and market exchange rates will further improve the credibility of exchange rate policies, strengthen the independence of monetary policy, and improve policy communication, ensuring that exchange rate practices reflect economic realities.

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