MONETARY TIGHTENING AND DEVELOPMENT FINANCE FLOWS IN NIGERIA

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This study investigates the effect of monetary tightening on development finance flows in Nigeria (1986-2023). Annual data on monetary tightening is proxied by Monetary Policy Rate (MPR), Lending Rate (LR), Cash Reserve Ratio (CRR), Inflation (INFL), and Broad Money Supply (M2) as well as Credit to the Private Sector (CPS) and Exchange Rate (EXCR), included to reflect domestic financial depth and external sector fluctuation were sourced from the Central Bank of Nigeria (CBN) while Official Development Assistance (ODA) measure with development finance flows was culled from World Bank.
The results reveal that M2 (at second lag) exerts a statistically significant negative effect on ODA, with a coefficient of -3.0521 and a p-value of 0.0880, meaning that an increase in money supply is associated with a subsequent decline in ODA. Conversely, CRR, LR, MPR, and INFL all exhibited an insignificant impact on ODA. Similarly, CPS and EXCR also remained insignificant, reinforcing the notion that domestic credit dynamics and exchange fluctuations may not be primary determinants of aid flows unless tied to broader institutional or policy reforms.
The study concludes that monetary tightening through liquidity expansion influences development finance in Nigeria. It recommends aligning monetary interventions with aid disbursement cycles and promoting targeted liquidity policies that support macroeconomic stability without undermining external concessional financing.

Keywords: *Monetary Tightening, Development Finance, MPR, ODA, ARDL, Money Supply, Nigeria.*

INTRODUCTION

The resurgence of inflation has prompted a wave of monetary tightening across advanced and emerging markets, marking a critical juncture for capital flows into low- and middle-income countries (Ferguson et al. 2024). Monetary tightening, as conceptually rooted in the monetarist and New Keynesian traditions, involves policy measures such as increases in interest rates, reduction of central bank balance sheets, and credit rationing, all designed to moderate inflation and stabilize macroeconomic conditions (Woodford, 2020; Mishkin, 2022). However, these contractionary interventions have far-reaching spillover effects,

particularly for countries heavily reliant on development finance to sustain public investment, reduce poverty, and build climate resilience (Sumner & Mallett, 2023).

Development finance, broadly defined, refers to the mobilization of external capital in the form of grants, concessional loans, and technical assistance for funding long-term developmental objectives, especially in infrastructure, education, healthcare, and rural development (Te Velde & Massa, 2011; Kaul, 2020). In Sub-Saharan Africa, where domestic revenue generation is often limited and fiscal space constrained, development finance plays a vital role in supporting economic transformation (Abdel-Latif, 2021). Yet, recent global monetary policy shifts, particularly in high-income countries, have led to tightened global liquidity and heightened risk aversion, dynamics that constrain the supply and affordability of development-oriented capital (Avdjiev, Gambacorta & Schiaffi, 2020).

While monetary tightening is primarily aimed at domestic inflation control, it exerts substantial cross-border effects through the interest rate, exchange rate, and credit channels. Higher global interest rates elevate borrowing costs for sovereigns and multilateral institutions, potentially crowding out development financing and diverting investment toward less risky, higher-yielding assets (Obstfeld, 2022; Jordà et al., 2022). Moreover, contractionary monetary policies in developing countries, such as increases in domestic policy rates or credit controls, can further reduce absorptive capacity and fiscal space, complicating efforts to meet counterpart funding requirements often tied to external concessional loans (Carrière-Swallow et al., 2022). These dynamics threaten to disrupt the flow and effectiveness of development finance, particularly in African countries experiencing heightened debt vulnerabilities and declining donor commitments.

Despite the growing relevance of this issue, there remains limited empirical clarity on the extent to which monetary tightening shapes the trajectory of development finance in Nigeria. While some studies emphasize the credit-suppressing effects of contractionary monetary policy, others suggest minimal or mixed outcomes depending on the structure of the domestic financial system. For instance, Iwedi and Edeh (2022) found that increases in the monetary policy rate (MPR), cash reserve ratio (CRR), and lending rate (LR) significantly reduce private sector credit, thereby limiting access to development finance. Similarly, Igegwuabe et al. (2022) provide evidence that reduced money supply dampens credit flow to SMEs, a critical channel through which development finance operates in Nigeria.

However, findings by Omale et al. (2025) suggest that policy rate hikes have no significant impact on private investment, implying that the cost of capital may be less binding than the availability of credit. Garbobiya et al. (2024) further argue that countries with deeper financial inclusion are better able to shield development finance from the adverse effects of tightening measures. In another study by Lastauskas and Nguyen (2024), they found that U.S. interest rate hikes exert a substantial negative effect on GDP across emerging markets with weak institutional capacity. Likewise, Camara and Venegas (2022) show that U.S. monetary shocks suppress domestic investment in highly leveraged economies.

Yet, empirical studies focusing specifically on how these external shocks interact with Nigeria's domestic monetary policy to influence concessional inflows such as Official Development Assistance (ODA) remain scarce as evidence in the divergent findings which may be driven by differences in model specification, monetary tightening indicators, and time coverage leaving a knowledge gap in understanding the extent to which monetary tightening

affects the flow of development finance in Nigeria. Given Nigeria's reliance on external concessional finance and the recent shift towards aggressive monetary tightening to curb inflation and stabilize the naira, it becomes imperative to evaluate whether such policy choices inadvertently constrain development finance flows.

2. Literature Review

Development finance

Over the past two decades, development finance has emerged as a cornerstone of efforts to address structural gaps in infrastructure, human capital, and institutional capacity across developing economies.

Unlike commercial finance, which prioritizes short-term profitability, development finance is geared toward long-term, inclusive, and sustainable growth outcomes. Griffith-Jones and Gottschalk (2016)

describe it as the strategic deployment of public or blended capital, both domestic and external, for projects that generate developmental impact, particularly in sectors where private investment remains limited due to risk or low returns.

In many African countries, where fiscal constraints and narrow tax bases limit public investment capacity, development finance provides a crucial counterbalance. According to Te Velde and Warner (2007), it acts as a stabilizing mechanism during downturns and global shocks, delivering funds that are often more patient and purpose-driven than market-based flows. This role became even more pronounced in the aftermath of the COVID-19 pandemic, where multilateral financial institutions, including the African Development Bank and the World Bank, mobilized billions in emergency and recovery financing aimed at health systems, small businesses, and digital infrastructure (OECD, 2022).

One of the most notable trends in this domain has been the growing prominence of Development Finance Institutions (DFIs). These institutions are increasingly seen as hybrid actors, bridging public mandates with private capital. As Humphrey (2020) notes, DFIs such as the IFC, Proparco, and the Nigerian Bank of Industry are not only financiers but also market creators. By offering concessional loans, guarantees, and equity financing, they help de-risk investments in fragile or high-impact sectors, such as renewable energy and agribusiness. This catalytic role is critical, particularly in sub-Saharan Africa, where investor confidence is often undermined by regulatory uncertainty and macroeconomic volatility (Attridge & Engen, 2019).

Importantly, development finance today is no longer solely an external affair. Domestic development banks and national governments are also investing strategically in industrial policy, regional integration, and social protection programs. Nigeria's Bank of Industry, for example, has worked with both local and international partners to channel affordable credit to SMEs and manufacturing enterprises, often tied to government policy priorities like job creation and export diversification (BOI, 2023). This localization of development finance reflects a broader shift toward ownership and policy coherence in financing development goals.

Yet, the potential of development finance is not without limitations. One concern, frequently raised in recent literature, relates to institutional fragmentation and donor-driven programming, which can result in duplication, inefficiencies, and limited long-term alignment with national strategies (Gavas & Pleeck, 2021). Another growing challenge is the increasing reliance on non-concessional debt, particularly from private and non-traditional lenders. With global interest rates rising, many low-income countries now face elevated debt servicing costs, placing strain on their fiscal space and undermining development planning (IMF, 2023; UNCTAD, 2022).

There is also an evolving discourse around the mission orientation of development finance. Mazzucato and Penna (2016) argue that development finance should go beyond filling investment gaps and instead serve as a tool for structural transformation, channeling funds into areas that reconfigure economies toward innovation, climate resilience, and technological upgrading. This requires not just capital, but strategic vision and policy alignment, often in coordination with industrial, trade, and education policies.

Ultimately, the effectiveness of development finance is determined not only by the volume of capital mobilized but also by the strength of institutions that manage, deploy, and monitor it. Prizzon et al. (2016) emphasize the need for integrated financing frameworks that link development priorities with available resources, whether from tax revenues, sovereign wealth funds, DFIs, or donor contributions.

In a world of overlapping crises, climate, conflict, inequality, such strategic integration is not optional, but imperative.

Monetary Tightening

Monetary tightening is widely recognized as a principal tool used by central banks to contain inflation and restore macroeconomic stability. Friedman (1968) argued that inflation is always and everywhere a monetary phenomenon, and thus controlling the money supply is essential to price stability. In this context, monetary tightening typically involves raising policy interest rates, reducing the central bank's balance sheet, and withdrawing excess liquidity from the economy. These actions are designed to slow down credit growth, reduce consumption, and dampen inflationary pressures.

Woodford (2003) emphasized that monetary tightening is not merely a mechanical adjustment of rates but a strategic signal that guides inflation expectations and influences economic behavior. Through higher interest rates, central banks effectively discourage excessive borrowing and speculative investment, leading to moderated demand and stable prices. However, this policy stance also requires effective communication to avoid market uncertainty and ensure that inflation expectations remain anchored (Gürkaynak, Sack & Swanson, 2005). The clarity and predictability of monetary policy actions, therefore, are as crucial as the actions themselves.

Bernanke (2003) opined that when monetary tightening is perceived as credible, it not only stabilizes financial markets but also enhances the central bank’s reputation as a steward of economic stability. Nevertheless, tightening measures are often associated with trade-offs, particularly in economies with fragile financial systems. Ajello et al. (2022) noted that monetary tightening transmits through multiple channels, including interest rates, credit

supply, exchange rates, and can lead to slower growth, reduced lending to small firms, and financial sector stress, especially in emerging markets.

In addition to affecting domestic demand, monetary tightening has significant external implications. Rey (2015) emphasized that in highly interconnected global financial markets, interest rate hikes in advanced economies can trigger capital outflows from developing countries, leading to exchange rate depreciation and a surge in external debt servicing costs. For instance, Lane and Milesi-Ferretti (2007) observed that global tightening cycles tend to realign portfolio flows toward safer markets, thereby increasing financial vulnerability in low-income economies.

Mishkin (2007) suggested that the effectiveness of monetary tightening depends heavily on the institutional framework and independence of the central bank. Where monetary authorities are free from political interference, policy implementation tends to be more consistent, and economic agents are more likely to adjust their behavior in alignment with policy goals. This view is supported by Bernanke and Reinhart (2004), who argued that monetary credibility reduces the inflation-output trade-off and supports long-term macroeconomic performance.

Ultimately, while monetary tightening serves as a necessary intervention to rein in inflation and stabilize financial systems, its design and timing must consider the broader socio-economic context.

Demirgüç-Kunt and Detragiache (2010) pointed out that abrupt or excessive tightening in economies with underdeveloped credit systems can trigger banking crises or exacerbate inequality. Therefore, a cautious and data-driven approach is essential for ensuring that the policy delivers its intended benefits without undermining financial inclusion or developmental objectives.

Whether implemented in advanced or developing economies, monetary tightening must balance the goal of price stability with the realities of economic growth and financial inclusion. As scholars such as Taylor (1993) and Woodford (2003) have shown, achieving this balance requires a coherent framework that blends rule-based policy guidance with the flexibility to respond to economic shocks, an approach that remains at the core of modern monetary policy practice.

Empirical Review

In their study, Lastauskas and Nguyen (2024) develop a Global VAR (GVAR) framework to assess the impact of U.S. rate hikes on output across 32 emerging economies. Their results demonstrate that a 100-basis-point rise in U.S. interest rates corresponds to a persistent 1.7% decline in GDP among economies with weak policy cohesion and low institutional capacities, highlighting the importance of international linkages in domestic output fluctuations. A complementary perspective is offered by Camara and Venegas (2022), who employ panel

structural VAR techniques across emerging markets to analyze the effect of U.S. monetary shocks on investment. They find that elevated U.S. rates depress domestic investment by approximately 2% over two years, particularly in firms with high leverage - illustrating how external monetary tightening disproportionately affects capital-intensive sectors within emerging economies.

Shifting focus to Nigeria, the study by Omale et al. (2025) applies ARDL-ECM methodology to examine how domestic monetary variables influence private investment. Their findings reveal a robust positive relationship between money supply growth and real private investment, while policy interest rate changes showed negligible or insignificant effects, suggesting that in the Nigerian context, credit availability may matter more than the cost of borrowing for investment decisions. Iwedi and Edeh (2022) analyze long-term Nigerian data and document that tightening measures, such as higher policy rates, stricter reserve requirements, and liquidity ratios, significantly constrain private sector credit flow. Their study emphasizes the credit-suppression effect of domestic monetary tightening, which undermines the financial intermediation critical for development finance.

In the broader ECOWAS region, Garbobiya et al. (2024) examine the interaction between monetary tightening and financial inclusion. Utilizing panel data methods, they find that countries with higher levels of financial inclusion experience less credit contraction during tightening episodes, suggesting that inclusive financial systems can buffer adverse monetary policy impacts. Anjande et al. (2022), who use GMM estimation to explore poverty dynamics in relation to money supply, public spending, and FDI in Sub-Saharan Africa. Their results indicate that while increased money supply is correlated with higher poverty, public expenditure and FDI help mitigate such effects, signifying that undifferentiated liquidity expansion may not suffice for development outcomes.

The role of institutional quality is synthesized by Daoui (2023), who reviews empirical evidence across developing countries. He underscores that central bank independence and well-developed financial markets reduce output volatility following monetary shocks, suggesting that institutional resilience shapes how countries experience tightening. Igegwuabe et al. (2022) apply instrumental variables analysis to Nigerian banking-sector data and establish that reductions in money supply lead to significant declines in SME credit, highlighting the supply-directed nature of tightening's impact on development finance channels.

The analysis is complemented by Iwedi and Edeh (2022), whose work shows that rate hikes not only suppress lending but also widen bank lending spreads, thereby further undermining credit supply in key economic sectors. Garbobiya et al. (2024) underscore a critical policy insight that financial inclusion moderates the contractionary credit effects of tightening. Their evidence supports a balanced approach that retains inflation control without undermining access to essential development finance, particularly in economies where financial deepening remains incomplete.

3. Methodology

Theoretical Framework

This study is anchored on the Monetary Transmission Mechanism (MTM) and Development Finance Theory, both of which provide foundational insights into how monetary policy,

particularly tightening, affects the availability and flow of development finance in emerging economies such as Nigeria.

According to Mishkin (1996) and Bernanke and Gertler (1995), the MTM operates through several key channels: interest rate, credit, exchange rate, and inflation expectations. In the Nigerian context, monetary tightening is principally carried out via the Central Bank of Nigeria's (CBN) adjustments to the Monetary Policy Rate (MPR), Cash Reserve Ratio (CRR), Liquidity Ratio, and other complementary instruments such as credit rationing and liquidity mop-up operations (CBN, 2023).

These instruments are designed to reduce the money supply, curtail inflation, and stabilize the economy. However, they also influence credit conditions, public investment potential, and access to concessional finance.

When the CBN raises policy rates (such as MPR, CRR) or tightens reserve requirements, borrowing becomes more expensive, private sector credit contracts, and liquidity in the financial system shrinks. Consequently, access to development finance, particularly that which requires counterpart funding or relies on private sector partnerships, is adversely affected.

The monetary transmission mechanism can be expressed as:

$$M_t = f(MPR_t, CRR_t, LR_t EXCR_t CPS_t) \quad 1$$

with $\frac{\partial M_t}{\partial MPR_t} < 0, \frac{\partial M_t}{\partial CRR_t} < 0, \frac{\partial M_t}{\partial LR_t} < 0, \frac{\partial M_t}{\partial EXCR_t} < 0, \frac{\partial M_t}{\partial CPS_t} > 0$

Where:

- M_t is the broad money supply at time t
- MPR_t, CRR_t, and LR_t are monetary policy instruments
- CPSt = Credit to the Private Sector
- EXCRt = Exchange Rate

In this framework, CPS serves as an enabler of development finance, such that higher credit to the private sector enhances financial intermediation, investment, and donor confidence. On the other hand, rising exchange rate (EXCR) acts as a deterrent by increasing risk premiums, reducing external finance absorption capacity, and signaling macro-instability. The influence of these monetary conditions on development finance flows (DFF) can be modeled as:

$$DFF_t = g(M_t, \pi_t, EXCR_t CPS_t) \quad 2$$

with $\frac{\partial DFF_t}{\partial M_t} > 0, \frac{\partial DFF_t}{\partial \pi_t} < 0, \frac{\partial DFF_t}{\partial EXCR_t} < 0, \frac{\partial DFF_t}{\partial CPS_t} > 0$

Where:

- DFF_t is the volume of development finance flows
- π_t is the inflation rate
- $EXCR_t$ is the exchange rate volatility

This theoretical framing underscores that tight monetary policy reduces liquidity (M_t), heightens inflation expectations (π_t), and introduces exchange rate instability ($EXCR_t$), all of which undermine development finance. Meanwhile, enhanced credit to the private sector (CPS_t) supports development finance through stronger domestic investment capacity and co-financing potential, as emphasized in Development Finance Theory. Thus, we predict that monetary tightening, when unaccompanied by robust financial intermediation and exchange

rate stability, will have an adverse impact on the flow and effective utilization of development finance in Nigeria.

Model Specification

This study models the impact of monetary tightening on development finance in Nigeria, with theoretical grounding in the MTM. Monetary tightening is reflected through policy-induced adjustments in the Monetary Policy Rate (MPR), Cash Reserve Ratio (CRR), Lending Rate (LR), and Inflation (INFL), each serving as key instruments or outcomes of contractionary monetary policy that directly affect credit availability, the cost of borrowing, and macro-financial conditions. The dependent variable, Official Development Assistance (ODA), is employed as the proxy for development finance flows into the country. The model also incorporates broad money supply (M2) and exchange rate (EXCR) as part of the monetary and external environment through which policy actions may indirectly shape the flow of concessional finance. The functional relationship is specified as:

$$DFF_t = g(M_t, \pi_t, EXCR_t CPS_t) \quad 4$$

The model can specified econometrically in log-linear form as:

$$InODA_t = \beta_0 + \beta_1 INF_t + \beta_2 MPR_t + \beta_3 CRR_t + \beta_4 InM2_t + \beta_4 InCPS_t + \beta_5 EXCR_t + \varepsilon_t \quad 5$$

Where:

- ODA_t = Development Finance Flow
- $INFL_t$ = Inflation rate (percentage)
- LR_t = Lending Rate
- MPR_t = Monetary Policy Rate
- CRR_t = Cash Reserve Ratio
- $InM2_t$ = Natural log of Broad Money Supply (liquidity proxy)
- $EXCR_t$ = Naira/USD
- ε_t = Stochastic error term
- t -1981-2023

Table 1: Description and Measurement of Variables and their Source

Variable	Variable Description	Measurement	Source
ODA	Development Finance Flow	Net Official Development Assistance received (USD, annual)	World Bank (World Development Indicators)
INFL	Inflation Rate	Annual percentage change in Consumer Price Index (CPI)	CBN Annual Statistical Bulletin
LR	Lending Rate	Weighted average commercial bank lending rate (%)	CBN Annual Statistical Bulletin
MPR	Monetary Policy Rate	Policy interest rate (%) set by the Central Bank of Nigeria	CBN Annual Statistical Bulletin
CRR	Cash Reserve Ratio	Statutory reserve requirement ratio (%) for deposit banks	CBN Annual Statistical Bulletin
M2	Broad Money Supply	Log of M2 (₦ Billion) – includes currency, demand, and savings	CBN Annual Statistical Bulletin
EXCR	Exchange Rate	annual average Naira/USD	WDI

		exchange rate	
CPS	Credit to the Private Sector	Log of total credit disbursed to the private sector (₦)	CBN Annual Statistical Bulletin

3.5 Method of Data Analysis

The study employed a structured econometric approach beginning with descriptive statistics to summarize the characteristics of all variables used in the analysis. This step included the computation of measures of central tendency (mean, median), dispersion (standard deviation), and distributional properties (skewness, kurtosis). Following this, the Augmented Dickey-Fuller (ADF) unit root test was used to evaluate the stationarity of the time series data. The results showed that MPR and INFL were stationary at the level, while variables such as LOGM2, LOGCPS, EXCR, CRR, LR, and LOGODA became stationary at first difference I_1. Given this mixed order of integration, the Autoregressive Distributed Lag (ARDL) model was deemed suitable for the analysis.

Next, the ARDL Bound Test for cointegration was conducted to examine the existence of a long-run relationship between monetary tightening variables and development finance. The test result indicated that the F-statistic fell below the lower bound critical value, suggesting no long-run relationship in the model. Consequently, the study focused on estimating the short-run dynamics using an ARDL model. The short-run ARDL is as specified below:

$$\Delta InODA_t = \alpha + \sum_{i=1}^{P} \beta_i \Delta InODA_{t-i} + \sum_{j=1}^{q} \gamma_j \Delta InM2_{t-J} + \sum_{k=1}^{r} \delta_k \Delta LR_{t-k} + \sum_{l-1}^{s} \theta_l \Delta MPR_{t-l} + \sum_{n=1}^{u} \varphi_n \Delta CRR_{t-n} + + \sum_{P=1}^{W} \pi_o \Delta LR_{t-n} + \sum_{Q=1}^{X} \omega_p \Delta EXCR_{t-n} + \sum_{r=1}^{Z} \rho_b \Delta INFL_{t-n} + \varepsilon_t \quad 6$$

Equation 6 captures the short-run effects of monetary tightening on ODA. Here, the coefficients β_i through ρ_b represent the short-run elasticities of ODA with respect to its own lags, monetary aggregates, policy rates, reserve requirements, inflation, and exchange rate fluctuations. The constant α captures baseline movement in ODA independent of the regressors, while ε_t represents the error term.

To validate the robustness of the estimated model, diagnostic tests such as the Serial Correlation LM Test to detect autocorrelation in residuals, the Heteroskedasticity Test to check for non-constant error variance, and the CUSUM stability test.

4. Data Analysis and Presentation of Findings

Descriptive Statistics

Table 2: Descriptive Statistics of Variables (1981–2023)

	CPS	CRR	EXCR	INFL	LR	M2	MPR	ODA
Mean	9506.344	10.04	*127.7567*	19.0839	18.2507	11713.65	13.84211	1.85E+09

Median	1630.027	6.60	*123.1931*	12.7072	17.5691	2384.866	13.50	6.24E+08
Std. Dev.	13081.08	9.391	*119.0001*	17.2050	4.1324	16041.71	3.7729	2.45E+09
Skew.	1.509102	0.9733	*0.931419*	1.805	0.8172	1.488366	0.6725	2.65934
Kurt.	4.775405	2.5235	*3.066160*	4.99	4.62972	4.546118	4.6917	11.6410
JB	19.41422	6.3667	*5.501357*	26.9032	8.4344	17.81473	7.3959	163.0140
Prob.	0.000061	0.0414	*0.063885*	0.000001	0.0147	0.000135	0.2477	0.000
Obs.	38	38	38	38	38	38	38	38

Source: *Author's Computation (2025)*

Table 2 provides a summary of the descriptive statistics. ODA, used as a proxy for development finance, has a mean value of ₦1.85 billion, with a high standard deviation of ₦2.45 billion, combined with a skewness of 2.66 and kurtosis of 11.64, indicating that ODA flows are heavily right-skewed and exhibit leptokurtic behavior. This reflects periods of exceptionally high inflows, likely tied to debt relief and large-scale development initiatives.

The CRR has an average of 10.04%, with a relatively high standard deviation (9.39) and skewness (0.97), suggesting a substantial variability in Nigeria's reserve requirements over time, often in response to macroeconomic shocks and inflationary trends. MPR averages 13.84% over the period. The moderate standard deviation of 3.77 indicates measured adjustments by the Central Bank of Nigeria (CBN), with observable tightening in periods of inflation. Lending Rate (LR) displays a mean of 18.25%, also with considerable dispersion (standard deviation = 4.13), underscoring the real cost of credit to the private sector.

Inflation (INFL) maintains a mean of 19.08% with a standard deviation of 17.21. The high skewness (1.80) and kurtosis (4.99) confirm the erratic nature of inflation in Nigeria during the study period, influenced by exchange rate regimes, supply shocks, and fiscal imbalances. M2 shows an upward trend over time, with a mean of ₦11.71 trillion and a wide standard deviation of ₦16.04 trillion, highlighting the expansionary policy stances adopted across different regimes. The variable is positively skewed (1.49), suggesting substantial growth in liquidity over time.

CPS exhibits a mean value of ₦9.51 trillion and a standard deviation of ₦13.08 trillion. This reflects increasing financial deepening, albeit unevenly distributed. The high kurtosis and skewness values suggest strong right-tail concentration, likely linked to recent financial sector reforms. EXCR displays a mean value of ₦127.76/USD and a high standard deviation of ₦119.00/USD, indicating a significant volatility in Nigeria's exchange rate regime. The distribution is moderately right-skewed (skewness = 0.93), with a kurtosis value of 3.07, suggesting mild leptokurtic behavior. Although the Jarque-Bera test statistic (JB = 5.50, p = 0.064) does not reject normality at the 5% level, meaning that the variable is normally distributed at 5% level.

Pre-Estimation Test

Table 3: Result of Stationarity Test

Variables	**Level**		**1st Difference**		**Order of Integration**
	Test Statistic	**p-value**	**Test Statistic**	**p-value**	
MPR	-3.249796	0.0249	-8.5772	0.0000	I_0
INLR	-2.881120	0.0572	-6.761288	0.0000	I_1
CRR	0.8623	0.9940	-6.3913	0.0000	I_1

INFL	-3.819243	0.0069	-5.350410	0.0001	I_0
EXCR	-2.648561	0.0927	-6.311158	0.0000	I_1
InM2	-2.559239	0.1104	-4.162908	0.0025	I_1
LnDFF	-1.430998	0.5560	-6.110897	0.0000	I_1
InCPS	-1.815316	0.3675	-4.482435	0.0010	I_1

Source: *Author's Computation (2025)*

The Augmented Dickey-Fuller (ADF) unit root test was conducted to assess the stationarity properties of the variables used in this study. As presented in Table 3, the results show that MPR and INFL are stationary at the level, indicating that it is integrated of order zero, I_0. All other variables, such as INLR, CRR, EXCV, InM2, lnDFF, and InCPS, were non-stationary at the I_1 but became stationary after first differencing, thus integrated of order one, I_1.
These mixed orders of integration justify the application of the ARDL bounds testing approach to determine the presence of long-run relationships among the variables.

Table 4: Result of Stationarity Test

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-26.89795	NA	0.433663	1.994169	2.349677	2.116890
1	-20.53086	9.459686	0.320270	1.687477	2.087424	1.825539
2	-14.97308	7.939678*	0.247961*	1.427033*	1.871418*	1.580435*
3	-14.20918	1.047629	0.252755	1.440525	1.929349	1.609267
4	-27.36795	0.198921	0.402577	1.916305	2.342859	2.069349

Source: *Author's Computation (2025)*

The lag length selection criteria presented in Table 4 guide the determination of the optimal number of lags to be included in the model. The results indicate that lag 2 is the most appropriate, as it minimizes the Akaike Information Criterion (AIC = 1.4270), Schwarz Criterion (SC = 1.8714), and Hannan-Quinn Criterion (HQ = 1.5804). In addition, lag 2 records the lowest Final Prediction Error (FPE = 0.2479) and a significant Likelihood Ratio (LR = 7.9397) compared to other lag structures. Collectively, these results suggest that the inclusion of two lags enhances the explanatory strength and efficiency of the model, and as such, lag 2 is retained as the optimal lag length for estimating the ARDL model in the subsequent analysis.

Table 5: Result of Stationarity Test

Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	k
F-statistic	1.3660	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: *Author's Computation (2025)*

The result of the ARDL bounds test, as reported in Table 5, reveals that the computed F-statistic of 1.3660 is lower than the lower bound critical values I_0 and I_1 bound at the 5% significance level, the critical bounds. This implies that there is no evidence of a long-run cointegration relationship among the variables in the model. Hence, we fail to reject the null hypothesis that there is no long-run relationship between monetary tightening indicators and development finance flows in Nigeria. Consequently, the short-run autoregressive distributed lag (ARDL) model without long-run interpretation is specified for this study.

ARDL Estimation

Table 6: Result of Short-run ARDL

Dependent Variable: D(LOGODA)			
Variable	**Coefficient**	**Std. Error**	**t-Statistic**
D(LOGODA(-1))	0.307076	0.235458	1.304167
D(LOGODA(-2))	-0.643818	0.285532	-2.254803
D(LOGM2(-1))	0.837183	1.508753	0.554884
D(LOGM2(-2))	-3.052095	1.691705	-1.804153
D(LOGCPS(-1))	0.468366	1.158084	0.404432
D(LOGCPS(-2))	-0.287289	1.615574	-0.177825
D(EXCR(-1))	-0.002495	0.006136	-0.406664
D(EXCR(-2))	-0.001388	0.006794	-0.204307
D(CRR(-1))	-0.045160	0.055845	-0.808668
D(CRR(-2))	-0.002220	0.047499	-0.046729
D(LR(-1))	0.011810	0.068232	0.173081
D(LR(-2))	-0.043312	0.053646	-0.807370
D(MPR(-1))	-0.016585	0.057675	-0.287560
D(MPR(-2))	0.034624	0.051618	0.670786
D(INFL(-1))	0.006599	0.008984	0.734535
D(INFL(-2))	0.011876	0.008967	1.324464
C	0.649963	0.396527	1.639141
R-squared	0.485372	Mean dependent var	
Adjusted R-squared	0.417925	S.D. dependent var	
S.E. of regression	0.598451	Akaike info criterion	
Sum squared resid	6.446590	Schwarz criterion	
Log likelihood	-20.05641	Hannan-Quinn criter.	
F-statistic	23.061045	Durbin-Watson stat	
Prob(F-statistic)	0.048351		

Source: *Author's Computation (2025)*

Table 5 presents the short-run estimates from the ARDL model, examining how monetary tightening influences DFF in Nigeria. The coefficient of the first lag of ODA (D(LOGODA (-1) is 0.3071 with a p-value of 0.2086, indicating that a 1% increase in ODA in the previous period is associated with a 0.31% rise in the current period. However, this relationship is statistically insignificant at the 5% level, suggesting weak short-run persistence in aid flows. Conversely, the second lag (D (LOGODA (-2) has a negative coefficient of –0.6438 and is statistically significant (p = 0.0368). This implies that a 1% increase in ODA two periods ago is followed by a 0.64% decrease in the current flow, suggesting a correction or reversal in aid trends, possibly due to disbursement timing or project cycle completion.

The first lag of broad money supply (D(LOGM2(-1) shows a positive but insignificant effect (coefficient = 0.8372, p = 0.5858), indicating that a 1% rise in M2 leads to a 0.84% increase in ODA insignificantly. The second lag (D(LOGM2(-2)) presents a stronger result with a negative coefficient of -3.0521 and a p-value of 0.0880, which is significant at the 10% level. This means that a 1% expansion in the broad money supply two periods earlier results in a 3.05% decline in ODA, supporting the notion that excessive liquidity may discourage donor support due to inflationary or fiscal indiscipline concerns.

Credit to the private sector (D(LOGCPS)) also shows no significant impact. The first lag has a coefficient of 0.4684 (p = 0.6907), and the second lag is –0.2873 (p = 0.8608). These results indicate that a 1% change in domestic credit leads to approximately a 0.47% increase or a 0.29% decrease in ODA, respectively, neither of which is statistically significant.

For the exchange rate (EXCR), both the first and second lags are negative and insignificant. A 1-naira depreciation in the previous period results in a 0.0025 decrease in ODA (p = 0.6890), while the second lag suggests a 0.0014 decrease (p = 0.8404), indicating exchange rate fluctuations do not meaningfully influence donor decisions in the short run. Cash Reserve Ratio (CRR) also has a weak link. The first lag has a coefficient of –0.0452 (p = 0.4293), while the second lag is –0.0022 (p = 0.9632), showing that a 1 %-point increase in CRR is associated with only a 0.045% and 0.002% decrease in ODA, respectively, both statistically insignificant. The lending rate (LR) also does not significantly influence ODA flows.

The first lag of LR is 0.0118 (p = 0.8645), implying that a 1% rise in lending rate leads to a 0.012% increase in ODA. The second lag is –0.0433 (p = 0.4300), meaning a 1% increase in the prior period would decrease ODA by 0.043%, again, both effects are statistically insignificant.

MPR exhibits a similarly insignificant influence, with the first lag yielding –0.0166 (p = 0.7770), and the second 0.0346 (p = 0.5109). This indicates that a 1% increase in MPR changes ODA by about -0.017% to +0.035%, though not with statistical confidence. Inflation (INFL) coefficients are 0.0066 and 0.0119 for the first and second lags, respectively (p = 0.4721 and 0.2019), suggesting that a 1 percentage point rise in inflation corresponds to a 0.66% to 1.19% increase in ODA, albeit without statistical significance.

In terms of model performance, the R-squared of 0.4854 indicates that approximately 48.5% of the variation in ODA is explained by the regressors. The F-statistic of 23.06 (p = 0.0484) confirms the joint statistical significance of the explanatory variables at the 5% level, and the Durbin-Watson statistic of 1.9571 indicates no serious autocorrelation in the model residuals.

Diagnostic Test

Table 7: Result Robustness Test

Test	F-Statistics	Probability	Conclusion
Heteroskedasticity	6.2594	0.9850	No heteroskedasticity
Serial Correlation LM	0.167721	0.8471	No serial correlation

Source: *Researcher's Computation (2025)*

Table 7 presents the results of the robustness checks conducted to validate the reliability of the ARDL model estimations. The heteroskedasticity test produced an F-statistic of 6.2594 with a p-value of 0.9850, which is well above the 5% significance threshold. This suggests the absence of heteroskedasticity in the residuals, implying that the error variance is constant and does not bias standard errors.

Similarly, the Breusch-Godfrey Serial Correlation LM test yields an F-statistic of 0.1677 with a p-value of 0.8471, indicating no evidence of serial correlation in the model residuals, confirming that the model errors are not autocorrelated. These finding affirm the statistical soundness of the ARDL estimation, supporting the robustness and reliability of the short-run dynamic coefficients presented earlier.

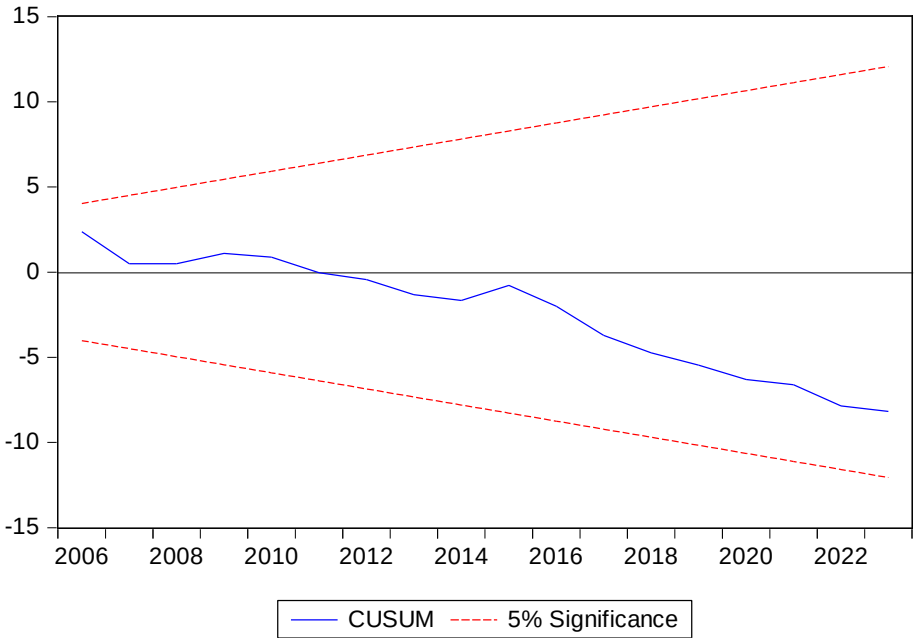

Figure 1: CUSUM Stability Test Summary

Figure 1 displays the Cumulative Sum (CUSUM) test used to assess the parameter stability of the ARDL model over the sample period (2006–2022). The CUSUM line (blue) remains within the 5% critical bounds (red dashed lines) throughout the period, indicating that there are no structural breaks in the estimated model. This outcome confirms that the model is stable, and the estimated coefficients are consistently reliable over time, thereby validating the robustness of the short-run and long-run dynamics derived from the ARDL specification.

Discussion of Findings

This study investigates the effect of monetary tightening on development finance flows in Nigeria using the ARDL model. Based on the optimal lag selection criteria, a two-period lag structure was adopted. The analysis is based on annual time series data covering the period from 1986 to 2023. The results revealed that the second lag of ODA (D (LOGODA (-2) is negative and statistically significant (coefficient = –0.6438, p = 0.0368), implying a short-term reversal pattern in aid flows, meaning that surges in aid tend to be followed by declines. This dynamic may reflect cyclical donor behavior or disbursement volatility.

For monetary tightening, the second lag of money supply (D(LOGM2(-2))) is significantly negative at 10% (coefficient = –3.0521, p = 0.0880), indicating that monetary expansion may crowd out development finance over time. This supports the Monetary Transmission Mechanism (MTM) theory, which posits that loose monetary conditions, while expansionary, may signal fiscal imbalance or inflationary pressures, factors that deter concessional inflows. This result corroborates the findings of Iwedi and Edeh (2022), who observe that excessive liquidity, absent institutional credibility, weakens development capital inflows due to perceived macro-instability.

Interestingly, credit to the private sector (CPS) did not exhibit significant effects on ODA, suggesting that domestic credit expansion alone is insufficient to attract development finance. This result echoes Igegwuabe et al. (2022), who show that while domestic credit deepening is vital, its impact on external development finance depends largely on institutional quality and governance structures. Exchange rate changes (EXCR) also showed no significant effect on ODA in the period under study, aligning with Garbobiya et al. (2024), who note that in low-reserve economies, nominal depreciation may not immediately influence aid decisions, especially when donors price aid in hard currency terms or peg disbursement to structural reform benchmarks rather than market indicators.

CRR had a negative but statistically insignificant effect on development finance. This suggests that while CRR adjustments tighten liquidity, they may not directly deter concessional inflows. However, in broader terms, this aligns with the credit-suppression hypothesis highlighted by Iwedi and Edeh (2022), where reserve tightening impairs domestic credit access, potentially undermining absorptive capacity for aid-funded projects. Both LR and MPR exhibited no significant influence on development finance.

This finding is consistent with Omale et al. (2025), who argue that the cost of borrowing, while influential for domestic investment, is often less salient for development finance, which depends more on institutional coordination, macro-stability, and policy credibility than interest rate levels. Inflation showed a weak and statistically insignificant relationship with ODA, suggesting that donors may tolerate moderate inflation if macro-fiscal coordination and reform assurances are present, an argument consistent with Daoui (2023), who emphasizes institutional resilience as the primary buffer against aid volatility.

Conclusion and Recommendation

This study set out to examine the effect of monetary tightening on development finance flows in Nigeria from 1986 to 2023, using a short-run ARDL model after detecting no long-run relationship among the variables. The findings revealed that money supply (M2) had a significant negative effect on development finance, indicating that excessive liquidity, often associated with expansionary policies, may crowd out concessional external finance. However, other monetary tightening indicators such as MPR, LR, CRR, CPS, INFL, and EXCR did not exert statistically significant effects on ODA within the short-run estimation window. The study concludes that monetary tightening, particularly through liquidity signals such as M2, influences development finance inflows in Nigeria.

Hence, it is recommended that:

i. The Monetary Policy Committee (MPC) should explicitly factor in Nigeria's external aid absorption capacity when formulating monetary interventions. Aligning tightening or easing cycles with major donor disbursement periods will enhance fiscal-monetary coordination and minimize the risk of sending adverse signals to development partners, thereby improving aid predictability and effectiveness.

ii. The Central Bank of Nigeria should transition from generalized monetary expansion to a more targeted liquidity management framework. Specifically, liquidity injections should be directed toward productivity-enhancing sectors, such as infrastructure, agriculture, and SMEs, through accredited development finance institutions. This will mitigate the crowding-out of concessional inflows, reduce macroeconomic volatility, and sustain donor confidence in Nigeria's macroeconomic stability.

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