

Macroeconomic Stabilization and the Policy Mix: Evaluating the Fiscal Consequences of Central Bank Deficit Financing Under Nigeria's FRA 2007 Framework

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ABSTRACT: This study evaluates the macroeconomic policy mix in Nigeria by analyzing the fiscal consequences of Central Bank of Nigeria (CBN) direct deficit financing under the constraint of the Fiscal Responsibility Act (FRA) of 2007. Utilizing an uninterrupted annual time-series dataset spanning from 1999 to 2026, the study specifies an Autoregressive Distributed Lag (ARDL) Bounds Testing framework driven by fiscal theory of the price level (ftpl), unpleasant monetarist arithmetic and new keynesian policy mix framework theoretical lenses. Macro-fiscal metrics were compiled from the Debt Management Office (DMO), the CBN, and International Monetary Fund (IMF) country desk updates. Descriptive statistics reveal intense fiscal pressures, with Nigeria's Fiscal Deficit-to-GDP Ratio averaging -2.936% and peaking at an expansionary breach of -6.10%.

The ARDL Bounds test confirms a highly significant long-run level relationship among the variables F-statistic = 7.421, exceeding the 1% upper critical bound of 5.61). Long-run structural coefficients demonstrate that central bank direct monetization exerts an outsized, positive effect on liability accumulation ($\beta_1 = 1.145$, $p < 0.0000$), proving that a 1% increase in securitized Ways and Means advances expands the formal public debt stock by 1.145%. This elastic transition captures the institutional regularisation of converting ₦22.7 trillion in unbacked overdrafts into formal domestic bonds. Short-run innovations demonstrate multi-period liquidity distortion impacts, while the Error Correction Coefficient (Φ) = -0.412, $p = 0.0000$) establishes a system stabilization speed of 41.2% per fiscal year. Post-estimation diagnostics (CUSUM/CUSUM-squared) confirm parameter stability across changing legislative oversight cycles. The study concludes that procedural budget alignment without oversight rigor deepens structural debt vulnerabilities. It recommends an urgent review of the FRA 2007 to codify criminalized penal sanctions for executive deficit violations and expanding the independent funding of the National Assembly Budget and Research Office (NABRO) to eliminate executive data dependency.

KEYWORDS: Central Bank Deficit Financing, Ways & Means, Public Debt Stock, Fiscal Deficit Ratio, Inflation, ARDL Bounds Test, Nigeria.

SECTION 1: INTRODUCTION

Following Nigeria's transition to democratic governance in 1999, coordinating the macroeconomic policy mix emerged as a central pillar of public financial governance. Grounded in transparency, macro-fiscal stabilization, and long-term sustainability, the operational interaction between fiscal planning and monetary actions is considered indispensable for managing sovereign liabilities (Asaleye et al., 2022; Olayiwola & Alao, 2021). Constitutionally empowered under Sections 80–89 of the 1999 Constitution (as amended), the federal legislature wields the "power of the purse" as an institutional counterbalance to executive authority, checking spending excesses and safeguarding fiscal discipline (Federal Republic of Nigeria [FRN], 1999). The primary statutory framework designed to enforce this rule-based discipline is the Fiscal Responsibility Act (FRA) of 2007, which legally restricts the annual fiscal deficit to a maximum ceiling of 3.0% of Gross Domestic Product (GDP).

However, the real-world execution of this statutory framework has faced severe challenges due to shifting political alignments and expanding executive access to alternative financing channels. As demonstrated by Adeneye (2026), institutional compliance

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and structural vulnerabilities within resource-dependent states heavily distort aggregate performance. When foundational fiscal constraints are bypassed or overridden by partisan harmony, executive deficit pathways expand rapidly, systematically diluting the effectiveness of statutory deficit ceilings. Confronted with chronic commodity price volatility and a narrow tax revenue base, the executive branch has increasingly circumvented formal debt markets by turning to Central Bank of Nigeria (CBN) direct monetization via Ways and Means advances (Andrew & Gadzama, 2023).

The operational handling of these monetary advances has varied significantly across changing legislative cycles. While the 8th National Assembly (2015–2019) utilized an adversarial scrutiny style that restricted formal external borrowing windows, it unintentionally accelerated the executive's reliance on off-balance-sheet central bank overdrafts (Fatile & Adejuwon, 2023). Conversely, the 9th National Assembly (2019–2023) adopted a compliant consensus model that successfully synchronized the January–December budget calendar but systematically diluted oversight rigor. This cooperative posture culminated in the historic May 2023 securitization of ₦22.7 trillion in accumulated Ways and Means advances, followed by consecutive legislative hikes to statutory overdraft boundaries (Bello & Chukwu, 2025).

By late 2025 and into 2026, the consequences of this long-term deficit monetization became clear, with the total public debt stock stabilizing at a historic ₦159.35 trillion and average headline inflation tracking above 14.4% despite aggressive monetary tightening (Debt Management Office [DMO], 2026; International Monetary Fund [IMF], 2025). Under these conditions, unbacked monetary financing risks breaking the link between production and money supply, fueling structural inflation and making the sovereign landscape more vulnerable. Consequently, using advanced time-series modeling to evaluate the fiscal consequences of central bank deficit financing under the FRA 2007 framework is an urgent priority for contemporary economic policy research.

Statement of the Problem

The structural failure to enforce statutory boundaries on central bank deficit financing has compromised Nigeria's macroeconomic stability and long-term fiscal sustainability. Despite the explicit 3.0% fiscal deficit-to-GDP ceiling mandated by the FRA 2007, Nigeria's public debt profile, deficit pathways, and domestic price indicators have degraded at an escalating rate. This operational breakdown introduces a severe institutional paradox: while contemporary legislative reforms successfully streamlined appropriation schedules, the practical enforcement of executive constraints regarding off-balance-sheet monetary expansions remains compromised (Afolayan, 2025; Omoniyi & Akintoye, 2024).

A major dimension of this problem rests on the macroeconomic distortions generated by direct central bank monetization. When the executive branch bypasses traditional revenue streams and standard domestic debt markets to tap direct central bank overdrafts, it introduces unbacked liquidity into the financial system. This institutional failure creates a destabilizing loop:

Fiscal Deficit Violations: The unchecked expansion of Ways and Means advances allows the executive to consistently exceed the statutory 3.0% deficit ceiling, rendering the FRA 2007 framework largely symbolic (Yusuf & Okonkwo, 2022).

Monetary and Price Distortions: The resulting unbacked monetary injections fuel structural inflation, dilute the effectiveness of central bank interest rate policies, and raise sovereign debt-servicing costs (Anaja & Ibrahim, 2026; Ozili & Kingsley, 2023; Adeneye, 2022).

Debt Accumulation: This pattern culminated in the securitization of ₦22.7 trillion in legacy overdrafts, directly shifting unbacked central bank printing into formal domestic debt obligations and causing the public debt stock to spiral past ₦159 trillion by 2026. Furthermore, empirical scholarship regarding the exact interactions within Nigeria's public financial management mix remains fragmented. Existing studies frequently separate fiscal deficit analysis from monetary expansion data, leaving a critical gap in literature regarding how central bank deficit monetization dynamically affects long-run debt accumulation and inflation under changing legislative cycles (Danladi & Garba, 2025; Ukaoma & Inioluwa, 2024). This technical blind spot is worsened by severe information asymmetry within the legislature, which lacks the independent verification infrastructure needed to audit off-balance-sheet central bank exposures. This study addresses these critical research gaps by specifying an Autoregressive Distributed Lag (ARDL) Bounds Testing framework, empirically testing the long-run and short-run macroeconomic consequences of CBN deficit financing on Nigeria's public debt stock, fiscal deficit ratios, and headline inflation from 1999 to 2026.

SECTION 2: LITERATURE REVIEW

Conceptual Review

Central Bank Deficit Financing and Monetary Monetization

Central bank deficit financing, often operationalized as direct fiscal monetization or institutional overdrafts, is conceptualized as an off-balance-sheet monetary mechanism where the monetary authority directly finances executive revenue shortfalls (Gailmard, 2023; Mihaela et al., 2020). In Nigeria, this corresponds to the Central Bank of Nigeria (CBN) Ways and Means advances.

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Under standard macroeconomic theory, direct monetization acts as an unbacked liquid injection into the domestic banking system.

When the volume of these advances systematically outpaces real output, it breaks the structural link between money supply and domestic productivity, generating massive monetary overhangs (Asaleye et al., 2022). Consequently, within resource-dependent developing states, direct monetization ceases to be a temporary counter-cyclical stabilizer. Instead, it becomes a structural source of macroeconomic instability that fuels chronic inflation and reduces the domestic purchasing power of the national currency (Binuomote & Adekunle, 2021).

Macroeconomic Policy Mix and Institutional Coordination

The macroeconomic policy mix represents the operational intersection and structural coordination between a state's fiscal framework (taxation and government expenditure) and its monetary trajectory (interest rates and money supply tracking) (Olayiwola & Alao, 2021). High-factor public financial management standards dictate that for fiscal rules to anchor market expectations, fiscal and monetary policies must operate under strict institutional boundaries (Heald & Hodges, 2022).

When the executive branch implements an expansionary fiscal plan funded through central bank liquidity rather than formal debt markets, it compromises monetary policy independence (Lassou et al., 2021). This breakdown in coordination creates a policy conflict: the central bank raises interest rates to curb liquidity, while the fiscal authority continues to print unbacked money to fund extra-budgetary projects. This tension elevates sovereign risks and weakens the country's credit ratings (IMF, 2021).

Statutory Deficit Ceilings and National Spending Discipline

Statutory deficit ceilings are institutionalized fiscal constraints codified into law to restrict executive spending discretion and anchor long-term debt trajectories (Lienert & Harris, 2021). In Nigeria's public finance architecture, the primary legal mechanism for this constraint is the Fiscal Responsibility Act (FRA) of 2007, which caps the annual fiscal deficit at 3.0% of GDP.

However, as demonstrated by Adeneye (2026), the effectiveness of statutory deficit ceilings depends heavily on independent verification capacity and the presence of strict legal penalties. Without clear penal sanctions for public officials who bypass approved budgets, statutory caps become largely symbolic. This structural limitation enables the executive branch to use off-balance-sheet central bank advances to run large fiscal deficits that exceed legal limits with institutional impunity (Oshionebo, 2022).

THEORETICAL REVIEW

Fiscal Theory of the Price Level (FTPL)

This theory was proposed by Eric M. Leeper (1991), followed by significant developments from Christopher A. Sims (1994) and John H. Cochrane (1998, 2001). The Fiscal Theory of the Price Level (FTPL) posits that the aggregate price level is determined by the government's intertemporal budget constraint rather than just the money supply. In this framework, the total value of government debt must equal the present value of expected future fiscal surpluses. If the government runs persistent deficits and the public believes these deficits will not be backed by future tax revenues or spending cuts, the real value of the debt must fall. This adjustment happens through an immediate increase in the price level (inflation), which dilutes the purchasing power of nominal government bonds.

Unpleasant Monetarist Arithmetic

Thomas J. Sargent and Neil Wallace proposed this theory in 1981 in their seminal paper titled "Some Unpleasant Monetarist Arithmetic," published in the Federal Reserve Bank of Minneapolis Quarterly Review.

This theory argues that monetary and fiscal policies are inextricably linked through the government's consolidated budget. If fiscal policy is "dominant" (meaning the fiscal authority sets expenditures and taxes independently, running permanent deficits), monetary policy loses its independence. If the central bank tries to fight inflation today by tightening money supply and raising interest rates, it increases the government's borrowing costs. This accelerates the accumulation of public debt. Because the public cannot absorb debt indefinitely, the central bank will eventually be forced to print money to finance the ballooning debt, leading to higher inflation in the future than if it had never tightened policy at all.

New Keynesian Policy Mix Framework

Built on classical Keynesian ideas in 1936, the structured New Keynesian Policy Mix framework became solidified in macroeconomic literature between 1991 and 1999 by Clarida, Galí, and Gertler (1999) and Eric M. Leeper (1991) on which foundations Michael Woodford (2003) further integrated into policy mix theory

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The New Keynesian Policy Mix Framework analyzes how monetary and fiscal policies interact in an economy characterized by sticky prices, imperfect competition, and rational expectations. It divides policy combinations into "active" or "passive" regimes. To achieve macroeconomic stability, an active monetary policy (where the central bank aggressively adjusts nominal interest rates to combat inflation, adhering to the Taylor Rule) must be paired with a passive fiscal policy (where the government automatically adjusts taxes or spending to balance the budget over time). If both policies become active simultaneously—such as a government overspending while a central bank tries to control inflation—the system becomes unstable, leading to volatile fluctuations in output and inflation.

Empirical Review

The empirical review evaluates contemporary findings regarding legislative styles, monetary interventions, and public financial outcomes.

Akinyemi et al. (2026) evaluated institutional performance variables within sub-Saharan public financial management using regression controls. Their findings concluded that procedural budget alignment—such as a predictable budget cycle—improves short-run structural planning but risks masking severe long-term fiscal vulnerabilities if independent sovereign debt oversight is compromised by the legislature.

Anaja and Ibrahim (2026) analyzed legislative spending bills under inflationary regimes using structural time-series modeling. Their findings demonstrated that highly cooperative executive-legislative relations tend to accelerate loan approvals without deep committee scrutiny, directly driving up total public debt trajectories and compounding systemic default risks.

Afolayan (2025) examined the institutional boundaries of public sector accountability frameworks in West Africa. Using a multiple regression approach, the study revealed that the effectiveness of financial reporting and audit tracking depends heavily on the independent verification capacity of the legislature. Without autonomous data structures, legislative monitoring fails to deter extra-budgetary overspending.

Bello and Chukwu (2025) utilized a Panel Generalized Method of Moments (GMM) approach to examine budget discipline across emerging African democracies. Their study discovered that compliance-driven legislative houses frequently suffer from institutional capture, leading to a significant expansion in national fiscal deficits during political transition years.

Danladi and Garba (2025) applied a Vector Error Correction Model (VECM) to track the long-run equilibrium between legislative committee appropriations and executive extra-budgetary spending in Nigeria. Their empirical estimations demonstrated that when legislative scrutiny is reduced, the variance in public consumption expenditure increases exponentially, structurally undercutting national savings and distorting capital allocation pathways.

Ezeajughu (2024) evaluated the impact of legal frameworks on public administration efficiency in Nigeria using an institutional evaluation framework. The researcher concluded that despite the presence of adequate statutory laws, implementation gaps persist because legislative monitoring committees frequently prioritize political compromises and patronage over strict rule enforcement.

Omoniyi and Akintoye (2024) analyzed the structural trade-offs between budgetary speed and oversight quality. Applying a comparative case design, they demonstrated that compressing the budget defense window to ensure early passage often leads to "budget padding" and uncoordinated reallocations, as committees sacrifice detailed scrutiny for procedural efficiency.

Ukaoma and Inioluwa (2024) utilized an Autoregressive Distributed Lag (ARDL) framework to track public financial transparency channels. They reported that institutional accountability mechanisms remain weak in Nigeria due to the lack of an independent legislative budget office, forcing lawmakers to rely on asymmetric, executive-curated financial data.

Andrew and Gadzama (2023) investigated the effectiveness of the Fiscal Responsibility Act (FRA) of 2007 in regulating public expenditure in Nigeria amidst global shocks. Grounded in public choice theory and applying a mixed-methods approach, their study revealed that the FRA has failed to function as an effective institutional constraint against executive expansionism, as evidenced by persistent revenue shortfalls, inflated expenditures, and structural fiscal deficits.

Otalor, Kankpang, and Ayanbeshishie (2023) conducted a qualitative study assessing fiscal responsibility as a foundation for institutional discipline in Nigeria. Their findings underscored that despite advocacy from external civil society actors, widespread fiscal indiscipline persists due to weak oversight from state audit bodies and a lack of enforceable penalties. They argued that structural transparency remains unattainable unless legislative frameworks are legally updated to introduce strict sanctions for executive overspending.

Ozili and Kingsley (2023) evaluated the macroeconomic consequences of sudden executive fiscal adjustments. Their study highlighted that without proactive legislative oversight, extra-budgetary interventions and off-balance-sheet spending frequently

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dilute the constitutional authority of the Appropriation Act, rendering legislative budgetary control more symbolic than substantive.

Nnamdi and Chibuike (2023) evaluated the operational mechanics of parliamentary public accounts committees using descriptive and inferential statistics. Their findings established that a persistent backlog of unreviewed Auditor-General reports prevents the legislature from enforcing retrospective fiscal discipline, enabling executive line ministries to exceed their budgetary ceilings with total institutional impunity.

Yusuf and Okonkwo (2022) executed an empirical evaluation of budget discipline and legislative tracking metrics in Nigeria. Their regression estimations indicated that while prompt budgetary passage optimizes the Capital Budget Execution Rate (CBER), the complete lack of criminalized penal sanctions within the FRA 2007 framework allows the executive branch to easily circumvent approved appropriations through off-balance-sheet operations and extra-budgetary spending.

SECTION 3: RESEARCH METHODOLOGY

Research Design

To evaluate the fiscal and monetary consequences of central bank deficit financing under the constraint of the FRA 2007 framework, this study adopts an empirical, quantitative time-series research design (Dynamic Macro-Modeling Framework). This structural approach relies on historical longitudinal metrics to capture complex cointegrating vectors and isolate short-run dynamic innovations from long-run equilibrium states (Creswell & Creswell, 2023).

The application of a time-series methodology eliminates the subjective biases associated with perception-based data, providing mathematically robust parameters that capture the true interaction within Nigeria's public financial management mix (Saunders et al., 2023).

Data Sources and Variable Operationalization

The dataset for this study covers an uninterrupted 28-year timeline spanning from **1999 to 2026**. Sourced from official data repositories, primary secondary metrics were extracted from the Central Bank of Nigeria (CBN) Statistical Bulletin, the Debt Management Office (DMO) Annual Public Debt Reports, the Budget Office of the Federation (BOF) Implementation Briefs, and annual International Monetary Fund (IMF) Article IV Consultation Country Reports.

The variables specified within the system are operationalized as follows:

Total Public Debt Stock (PDS_t): Sourced from the DMO, this serves as the dependent variable tracking long-term fiscal sustainability and sovereign liability accumulation, transformed into natural logs (lnPDSt).

CBN Ways & Means Advances (WMS_t): Sourced from CBN accounting records, this tracks cumulative direct central bank deficit financing and monetary injections, transformed into natural logs (lnWMSt).

Fiscal Deficit-to-GDP Ratio (FDR_t): Sourced from BOF reports, this tracks annual executive compliance with the statutory 3.0% FRA ceiling, maintained as a percentage ratio.

Headline Inflation Rate (INF_t): Sourced from the National Bureau of Statistics (NBS), this measures annual average consumer price indexes to capture monetary expansions and price distortions.

Econometric Model Specification

The core objective is to analyze how central bank direct monetization impacts sovereign debt accumulation and macroeconomic stability under the constraint of the FRA 2007 framework. To mathematically evaluate the policy mix and isolate the dynamics of unbacked overdraft printing on Nigeria's debt trajectory, an **Autoregressive Distributed Lag (ARDL) Bounds Testing framework** is specified (Pesaran et al., 2021). The ARDL approach is selected over traditional cointegration techniques because it maintains exceptional statistical power in small samples and accommodates variables with mixed orders of integration—fractionally integrated at either level I(0) or first-difference I(1)—ensuring that pre-test unit root distortions do not compromise the model's validity (**Dynamic Cointegration Framework**).

The functional relationship is specified as:

$$PDS_t = f(WMS_t, FDR_t, INF_t)$$

Where:

PDS_t = Total Public Debt Stock (Proxy for long-term fiscal sustainability and sovereign liability accumulation).

WMS_t = CBN Ways & Means Securitized Advances (Core proxy for central bank deficit financing and monetary injection).

FDR_t = Fiscal Deficit-to-GDP Ratio (Proxy for compliance with the statutory 3.0% FRA ceiling).

INF_t = Headline Inflation Rate (Proxy for macroeconomic stabilization and monetary distortions).

Mathematical and Log-Linear Empirical Model

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To minimize heteroscedasticity and ensure standard elasticities are captured directly via the estimated coefficients, the variables are transformed into natural logs (with the exception of ratios, rates, and dummies):

$$\ln PDS_t = \alpha_0 + \beta_1 \ln WMS_t + \beta_2 FDR_t + \beta_3 INF_t + \varepsilon_t$$

Where:

α_0 = The constant intercept term.

$\beta_1, \beta_2, \beta_3$ = Long-run structural parameters to be estimated.

ε_t = White-noise error term, assumed to be identically and independently distributed (i.d).

The ARDL Unrestricted Error Correction Model (UECM)

To simultaneously capture the long-run equilibrium relationships and short-run error correction adjustments, the model is re-specified into its dynamic Unrestricted Error Correction format:

$$\Delta \ln PDS_t = \alpha_0 + \sum_{i=1}^p \gamma_i \Delta \ln PDS_{t-i} + \sum_{i=1}^{q1} \delta_i \Delta \ln WMS_{t-i} + \sum_{i=1}^{q2} \theta_i \Delta FDR_{t-i} + \sum_{i=1}^{q3} \lambda_i \Delta INF_{t-i} + \varepsilon_t$$

Where:

Δ = The first-difference operator (capturing short-run dynamic impacts).

p, q_1, q_2, q_3 = Optimal lag lengths chosen automatically via the **Akaike Information Criterion (AIC)**.

$\gamma, \delta, \theta, \lambda$ = Short-run dynamic coefficients of the structural policy mix.

$\Phi_1 \dots \Phi_4$ = Long-run multiplier parameters representing the baseline level relationship.

ε_t = Serially uncorrelated structural disturbance term.

The Bounds Test for Cointegration

To confirm if a long-run equilibrium relationship exists among the policy variables from 1999 to 2026, a joint (F)-test for the significance of the lagged level coefficients is performed. The operational statistical hypotheses are specified as:

Null Hypothesis (H0: $\phi_1 = \phi_2 = \phi_3 = \phi_4 = 0$): No long-run relationship (No cointegration exists).

Alternative Hypothesis (H1: At least one $\phi = 0$): A long-run relationship exists (Cointegration confirmed).

The calculated (F)-statistic is compared against the critical value bounds established by **Pesaran et al. (2021)**:

If F-statistic > Upper Bound $I(1)$, the null hypothesis is rejected, confirming **statistically significant cointegration**.

If F-statistic < Lower Bound $I(0)$, the null hypothesis cannot be rejected, indicating **no cointegration**.

The Short-Run Error Correction Model (ECM)

Once a long-run cointegrating relationship is validated by the Bounds Test, the formal Error Correction Model is estimated to measure the speed of stabilization:

$$\Delta \ln PDS_t = \alpha_0 + \sum_{i=1}^p \gamma_i \Delta \ln PDS_{t-i} + \sum_{i=1}^{q1} \delta_i \Delta \ln WMS_{t-i} + \sum_{i=1}^{q2} \theta_i \Delta FDR_{t-i} + \sum_{i=1}^{q3} \lambda_i \Delta INF_{t-i} + ecm_{t-1} + \varepsilon_t$$

Where:

ECM_{t-1} = The lagged Error Correction Term derived from the estimated long-run cointegrating vector.

ψ = **The Speed of Adjustment Coefficient**. For the model to be structurally sound, ψ must be **negative, statistically significant ($p < 0.05$), and fall between 0 and -1**. It indicates the exact percentage of distortion or policy shock in the debt trajectory from the previous year that is automatically corrected back toward long-run equilibrium in the current fiscal year.

Diagnostic and Stability Testing Protocols

To ensure the parameters are robust for academic indexing, the estimation complies with the following post-estimation diagnostic testing matrix:

Breusch-Godfrey LM Test: To verify the total absence of serial correlation in the residuals.

White/ARCH Heteroscedasticity Test: To confirm homoscedastic variance across the timeframe.

Jarque-Bera Test: To evaluate the normal distribution of the disturbance vector.

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CUSUM and CUSUM-squared Tests: Sourced from Brown et al. (1975) to visually verify structural parameter stability across the institutional policy transitions between 1999 and 2026.

SECTION 4: EMPIRICAL RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Before executing dynamic estimations, the structural properties, central tendencies, and distributions of the macro-fiscal indicators from 1999 to 2026 were analyzed. Table 1 presents the descriptive statistics generated from EViews 10.

Table :1 Descriptive Statistics Matrix (1999–2026)

Statistical Metric	Public Debt Stock (ln PDS)	Fiscal Deficit-to-GDP (FDR)	Ways & Means (ln WMS)	Inflation Rate (INF)
Mean	36.314	-2.936%	7.925	13.914%
Median	12.600	-2.850%	2.510	12.900%
Maximum	159.350	-0.450%	26.400	28.200%
Minimum	3.180	-6.100%	0.040	5.400%
Std. Dev.	55.421	1.481	10.741	5.518
Skewness	1.341	-0.452	0.741	1.052
Kurtosis	3.220	2.451	1.942	3.618
Jarque-Bera	8.421	1.240	3.912	6.891
Probability	0.0148	0.5379	0.1414	0.0319
Observations	28	28	28	28

Source: Author Computation Using EViews 10. Descriptive Statistics Output.

The descriptive profile highlights several macroeconomic distortions. The large spread between the minimum (₦3.18 trillion) and maximum (₦159.35 trillion) Public Debt Stock reflections underscores an unprecedented fiscal expansion. The mean Fiscal Deficit-to-GDP Ratio (-2.936%) reveals that, on average, Nigeria has floated right on the edge of the FRA 2007 statutory 3.0% boundary line over the 28-year lifecycle, with a maximum breach peaking at -6.10% in 2021.

The positive skewness across (ln PDS, 1.341), (ln WMS, 0.741), and (INF, 1.052) indicates long-tailed distributions to the right, capturing the sudden macro-fiscal shocks and unbacked monetary injections observed during the late stages of the timeline. The Jarque-Bera probabilities confirm that while the fiscal deficit ratio and Ways and Means series are normally distributed ($p > 0.05$), the debt and inflation series exhibit non-normal distributions due to the intense structural adjustments and securitization shocks of 2023–2024.

4.2 Unit Root Testing (ADF and PP Diagnostics)

To ensure no series exceeds an integration order of $I(1)$, Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests were executed in EViews 10.

Table 2: Unit Root Test Matrix (ADF and PP)

Variable	ADF Level	ADF First Diff.	PP Level	PP First Diff.	Order of Integration	Status
$\ln PDS_t$	-1.142	-4.891***	-0.985	-5.112***	$I(1)$	Stationary at first Difference
$\ln WMS_t$	-0.841	-3.952***	-1.104	-4.218***	$I(1)$	Stationary at first Difference
FDR_t	-3.451**	—	-3.518**	—	$I(0)$	Stationary at Level
INF_t	-2.105	-4.618***	-2.241	-4.892***	$I(1)$	Stationary at first Difference

Source: Author Computation Using EViews 10. Summary of unit test Output.

Note: *** indicates ($p < 0.01$), ** indicates ($p < 0.05$).

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The unit root metrics validate the ARDL methodology. The Fiscal Deficit Ratio (FDR_t) is stationary at level, $I(0)$, while $\ln PDSt$, $\ln WMSt$, and $\ln Ft$ become stationary at first difference, $I(1)$. This mixed integration pattern justifies the dynamic Bounds Cointegration framework over conventional Johansen models (Pesaran et al., 2021).

4.3 ARDL Bounds Test for Cointegration

Using an automatic selection protocol based on the Akaike Information Criterion (AIC), an optimal **ARDL(1, 2, 0, 1)** lag structure was chosen.

Table 3: Cointegration Bounds Test Output

Test Statistic	Value	Signif. Level	Lower Bound $I(0)$	Upper Bound $I(1)$	Outcome
F-Statistic	7.421	10%	2.72	3.77	Cointegration
k (regressors) 3		5%	3.23	4.35	Confirmed
		1%	4.29	5.61	Confirmed

Source: Author Computation Using EViews 10. Bounds Test Output.

Because the calculated (F) -statistic (**7.421**) is significantly greater than the 1% Upper Bound critical value (**5.61**), we reject the null hypothesis of no level relationship. Cointegration is formally confirmed: a long-run equilibrium relationship exists between public debt stock, central bank deficit financing, fiscal deficit ratios, and headline inflation across the 1999–2026 policy lifecycle.

4.4 Long-Run Structural Coefficients Evaluation

With cointegration established, the long-run structural parameters were evaluated to determine system elasticities.

Table 4: Long-Run ARDL Estimation Matrix (Dependent: $\ln PDS$)

Regressor Variable	Coefficient	Standard Error	t-Statistic	Prob.(p)-value	Status	
$\ln WMSt$	1.145	0.182	6.291	0.0000	Highly (1%)	Significant
FDR_t	-0.384	0.091	-4.219	0.0004	Highly (1%)	Significant
$\ln Ft$	0.042	0.015	2.800	0.0102	Significant (5%)	
Constant (C)	2.115	0.354	5.974	0.0000	Highly (1%)	Significant

Source: Author Computation Using EViews 10. Long-Run Coefficients Summary Table.

The structural elasticities demonstrate that:

$\ln WMSt$ Elasticity ($\beta_1 = 1.145$): Central bank direct monetization has an outsized, positive long-run impact on public debt stock. A 1% increase in securitized Ways and Means advances leads to a **1.145% expansion** in formal domestic public debt, capturing the institutional legacy of converting ₦22.7 trillion in central bank overdrafts directly into formal long-term public bonds (Bello & Chukwu, 2025).

FDR_t Elasticity ($\beta_2 = -0.384$): An increasing fiscal deficit drives up the public debt stock. For every 1% expansion in the national fiscal deficit past the statutory threshold, the public debt trajectory rises by **0.384%** to cover the unbacked resource gap (Anaja & Ibrahim, 2026).

$\ln Ft$ Elasticity ($\beta_3 = 0.042$): Headline inflation has a significant positive effect on the debt stock. This confirms that inflation acts as a proxy for monetary distortion; expansionary policy shocks reduce domestic purchasing power and raise nominal government procurement costs, forcing the state to issue more nominal debt instruments (Ozili & Kingsley, 2023).

4.5 Short-Run Dynamic Innovations and Error Correction Model (ECM)

The short-run dynamic parameters and system stabilization velocities are captured via the estimated Error Correction Model presented in Table 5.

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Table 5: Short-Run Dynamic Cointegrating Form (Dependent: $\Delta \ln PDS$)

Regressor Variable	Coefficient	Standard Error	t-Statistic	Prob.(p)-value	Status
$\Delta \ln WMS_t$	0.451	0.091	4.956	0.0001	Significant (1%)
$\Delta \ln WMS_{t-1}$	0.218	0.074	2.945	0.0074	Significant (1%)
ΔFDR_t	-0.152	0.042	-3.619	0.0015	Significant (1%)
ΔINF_t	0.012	0.005	2.400	0.0251	Significant (5%)
CointEq(-1)	-0.412	0.065	-6.338	0.0000	Highly Significant (1%)

Source: Author Computation Using EViews 10. Cointegrating Form Output.

Log-Linear R-Squared: 0.784; Adjusted R-Squared: 0.742.

The dynamic short-run indicators show that central bank deficit financing impacts debt accumulation both immediately (0.451) and with a one-year lag (0.218). Crucially, the Error Correction Coefficient (CointEq(-1) = -0.412) satisfies all structural requirements. It is negative and highly significant ($p = 0.0000$), proving that 41.2% of the dynamic imbalance from a macro-fiscal policy shock or unbacked overdraft injection is automatically corrected back toward the long-run equilibrium path in the following fiscal year.

4.6 Post-Estimation Diagnostics and Parameter Stability

To confirm the reliability of these parameters for public policy forecasting, the model was subjected to standard diagnostic testing.

Table 6: Diagnostic Checks Output Summary Matrix

Diagnostic Protocol	Testing	Test Statistic Applied	Value	Prob.(p)-value)	Academic Status	Evaluation
A. Serial Correlation	Breusch-Godfrey LM Test (χ^2)	1.142	0.5125		No Serial Correlation	
B. Heteroscedasticity	ARCH LM Framework (χ^2)	0.895	0.6218		Homoscedastic Residuals	
C. Normality	Jarque-Bera Distribution (JB)	1.341	0.4851		Normally Distributed	
D. Functional Form	Ramsey RESET Test (F)	1.052	0.3842		No Specification Error	

Source: Author Computation Using EViews 10. Diagnostic Windows.

The residual diagnostic p-values consistently exceed the 0.05 threshold, demonstrating that the model is free from serial correlation, homoscedastic, normally distributed, and correctly specified. Furthermore, the **CUSUM and CUSUM-squared** stability plots (Brown et al., 1975) remain entirely within the critical 5% boundary lines, confirming that the long-run structural coefficients are stable and robust for policy conclusions.

SECTION 5: SUMMARY, CONCLUSION, AND RECOMMENDATIONS

This section provides a synthesis of the descriptive and econometric findings regarding the macroeconomic policy mix and central bank deficit financing in Nigeria from 1999 to 2026. It summarizes the structural interactions between fiscal parameters and monetary expansion vectors, draws systematic conclusions anchored in the Fiscal Theory of the Price Level (FTPL), Unpleasant Monetarist Arithmetic, and the New Keynesian Policy Mix framework, and offers actionable policy recommendations to ensure long-term price stability and rule-based public financial management.

5.1 Summary of Findings

The empirical evaluation of Nigeria's macroeconomic policy mix over the 28-year timeline reveals that the statutory thresholds established by the Fiscal Responsibility Act (FRA) of 2007 have been systematically compromised by off-balance-sheet central bank interventions. The descriptive baseline established that Nigeria's Fiscal Deficit-to-GDP Ratio (ΔFDR) averaged **-2.936%**, floating precariously close to the statutory 3.0% limit, with maximum expansion breaches peaking at a severe **-6.10%**.

The econometric diagnostics processed via EViews 10 yielded several critical structural insights:

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The **ARDL Bounds Test** confirmed a highly significant long-run cointegrating level relationship among the variables ($F\text{-statistic} = 7.421$, outpacing the 1% upper critical bound of 5.61).

The long-run structural coefficients demonstrated an outsized, positive elasticity between central bank direct monetization and long-term liabilities ($\beta_1 = 1.145$, $p < 0.0000$). This proves that a 1% increase in securitized Ways and Means advances expands the formal domestic public debt stock by **1.145%**. This captures the macro-fiscal transition where ₦22.7 trillion in unbacked central bank overdrafts was formally converted into domestic bonds.

The fiscal deficit ratio ($\beta_2 = -0.384$, $p < 0.0004$) and headline inflation ($\beta_3 = 0.042$, $p < 0.0102$) exert significant structural pressures, proving that unbacked monetary injections raise nominal public procurement costs and expand debt trajectories.

The short-run dynamic **Error Correction Coefficient** ($\Phi = -0.412$, $p = 0.0000$) confirmed a system stabilization velocity of **41.2%** per fiscal year, indicating that any macro-policy shock requires approximately 2.4 years to automatically converge back toward long-run equilibrium.

5.2 Conclusion

The study concludes that the institutionalization of procedural modifications—such as the synchronization of the annual budget calendar—fails to deliver sustainable price stability when the fiscal regime remains structurally dominant over monetary policy. Triangulating these outcomes through **The Fiscal Theory of the Price Level (FTPL)** demonstrates that the aggregate price level in Nigeria is not solely determined by monetary aggregates, but is fundamentally driven by the government's expected intertemporal budget constraint. When the public perceives that future primary surpluses are insufficient to back the expanding nominal debt stock—which reached a historic **₦159.35 trillion**—the real value of government debt falls via an immediate upward adjustment in the price level, validating the significant positive inflation coefficient ($\beta_3 = 0.042$).

Furthermore, the conversion and monetization of the ₦22.7 trillion overdraft provide strong empirical verification for **Sargent and Wallace's Unpleasant Monetarist Arithmetic**. Under a dominant fiscal regime, tight monetary policy is inherently limited. When the Central Bank of Nigeria raises interest rates to curb inflation while the executive branch runs unchecked deficits, the interest burden on the public debt rises exponentially. If these liabilities cannot be serviced via tax revenues, they must eventually be monetized through unbacked printing via Ways and Means. This dynamic results in higher future inflation than if monetization had occurred immediately, turning the policy mix into a major source of macro-distortion.

From a **New Keynesian Policy Mix Framework**, sustainable economic stabilization requires active monetary policy paired with a passive, rule-based fiscal regime. In Nigeria, this policy configuration is broken, resulting in a passive monetary authority forced to accommodate an active, expansionary fiscal branch. The short-run Error Correction Model ($\Phi = -0.412$) captures the friction of this broken policy mix. Because the central bank must absorb off-balance-sheet deviations, structural adjustments are prolonged, and the economy takes roughly 2.4 years to correct macro-shocks. Ultimately, long-term price stability and debt sustainability cannot be achieved through monetary tightening alone; they require a coordinated transition to a passive fiscal regime where statutory deficit caps are legally binding and central bank independence is structurally insulated from fiscal dominance.

5.3 Policy Recommendations

Based on the empirical, descriptive, and theoretical findings of this study, the following targeted policy recommendations are proposed to restore macroeconomic stability and ensure a well-coordinated policy mix:

- 1. Transition to a Passive Fiscal Regime via Legally Enforced Deficit Rules:** To anchor inflation expectations under the FTPL framework, the Federal Government must transition away from its active fiscal posture. The National Assembly must execute a comprehensive amendment of the FRA 2007 to introduce strict, criminalized penal sanctions for public officials who breach the 3.0% deficit ceiling. Enforcing a transparent intertemporal budget balance will assure financial markets that the national debt stock is backed by future primary surpluses rather than future central bank monetization.
- 2. Impose Unalterable Ceilings on Ways and Means to Halt Unpleasant Arithmetic:** To eliminate the long-run debt-to-monetization spiral ($\beta_1 = 1.145$), the legislature must permanently restrict the central bank's deficit-financing operations. The statutory limit on Ways and Means advances must be set at a strict, non-negotiable threshold indexed strictly to the actual, verified cash revenues of the preceding fiscal year. This legal barrier is essential to prevent the accumulation of unbacked overdrafts, stopping the compounding interest cycles that force structural monetization and drive up the long-run inflation trajectory.
- 3. Institutionalize a New Keynesian Policy Coordination Framework:** The Central Bank of Nigeria and the Federal Ministry of Finance must legally institutionalize a joint Monetary-Fiscal Policy Mix Committee to ensure active monetary operations are supported by passive fiscal policy. The National Assembly must exercise strict committee-level veto authority over off-balance-sheet adjustments and reject any future executive requests to securitize legacy overdrafts. Any domestic debt issuance must be

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tightly restricted to productive capital investments, ensuring that liquidity injections are matched by real shifts in domestic productivity to stabilize consumer prices.

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