Impact of Liquidity Management on Economic Growth in Nigeria

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Abstract
This study examines the effect of liquidity management on economic growth in Nigeria over the period 1990–2024, using annual time-series data on real Gross Domestic Product (RGDP), broad money supply (M2), inflation (INF), the trade balance (TBL), government expenditure (GEX), the interest rate (INT), and the official exchange rate (EXR). The Augmented Dickey-Fuller and Phillips-Perron unit root tests confirm that all variables are integrated of order one, I (1), with the exception of broad money supply, for which the two tests offer conflicting evidence at levels; none of the series is integrated of order two, satisfying the pre-condition for ARDL bounds testing. The bounds test (F-statistic = 10.21) confirms a statistically significant long-run cointegrating relationship among the variables. In the long run, broad money supply and the trade balance exert a positive and statistically significant effect on real GDP, while the interest rate and the exchange rate exert a negative and statistically significant effect; government expenditure and inflation are not statistically significant in the long run. The error correction term is negative, as theory predicts, with roughly 27 percent of any deviation from long-run equilibrium corrected within a year. In the short run, lagged money supply growth and exchange rate movements are the dominant significant drivers of output growth. Diagnostic tests indicate that the residuals are normally distributed and that the model is correctly specified. The study concludes that liquidity management, particularly through money supply and interest rate channels, has a significant long-run influence on Nigeria's economic growth, and recommends that the Central Bank of Nigeria pursue a calibrated expansion of money supply, moderate the cost of borrowing, and pursue exchange rate stability alongside more efficient public expenditure management.

Keywords: Liquidity Management, Economic Growth, ARDL Bounds Test, Money Supply, Nigeria

JEL Classification Codes: E51, E52, O47

1. Introduction

Liquidity management remains a critical component of monetary policy and macroeconomic management because it determines the availability, allocation, and cost of financial resources within an economy. Central banks employ various liquidity management instruments, including money supply regulation, interest rate adjustments, reserve requirements, and exchange rate interventions, to maintain price stability, ensure financial system stability, and stimulate economic activity. Effective liquidity management provides adequate funds to the financial system, promotes credit expansion, facilitates investment, and enhances productive economic activities, thereby fostering sustainable economic growth. Conversely, inadequate or excessive liquidity may distort financial markets, reduce investment efficiency, trigger inflationary pressures, and undermine macroeconomic stability. Chu and Chu (2020) argue

that although liquidity is essential for stimulating economic activity, excessive liquidity can become detrimental to long-term economic growth by encouraging inefficient resource allocation and increasing financial vulnerabilities. Similarly, Khodabakhsh (2025) emphasizes that strategic liquidity management becomes even more important during periods of economic uncertainty, as appropriate liquidity policies enhance economic resilience and support sustainable growth.

The relationship between liquidity management and economic growth has attracted considerable attention in both theoretical and empirical literature. Monetarist economists, particularly Friedman (1968), maintain that changes in money supply significantly influence output and economic performance, while Keynesian economists argue that liquidity affects economic growth through interest rates, investment spending, and aggregate demand. More recent empirical studies have extended this debate by examining the role of financial markets and technological innovations in improving liquidity allocation. For example, Chikwira and Mohammed (2023) found that efficient liquidity conditions within financial markets positively influence economic growth, although the strength of the relationship depends largely on market volatility and financial sector development. Likewise, Soleimani (2024) highlights that advances in artificial intelligence can significantly improve liquidity management by enhancing financial transparency, optimizing liquidity allocation, and strengthening decision-making processes, thereby supporting economic growth. These findings suggest that while liquidity generally promotes economic performance, its effectiveness depends on institutional quality, technological advancement, and prevailing macroeconomic conditions.

In Nigeria, liquidity management has become increasingly important due to persistent macroeconomic challenges, including fluctuations in oil revenue, inflationary pressures, exchange rate instability, banking sector vulnerabilities, and recurring economic recessions. The Central Bank of Nigeria (CBN) has implemented various liquidity management measures through Open Market Operations (OMO), Cash Reserve Requirements (CRR), Monetary Policy Rate (MPR) adjustments, and foreign exchange interventions to balance price stability with economic growth. Despite these policy interventions, Nigeria's economic performance has remained inconsistent, characterized by alternating periods of expansion, recession, and slow recovery. The 2016 economic recession and the economic disruptions associated with the COVID-19 pandemic further demonstrated the complexities involved in balancing liquidity expansion with inflation control and sustainable growth. More recently, the 2023 foreign exchange market unification exposed the Nigerian economy to substantial exchange rate volatility, reinforcing the argument of Chu and Chu (2020) that inappropriate liquidity levels may weaken economic performance rather than strengthen it.

Given the importance of economic growth in promoting employment, poverty reduction, income generation, and economic transformation, it is essential to critically examine the contribution of liquidity management to Nigeria's economic performance. Although previous studies have investigated monetary policy, financial sector development, and inflation management, relatively fewer studies have examined liquidity management as a comprehensive framework for promoting economic growth using a full bounds-testing empirical strategy for Nigeria over an extended, up-to-date period. Moreover, existing empirical findings remain inconclusive. While some studies report that improved liquidity conditions stimulate investment and economic expansion (Chikwira & Mohammed, 2023), others suggest that structural weaknesses, institutional inefficiencies, and excessive liquidity may reduce the effectiveness of liquidity management policies (Chu & Chu, 2020). These

conflicting findings reveal an important knowledge gap that necessitates further empirical investigation within the Nigerian context.

Recent developments in financial technology have also expanded the scope of liquidity management beyond conventional monetary policy instruments. According to Soleimani (2024), artificial intelligence and digital financial technologies have enhanced the efficiency of liquidity monitoring, forecasting, and allocation, thereby improved financial system performance and supported economic growth. Likewise, Khodabakhsh (2025) notes that effective liquidity strategies are essential for maintaining financial stability during periods of macroeconomic uncertainty and external shocks. Despite these emerging developments, Nigeria continues to experience challenges associated with inadequate private sector financing, infrastructure deficits, low productivity, and unstable economic growth. These persistent challenges raise important questions regarding the effectiveness of existing liquidity management instruments in achieving sustainable economic development.

This study is significant from both theoretical and practical perspectives. Theoretically, it contributes to the ongoing discourse among Monetarist, Quantity-Theoretic, and Financial Intermediation perspectives on the role of liquidity management in promoting economic growth. Practically, the findings provide useful insights for the Central Bank of Nigeria, fiscal authorities, financial institutions, investors, and other stakeholders regarding the effectiveness of liquidity management instruments, namely money supply, interest rates, and exchange rate policy, in stimulating sustainable economic growth.

The study is limited to Nigeria and covers the period from 1990 to 2024. This period is considered appropriate because it captures major monetary policy reforms, banking sector restructuring, exchange rate adjustments, financial liberalization, oil price fluctuations, financial crises, and the 2023 foreign exchange unification that have shaped Nigeria's economic growth trajectory. The study focuses specifically on the impact of liquidity management on economic growth using key liquidity indicators, namely money supply, interest rates, and the exchange rate, alongside inflation, the trade balance, and government expenditure as control variables. Consequently, the broad objective of this study is to examine the impact of liquidity management on economic growth in Nigeria.

2. Literature Review

2.1 Conceptual Review

Liquidity Management

Liquidity management refers to the process through which monetary authorities regulate the availability and cost of money within an economy to achieve monetary stability, support financial system efficiency, and promote sustainable economic growth. Unlike the corporate finance perspective, which emphasizes firms' ability to meet short-term obligations, macroeconomic liquidity management focuses on the central bank's responsibility for influencing economy-wide liquidity through monetary policy instruments. According to the Central Bank of Nigeria (CBN, 2020), liquidity management entails supplying or withdrawing liquidity from the financial system in line with targeted reserve money and short-term interest rates while ensuring the smooth functioning of payment systems and maintaining price stability. This process is implemented through continuous liquidity forecasting and policy instruments such as open market operations, reserve requirements, standing lending and deposit facilities, and foreign exchange interventions. Recent studies further emphasize that

effective liquidity management is essential for maintaining macroeconomic resilience, particularly during periods of economic uncertainty, when carefully calibrated liquidity policies help stabilize financial markets and support economic recovery (Khodabakhsh, 2025).

From a macroeconomic perspective, liquidity management extends beyond the banking sector because it directly influences credit creation, investment, aggregate demand, employment, and overall economic performance. Cecchetti and Schoenholtz (2021) argue that monetary authorities must maintain an optimal level of liquidity, as excessive liquidity may generate inflationary pressures and inefficient resource allocation, while inadequate liquidity may constrain lending, investment, and productive activities. Similarly, Chu and Chu (2020) demonstrate that although adequate liquidity stimulates economic activity, excessive liquidity can eventually hinder long-term economic growth by encouraging financial distortions and misallocation of resources. In addition, Chikwira and Mohammed (2023) show that the effectiveness of liquidity in promoting economic growth depends on the depth and stability of financial markets, suggesting that the growth effects of liquidity vary across different macroeconomic environments.

In the context of Nigeria, liquidity management represents the deliberate regulation of economy-wide liquidity by the Central Bank of Nigeria to achieve macroeconomic stability and foster sustainable economic growth. Recent developments in financial technology have further strengthened liquidity management practices by improving liquidity forecasting, monitoring, and policy implementation. Soleimani (2024) argues that digital technologies and artificial intelligence enhance economic transparency and optimize liquidity allocation, thereby improving the effectiveness of monetary policy. Accordingly, this study conceptualizes liquidity management using broad money supply (M2), the interest rate, and the exchange rate (EXR), which collectively capture the quantity of liquidity, the cost of accessing liquidity, and external monetary conditions that influence domestic economic activity and growth in Nigeria.

Economic Growth

Economic growth is a central concept in macroeconomics that refers to a sustained increase in an economy's productive capacity and the value of goods and services produced over time. It is commonly measured by the growth rate of Real Gross Domestic Product (Real GDP), which adjusts output for inflation and provides a reliable indicator of improvements in economic performance (Mankiw, 2020; IMF, 2024). While classical and neoclassical economists attribute long-run growth to capital accumulation, labour expansion, and technological progress (Solow, 1956), Keynesian theory emphasizes the role of aggregate demand, investment, and macroeconomic policy in stimulating output and employment, particularly during economic slowdowns (Keynes, 1936). Thus, economic growth reflects not only an expansion in output but also an economy's capacity to improve living standards and generate productive opportunities.

Economic growth is closely related to, but distinct from, economic development. Whereas economic growth focuses on quantitative increases in real output, economic development encompasses broader improvements in living standards, income distribution, health, education, and institutional quality (Todaro & Smith, 2021). Sustained economic growth creates employment opportunities, raises incomes, strengthens government revenue, and provides resources for infrastructure and social development. However, achieving these outcomes depends largely on a stable macroeconomic environment supported by effective monetary and liquidity management. Chu and Chu (2020) argue that while adequate liquidity

promotes investment and economic expansion, excessive liquidity can weaken long-term growth through inefficient resource allocation and macroeconomic imbalances. Similarly, Khodabakhsh (2025) emphasizes that prudent liquidity management enhances economic resilience and supports sustainable growth, particularly during periods of economic uncertainty.

In the context of this study, economic growth is defined as the sustained increase in Nigeria's inflation-adjusted output of goods and services, measured by real Gross Domestic Product (Real GDP). It serves as the principal indicator for evaluating how liquidity management instruments, namely broad money supply, the interest rate, and the exchange rate, influence the performance of the Nigerian economy.

2.2 Theoretical Review

Monetarist Theory

The primary theoretical foundation of this study is the Monetarist Theory, developed by Milton Friedman (1956) and further advanced in Friedman (1968). The theory posits that the money supply is the principal determinant of economic activity and that changes in the quantity of money significantly influence output, employment, investment, and the general price level. Monetarists argue that excessive expansion or contraction of the money supply creates macroeconomic instability, while effective management of liquidity through appropriate monetary policy promotes price stability and sustainable economic growth. Consequently, the effectiveness of liquidity management depends on the ability of the monetary authority to regulate the supply of money and maintain stable monetary conditions that support productive economic activities.

In the context of Nigeria, liquidity management by the Central Bank of Nigeria (CBN) is implemented through monetary policy instruments such as broad money supply (M2), the monetary policy rate, reserve requirements, open market operations, and foreign exchange interventions. These instruments influence the level of liquidity available within the banking system, the cost of borrowing, investment decisions, aggregate demand, and overall economic performance. Monetarist Theory therefore provides an appropriate framework for explaining the relationship between liquidity management and economic growth, as it emphasizes that effective control of money supply and other monetary policy variables is fundamental to achieving sustained economic growth and macroeconomic stability.

Quantity Theory of Money

The Quantity Theory of Money (QTM), formalized by Irving Fisher (1911) through the Equation of Exchange (MV = PY), provides a complementary theoretical framework for this study. The theory posits that the money supply (M), multiplied by the velocity of circulation (V), equals the price level (P) multiplied by real output (Y). While originally developed to explain inflation, the theory also implies that changes in money supply influence economic output, particularly when productive resources are underutilized. Consequently, central banks can stimulate economic activity by managing liquidity in a manner that provides adequate money supply without generating macroeconomic instability.

Applied to Nigeria, the Quantity Theory of Money suggests that liquidity management influences economic growth through its impact on money supply and credit expansion. An appropriate level of liquidity encourages investment, production, and aggregate demand, thereby supporting economic growth, whereas excessive liquidity may generate inflationary

pressures and reduce the efficiency of resource allocation (Fisher, 1911; Mankiw, 2020). It therefore provides a useful theoretical basis for examining how broad money supply, the interest rate, and the exchange rate influence Nigeria's economic growth through liquidity management.

Financial Intermediation Theory

The Financial Intermediation Theory, associated with Gurley and Shaw (1960) and later refined by Diamond (1984), provides a further complementary perspective for this study. The theory posits that financial institutions, particularly banks, perform a critical intermediation role by mobilizing surplus liquidity from savers and channelling it into productive investment by borrowers, thereby reducing information asymmetry and transaction costs. From this perspective, liquidity management is not merely about regulating the quantity of money in circulation, but also about ensuring that the financial system efficiently transforms liquid liabilities into productive, often illiquid, assets that support investment and output growth.

Within the Nigerian context, the Financial Intermediation Theory suggests that the growth effects of liquidity management depend on the depth and efficiency of the banking system in channelling money supply and credit into productive sectors of the economy. Where financial intermediation is weak, increases in liquidity may fail to translate into commensurate increases in productive investment and output, a possibility that is directly relevant to interpreting the empirical results of this study.

2.3 Theoretical Framework

The theoretical framework for examining the impact of liquidity management on economic growth in Nigeria is primarily anchored on the Monetarist Theory, associated with Milton Friedman (1968, 1970), which argues that changes in the money supply significantly influence economic activity, inflation, investment, and output. The theory posits that effective management of money supply and monetary conditions promotes macroeconomic stability and sustainable economic growth. Since liquidity management is largely implemented through monetary policy instruments, Monetarist Theory directly explains the transmission mechanism from liquidity management to economic growth.

Complementing the Monetarist Theory is the Quantity Theory of Money (QTM), formalized by Irving Fisher (1911) through the Equation of Exchange (MV = PY). The theory establishes a relationship between money supply, the velocity of money, the price level, and real output, suggesting that changes in the quantity of money influence aggregate economic activity. Within the Nigerian context, the Quantity Theory of Money underscores the importance of maintaining an optimal level of liquidity that supports economic growth without generating inflationary pressures or macroeconomic instability.

Taken together, the Financial Intermediation Theory and the Quantity Theory of Money provide a coherent theoretical framework for this study. While the Financial Intermediation Theory explains the transmission mechanism through which liquidity is transformed into productive investment via the financial system, the Quantity Theory of Money explains the macroeconomic effects of changes in money supply on output and economic activity. Their integration, alongside the Monetarist Theory, offers a comprehensive theoretical basis for analysing how liquidity management influences economic growth in Nigeria by linking monetary policy actions to financial intermediation, investment, and real sector performance. The theoretical framework therefore predicts that money supply (M2)

and moderate interest rates (INT) should be positively associated with real GDP growth, while excessively high interest rates and disorderly exchange rate (EXR) movements are expected to constrain growth, consistent with the model estimated in this study.

2.4 Empirical Review

Khodabakhsh (2025) examined liquidity management strategies under conditions of economic uncertainty using data from 268 organizations in Tehran and structural equation modelling. The study found that economic uncertainty significantly strengthens liquidity management practices, including cash flow forecasting, liquidity buffers, and financial flexibility, thereby enhancing organizational resilience and financial stability. However, the study focused on firm-level liquidity management rather than its macroeconomic effects and did not examine the impact of liquidity management on economic growth in Nigeria, thereby leaving a gap in the literature that the present study addresses.

Anoop (2024) reviewed the strategic importance of liquidity in financial management by examining existing literature on liquidity practices across different economic and business contexts. The study found that effective liquidity management enhances business stability, supports risk management, and strengthens investor confidence. However, the study was a conceptual review focused on firm-level financial management and did not empirically examine the relationship between liquidity management and macroeconomic growth in Nigeria.

The International Monetary Fund (2024) assessed global economic performance and policy challenges in its World Economic Outlook, using cross-country macroeconomic data and policy analysis. The report found that global economic growth remains resilient but uneven across countries due to persistent inflation, tight monetary policy, and financial market conditions, and emphasized that prudent liquidity management is essential for sustaining economic growth. However, the report adopted a global perspective and did not provide a country-specific empirical analysis of liquidity management and economic growth in Nigeria.

Soleimani (2024) examined the application of artificial intelligence (AI) in promoting economic transparency and optimizing liquidity management through a conceptual analysis of AI technologies in financial institutions and central banking. The study found that AI tools improve the accuracy of economic data analysis and strengthen liquidity management. However, the study was primarily conceptual and did not empirically examine the relationship between liquidity management and economic growth.

Chikwira and Mohammed (2023) examined the impact of the stock market on liquidity and economic growth in a volatile economic environment using a Vector Autoregressive (VAR) model with quarterly time-series data from Zimbabwe covering the period 2013–2022. The study found that the stock market has a positive and statistically significant effect on economic growth, while stock market liquidity does not have a significant influence on economic development. However, the study focused on stock market liquidity within Zimbabwe's volatile economy rather than broader macroeconomic liquidity management instruments such as money supply, interest rates, and the exchange rate.

Cecchetti and Schoenholtz (2021) discussed the role of money, banking, and financial markets in promoting economic stability and growth through a comprehensive analysis of monetary policy and financial systems. The book emphasizes that effective liquidity management by central banks and financial institutions supports price stability, efficient

credit allocation, and sustainable economic growth. However, the work is a theoretical textbook rather than an empirical study and does not provide statistical evidence on the Nigerian economy.

Chu and Chu (2020) examined the relationship between financial liquidity and economic growth using panel data from 136 countries and threshold regression analysis. The study found that financial liquidity promotes economic growth up to a certain threshold, beyond which excessive liquidity has a significant negative effect on growth. However, the study adopted a cross-country panel approach and did not specifically examine the Nigerian economy using a time-series ARDL framework, a gap the present study fills.

Aassouli, Ebrahim, and Basiruddin (2018) examined the potential of Unleveraged Green Investment Trusts (UGITs) to promote liquidity management and sustainable development using a qualitative, exploratory research design based on content analysis and a renewable energy case study. The study found that the UGIT model provides an innovative liquidity management solution for Islamic financial institutions. However, the study focused on Islamic financial institutions and sustainable finance rather than macroeconomic liquidity management, and did not consider the Nigerian economy.

3. Methodology

This study adopts a quantitative research design anchored on time-series econometric techniques. The choice of this design is based on the objective of empirically investigating the impact of liquidity management on economic growth in Nigeria over the period 1990–2024. A quantitative research design is appropriate because the study relies on the analysis of secondary macroeconomic data to examine the relationship between liquidity management and economic growth using statistical and econometric methods. The approach enables the researcher to establish both short-run and long-run relationships among the variables and generate evidence-based policy recommendations.

The study relies exclusively on secondary annual data covering 1990–2024 (35 observations), sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin, the World Development Indicators (WDI) published by the World Bank, and the International Monetary Fund (IMF) International Financial Statistics (IFS). Economic growth is measured by real Gross Domestic Product (RGDP), the dependent variable, while liquidity management is proxied by broad money supply (M2), the interest rate (INT), and the official exchange rate (EXR). Inflation (INF), the trade balance (TBL), and government expenditure (GEX) are included as control variables that represent additional macroeconomic factors influencing growth. These variables were selected based on monetary theory and the empirical literature reviewed in Section 2.4.

Table 1: Description and Sources of Variables

Variable	Description	Source
RGDP	Real Gross Domestic Product (proxy for economic growth)	World Bank (WDI)
M2	Broad Money Supply (proxy for liquidity management)	CBN Statistical Bulletin
INF	Inflation rate (annual %, CPI-based)	World Bank (WDI)
TBL	Trade balance (exports less imports, current US$/₦)	World Bank (WDI)
GEX	General government final consumption expenditure	World Bank (WDI)
INT	Interest rate (monetary policy / lending rate)	CBN Statistical Bulletin
EXR	Official exchange rate (₦/US$)	CBN Statistical Bulletin

Source: Researcher's Compilation, 2026.

3.1 Model Specification

The model for this study is anchored on the Monetarist Theory and the Quantity Theory of Money, which posit that changes in the money supply significantly influence economic activity through their effects on investment, production, and aggregate demand. The functional relationship is expressed as:

$$RGDP = f(M2, INF, TBL, GEX, INT, EXR)$$

This can be expressed econometrically as:

$$RGDP_t = \beta 0 + \beta_1 M2_t + \beta_2 INF_t + \beta_3 TBL_t + \beta_4 GEX_t + \beta_5 INT_t + \beta_6 EXR_t + \mu_t$$

Where RGDP is real Gross Domestic Product; M2 is broad money supply; INF is the inflation rate; TBL is the trade balance; GEX is government expenditure; INT is the interest rate; EXR is the official exchange rate; β0 is the constant; β1–β6 are the parameters to be estimated; μ is the stochastic error term; and t is the time period.

3.2 Method of Data Analysis

The study employs the Autoregressive Distributed Lag (ARDL) bounds-testing approach to cointegration developed by Pesaran, Shin, and Smith (2001). The ARDL technique is appropriate because it accommodates variables integrated of different orders, provided none is integrated of order two, I(2), it is efficient in small samples such as the 35 annual observations used here, and it estimates both short-run and long-run effects of liquidity management on economic growth simultaneously within a single equation. Before estimating the ARDL model, the time-series properties of the variables are examined using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests to determine their order of integration and confirm that none is integrated of order two. Following the unit root tests, the ARDL bounds cointegration test of Pesaran et al. (2001) is conducted to determine whether a long-run equilibrium relationship exists among economic growth, liquidity management, and the control variables. The null hypothesis states that no long-run relationship exists; the alternative hypothesis indicates the existence of cointegration. If the computed F-statistic exceeds the upper critical bound, the null hypothesis is rejected.

Where cointegration exists, the long-run coefficients and the associated unrestricted Error Correction Model (ECM), or UECM, are estimated. The error correction term, ECM(-1), measures the speed at which deviations from long-run equilibrium are corrected following short-run shocks and is expected to carry a negative and statistically significant coefficient. The estimated ARDL error correction model takes the general form:

$$\Delta \ln RGDP_t = \alpha 0 + \Sigma\, \alpha 1i \Delta \ln RGDP_{t-i} + \Sigma\, \alpha 2i \Delta \ln M2_{t-i} + \Sigma\, \alpha 3i \Delta INF_{t-i} + \Sigma\, \alpha 4i \Delta TBL_{t-i} + \Sigma\, \alpha 5i \Delta \ln GEX_{t-i} + \Sigma\, \alpha 6i \Delta INT_{t-i} + \Sigma\, \alpha 7i \Delta \ln EXR_{t-i} + \lambda ECM_{t-1} + \varepsilon t$$

where Δ is the first-difference operator, ECMt-1 is the error correction term, λ is the speed-of-adjustment coefficient, and εt is a white-noise error term.

4. Results and Discussion

4.1 Descriptive Statistics

The summary statistics of the selected variables are presented in Table 2 and provide important insights into the distribution, variability, and normality of the data used in the analysis.

Table 2: Descriptive Statistics

Statistic	RGDP	M2	INF	TBL	GEX	INT	EXR
Mean	2.66	1.52	18.71	1.19	1.98	18.51	198.87
Median	2.38	6.69	13.01	7.98	2.11	17.59	131.27
Maximum	5.74	6.51	72.84	4.04	3.51	31.65	1478.97
Minimum	5.21	5.76	5.39	-2.20	5.36	11.48	8.04
Std. Dev.	1.67	1.87	15.87	1.55	9.62	4.00	263.66
Skewness	0.148	1.191	2.072	0.174	-0.069	1.071	3.510
Kurtosis	1.591	3.380	6.496	2.316	1.501	4.847	17.169
Jarque-Bera	3.023	8.488	42.851	0.859	3.304	11.669	364.638
Probability	0.221	0.014	0.000	0.651	0.192	0.003	0.000
Observations	35	35	35	35	35	35	35

Source: *Researcher's Computation, 2026.*

Table 2 shows that average real GDP over the period was approximately ₦266.4 billion (or its dollar-equivalent, depending on the underlying series unit), rising from a minimum of ₦52.1 billion to a maximum of ₦574.2 billion, with a standard deviation of ₦166.8 billion indicating considerable dispersion consistent with Nigeria's volatile growth path over the 35-year period. Broad money supply (M2) averaged approximately ₦15.2 trillion but is highly right-skewed (skewness = 1.19) and leptokurtic, reflecting the rapid nominal expansion of the money stock especially after 2008. Inflation averaged 18.7 percent, with a maximum of 72.8 percent recorded during the structural adjustment and currency-crisis episodes of the mid-1990s; its distribution departs sharply from normality (Jarque-Bera p = 0.000), reflecting repeated large inflationary shocks. The exchange rate similarly shows extreme positive skewness (3.51) and kurtosis (17.17), driven by the sharp naira devaluations of 1999, 2016, 2020, and especially the 2023 foreign exchange unification, when the rate moved from roughly ₦425/US$ to over ₦1,478/US$ within two years. The trade balance (TBL) is the only variable whose Jarque-Bera statistic fails to reject normality (p = 0.651), and it is the only series that takes negative values, reflecting Nigeria's recurring trade deficits in 1998, 2015-2016, and 2019-2021.

4.2 Unit Root Test

The unit root test was carried out using Augmented Dickey Fuller (ADF) and Phiilips Perron (PP) as shown in Table 3.

Table 3: Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) Unit Root Test Results

Variable	ADF (Level)	ADF (1st Diff.)	PP (Level)	PP (1st Diff.)	Order of Integration
lnRGDP	-1.888 (0.338)	-4.309 (0.000)	-1.768 (0.396)	-4.009 (0.001)	I(1)
lnM2	-2.120 (0.237)	-3.066 (0.029)	-4.097 (0.001)	-2.898 (0.046)	I(1)*
INF	-2.129 (0.233)	-4.657 (0.000)	-2.154 (0.223)	-4.670 (0.000)	I(1)
TBL	-1.762 (0.400)	-6.272 (0.000)	-2.309 (0.169)	-5.234 (0.000)	I(1)
lnGEX	-1.588 (0.490)	-2.833 (0.054)	-1.164 (0.689)	-6.153 (0.000)	I(1)
INT	-2.600 (0.093)	-7.133 (0.000)	-2.498 (0.116)	10.987 (0.000)	I(1)
lnEXR	-0.600 (0.871)	-4.585 (0.000)	-0.556 (0.881)	-4.363 (0.000)	I(1)

Source: *Researcher's Computation, 2026.*

Table 3 reports the ADF and PP unit root test results. Both tests agree that lnRGDP, INF, TBL, lnGEX, INT, and lnEXR are non-stationary at levels but become stationary after first differencing, confirming that they are integrated of order one, I(1). For lnM2, the two tests offer conflicting evidence at levels, a fairly common occurrence given the low power of the ADF test in small samples and the differing treatment of structural breaks by the two procedures, but both tests confirm stationarity after first differencing. Since no variable is integrated of order two, I(2), the pre-condition for applying the ARDL bounds-testing approach is satisfied.

4.3 ARDL Bounds Test for Cointegartion

The existence of a long-run relationship among the variables was examined using the Autoregressive Distributed Lag (ARDL) bounds testing approach. The results of the bounds test are presented in Table 4.

Table 4: ARDL Bounds Test for Cointegration

	F-statistic	Significance level	Lower bound I(0)	Upper bound I(1)
Computed F-statistic	10.209	10%	2.031	3.136
		5%	2.328	3.500
		1%	2.957	4.252
		0.1%	3.779	5.208

Source: *Researcher's Computation, 2026.*

The bounds test in Table 4 yields an F-statistic of 10.209, which comfortably exceeds the upper bound critical value of 4.252 at the 1 percent significance level (and even the 0.1 percent upper bound of 5.208). The null hypothesis of no long-run relationship among lnRGDP, lnM2, INF, TBL, lnGEX, INT, and lnEXR is therefore firmly rejected, confirming the existence of a statistically significant long-run cointegrating relationship. This justifies estimation of both the long-run coefficients and the associated error correction model.

4.4 Long-Run ARDL Estimates

Given long-run relationship among the variables, the long-run dynamics were estimated using ARDL model and the result is presented in table 5.

Table 5: Estimated Long-run Coefficients (Dependent Variable: lnRGDP)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
lnM2	0.4408	0.1728	2.551	0.011**
INF	0.0237	0.0145	1.633	0.103
TBL	1.55E-11	8.11E-12	1.913	0.056*
lnGEX	-0.5343	0.4788	-1.116	0.264
INT	-0.0765	0.0335	-2.284	0.022**
lnEXR	-0.4202	0.2363	-1.779	0.075*
Constant	29.8114	11.5254	2.587	0.010**

Source: *Researcher's Computation 2026.*

Table 5 presents the estimated long-run coefficients. Broad money supply (lnM2) has a positive and statistically significant long-run effect on real GDP (coefficient = 0.4408, p = 0.011): a 1 percent increase in money supply is associated with a 0.44 percent increase in real GDP in the long run, consistent with the Monetarist and Quantity-Theoretic expectation that adequate liquidity supports investment, production, and aggregate demand. This finding is in line with Friedman's (1968) proposition that money supply significantly influences output and with the general thrust of Khodabakhsh (2025) and Soleimani (2024) on the growth-supporting role of well-managed liquidity.

The trade balance (TBL) also carries a positive coefficient that is marginally significant at the 10 percent level (p = 0.056), suggesting that improvements in Nigeria's net trade position are, over the long run, mildly supportive of output growth, plausible given Nigeria's continued reliance on oil and commodity exports for foreign exchange earnings. Inflation (INF) carries the theoretically expected positive sign, consistent with a demand-pull interpretation in an economy operating below full capacity, but it is not statistically significant in the long run (p = 0.103), suggesting that, over the full 1990-2024 period, inflation's long-run drag on growth has not been strong enough to register as a statistically distinguishable effect once money supply, interest rates, and the exchange rate are controlled for.

Government expenditure (lnGEX) carries a negative but statistically insignificant coefficient (p = 0.264), suggesting that, contrary to the a priori expectation that public spending stimulates growth, government expenditure in Nigeria has not been a statistically reliable long-run driver of real GDP over the period studied; this is broadly consistent with long-standing concerns in the literature about the efficiency and productivity of public expenditure in Nigeria, though the coefficient should be interpreted cautiously given its lack of statistical significance.

The interest rate (INT) has a negative and statistically significant long-run effect on real GDP (coefficient = -0.0765, p = 0.022): a one-percentage-point increase in the interest rate is associated with a 0.077 percent reduction in real GDP over the long run, consistent with standard theory in which higher borrowing costs discourage investment and consumption, and consistent with the transmission channel emphasized in the financial intermediation theory

The exchange rate (lnEXR) carries a negative and marginally significant long-run coefficient (-0.4202, p = 0.075): naira depreciation (a rise in EXR, naira per US dollar) is associated with lower real GDP. This result should be interpreted with an important caveat. Because Nigeria's real GDP series is available on a scale most consistent with US-dollar denomination, part of the measured co-movement between EXR and RGDP may reflect the arithmetic effect of currency conversion during periods of sharp devaluation, most notably the 1999 and 2023 devaluation episodes, rather than a purely structural economic growth channel. This is analogous to the caution the sample paper (Aniamalu & Okwanya, 2026) applied to its own unexpectedly large capital-formation coefficient, and readers should treat the magnitude, though not necessarily the direction, of the exchange rate effect with corresponding caution. Future revisions of this study should re-estimate the model using real GDP measured consistently in constant local-currency (naira) terms to isolate the real economic channel from the currency-translation effect.

The error correction term, ECM (-1), is negative (-0.2700) and statistically significant at the 10 percent level (p = 0.053), confirming that the system converges towards long-run equilibrium following short-run shocks, as required for a valid error-correction representation. The coefficient indicates that approximately 27 percent of any disequilibrium in real GDP is corrected within one year, a comparatively moderate speed of adjustment, implying that it takes roughly three to four years for the Nigerian economy to fully absorb a liquidity-related shock and return to its long-run growth path.

4.5 Short-Run Error Correction Model (ECM)

The shor error correction model was estimated and the result is presented in table 6.

Table 6: Short-run ARDL Coefficients (Dependent Variable: ΔlnRGDP)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ECM(-1)	-0.2700	0.1283	-2.104	0.053*
Δ(lnRGDP(-1))	-0.3853	0.1764	-2.184	0.045**
Δ(lnM2)	0.0608	0.1073	0.567	0.579
Δ(lnM2(-1))	-0.2658	0.0966	-2.751	0.015**
Δ(INF)	0.0033	0.0017	1.929	0.073*
Δ(TBL)	2.67E-12	9.11E-13	2.930	0.010**
Δ(TBL(-1))	-1.68E-12	9.91E-13	-1.699	0.110
Δ(lnGEX)	-0.1199	0.0694	-1.729	0.104
Δ(INT)	-0.0053	0.0063	-0.850	0.409
Δ(lnEXR)	-1.0285	0.0569	-18.079	0.000**
Δ(lnEXR(-1))	-0.4446	0.1899	-2.342	0.033**
Constant	8.0490	2.0667	3.895	0.001**

Source: *Researcher's Computation 2026.*

In the short run result as shown in Table 6, the lagged dependent variable, Δ(lnRGDP(-1)), is negative and significant, indicating short-run mean-reverting dynamics in output growth. Current-period money supply growth, Δ(lnM2), is positive but statistically insignificant, while its first lag is negative and significant (p = 0.015), suggesting that the growth-enhancing effect of monetary expansion operates with a delay and that an immediate

liquidity injection may be associated with short-run adjustment costs before its expansionary effect materialises, a pattern broadly consistent with the transmission lags emphasized in Monetarist theory. Short-run inflation is weakly positively associated with output growth (p = 0.073), consistent with a short-run demand-pull dynamic. The current change in the trade balance is positive and significant (p = 0.010), indicating that improvements in the trade position have an immediate favourable effect on growth, although this effect does not persist into the first lag. Government expenditure and the interest rate show no statistically significant short-run effects. The exchange rate has by far the largest and most precisely estimated short-run coefficients, both contemporaneously (-1.0285, p = 0.000) and at the first lag (-0.4446, p = 0.033); consistent with the caveat raised above, part of this large short-run sensitivity likely reflects the direct, mechanical translation effect of exchange rate movements on a US-dollar-scaled GDP series, particularly around the 2016, 2020, and 2023 devaluation episodes, rather than a pure real-economy channel.

4.6 Diagnostic Test

The model was tested for Mis-Specification, autocorrelation using the Breusch-Godfrey LM test, and heteroscedasticity using the Breusch-Pagan-Godfrey test. The results of these tests are shown in table 7.

Table 7: Diagnostic Test Results

Test	Statistic	Probability
Breusch-Pagan Heteroskedasticity Test	17.373 (LM)	0.4294
Jarque-Bera Normality Test	1.611	0.4469
Ramsey RESET Test	0.861 (F)	0.3693

***Source**: Researcher's Computation 2026.*

Table 7 reports the post-estimation diagnostics. The Jarque-Bera test fails to reject the null of normally distributed residuals (p = 0.447), and the Ramsey RESET test fails to reject the null of correct functional form (p = 0.369), both reassuring results. the Breusch-Pagan test, which regresses squared residuals on the model's own regressors, does not detect heteroskedasticity (p = 0.429), meaning that the variables is good for the model.

4.6 Discussion of Findings

The central finding of this study is that liquidity management, proxied jointly by money supply, the interest rate, and the exchange rate, has a statistically significant long-run relationship with real economic growth in Nigeria, with money supply and the interest rate carrying their theoretically expected signs and clear statistical significance. This is consistent with the Monetarist proposition of Friedman (1968) and the Quantity Theory of Money (Fisher, 1911), both of which anchor the theoretical framework of this study, and aligns with Khodabakhsh (2025) and Soleimani (2024) on the growth-supporting role of well-managed liquidity, and with Chikwira and Mohammed (2023), who similarly found a positive and significant liquidity-growth relationship, albeit through the stock market channel in Zimbabwe. The finding of a negative and significant interest rate effect further supports the transmission mechanism emphasized by the Financial Intermediation Theory of Gurley and Shaw (1960) and Diamond (1984): higher borrowing costs constrain the intermediation of liquidity into productive investment.

At the same time, the results offer a cautionary counterpoint to Chu and Chu (2020), who found that excessive liquidity beyond a threshold becomes harmful to growth in a large cross-country panel; the present study, focused on a single developing economy with historically constrained liquidity relative to its growth needs, does not find evidence of a liquidity 'excess', with money supply remaining a growth-positive variable throughout the estimation. The insignificance of government expenditure is broadly consistent with a body of Nigerian public-finance literature questioning the efficiency, rather than the volume, of public spending as the binding constraint on growth.

5. Conclusion and Recommendations

The study concludes that liquidity management is a significant determinant of Nigeria's long-run economic growth, operating principally through the money supply and interest rate channels, and, with the important caveat noted regarding currency-translation effects, through the exchange rate channel as well, the error correction term was correctly signed and significant, indicating that approximately 27 percent of any deviation from long-run equilibrium is corrected within a year.

Based on the findings, the study recommends the following:

i. Calibrated monetary expansion: Given the positive and significant long-run effect of money supply on output, the Central Bank of Nigeria should pursue a calibrated, rules-based expansion of money supply that supports productive investment while remaining consistent with its inflation-targeting objectives, rather than either sharply contracting or excessively expanding liquidity.
ii. Moderate the cost of borrowing: Since the interest rate exerts a significant negative effect on growth, monetary authorities should avoid prolonged periods of excessively high policy rates, and should complement rate decisions with targeted, concessionary credit facilities for productive sectors such as agriculture and manufacturing.
iii. Pursue exchange rate stability: Given the large and significant short-run sensitivity of output to exchange rate movements, policymakers should prioritise measures that reduce excessive naira volatility, including deepening the foreign exchange market and strengthening non-oil export earnings, while future empirical work should re-estimate the model on a naira-denominated real GDP series to separate the real economic effect of exchange rate movements from currency-translation artefacts.
iv. Improve the efficiency, not merely the volume, of government expenditure: Because government expenditure was not a statistically significant driver of growth, fiscal authorities should prioritise the composition and efficiency of public spending, channelling resources toward infrastructure and productive capital projects with demonstrable growth returns, rather than expanding expenditure volume alone.
v. Strengthen trade competitiveness: Given the marginal positive long-run role of the trade balance, government should continue to pursue export diversification and non-oil trade promotion to build a more resilient external buffer that supports growth.

References

Aassouli, D., Ebrahim, M. S., & Basiruddin, R. (2018). Unleveraged green investment trusts (UGITs): An innovative liquidity management solution for Islamic financial institutions. *Journal of Islamic Accounting and Business Research, 9*(5), 694–714. https://doi.org/10.1108/JIABR-05-2017-0069

Aniamalu, A. C., & Okwanya, A. (2026). *Impact of liquidity management on economic growth in Nigeria*. Department of Economics, Faculty of Social Sciences, Federal University of Lafia.

Anoop, K. (2024). Strategic importance of liquidity in financial management: A conceptual review. *International Journal of Finance and Banking Research, 10*(2), 45–58.

Cecchetti, S. G., & Schoenholtz, K. L. (2021). *Money, banking, and financial markets* (6th ed.). McGraw-Hill Education.

Central Bank of Nigeria. (2020). *Statistical bulletin 2020*. https://www.cbn.gov.ng/documents/statbulletin.asp

Chikwira, C., & Mohammed, J. I. (2023). The impact of stock market on liquidity and economic growth in a volatile economic environment. *Journal of Economic and Financial Sciences, 16*(1), 1–12. https://doi.org/10.4102/jef.v16i1.872

Chu, L., & Chu, Z. (2020). Financial liquidity and economic growth: A threshold regression analysis. *International Review of Economics & Finance, 68*, 86–101. https://doi.org/10.1016/j.iref.2020.03.008

Diamond, D. W. (1984). Financial intermediation and delegated monitoring. *Review of Economic Studies, 51*(3), 393–414. https://doi.org/10.2307/2297430

Fisher, I. (1911). *The purchasing power of money: Its determination and relation to credit, interest and crises*. Macmillan.

Friedman, M. (1956). The quantity theory of money: A restatement. In M. Friedman (Ed.), *Studies in the quantity theory of money* (pp. 3–21). University of Chicago Press.

Friedman, M. (1968). The role of monetary policy. *American Economic Review, 58*(1), 1–17.

Friedman, M. (1970). A theoretical framework for monetary analysis. *Journal of Political Economy, 78*(2), 193–238. https://doi.org/10.1086/259623

Gurley, J. G., & Shaw, E. S. (1960). *Money in a theory of finance*. Brookings Institution.

International Monetary Fund. (2024). *World economic outlook: Steady but slow: Resilience amid divergence*. https://www.imf.org/en/Publications/WEO

Keynes, J. M. (1936). *The general theory of employment, interest and money*. Macmillan.

Khodabakhsh, A. (2025). Liquidity management strategies under economic uncertainty. *Journal of Financial Resilience, 12*(1), 78–95.

Mankiw, N. G. (2020). *Macroeconomics* (11th ed.). Worth Publishers.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics, 16*(3), 289–326. https://doi.org/10.1002/jae.616

Soleimani, M. (2024). Artificial intelligence and liquidity management: Enhancing economic transparency. *Journal of Financial Technology, 8*(2), 112–130.

Solow, R. M. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics, 70*(1), 65–94. https://doi.org/10.2307/1884513

Todaro, M. P., & Smith, S. C. (2021). *Economic development* (13th ed.). Pearson.

World Bank. (2024). *World Development Indicators*. https://databank.worldbank.org/source/world-development-indicators