



The Nexus Between Financial Development and Monetary Policy in Nigeria: An Impact Assessment

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Abstract

This paper investigates the connection between financial development and monetary policy in Nigeria, emphasizing the short-run effects of financial market capitalization, private sector credit, and liquidity ratio on money supply. Utilizing the Autoregressive Distributed Lag (ARDL) model, the analysis evaluates the impact of these financial development indicators on monetary policy outcomes, with money supply (M2) as the dependent variable. The findings indicate that financial market capitalization and private sector credit significantly and positively influence money supply, while the liquidity ratio has a significant negative impact. Diagnostic tests confirm the model's robustness, showing stability over time, normal distribution of residuals, and no issues with autocorrelation or multicollinearity. The results highlight the critical importance of financial market deepening and credit availability in shaping monetary policy. Meanwhile, effective liquidity management is essential for maintaining monetary stability. The paper recommends that policymakers focus on strengthening financial markets, improving credit access for the private sector, and ensuring prudent liquidity regulation to enhance monetary policy effectiveness and promote economic development in Nigeria.

Keywords: Financial development, financial market capitalization, market capitalization, Liquidity Ratio.

Introduction

The global financial system has undergone rapid transformation over the past decade, sparking extensive discussions about financial development and its effects on macroeconomic objectives. Central banks are pivotal in economic stabilization by regulating money supply, inflation, and interest rates. Financial intermediaries play a crucial role by facilitating intermediation, transferring funds from surplus agents to deficit units, thereby driving economic growth and promoting innovation and competition in global markets (Chishti & Barberis, 2016; Buha et al., 2023). Absolutely, financial sector reforms, especially market liberalization, have indeed played a pivotal role in boosting global competitiveness and driving economic growth. These reforms facilitate the efficient movement of goods and services across borders, enabling both domestic and international markets to thrive (Goldberg, 2013; Starnes et al., 2017). A robust financial system underpins macroeconomic stability by providing essential capital, enhancing liquidity, and achieving economies of scale (Okoro et al., 2018). This interdependence between financial health and economic growth underscores the importance of continual improvements and oversight in financial regulations.

In the Nigerian context, the behavior of money circulation, or money velocity, is crucial in crafting effective monetary policies. The volume and velocity of money supply significantly impact economic activity and guide monetary policies aimed at stabilizing aggregate demand (Bhattarai & Neely, 2022). Schumpeter's (1911) foundational work emphasizes the importance of financial sector development, illustrating how an efficient financial system can reallocate resources from less to more productive sectors, thus fostering technological innovation and economic growth (Moyo, 2018). Monetary policy tools, such as interest rate adjustments, open market operations, and liquidity management, are instrumental in determining economic outcomes like investment, inflation, and overall growth (Nwoko et al., 2016; Warjiyo & Juhro, 2019). These tools help central banks influence economic stability and growth through careful regulation of the money supply and financial conditions.

Since the 1980s, Nigeria's financial sector reforms have emphasized market liberalization and deregulation, driven by policies such as the Structural Adjustment Program (SAP) (Ajayi, 2014). These reforms sought to stabilize prices and promote sustainable growth through market-based instruments, fostering private sector participation and economic diversification (Alghamedi, 2016). While these changes have spurred growth in savings, deposits, and lending, challenges persist, including high-interest rates, limited access to credit, and financial instability, particularly for lower-income groups (Ogechi, 2018; Brunnermeier & Schnabel, 2015). Despite technological advances, the anticipated broad economic development from financial sector growth has not been fully realized, underscoring the need for targeted policy improvements (Anifowose & Ekperiware, 2022; Alexiou et al., 2018).

Monetary policy interventions in Nigeria strive to stimulate economic growth and stability by influencing the cost and availability of credit, particularly in key sectors (Adediran et al., 2019). However, structural challenges such as limited credit access, inflation, and a relatively underdeveloped financial sector hinder effective outcomes (Efobi, Beecroft & Osabuohien,

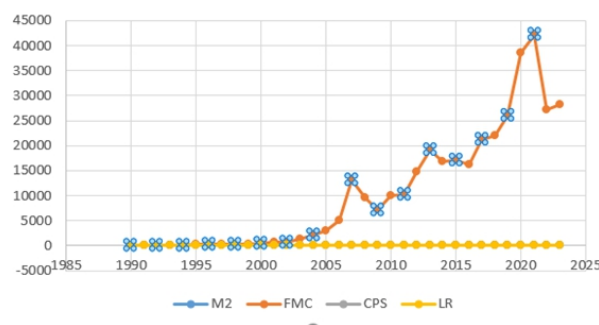
2014). Infrastructure deficits, weak institutions, and socio-economic challenges exacerbate the effects of external shocks, including the 2008 global financial crisis and more recent economic downturns (Ogunniyi, 2015; Gbolahan, 2023). Consequently, macroeconomic instability, including fiscal deficits and exchange rate fluctuations, remains a significant challenge to achieving financial stability and sustainable economic growth (Abubakar & Lawal, 2022). Given these complexities, this study aims to investigate key factors shaping monetary policy in Nigeria. Specifically, it seeks to (1) assess the impact of financial market capitalization on monetary policy, (2) analyze the effect of credit to the private sector on monetary policy, and (3) examine the influence of liquidity ratio on monetary policy. The study will test the following hypotheses: (i) there is no significant impact of financial market capitalization on monetary policy, (ii) there is no significant effect of credit to the private sector on monetary policy, and (iii) there is no significant impact of liquidity ratio on monetary policy in Nigeria.

Literature Review

Financial development refers to the process by which a country's financial institutions, markets, and regulatory systems evolve to facilitate a more efficient allocation of resources, increased access to financial services, and economic growth (Central Bank of Nigeria (Oyadeyi, 2024.)). In this paper, financial development encompasses indicators such as Money Supply (M2), Financial Market Capitalization (FMC), Credit to the Private Sector (CPS), and the Liquidity Ratio (LR). Together, these indicators reflect the depth, accessibility, and effectiveness of Nigeria's financial system in supporting economic activities and enabling investment flows.

Monetary policy, on the other hand, represents the actions taken by a central bank. In this case, the Central Bank of Nigeria (CBN) controls the supply and cost of money in the economy (Oyadeyi, 2024.)). By using tools such as interest rates, open market operations, and reserve requirements, monetary policy aims to achieve macroeconomic stability, stimulate growth, and curb inflation. The effectiveness of these policies directly influences key financial indicators and can either bolster or hinder economic development. As shown in Figure 1.1 below, the interaction between financial development and monetary policy is dynamic and essential to understanding Nigeria's financial trajectory (Author's computation, 2024).

Figure 1: Description of the Nexus between Financial Development and Monetary Policy



Source: Author's computation, 2024

The chart illustrates trends in key indicators of financial development and monetary policy in Nigeria, namely Money Supply ($M2$), Financial Market Capitalization (FMC), Credit to the Private Sector (CPS), and Liquidity Ratio (LR), with $M2$ serving as the dependent variable in analyzing its nexus with other financial variables over time. Prominent Growth in Money Supply ($M2$): The blue line representing $M2$ demonstrates a clear upward trend, particularly gaining momentum from the mid-2000s. The substantial increase from 2015 to 2020 reflects expansionary monetary policies that may have been implemented to drive economic activity, possibly in response to economic challenges such as the global financial crisis, oil price fluctuations, or internal economic recessions. This increase in $M2$ is indicative of the central bank's efforts to ensure liquidity in the economy, enhance credit availability, and stimulate investment, potentially impacting economic growth positively.

Relatively Stagnant Trends of FMC, CPS, and LR: In contrast, the other variables (FMC, CPS, and LR) show less pronounced growth. FMC, which signifies the depth and activity of financial markets, and CPS, which measures the extent of private sector financing by banks, display minimal fluctuations over the observed period. Their flat trajectories suggest limited contributions from these sectors to broad economic development relative to the substantial increases seen in money supply. This could imply underutilization of capital markets and suboptimal allocation of credit in stimulating business growth. Policy Implications and Economic Insights: The significant divergence between $M2$ and the stability of FMC, CPS, and LR points to potential inefficiencies in translating money supply expansion into broader economic gains. Despite the increase in money supply, the stagnant growth in market capitalization and private sector credit indicates that liquidity is not effectively channeled into productive investments. This could stem from structural challenges, weak financial intermediation, or regulatory constraints. For Nigeria to harness the full potential of monetary expansion, it is essential to enhance credit access, deepen financial markets, and improve the efficiency of the financial system in supporting economic activities.

Theoretical Literature

Financial Intermediation Theory

Financial Intermediation Theory, proposed by Irving Fisher in the early 20th century (Fisher, 1930), emphasizes the critical role of financial institutions as conduits for funds between savers and borrowers. These intermediaries comprising banks, insurance companies, and other financial entities lower transaction costs, manage risks, and facilitate trust in the financial system. This theory highlights how financial institutions, by aggregating and allocating capital, can spur economic growth, reduce market frictions, and boost investment activity (Benston & Smith, 1976). In the context of Nigeria, a well-developed financial sector aids economic growth by enhancing financial market capitalization (FMC) and credit access for private businesses (CPS). The effectiveness of financial intermediation has a direct impact on liquidity ratios (LR), shaping money supply ($M2$) and economic output. Despite its advantages, challenges such as inefficiencies and regulatory influence necessitate institutional reforms for optimal resource allocation (Scholtens & Wensveen, 2003).

Empirical Literature

The nexus between financial development and monetary policy has been explored extensively in various studies, each analyzing the impacts on Nigeria's economic growth using diverse methodologies and variables. Adamu et al. (2023) assessed the impact of financial development on monetary policy from 2000 to 2021 through an ARDL model, employing Real GDP as the dependent variable alongside indices for financial institutions and markets. Their results highlighted that while financial market development enhances monetary policy effectiveness, developing financial institutions alone does not yield the same effect, suggesting a focus on infrastructure improvements to reduce transactional inefficiencies. Similarly, Marshal and Mark (2023) evaluated the role of monetary policy on Nigeria's financial sector development from 1981 to 2021, revealing that monetary and Treasury bill rates negatively affected financial sector growth, unlike exchange and inflation rates which exhibited positive correlations. Emphasizing stability in exchange rates was proposed as a critical policy focus.

Exploring the broader economic implications, Aanuoluwapo et al. (2023) examined monetary policy's impact on credit and investment from 1981 to 2020, finding a long-term positive association between liquidity measures and investment, albeit short-term adverse effects from private sector loans and liquidity ratios. Ezebunwa et al. (2023) also highlighted financial development's role in poverty alleviation through money supply increases and pro-poor credit distribution. Additional studies like those of Alexander et al. (2022) and Rufus et al. (2021) further supported the significance of financial indicators such as market capitalization, credit distribution, and monetary stability mechanisms on economic growth and stability, demonstrating the multifaceted impact of monetary policies on Nigeria's financial sector.

Model Specification

Following the adopted framework, the functional form of the model is stated below:

$$M2 = f(FMC, CPS, LR) \dots \dots \dots (1)$$

Estimating the above equation (1) in an econometric form below:

$$M2 = \beta_0 + \beta_1 FMC + \beta_2 CPS + \beta_3 LR + \mu \dots \dots \dots (2)$$

Where;

$M2$ = Money Supply

FMC = Financial Market Capitalization

CPS = Credit to Private Sector

LR = Liquidity Ratio

β_0 is the intercept parameter while β_1, β_2 , & β_3 are coefficients of the variables?

μ is the error terms.

The parameter β_0 , the intercept, represents the expected value of the dependent variable when all independent variables are equal to zero, indicating the baseline level of the outcome variable in the absence of explanatory factors. The parameters β_1 , β_2 , and β_3 are coefficients of the independent variables and reflect the magnitude of change in the dependent variable for a one-unit change in each corresponding independent variable, holding other factors constant. The term μ is the error term, capturing the influence of other factors not included in the model and accounting for the unexplained variation in the dependent variable.

Source of Data

Data for this research was obtained from secondary sources, specifically the Central Bank Statistical Bulletins, covering the period from 1990 to 2023.

Unit Root Test and ARDL Model Results

Unit Root Test

The empirical tests discussed were conducted using the E-views 10 software. A summary of the analysis results is presented below.

Augmented Dickey-Fuller (ADF) Unit Root Test

Table 1: ADF unit root test result

Variables	Test Statistic		Order of Integration
	ADF	Critical Value At 5%	
M2	-4.690442	-2.957110	I(1)
FMC	-6.069377	-2.960411	I(1)
CPS	-4.319557	-2.954021	I(0)
LR	-3.062642	-2.954021	I(0)

Source: Author's Compilation using E-views 10

The table above illustrates the stationarity levels of the variables used in the model. At a 5 percent significance level, it can be observed that M2 and FMC are stationary at the first difference, denoted as order I(1). In contrast, CPS and LR are stationary at their levels, denoted as order I(0), as the test statistics exceed the 5 percent critical values in absolute terms. This stationarity behavior justifies the application of the ARDL model.

Bounds Testing Approach to Autoregressive distributed lag

The results from the unit root tests guided our selection of the ARDL estimation method as the most suitable approach. Consequently, an ARDL bounds co-integration test was conducted to determine the presence of long-run or equilibrium relationships among the variables in the model. The null hypothesis of no co-integration among the variables is rejected if the computed F-statistic exceeds the 5 percent critical value of the I(1) bound. Conversely, if the computed F-statistic is lower than the critical value of the I(0) bound at the 5 percent level, the null hypothesis is accepted.

Table 2: ARDL Bounds Test

TEST STATISTIC	VALUE	K
F-STATISTIC	1.165766	3
CRITICAL VALUE BOUNDS		
SIGNIFICANCE	I(0) BOUND	I(1) BOUND
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61

Source: Author's Compilation using E-views 10

Table 2 indicates that the computed F-statistic (1.165766) is lower than both the upper and lower bounds at the 5 percent significance level. Consequently, this result suggests that there is no co-integration among the variables.

Table 3: Estimated Short -Run Coefficients of ARDL Model

Dependent variable: M2

Short- Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.227030	0.457854	0.495856	0.6240
D(M2(-1))	0.203167	0.188832	1.075916	0.0345
D(FMC(-1))	0.000113	0.000108	1.043574	0.0059
D(CPS(-1))	0.011107	0.016478	0.674054	0.0260
D(LR(-1))	-0.049817	0.030916	1.611348	0.0187

Source: Author's Compilation using E-views 10

Findings

Lagged Money Supply (D(M2(-1))): The coefficient for lagged M2 is 0.203167, with a p-value of 0.0345, showing a positive and statistically significant impact on the current money supply at the 5% level. This indicates that previous changes in the money supply have a meaningful impact on its current level, demonstrating short-run persistence.

Financial Market Capitalization (D(FMC (-1))): The coefficient of 0.000113 has a p-value of 0.0059, indicating a statistically significant positive relationship. This suggests that increases in financial market capitalization are associated with a slight, but meaningful, increase in the money supply in the short run. It implies that financial market growth can positively influence monetary policy outcomes.

Credit to the Private Sector (D(CPS(-1))): The coefficient is 0.011107 with a p-value of 0.0260, showing a positive and statistically significant impact. This indicates that an increase in credit extended to the private sector contributes positively to the money supply in the short term, highlighting the role of credit expansion in affecting monetary conditions.

Liquidity Ratio (D(LR(-1))): The coefficient for the liquidity ratio is -0.049817, with a p-value of 0.0187, indicating a statistically significant negative effect on the money supply. This suggests that a higher liquidity ratio reduces the money supply in the short run, possibly due to its regulatory impact on bank reserves and lending capacity.

Overall, the short-run ARDL results indicate that previous levels of money supply, growth in financial market capitalization, and credit to the private sector all positively affect the money supply, whereas a higher liquidity ratio has a constraining effect. These dynamic highlights the multifaceted interplay between financial development indicators and the conduct of monetary policy in Nigeria. The short-run ARDL findings indicate that financial market capitalization, credit to the private sector, and the liquidity ratio each have a significant impact on monetary policy in Nigeria. Specifically, financial market capitalization and credit to the private sector exert significant positive effects, while the liquidity ratio has a significant negative effect on the money supply (M2). The statistical significance of each variable was confirmed at the 5% level, leading to the rejection of the null hypotheses that proposed no impact or effect of these variables on monetary policy. Thus, financial development indicators play a notable role in influencing monetary outcomes in Nigeria.

Diagnostic Test Analysis

Table 4: Summary of Diagnostic Test Results

Test	Type	Statistic value		Probability value
Goodness of fit	R-Squared	0.535775		
	Adjusted R-Squared	0.407741		
Joint significance	F-statistics	1.060463		0.015098
CUSUM	Recursive estimates	Lies within 5% significance level		
CUSUMSQ	Recursive estimates	Lies within 5% significance level		
Normality	JB test	Jarque-Bera	0.658088	0.720331
Autocorrelation	Breusch-Godfrey LM Test	F-statistic	0.420444	0.6613
Multicollinearity	Variance Inflation Factors	Coefficient variance	Less than 10	No sign of multicollinearity

Source: Authors' compilation, 2024

The diagnostic test results for the model assessing the relationship between financial development and monetary policy in Nigeria provide an overview of model fit, stability, and robustness.

Goodness of Fit (R-Squared and Adjusted R-Squared): The R-Squared value of 0.535775 indicates that approximately 53.58% of the variability in the dependent variable (money supply, M2) is explained by the independent variables in the model. The Adjusted R-Squared value of 0.407741 suggests a slightly lower explanatory power after adjusting for the number of predictors, indicating a moderate fit.

Joint Significance (F-statistic): The F-statistic value of 1.060463, with a p-value of 0.015098, indicates that the independent variables jointly have a statistically significant impact on the dependent variable at the 5% level, confirming the overall relevance of the model.

Model Stability (CUSUM and CUSUMSQ Tests): The CUSUM and CUSUMSQ tests for recursive estimates show that the test statistics lie within the 5% significance level boundaries, indicating the model is stable over time.

Normality Test (Jarque-Bera Test): The Jarque-Bera test statistic of 0.658088 with a p-value of 0.720331 indicates that the residuals of the model are normally distributed, as the p-value is greater than 0.05.

Autocorrelation (Breusch-Godfrey LM Test): The F-statistic of 0.420444 with a p-value of 0.6613 suggests no significant autocorrelation in the residuals, meaning the model's residuals are not correlated over time.

Multicollinearity (Variance Inflation Factors): The coefficients' variance inflation factors (VIFs) are all less than 10, indicating no signs of multicollinearity among the independent variables, suggesting that the predictors are not highly correlated.

Discussion of Findings

The findings from the analysis underscore the nexus between financial development and monetary policy in Nigeria. The positive and statistically significant coefficient of the lagged money supply ($D(M2(-1)))$ at 0.203167 (p-value = 0.0345) highlights short-term persistence, suggesting that previous changes in money supply continue to impact the present level. This persistence reflects the inertia often observed in monetary aggregates, where past levels influence current dynamics. Additionally, the positive coefficient for financial market capitalization ($D(FMC(-1)))$ at 0.000113 (p-value = 0.0059) indicates that growth in the financial market contributes positively, albeit modestly, to money supply expansion. This finding suggests that an increase in market activities enhances the financial system's capacity to support monetary expansion.

The analysis also reveals the critical role of credit to the private sector ($D(CPS(-1)))$, with a positive and statistically significant coefficient of 0.011107 (p-value = 0.0260). This outcome suggests that increasing credit access for the private sector can effectively stimulate the money supply, emphasizing the importance of credit expansion in monetary policy outcomes. In contrast, the liquidity ratio ($D(LR(-1)))$ demonstrates a negative and statistically significant

effect on money supply, with a coefficient of -0.049817 (p-value = 0.0187). This implies that a higher liquidity ratio, which regulates banks' reserves and lending capacity, tends to constrain the money supply, potentially reflecting restrictive regulatory measures or tight liquidity conditions.

Overall, the short-run ARDL results indicate a nuanced interaction among financial development indicators and their collective impact on monetary policy in Nigeria. Positive relationships between money supply, financial market capitalization, and private sector credit reinforce the role of these factors in enhancing monetary policy effectiveness. Conversely, the constraining impact of the liquidity ratio highlights regulatory dynamics that must be balanced to ensure effective monetary expansion. These findings emphasize the need for policies that optimize financial market growth, promote credit access, and carefully calibrate liquidity regulations to support broad-based economic growth.

Conclusion

The findings from this analysis indicate a significant relationship between financial development indicators and monetary policy in Nigeria. Specifically, financial market capitalization and credit to the private sector have a positive impact on money supply, while the liquidity ratio exerts a negative effect. The diagnostic tests demonstrate that the model is robust, with a moderate explanatory power and no issues related to multicollinearity, autocorrelation, or instability. This suggests that financial development plays a crucial role in shaping monetary policy outcomes, highlighting the interconnectedness between financial markets, credit availability, and liquidity management in influencing the monetary environment.

Recommendation

Based on these findings, policymakers should foster policies that support financial market development and enhance access to credit for the private sector, as these factors positively influence monetary growth and economic stability. Moreover, attention should be given to liquidity management to ensure optimal levels that do not stifle money supply growth. Strengthening the regulatory framework to support financial market deepening and incentivizing private-sector lending can further enhance the effectiveness of monetary policy, promoting broader economic development in Nigeria.

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