pISSN: 2971-6195 eISSN: 2971-6209

MONEY SUPPLY AND CAPITAL MARKET DEVELOPMENT IN NIGERIA: THE MODERATING ROLE OF MONETARY POLICY RATE

Hyeladi Stanley Dibal[1], Usman Mohammed Hashim[1] and Irom Ishaku Agabi[1]

[1]Department of Finance
Federal University Wukari
Wukari, Nigeria

Corresponding Author: dibal@fuwukari.edu.ng, hysdibal@yahoo.co.uk

ABSTRACT

The capital market offers diverse and abundant opportunities for individuals, institutional investors, the government, and the economy, serving as a platform for businesses to access capital for expansion, innovation, and entrepreneurial ventures. The supply and availability of money, along with the role of the monetary policy rate, can enhance liquidity and activity in capital markets. This study examined the moderating role of the monetary policy rate on the relationship between money supply and capital market development in Nigeria, covering a period of 38 years from 1985 to 2022. The study employed the Autoregressive Distributed Lag (ARDL) technique. Results indicated that money supply and the monetary policy rate boost capital market development in Nigeria in the short term, while, in the long term, only money supply increases total traded value. The interactive effect showed that the monetary policy rate reduces the negative impact of money supply on capital market development in Nigeria in the short run. Additionally, the study found that interest rates hinder capital market development in Nigeria in the short term. In contrast, inflation negatively affects only the total traded value in Nigeria in both the short and long term. Therefore, policymakers should carefully calibrate the monetary policy rate to balance the capital market, inflation, and economic growth. Furthermore, policymakers should promote monetary-fiscal policy coordination to support economic growth and stability, and foster regulatory cooperation to advance capital market development and stability.

Keywords: money supply, monetary policy rate, capital market development
JEL: E52, E51, G1

INTRODUCTION

The capital market offers diverse and abundant opportunities for individuals, institutional investors, the government, and the broader economy. These markets are vital engines of economic growth and development across various countries, serving as platforms for businesses to access capital for expansion, innovation, and entrepreneurial pursuits (Dibal et al., 2024; Haruna et al., 2023). They play a critical role in providing funds that are directed toward essential sectors of the economy, such as infrastructure, housing, green financing, and small and medium enterprises (Carvajal et al., 2020; Carvajal & Babczuk, 2019), promoting economic stability.

The developed nature of the capital market depends on the overall performance of the economy. They support innovative financing and can serve as a cost-effective source of funding for development projects in low-income countries like Nigeria. Therefore, a well-developed capital market attracts investors (Echekoba et al., 2018), reduces an economy's vulnerability to external shocks through currency stabilization and duration mismatches in raising capital (Papoola, 2023),

enhances market liquidity and creates opportunities for risk diversification and corporate control (Angaye & Frank, 2020).

There is no universally accepted definition of capital market development. Scholars have used various measures and indices worldwide, such as stock market capitalization to gauge size (Beck et al., 2000; Dibal et al., 2024; Dibal & Ambam, 2024), total value traded to measure liquidity and activity, and the stock market turnover ratio to assess efficiency (Beck et al., 2000; Datar, 2000). Another aspect of capital market development is volatility, typically measured by the standard deviation of returns (French et al., 1987; Schwert, 1989). Recently, common tools for estimating volatility include the Cboe Volatility Index (VIX), the average true range (ATR), and Bollinger Bands. Therefore, accurately capturing capital development requires considering factors such as liquidity, transaction volume, concentration, information efficiency, volatility, market depth, legal and institutional frameworks, and others (Aras & Muslumov, 2005).

The money supply plays a vital role in shaping a nation's economic trajectory. This trajectory influences economic stability, employment rates, inflation control, and overall growth. Money supply refers to the total amount of currency and liquid financial instruments available to the public at any given time (Suleiman, 2020), making it a crucial tool in implementing monetary policy. The relationship between money supply and capital market development is a significant topic in financial economics, as it affects investment choices, market liquidity, and the growth of all economic sectors. However, this relationship is shaped by monetary policy. Effective monetary policy not only aims to stabilize prices but also ensures these policies are transmitted effectively to the real economy, promoting economic prosperity (Adrian & Liang, 2018). It involves deliberate actions by a nation's central bank to regulate the value, availability, and cost of money, to meet macroeconomic objectives (Suleiman, 2020). This role is essential in shaping the capital market. It has been established that the type of monetary policy adopted influences the money supply within the economy. Based on this, the study proposes that monetary policy acts as a moderator in the relationship between money supply and capital market development.

A key contribution of this study is examining the relationship between money supply, the monetary policy rate, and capital market development in Nigeria. Additionally, it investigates how the monetary policy rate moderates the effect of money supply on capital market development in Nigeria using the arbitrary pricing theory. This study is unique because it is likely the first to use the monetary policy rate as a moderator in the relationship between money supply and capital market development.

LITERATURE REVIEW

Theoretical framework

Stephen S. Rose developed the Arbitrage Pricing Theory (APT) in response to the limitations of the Capital Market Pricing Model (CAPM), created by Sharpe (1964), Lintner (1965), and Mossin (1966). It became a popular alternative to the CAPM for recognizing different risk factors. The main idea behind APT is the reasonable belief that various factors influence market returns. These factors can be statistical or fundamental. If these factors are significant, there must be constraints on the investment process to prevent arbitrage opportunities. Here, arbitrage is defined as the process of making a risk-free profit by exploiting price differences for the same assets or securities. Arbitrage is a common investment strategy.

Unlike the CAPM, which only considers market risk, the APT model suggests that multiple risk factors influence an asset's expected return. In other words, the APT model states that "H factors" are linearly related to an asset's return. Although the APT does not specify these parameters, it assumes a linear relationship exists between asset returns and these factors. It is important to note that arbitrage in the APT is only approximate for diversified portfolios, assuming that the unsystematic (specific) risks of assets are negligible compared to the risks from factors. There are undoubtedly countless potential factors. The empirical research by Ross and Roll (1984) identified four economic variables—namely inflation, industrial production, risk premiums, and the slope of the interest rate term structure—that cause assets with the same CAPM Beta to have different sensitivities. A practical investor can select macroeconomic variables that seem significant and are related to the expected returns of a specific asset. Empirical studies using the APT have included various factors, such as money supply, interest rates, inflation, and exchange rates (Ikhide, 1996; Manamba & Sarro, 2022), as well as the consumer price index and call money rate (Talla, 2013), to model the relationship between money supply and the capital market. This study models the money supply, interest rate, inflation rate, and monetary policy rate as moderators to evaluate Nigeria's capital market development level.

Money supply and capital market development

Money supply is a key tool of monetary policy used to control inflation in an economy. It represents the total amount of money in circulation within a country over a specific period (Jhingan, 2006). It consists of assets in monetary terms that represent immediate purchasing power and function as a medium of exchange. An increase in the money supply leads to excess money chasing fewer goods and services, which also impacts the stock market. Essentially, the more money in circulation, the higher the demand for stocks, resulting in rising stock prices (Anyanwu & Ohuorogu, 2024; Hirota, 2023). Empirical evidence suggests that money supply positively influences market capitalization (Abdulkarim, 2021; Agunobi et al., 2024; Epaphra & Sarro, 2022), share prices (Conrad, 2021), and stock market liquidity (Anyanwu & Ohuorogu, 2024). Emmanuel and Ezeabasili (2020) examined a nonlinear impact of monetary policy on the stock exchange market. Their findings indicated that the money supply positively affects capital market development in both high- and low-regime settings. Additionally, Babangida and Khan (2021) concluded that there is a unidirectional causal relationship from stock market performance to money supply. Based on these empirical findings, this study proposes:

Hypothesis One: Money supply improves capital market development

Monetary policy and capital market development

Monetary policy is considered a key factor influencing economic growth due to its strong impact on economic indicators (Precious & Makhetha-Kosi, 2014). It affects consumer spending power and investment choices through changes in the money supply and interest rates. Essentially, the goals of monetary policy are to keep prices stable, support employment, and promote a stable macroeconomic environment that encourages growth (Adrian & Liang, 2018; Bernanke, 2020; Okoye et al., 2017). Empirical evidence shows that the monetary policy rate has a negative effect (Daneji & Babarinde, 2023) and a positive effect (Ezu & Ukoh, 2021) on capital market development. Echekoba et al. (2018) found that monetary policy does not influence capital market performance; instead, the capital market significantly affects the monetary policy rate in Nigeria.

Emmanuel and Ezeabasili (2020) examined the nonlinear impact of monetary policy on the stock

market. Their results showed that the monetary policy rate has a positive effect on capital market development during the upper regime. A recent study by Stephen et al. (2025) reports a negative and statistically significant relationship between the monetary policy rate and stock market development. Based on this empirical evidence, this study also proposes:
Hypothesis Two: Monetary policy rate moderates the effect of Money supply on capital market development.

METHODOLOGY

Data and variable measurement

The data for this study spans thirty-six (38) years, from 1985 to 2022. The study examined the moderating role of the monetary policy rate on the relationship between money supply and capital market development in Nigeria. The dependent variable is capital market development, proxied by total market capitalization and total traded value (Dibal, 2023; Dibal & Ambam, 2024; Dibal et al., 2024), while the independent variable is money supply, measured as a percentage of gross domestic product sourced from the World Development Indicators (WDI). The monetary policy rate (Babangida & Khan, 2021; Manamba & Sarro, 2022) served as a moderator, with interest rate and inflation rate (Emmanuel & Ezeabasili, 2020; Manamba & Sarro, 2022; Conrad, 2021) included as control variables. Table 1 outlines the variables and their measurements.

Table 1: Variables measurement, definition, and source

Variables	Measurement	Sign	Source
Capital Market Development	Total Market Capitalisation	TMC	Central Bank of Nigeria
	Total Traded Value	TTV	
Money Supply	Money Supply/GDP	MS	World Development Indicators
Moderator	Monetary Policy Rate	MPR	Central Bank of Nigeria
Control Variables	Interest Rate	INTR	World Development Indicators
	Inflation Rate	INFR	

Source: Author's Compilation, 2025

Autoregressive Distributed Lag Model

The study utilized the autoregressive distributed lag model by Pesaran and Shin (1998) and Pesaran et al. (2001) to examine the impact of international financial inflows on financial development in Nigeria, while accounting for GDP in the model. This method relies on the assumptions of ordinary least squares (Pesaran & Shin, 1999; Pesaran et al., 2001). An Augmented Dickey-Fuller test was conducted to determine the order of integration, and a bound test for cointegration was employed to establish a long-term relationship, ensuring that the ARDL assumptions are met. The ARDL model is shown below.

$$y_t = \sum_{j=1}^{p} \gamma_j y_{t-j} + \sum_{j=0}^{q} (\delta_j x_{t-j}) + \varepsilon_t \qquad (1)$$

The model for this study is, therefore, operationalised below:

$$cmd = f(MS, MS_{MPR}, MPR, INTR, INFR) \quad (2)$$

Model One

$$TMC_{it} = \delta'_1 MS_{i,t-j} + \delta'_2 MS_{MPR_{i,t-j}} + \delta'_3 MPR_{i,t-j} + \delta'_4 INTR_{i,t-j} + \delta'_5 INFR_{i,t-j} + +\varepsilon_t \quad 3$$

$$\Delta TMC_{it} = \sum_{j=0}^{p} \gamma_{it} TMC_{i,t-j} + \sum_{j=0}^{q} \delta'_{ij} MS_{i,t-j} + \sum_{j=0}^{q} \delta'_{ij} MS_{MPR_{i,t-j}} + \sum_{j=0}^{q} \delta'_{ij} MPR_{i,t-j} + \sum_{j=0}^{q} \delta'_{ij} INTR_{i,t-j} + \sum_{j=0}^{q} \delta'_{ij} INFR_{i,t-j} + \delta'_{ij} MS_{i,t-j} + \delta'_{ij} MS_{MPR_{i,t-j}} + \delta'_{ij} MPR_{i,t-j} + \delta'_{ij} INTR_{i,t-j} + \delta'_{ij} INFR_{i,t-j} + \varepsilon_t \quad (4)$$

Model Two

$$TTV_{it} = \delta'_1 MS_{i,t-j} + \delta'_2 MS_{MPR_{i,t-j}} + \delta'_3 MPR_{i,t-j} + \delta'_4 INTR_{i,t-j} + \delta'_5 INFR_{i,t-j} + +\varepsilon_t \quad 5$$

$$\Delta TMC_{it} = \sum_{j=0}^{p} \gamma_{it} TMC_{i,t-j} + \sum_{j=0}^{q} \delta'_{ij} MS_{i,t-j} + \sum_{j=0}^{q} \delta'_{ij} MS_{MPR_{i,t-j}} + \sum_{j=0}^{q} \delta'_{ij} MPR_{i,t-j} + \sum_{j=0}^{q} \delta'_{ij} INTR_{i,t-j} + \sum_{j=0}^{q} \delta'_{ij} INFR_{i,t-j} + \delta'_{ij} MS_{i,t-j} + \delta'_{ij} MS_{MPR_{i,t-j}} + \delta'_{ij} MPR_{i,t-j} + \delta'_{ij} INTR_{i,t-j} + \delta'_{ij} INFR_{i,t-j} + \varepsilon_t \quad (6)$$

DATA ANALYSIS, RESULTS, AND DISCUSSIONS

Descriptive statistics and correlation matrix

Table 2 highlights the properties of the focused variables. The standard deviation indicates how much the data points vary from the mean. The standard deviation of total traded value exceeds the mean, suggesting that the data points are widely spread out. In contrast, other variables have a standard deviation lower than the mean, indicating that their data points are closely clustered around the mean, which shows they are relatively consistent. The skewness and kurtosis for total market capitalization and interest rate fall within the benchmarks of zero and three, respectively. However, for total traded value, money supply, monetary policy rate, and inflation rate, the skewness and kurtosis values are slightly above these benchmarks. The correlation matrix in Table 2 shows no multicollinearity issues, as all variable correlations are below the standard benchmark of 0.8.

Table 2: Descriptive statistics

	TMC	TTV	MS	MPR	INTR	INFR
Mean	12.44990	0.827521	23.95425	13.61842	17.93360	19.27847
Median	10.84118	0.570373	20.04437	13.50000	17.57032	12.10000
Maximum	38.01393	4.202670	87.76135	26.00000	29.80000	76.75887
Minimum	3.085372	0.041030	-0.794167	6.000000	9.250000	0.223606
Std. Dev.	8.656754	0.911968	17.99456	3.737021	4.201900	17.94620
Skewness	0.753006	2.005755	1.443923	0.784982	0.526919	1.813391
Kurtosis	3.046370	7.207281	5.729214	4.993485	3.993703	5.304195
Jarque-Bera	3.594522	53.50625	24.99807	10.19472	3.321868	29.23286
Probability	0.165752	0.000000	0.000004	0.006113	0.189961	0.000000
Sum	473.0961	31.44578	910.2615	517.5000	681.4767	732.5820
Sum Sq. Dev.	2772.757	30.77239	11980.75	516.7171	653.2706	11916.45
Observations	38	38	38	38	38	38

Correlation Matrix

Probability	TMC	TTV	MS	MPR	INTR	INFR
TMC	1.000000					
TTV	0.739443	1.000000				
	(0.0000)					
MS	0.046367	0.176463	1.000000			
	(0.7822)	*(0.2892)*				
MPR	-0.456359	-0.470048	0.248352	1.000000		
	(0.0040)	*(0.0029)*	*(0.1327)*			
INTR	-0.408652	-0.207522	0.322350	0.463927	1.000000	
	(0.0109)	*(0.2112)*	*(0.0484)*	*(0.0033)*		
INFR	-0.382863	-0.342650	0.271591	0.372485	0.329837	1.000000
	(0.0177)	*(0.0352)*	*(0.0991)*	*(0.0213)*	*(0.0431)*	

Source: Authors' Computation (EViews, 2025)

To determine the order of integration of the relevant variables, stationarity tests were conducted using the augmented Dickey-Fuller (ADF) test proposed by Dickey and Fuller (1979) and the Phillips-Perron (PP) test proposed by Phillips and Perron (1988). This ensures that second-order integration is not present in any of the variables, as it can lead to spurious results in the regression model. The stationarity test results in Table 3 show a mix of I(0) and I(1) variables. This confirms the absence of second-order integration among the measured variables.

Table 3: Stationarity test

	PP			ADF		
Variables	**T-Stats**	**P-Value**	**Order of Integration**	**T-Stats**	**P-Value**	**Order of Integration**
TMC	-9.1778	***0.0000*** ***	*I(1)*	-6.8278	***0.0000*** ***	*I(1)*
TTV	-10.7610	***0.0000*** ***	*I(1)*	-6.5132	***0.0000*** ***	*I(1)*
MS	-3.3275	***0.0207*** **	*I(0)*	-3.5270	***0.0127*** **	*I(0)*
MPR	-3.3549	***0.0193*** **	*I(0)*	-3.3403	***0.0200*** **	*I(0)*
INTR	-3.8484	***0.0056*** ***	*I(0)*	-3.7709	***0.0068*** ***	*I(0)*
INFR	-3.1630	***0.0305*** **	*I(0)*	-3.0316	***0.0411*** **	*I(0)*

Note: ***, **, indicate significance at 1% and 5% respectively
Source: Authors' Computation (EViews, 2025)

The ARDL bound test for co-integration proposed by Pesaran et al. (2001) was used, and the results are shown in Table 4. Using total market capitalization as the dependent variable in Model One, the F-statistic of 0.243953 is below the I(0) threshold of 2.62. In contrast, for Model Two, which uses total traded value as a dependent variable, the F-statistic of 3.969269 exceeds the I(1) value of 3.79. Therefore, we fail to reject the null hypothesis of no co-integration for Model One, indicating a long-term relationship among the variables. Conversely, the null hypothesis of no co-integration for Model Two is rejected, suggesting that the variables move together.

Table 4: ARDL bounds test

Dependent Variable	**F-Statistics**	**Outcome**	**Decision**
TMC	0.243953	No Cointegration	Estimate Short Run Only
TTV	3.969269	Cointegration	Estimate ECM
	Critical Value Bounds		
Significance	I0 Bound	I1 Bound	
10%	2.26	3.35	
5%	2.62	3.79	
2.5%	2.96	4.18	
1%	3.41	4.68	

Source: Authors' Computation (EViews, 2025)

Hypothesis One: Money supply improves capital market development

Estimating the bound test of co-integration, Model One confirmed no co-integrating relationship, while Model Two confirmed the presence of co-integration. Table 5 presents the ARDL estimate for Model One, while the long- and short-term estimates for Model Two are shown in Table 6. The estimated coefficients of the short-term dynamics revealed that money supply (β=1.001207, $p<0.05$) and the monetary policy rate (β=2.019993, $p<0.05$) improve total market capitalization in Nigeria for Model One. Additionally, Model Two showed that money supply (β=0.045901, $p<0.05$) and the monetary policy rate (β=0.003005, $p<0.05$) enhance total traded value in Nigeria. Conversely, interest rate (β = -1.098360, $p < 0.05$) negatively impacts total market capitalization in Nigeria in Model One, and Model Two also indicates that interest rate (β = -0.057701, $p < 0.05$) reduces total traded value in Nigeria. In Model One, the inflation rate (β = -0.210099, $p > 0.05$) showed no significant relationship, whereas Model Two revealed that the inflation rate (β = -0.017060, $p < 0.05$) negatively affects total traded value in Nigeria.

Table 5: ARDL estimations for model one
Dependent variable: TMC

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
TMC(-1)	0.122830	0.210741	0.582850	0.5700
TMC(-2)	0.247688	0.219556	1.128131	0.2797
TMC(-3)	0.600296	0.231153	2.596967	0.0221
TMC(-4)	-0.369830	0.216566	-1.707696	0.1114
MS	1.001207	0.228762	4.376626	0.0007
MS(-1)	-0.058523	0.070041	-0.835561	0.4185
MS(-2)	0.079557	0.082445	0.964973	0.3522
MS(-3)	-0.172302	0.074350	-2.317453	0.0374
MS_MPR	-0.073227	0.020301	-3.607022	0.0032
MPR	2.019993	0.755519	2.673649	0.0191
MPR(-1)	-0.408674	0.351052	-1.164140	0.2653
MPR(-2)	-0.689374	0.457448	-1.507002	0.1557
MPR(-3)	0.527154	0.304526	1.731062	0.1071
MPR(-4)	-0.703502	0.327485	-2.148194	0.0511
INTR	-1.098360	0.336791	-3.261252	0.0062
INTR(-1)	1.021252	0.437556	2.333990	0.0363
INTR(-2)	-0.099609	0.319987	-0.311291	0.7605
INTR(-3)	0.887479	0.355317	2.497708	0.0267
INFR	0.210099	0.142322	1.476223	0.1637
INFR(-1)	-0.095250	0.102931	-0.925371	0.3716
C	-14.76549	17.55289	-0.841200	0.4154

Source: Authors' Computation (EViews, 2025)

The estimated long-run coefficients in Model Two indicate that money supply ($\beta = 0.091487$, $p > 0.05$) promotes total traded value in Nigeria. The monetary policy rate ($\beta=0.004164$, $p>0.05$) and interest rate ($\beta=0.014203$, $p>0.05$) do not significantly influence total traded value in Nigeria, while the inflation rate ($\beta=-0.034484$, $p>0.05$) negatively impacts total traded value. Therefore, the study concludes that money supply and the monetary policy rate enhance capital market development in Nigeria in the short run. In the long run, only the money supply continues to improve the total traded value. The study also finds that the interest rate hinders capital market development in the short run, and inflation reduces total traded value in Nigeria in both the short and long terms.

Hypothesis Two: Monetary policy rate moderates the effect of money supply on capital market development

The second hypothesis indicated that the interaction between money supply and the monetary policy rate ($\beta = -0.073227$, $p < 0.05$) reduces total market capitalization in Nigeria in the short term in Model One. The positive and significant effect of the monetary policy rate on total market capitalization in the short term suggests that it mitigates the negative impact of money supply on market capitalization in Nigeria. In Model Two, the study found that the interaction between money supply and the monetary policy rate ($\beta = -0.003063$, $p < 0.05$) reduces total traded value in Nigeria in the short term. This also shows that monetary policy lessens the negative effect of

money supply on the total traded value in Nigeria in the short run. In the long term, the study revealed that the interaction of money supply and the monetary policy rate (β=-0.004244, p>0.05) has a

negative and statistically insignificant effect on the total traded value in Nigeria. Therefore, given the positive and significant effect of the monetary policy rate on total market capitalization and total traded value in Models One and Two, respectively, the study concludes that the monetary policy rate diminishes the negative effect of money supply on capital market development in Nigeria in the short run.

Table 6: ARDL Estimations for Model Two

Dependent Variable: TTV				
Short Run Coefficients				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(MS)	0.045901	0.016754	2.739708	0.0112
D(MS_MPR)	-0.003063	0.001276	-2.401297	0.0241
D(MPR)	0.003005	0.055940	0.053723	0.9576
D(INTR)	-0.057701	0.027949	-2.064549	0.0495
D(INFR)	-0.017060	0.007464	-2.285649	0.0310
D(INFR(-1))	0.019264	0.008189	2.352535	0.0268
CointEq(-1)	-0.721776	0.157257	-4.589785	0.0001
Long Run Coefficients				
MS	0.091487	0.030616	2.988236	0.0062
MS_MPR	-0.004244	0.002128	-1.994788	0.0571
MPR	0.004164	0.078011	0.053373	0.9579
INTR	0.014203	0.050906	0.279005	0.7825
INFR	-0.034484	0.009428	-3.657592	0.0012
C	0.473936	1.287326	0.368156	0.7159

Source: Authors' Computation (EViews, 2025)

After estimating the bound test for co-integration, only Model Two showed the presence of a long-term relationship. Therefore, Table 6 displays the estimated error-correction model based on the long-term estimates, indicating how quickly the model adjusts to short-term deviations from its long-run equilibrium. The coefficient of the error correction term CointEq(-1) is negative and significant. This suggests that the money supply, monetary policy rate, interest rate, inflation rate, and the interaction between money supply and monetary policy are co-integrated. The coefficient shows that 72.18 percent of the disequilibrium in total traded value is corrected through short-term adjustments within the same year.

Table 7: Diagnostic tests

Specification	Model One Stat *(p-value)*	Model Two Stat *(p-value)*	Conclusion
Durbin Watson	2.314921	2.163703	No First-Order Autocorrelation
Breusch-Godfrey	0.7266 (0.5054)	0.2998 (0.7438)	No Higher-Order Autocorrelation
Breusch-Pagan	0.3451 (0.9841)	0.5409 (0.8445)	Homoscedasticity
Jarque-Bera	5.9582 (0.0508)	39.5691 (0.0000)	Normality
Ramsey RESET	2.5303 (0.1139)	1.6414 (0.2156)	Model Correctly Specified
R^2	0.935952	0.801094	
F-Statistics	9.4986 (0.0000)	10.0688 (0.0000)	

.Source: Authors' Computation, (EViews, 2025)

Table 7 presents the diagnostic tests for both models. It shows that the issues of first-order and higher-order correlation, autocorrelation, and serial correlation are not a concern. The test also indicates that the residuals are homoscedastic. The models are correctly specified, as indicated by the Ramsey RESET test and the Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMSQ) plots shown in Figures 1 and 2. Model One demonstrates that the residuals are normally distributed, while Model Two suggests they are not. However, despite the common belief, the normality of residuals is not always necessary. Even if the residuals are not normally distributed, other assumptions can be applied to ensure the validity of the regression analysis.

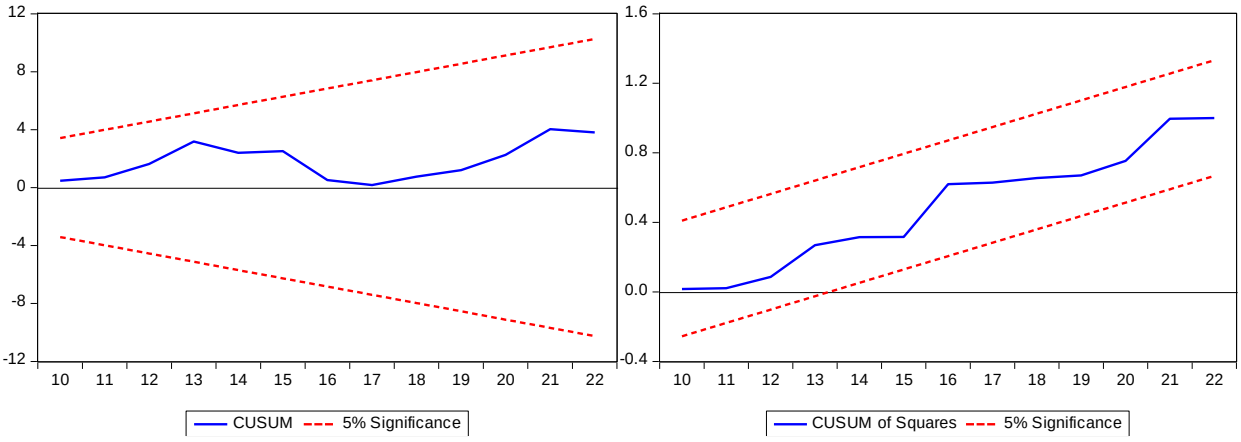

Figure 1: CUSUM and CUSUMSQ for Model One
Source: Authors' Computation (EViews, 2025)

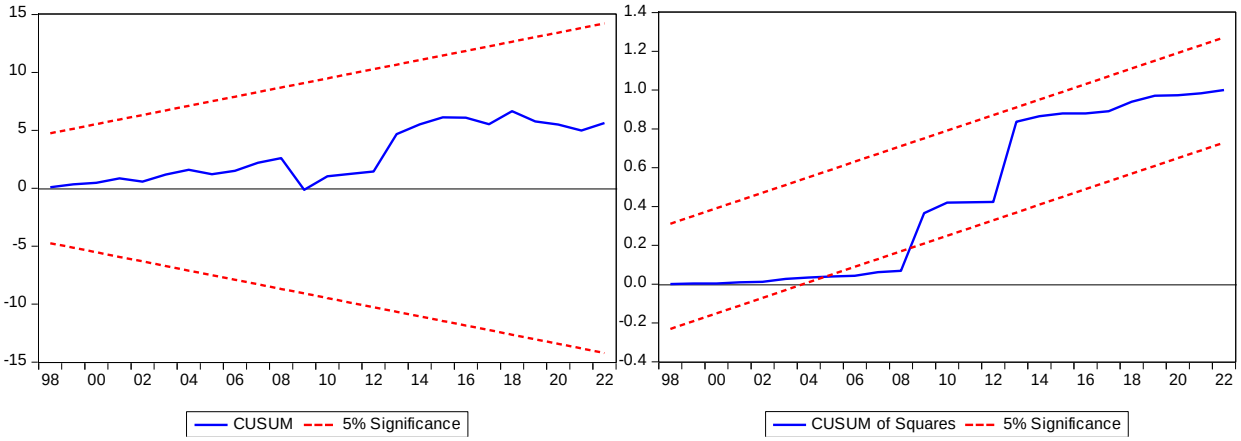

Figure 2: CUSUM and CUSUMSQ for Model Two
Source: Authors' Computation (EViews, 2025)

CONCLUSION AND RECOMMENDATIONS

This study investigated the moderating role of monetary policy in the nexus between money supply and capital market development in Nigeria using the ARDL approach. Capital market development was proxied by total market capitalisation and total traded value. Two hypotheses were formulated from two models.

Hypothesis One: Money supply improves capital market development

The findings from the two models showed that money supply enhances capital market development in Nigeria in the short term. In contrast, in the long term, it only increases the total traded value. In practice, an increase in the money supply boosts capital development by lowering interest rates, stimulating spending, and ultimately encouraging investment. These results align with those of Anyanwu and Ohuorogu (2024), Babangida and Khan (2021), and Abdulkarim et al. (2021), who found that money supply improves capital market liquidity, emphasizing that greater money availability enhances market activity and trading volume. The study also found that interest rates negatively affect capital market development in Nigeria in the short run. At the same time, inflation harms only the total traded value both in the short and long run, as shown by Abdulkarim et al. (2021).

Hypothesis Two: Monetary policy rate moderates the effect of Money supply on capital market development

Among the two models, this study shows that the monetary policy rate boosts capital market development in Nigeria in the short term. This aligns with the findings of Babangida and Khan (2021). However, the interaction between money supply and the monetary policy rate indicates a negative impact on capital market development. With the positive influence of the monetary policy rate on capital market growth, this relationship suggests that the monetary policy rate can mitigate the negative effect of money supply on Nigeria's capital market in the short run. The interactive effect highlighted here demonstrates the potential to reduce inflationary pressure by managing excess liquidity in the capital market.

Contribution and implication

The study examined how the monetary policy rate moderates the relationship between money

supply and capital market development using the traditional ARDL approach. The results showed that the monetary policy rate enhances capital market development in Nigeria in the short term. It also found that interest rates negatively affect capital market development in Nigeria in the short term. At the same time, inflation reduces only the total traded value in both the long and short term. Regarding the moderating role of the monetary policy rate in the money supply-capital market relationship, the findings indicated a negative and significant impact on short-term capital market development. Given the positive influence of the monetary policy rate on capital market development, this suggests that it mitigates the negative effect of money supply on capital market development in Nigeria, but only in the short run. Additionally, the study once again confirmed that interest rates harm capital market development in Nigeria in the short term, and that inflation negatively affects total traded value in both the long and short terms.

The study significantly advanced the theoretical discussion of the arbitrary pricing theory proposed by Stephen Ross in 1976, which connects capital market development directly to macroeconomic factors such as money supply, interest rates, and inflation. It shows that APT helps in understanding the role of money supply and the monetary policy rate in building capital markets. The research suggests that increasing the money supply improves liquidity in the capital market, reinforcing the idea that more money available boosts market activity and trading volume. Furthermore, the interaction effect of the monetary policy rate reduces the negative impact of money supply on capital market development in Nigeria. Therefore, policymakers should carefully adjust the monetary policy rate to keep the capital market balanced, control inflation, and support economic growth. The study also indicates that interest rates and inflation rates negatively affect capital market development. Policymakers should strengthen monetary and fiscal policy coordination to promote economic growth and stability, and foster regulatory cooperation to enhance capital market development and stability.

A noteworthy contribution in this study is the inclusion of the monetary policy rate as a moderator variable in the model, likely representing the first empirical work of its kind in Nigeria. This further provides empirical evidence that monetary policy plays a key moderating role in the theoretical framework of the arbitrary pricing theory. A practical policy implication is that policymakers should strengthen and standardize monetary policy to balance better the capital market, inflation, and economic growth. This is especially important given that Nigeria's inflation rate is rising consistently due to exchange rate pressures, subsidy removal, and an increase in the value-added tax (VAT) on certain imported goods.

REFERENCES

Abdulkarim, M., Uwaleke, U., & Nwala, M. N. (2021). Impact of monetary policy targets on capital market development in Nigeria. *International Journal of Innovative Research in Education, Technology & Social Strategies, 8*(1), 85–95. https://doi.org/10.48028/iiprds/ijiretss.v8.i1.09

Adrian, T., & Liang, N. (2018). Monetary policy, financial conditions, and financial stability. *International Journal of Central Banking, 14*(1), 73–131. https://www.ijcb.org/journal/ijcb18q0a3.pdf

Agunobi, C. C., Efionayi, O. P., & Akutson, S. K. (2024). Effect of macroeconomic variables on stock market performance in Nigeria. *Journal of Global Economics and Business, 5*(18), 186–210. https://doi.org/10.58934/jgeb.v5i18.280

Angaye, P. E. G., & Frank, B. P. (2020). Capital market development and economic growth in Nigeria. *American International Journal of Business Management, 3*, 58–63. https://www.aijbm.com/wp-content/uploads/2020/07/H375863.pdf

Anyanwu, C. C., & Ohurogu, D. U. (2024). Stock market liquidity in Nigeria: The effects of interest rate and money supply. *Nigerian Journal of Management Sciences, 25*(1), 114–126.

Aras, G., & Muslumov, A. (2005). Institutional investors and stock market development: A causality study. *Istanbul Stock Exchange Review, 8*(29), 1–14. https://ssrn.com/abstract=890062

Babaginda, J. S., & Khan, A. I. (2020). Effect of monetary policy on the Nigerian stock market: A smooth transition autoregressive approach. *CBN Journal of Applied Statistics, 11*(2), 1–21. https://doi.org/10.33429/Cjas.12121.1/6

Beck, T., Demirgüç-Kunt, A., & Levine, R. (2000). A new database on the structure and development of the financial sector. *World Bank Economic Review, 14*(3), 597–605.

Bernanke, B. S. (2020). The new tools of monetary policy. *American Economic Review, 110*(4), 943–983.

Carvajal, A. F., Nerlich, A., Gurhy, B., Demekas, D., & Bebczuk, R. (2020). *Capital markets development: A primer for policymakers*. World Bank Group.

Carvajal, A., & Bebczuk, R. (2019). *Capital markets development: Causes, effects and sequencing: A literature review.* International Bank for Reconstruction and Development (World Bank). https://documents1.worldbank.org/curated/en/701021588343376548

Conrad, C. A. (2021). The effects of money supply and interest rates on stock prices: Evidence from two behavioral experiments. *Applied Economics and Finance, 8*(2), 33–41. https://ssrn.com/abstract=3791211

Daneji, B. A., & Babarinde, G. F. (2023). Analysis of monetary policy rate and its effect on capital market deepening in Nigeria. *International Journal of African Sustainable Development Research, 14*(2), 37–46.

Datar, M. K. (2000). *Stock market liquidity: Measurement and implications* [Conference presentation]—fourth Capital Market Conference, Reserve Bank of India, Mumbai, India.

Dibal, H. S. (2023). *Non-bank financial institutions and capital market development in Nigeria* [Conference paper]. 13th International Conference of the Accounting and Finance Research Association, University of Nigeria, Enugu Campus, Nigeria.

Dibal, H. S., & Ambam, P. A. (2024). Institutional determinants of capital market development in Nigeria. *African Banking and Finance Review Journal, 11*(11), 107–126. https://www.abfrjournal.com/index.php/abfr/article/view/181/190

Dibal, H. S., Haruna, H. A., Onyejiaku, C. C., Ogbole, O. F., & Onwumere, J. U. J. (2024). Pension fund investments and capital market development in Nigeria: The moderating role of inflation. *Global Journal of Emerging Market Economies, 16*(2), 248–269. https://doi.org/10.1177/09749101231194194

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association, 74*, 427–431. https://doi.org/10.1080/01621459.1979.10482531

Echekoba, F. N., Ananwude, A. C., & Lateef, O. (2018). Effect of monetary policy on the performance of the Nigerian capital market (1986–2016): Stylized facts from the ARDL approach. *Advances in Research, 14*(6), 1–15.

Echekoba, F. N., Ananwude, A. C., & Oyinloye, L. (2018). Effect of monetary policy on the performance of the Nigerian capital market (1986–2016): Stylized facts from the ARDL approach. *Advances in Research, 14*(6), 1–15.

Epaphra, M., & Sarro, J. (2022). Response of stock market development to monetary policy: A Tanzanian stock market perspective. *African Journal of Economic Review, 10*(3), 203–230.

Ezu, G., & Ukoh, J. (2021). Monetary policy instruments and performance of the Nigerian capital market. *International Journal of Research and Innovation in Social Science, 5*(10), 720–726. https://ssrn.com/abstract=3987596

French, K. R., Schwert, G. W., & Stambaugh, R. F. (1987). Expected stock returns and volatility. *Journal of Financial Economics, 19*, 3–29.

Gelman, A., & Hill, J. (2006). *Data analysis using regression and multilevel/hierarchical models*. Cambridge University Press.

Haruna, H. A., Dibal, H. S., & Isichei, E. E. (2023). Foreign direct investments and stock market development in sub-Saharan Africa: Does regulatory quality moderate? *Global Business Review.* Advance online publication. https://doi.org/10.1177/09721509231163712

Hirota, S. (2023). Money supply, opinion dispersion, and stock prices. *Journal of Economic Behavior & Organization, 212*, 1286–1310.

Ikhide, S. I. (1996). *Financial sector reforms and monetary policy in Nigeria* (IDS Working Paper No. 68). Institute of Development Studies. https://www.ids.ac.uk/download.php?file=files/dmfile/Wp68.pdf

Lintner, J. (1965). The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. *Review of Economics and Statistics, 47*(1), 13–37. https://doi.org/10.2307/1924119

Mossin, J. (1966). Equilibrium in a capital asset market. *Econometrica, 34*(4), 768–783. https://doi.org/10.2307/1910098

Okoye, L. U., Erin, O. A., Ado, A., & Isibor, A. (2017). Corporate governance and financial sustainability of microfinance institutions in Nigeria. In *Proceedings of the 30th IBIMA Conference*. Madrid, Spain.

Pesaran, M. H., & Shin, Y. (1999). An autoregressive distributed lag modelling approach to cointegration analysis. In S. Strom (Ed.), *Econometrics and economic theory in the 20th century: The Ragnar Frisch Centennial Symposium* (pp. 371–413). Cambridge University Press. https://doi.org/10.1017/CCOL521633230.011

Pesaran, M. H., Shin, Y., & Smith, R. P. (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

Phillips, P. C. B., & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika, 75*(2), 335–346. https://doi.org/10.1093/biomet/75.2.335

Popoola, T. (2023, May 18). Capital markets benefit the Nigerian government. *Proshare*. https://www.proshare.co/articles/capital-market-benefits-to-the-nigerian-government

Precious, C., & Makhetha-Kosi, P. (2014). Impact of monetary policy on economic growth: A case study of South Africa. *Mediterranean Journal of Social Sciences, 5*(15), 76–84. https://doi.org/10.5901/mjss.2014.v5n15p76

Roll, R., & Ross, S. A. (1984). The arbitrage pricing theory approach to strategic portfolio planning. *Financial Analysts Journal, 40*(3), 14–26.

Schwert, G. W. (1989). Why does stock market volatility change over time? *Journal of Finance, 44*, 1115–1153.

Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *Journal of Finance, 19*(3), 425–442. https://doi.org/10.1111/j.1540-6261.1964.tb02865.x

Stephen, M., Akobi, C., Idi, D., & Yusuf, S. (2025). Effect of money supply on stock market development in Nigeria (1985–2023). *Mikailalsys Journal of Mathematics and Statistics, 3*(2), 469–489. https://doi.org/10.58578/MJMS.v3i2.5883

Sulaiman, Z. A. (2020). Money supply and private sector funding in Nigeria: A multivariate study. *Asian Finance & Banking Review, 4*(1), 24–41.

Talla, J. S. (2013). *Impact of macroeconomic variables on the stock market prices of the Stockholm* (Master's thesis, Jönköping International Business School, Jönköping University).