ENUGU STATE UNIVERSITY OF SCIENCE & TECHNOLOGY

JOURNAL OF SOCIAL SCIENCES & HUMANITIES

Volume 10
Number 1, 2025

PUBLISHED BY
Faculty of Social Sciences,
Enugu State University of Science And Technology

Non- Linear Autoregressive Approach to Monetary Policy Rate and Nigerian Capital Market Development

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Abstract

Capital market is crucial for economic growth by facilitating the flow of funds between those who need capital and those who have it. This paper examined the impact of monetary policy rate on the Nigerian capital market development from 1990 to 2024, using the non-linear autoregressive distributed lag (NARDL) model approach. The specific objective of this paper is to determine the impact of monetary policy rate on the All-Share Index and the included variables are monetary policy rate, broad money supply, inflation rate, nominal exchange rate and 91Treasury bill as the explanatory variables and the All-Share index as the dependent variable. The data were sourced from Central Bank of Nigeria Statistical Bulletin and National Bureau of Statistics. From the result, it was shown that an increase in the monetary policy rate resulted to 18 percent increase in capital market indicator, All Share index. Furthermore, a decrease in the monetary policy rate resulted to a 4 percent decrease in the All-Share index while a percentage increase in Treasury bill resulted to 9 percent increase in All-Share. This paper concluded that the monetary policy rate has a significant impact on the Nigerian capital market development and recommended among others as follows: The Central Bank of Nigeria (CBN) should implement monetary policy rate adjustment that is economy sensitive, so at to maintain a balance between curbing inflation and encouraging investment in equities for economic growth.

Keywords: Inflation, M2/GDP, Monetary Policy rate, nominal interest rate, Treasury bill rate

JEL CODES: E52, E58, E31, G12

1. Introduction

Capital market development refers to the process of enhancing the efficiency, transparency, and accessibility of financial market where long-term fixed and variable income instruments are traded. Normally, it involves the financial institutions, instruments and the regulatory frameworks (Security & Exchange Commission, and the Nigerian Stock Exchange) to facilitate the growth and development. In sum, it's about creating a more robust and reliable eco system for raising capital, channeling savings into investments and promoting financial stability. Some of the key aspects of the capital include: improving regulatory frameworks, strengthening market infrastructure, diversifying financial instruments, expanding investors' base, promoting market education and facilitating access to capital for businesses. The benefits of the capital market development are: increased economic growth, enhanced financial stability, improved access to finance for business and greater investment opportunities for investors. The proxy for capital market development is the Nigerian Stock Exchange All Share index that reflects the performance /development of the capital market (Nwude, 2018).

In Nigeria, interest rate decisions are taken by the Central Bank of Nigeria (CBN). The official rate is the Monetary Policy Rate (MPR), the Nigerian anchor rate. Monetary policy is the policy adopted by the Central Bank to affect monetary and other financial conditions to accomplish broader objectives like high employment and price stability. It influences interest rates in the economy (CBN, 2006). The monetary policy rate can be considered the benchmark rate that the CBN will lend banks under its mandate as the lender of last resort. When banks borrow and lend in the Nigerian interbank market, they benchmark the interest and charge each other based on the MPR. The CBN adjusts the MPR primarily to achieve its monetary policy objectives: curbing inflation, supporting the Naira, and economic growth, and financial stability. The broad objective of this study is to examine the impact of monetary policy rate on the Nigerian stock market. This paper is structured as follows: Section presents the introduction, section 2, the empirical literature review, section three is the methodology, data and theoretical framework. Section four is the results, analysis while section five is on the conclusion and policy implication

2 Empirical Literature Review

Few empirical literature on the relationship between monetary policy rate and capital market development are presented. Mudi (2018) adopted a nonlinear two-staged least squares (N2SLS) approach to model the monetary policy reaction function of the CBN, focusing on asymmetries in policy responses to economic shocks. Using quarterly data from 2007Q1 to 2016Q2, the study showed evidence of nonlinearities, with the CBN responding more aggressively to inflationary pressures than to output deviations.

Yola (2019) examined the Nigerian stock market's reaction to monetary policy innovations, using exponential generalized autoregressive conditional heteroskedastic model (EGARCH) to capture short- and long-term impacts. The study showed significant effects of monetary policy announcements on market volatility and investor behavior. The research is strengthened by its use of high-frequency data, offering detailed insights.

Rashid, Jehan and Kanval (2023) provided empirical evidence on the effects of external shocks and monetary policy on stock market volatility in Pakistan using vector autoregression (VAR) model. Key variables include exchange rates, interest rates, and stock market indices. The study showed that external shocks amplify the effects of monetary policy on market volatility, with implications for macroeconomic stability.

Yaya, Adenikinju and Olayinka (2024) examined the connectedness of African stock markets using a quantile VAR approach. The study examines inter-market linkages and the influence of monetary policy shocks. It showed that stock markets in Africa exhibit varying degrees of connectedness, influenced by monetary policy and global trends. This study's strength is its innovative methodological approach, providing nuanced insights into market interdependencies.

2.4 Research Contribution

From the reviewed empirical literature reviewed, the gap in knowledge could be summarized as follows: From the geographical context, Rashid *et al*, (2024) examined the impact of monetary policy in Pakistan using the vector autoregressive approach. The study utilized exchange rate, interest rate, and stock market indices while this study was focused on Nigeria. While (Mudi, 2018; Yola, 2019 Yaha, 2024 ignored the Treasury Bill and nominal exchange rate, this study incorporated the variables as established at the background.

In terms of methodology for the related studies in Nigeria, the non-linear Two Stage Least Square (N2SLS), the Quantile VAR (Yaha *et al*, 2024) and EGARCH, Yola, 2019). This study used the non-linear autoregressive distributed lag approach (NARDL), thereby bridging the knowledge gap. Majority of the studies reviewed used market capitalization, but this study used All-Share index to measure stock market.

3 Methodology

3.1 Theoretical Framework

The theoretical framework of this paper is the Dow Theory of stock exchange. This theory explains the role of monetary policy, in influencing capital market development. An increase in the MPR, increases the cost of borrowing, discouraging investment in equities and influencing the primary downward trend in the capital market. Conversely, a reduction in MPR can foster a bullish trend by making equities more attractive compared to fixed-income securities.

3.2 Model Building

The model of Shuaibu, Harvey and Amidu (2017) with modification is adopted for this paper.However, the model for this paper is specified as follows:

$$ASINDEX = f(Mpr, Tb, m2/GDP, Nomex, Infl) \quad (3.1)$$

The above model was expressed mathematically, thus;

$$ASINDEX = \beta_0 + \beta_1 Mpr + \beta_2 Tb + \beta_3\, m2/GDP + \beta_4 Nomex + \beta_5 Infl \quad (3.2)$$

Incorporating the stochastic variable into equation (3.2), equation 3.2 becomes:

$$ASINDEX_{i,t} = \beta 0 + \beta_1 Mpr_{i,t} + \beta_2 Tb_{i,t} + \beta_3 m2/GDP_{i,t} + \beta_4 Nomex_{i,t} + \beta_5 Infl_{i,t} + \mu \quad (3.3)$$

Where: ASINDEX = All Share Index (the dependent variable); Mpr = Monetary policy rate; Tb = 91 Days Treasury bill; m2/GDP = Broad money supply; Nomex = Nominal exchange rate; Infl = Inflation Rate as the independent/explanatory variables; μ = Stochastic error term; Subscript i = Represents the country (Nigeria); Subscript t = time measured in years. The NARDL framework is stated thus, equation 3.3

$$\Delta ASINDEX_t = \alpha + \sum_{i=1}\beta_j \Delta ASINDEX_{i,t-i} + \sum_{i=1}\delta_j \Delta Mpr_{i,t-i} + \sum_{i=1}\phi_k \Delta Tb_{i,t-i} + \sum_{i=1}\lambda_m \Delta m2/GDP_{i,t-i} + \sum_{i=1}\gamma_m \Delta Nomex_{i,t-i} + \sum_{i=1}\pi s \Delta Infl_{i,t-I}$$

$$+ \eta_2 MPR_{i,t-1} + \eta_3 Tb_{i,t-1} + \eta_4 m2/GDP_{i,t-1} + \eta_5 Nomex_{i,t-1} + \eta_5 Iinfl_{i,t-1} + \mu t \quad (3.4)$$

In equation 3.4, the terms with the summation signs (∑) represent the error correction model (ECM) dynamics. The coefficients η_i are the long-run multipliers corresponding to the long run relationship, α and μ_t represent the constant and the white noise or disturbance term respectively while β_j, δ_j, ϕ_k, λ_m, γ_m and πs represents the short-run effects. Δ is the first difference operator while k is the lag length for the Error Correction Model. Therefore equation 3.4 is estimated to obtain the relationship between the dependent variable inflation and the independent variables which are the monetary policy rate.

From theoretical and empirical perspectives, it is expected that monetary policy rate would have an ambiguous relationship with capital market development such as an increase or

decrease in the anchor rate should a similar effect on the development of the market; broad money supply is expected to have a positive effect; depreciation of the exchange rate is expected to have negative effect and likewise inflation rate on the development of the market.

3.3 Estimation Technique and Procedure

This paper employed the non-linear autoregressive distributed lag technique (NARDL) framework provided by Pesaran and Shin (2001) for the analysis. This procedure is adopted because it has better small sample properties than alternative methods like Engel-Granger (1987), Johansen and Juselius (1990), and Philip and Hansen (1990). This method avoids the classification of variables as I(1) and I(0) by developing bands of critical values which identifies the variables as being stationary or non-stationary processes. The NARDL method can distinguish between dependent and explanatory variables.

In this technique, the first test is to determine whether the modelled variables are co-integrated, that is, whether long run relationship exists between the dependent and independent variables. Once the long run relationship or co-integration has been established, the next stage involves the estimation of the long run and short run coefficients. The short run coefficients are estimated using the error correction modelling which aims at reconciling the long run behaviour of co-integrated variables with their short run responses. By employing these techniques, this study aims to provide a robust and reliable analysis of the relationships between monetary policy reaction function and the Nigerian stock market and the control variables under investigation to gain a deeper understanding of the relationship between the variables of interest.

a. Unit Root Test

Procedurally, when conducting econometric analysis like the impact of monetary policy reaction function on stock market in Nigeria using time series data, researchers face the challenges of dealing with non-stationarity series, annualized series. Non-stationary time series data can lead to spurious regression results and to address this challenge, it is necessary to test for stationarity using the unit root tests. The Augmented Dickey-Fuller (ADF) test is particularly relevant in this study as it accounts for high-order serial correlation and ensures that the variables have a constant mean and variance.

b. Co-integration Test

The aim of a co-integration test is to determine whether there exists a long-run relationship between monetary policy rate and stock market variables in Nigeria, particularly the All-share index. This test support the unit root test to enhance robust analysis and to avoid. The co-integration test also helps to identify whether a long-run equilibrium relationship exists among the variables of monetary policy reaction function and stock market variables (All-share index). The F-bound co-integration test was employed since it is suitable for detecting the presence of a long-run relationship in NARDL equation model. Hence, if the F-statistics of the F-bound test is greater than the upper and lower bound result at 5% level of significance, a long run relationship exists, otherwise there is no long run relationship. Table 3.1 presents the data for this study.

Table 3.2: Summary of Data in the Model & Description

Variables	Type	Proxy	Unit of Measurement	Sources (s)
All Share Index	Dependent Variable	All Share Index	(Annual %)	FMDQ, NASQ, BLOOMBERG(2024)
Monetary Policy Rate	Independent	Monetary Policy Rate	(Annual %)	Central Bank of Nigeria (CBN) (2024)
91 Days Treasury Bill	Independent	91 Days TB Rate	(Annual %)	DMO (2024)
Nominal exchange rate	Independent	Nominal Exchange Rate	Local currency per dollar	CBN (2024)
Broad money supply	Independent	Broad Money supply	(Annual % of GDP	CBN (2024)
Inflation Rate	Independent	Inflation Rate	(Annual %)	CBN (2024)

Source: Researchers' Compilation (2025)

4 Result Presentation, Interpretation and Analysis

4.1 Data Presentation and Analyses

4.1.1 Descriptive statistics

Table 4.1 presents the results of the descriptive statistics or the summary statistics that quantitatively describes or summarizes the features of a dataset.

Table 4.1: Descriptive Statics

	Asindex	Mpr	Tb	M2/gdp	Nomex	Infl
Mean	2459463.	19.29839	13.11469	1.65	197.5328	19.62526
Median	297307.1	17.94833	12.95000	6.69	131.2743	13.72020
Maximum	74773770	31.65000	24.50000	9.98	1438.730	72.83550
Minimum	5083.900	11.48313	3.785000	5.76	8.038285	5.382220
Std. Dev.	12585708	4.250410	4.935865	2.27	257.6099	16.57663
Skewness	5.655383	0.944827	0.276798	1.910635	3.437250	1.845121
Kurtosis	32.99960	3.744991	2.668875	6.789903	16.68203	5.417186
Jarque-Bera	1499.034	6.016798	0.606829	42.24132	341.9162	28.38014
Probability	0.000000	0.049371	0.738293	0.000000	0.000000	0.000001
Observations	35	35	35	35	35	35

Note: Asindx: All Share Index; Mpr: Monetary Policy Rate; Tb: 91 Days Treasury bill; M2/gdp: Broad Money Supply; Nomex: Nominal Exchange Rate; Infl: Inflation Rate. **Source: Researchers' Computation using EView 12.0**

Table 4.1 presents the descriptive statistics of the variables of all share index (ASINDEX), monetary policy rate (MPR), 91 days Treasury bill (TB), broad money supply (M2/GDP), nominal exchange rate (NEXCH), and inflation rate (INFL). From the presented evidence in Table 4.1 showed the average values of the variables over the years, hence, the mean value of all share index (ASINDEX), the dependent variable from 1990 to 2024 was ₦2, 45, 9463, this implies that the total value of the traded securities in the equity market was N2, 45, 9463. The independent variables like monetary policy rate had a mean value of 19.29%; Treasury bill rate was 13.11 yields; and broad money supply had a mean value of ₦1.65 trillion. The data features had a value of approximately 3, which is termed mesokurtic distribution and it suggests a normal distribution; a value higher than 3 is termed leptokurtic (positive kurtosis), suggesting that the distribution is a peaked-curve, having more higher values than the sample mean and a value smaller than 3 is termed platykurtic (negative kurtosis), suggesting that the distribution is a flatted-curve, having more lower values than the sample mean. Thus, all the variables

except 91 days Treasury bill were leptokurtic, having higher values than their sample mean values. 91 days Treasury bill is mesokurtic given that its value is approximately 3.The Jarque-Bera test matches the skewness and kurtosis of the data to see if it matches a normal distribution. From the report, the probability of the Jarque-Bera test statistics was less than a 5% level of significance, this indicates the rejection of the null hypothesis of normal distribution. Thus, the variables are not normally distributed except for Treasury bill with a Jarque-Bera statistic greater than 5% level of significance.

4.1.2 Correlation Matrix

The correlation matrix plays an important role in the multi-variance analysis of this type of study since it captures the degree of relationship between all share index and the independent variables. The correlation matrix shows the correlation coefficient between the variables related to ASINDEX. The correlation matrix ranges from -1 to +1. A correlation of -1.0 shows a perfect negative correlation, while a correlation of 1.0 shows a perfect positive correlation. A correlation of 0.0 shows no relationship between the movements of the two variables, a number greater than 1.0 or less than -1.0 means that there was an error in the correlation measurement. The closer the coefficient is to 1 or -1, the stronger the correlation, and vice versa. The result is presented in Appendix 3 and summarized in Table 4.2.

Table 4.2: Correlation Matrix Result

Correlation	Asindex	Mpr	Tb	M2/gdp	Nomex	Infl
Asindex	1.000000					
Mpr	0.295027	1.000000				
Tb	0.246211	0.462381	1.000000			
M2/gdp	0.417659	-0.035614	0.342948	1.000000		
Nomex	0.313026	0.125863	0.331020	0.939792	1.000000	
Infl	0.045001	0.376528	0.494121	-0.112400	-0.093518	1.000000

Source: Researchers' Computation using EViews 12.0

Table 4.2 showed that the variables are positively correlated. With a focus on the dependent variable which is all share index (ASINDEX), it can be seen that the correlation between ASINDEX and monetary policy rate (MPR) is 0.29 which indicates MPR is weakly and positively associated with ASINDEX. It is also asymmetric showing that the variables are mirror images of each other.

4.1.3 Unit Root Tests

Table 4.3 presents the unit root test using the Augmented Dickey Fuller (ADF) and Philip – Perron(PP) at the standard 5 percent level of significance.

Table 4.3: ADF and PP Unit Root Tests Results

Variables	ADF Stat	5% Critical Value	Order of Integration	PP Stat	5% Critical Value	Order of Integration
Asindex	-5.7466	-2.9511	I(0)	-5.7466	-2.9511	I(0)
Mpr	-5.9803	-2.9540	I(1)	-6.0848	-2.9540	I(1)
Tb	-6.3449	-2.9540	I(1)	-6.4744	-2.9540	I(1)
M2/Gdp	3.9823	-2.9571	I(1)	6.1095	-2.9540	I(1)
Nomex	6.2594	-2.9540	I(1)	10.5158	-2.9540	I(1)
Infl	-2.9918	-2.9511	I(0)	-3.1502	-2.9511	I(1)

Source: Researchers' Computation using EViews 12.0

4.1.4 Co-Integration Tests

Further confirming the relationship between monetary policy reaction function and stock market in Nigeria is the co-integration test, which tests the long-run dynamic relationship between monetary policy reaction function and stock market in Nigeria. Table 4.4 presents the NARDL co-integration test results.

Table 4.4: NARDL Bound Test Result

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	29.39103	10%	1.92	2.89
K	7	5%	2.17	3.21
		2.5%	2.43	3.51
		1%	2.73	3.9
Actual Sample Size	32		Finite Sample: n=35	
		10%	2.196	3.37
		5%	2.597	3.907
		1%	3.599	5.23
			Finite Sample: n=30	
		10%	2.277	3.498
		5%	2.73	4.163
		1%	3.864	5.694

Source: Researchers' Computation using EViews 12.0

From Table 4.4, the value of the F-statistic which 29.39 is greater than the lower and upper bound test at 5% level of significance. This shows that there is a long run relationship between all share index and the independent variables of monetary policy rate, Treasury bills, broad money supply, nominal exchange rate, and inflation rate.

4.2 Model Estimation/Evaluation

4.2.1: NARDL Estimates

Since it has been established that there is a long-run relationship amongst the variables under study, the NARDL model long-run form was used to determine the coefficients of the regressed model. Table 4.5 presents the summary of the NARDL long-run results.

Table 4.5: Summary of NARDL Long run Tests

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Mpr_Pos	0.180365	0.065765	2.742571	0.0159
Mpr_Neg	-0.048184	0.027941	-1.724505	0.1066
M2/gdp	-0.091476	0.216815	-0.421907	0.6795
Tb_Pos	0.009608	0.028224	0.340403	0.7386
Tb_Neg	-0.002184	0.055376	-0.039435	0.9691
Nomex	0.000846	0.001696	0.499033	0.6255
Infl	0.011109	0.005496	2.021273	0.0628
C	9.779822	4.990831	1.959558	0.0703

Source: Researchers' Computation using EViews 12.0

From the result presented in Table 4.5, it showed that the coefficient of monetary policy rate (monetary policy reaction function) is 0.18 (Mpr_Pos) and -0.04 (MPR_NEG). This implies that an increase in Mpr, on average, will lead to an 18% increase in all share index (Asindex) in Nigeria while a 1% decrease in Mpr will lead to a 4% decrease in all share index in Nigeria in the long run. Given their probability values (0.01), it can be concluded that Mpr has significant positive impact. Also, the long-run non-linear partial coefficient of 91 days Treasury bill is 0.009 (Tb_Pos) and -0.002 (Tb_Neg). This implies that a 1% increase in TB yield, on average, will lead to an insignificant 0.9% increase in all share index while a 1% decrease in Tb rate depth will also lead to an insignificant 0.2% decrease in all share index in Nigeria in the long run. This means that TB rate exerts more of positive effect than negative effect on all share index in Nigeria in the long run.

Broad money supply (M2/Ggp) and inflation rate (Infl) both have insignificant impact on all-share index in the long run. While M2/Gdp has a negative effect with a 1% change, INFL has a positive effect, with a 1% change in all share index in the long run. Table 4.6 presents the short-run non-linear autoregressive distributed lag results.

Table 4.6: NARDL Short-run Estimation Results

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M2/Gdp)	1.397964	0.410295	3.407214	0.0043
D(M2/Gdp(-1))	2.460587	0.476196	5.167171	0.0001
D(Tb_Pos)	-0.186985	0.032101	-5.824917	0.0000
D(TB_Pos(-1))	-0.193634	0.035391	-5.471290	0.0001
D(Tb_Neg)	0.169271	0.031659	5.346701	0.0001
D(Tb_Neg(-1))	0.250906	0.030475	8.233207	0.0000
D(Nomex)	-0.003233	0.000363	-8.915748	0.0000
D(Infl)	-0.016922	0.004680	-3.615951	0.0028
D(Infl(-1))	-0.014897	0.004428	-3.364475	0.0046
CointEq(-1)*	-0.725891	0.084652	-20.38806	0.0000

Source: Researchers' Computation using EViews 12.0

4.2.3 Regression Result

The result of the non-linear autoregressive is presented here.

Table 4.7: Summary of NARDL Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Asindex(-1)	-0.410571	0.261967	-1.567267	0.1345
Mpr_Pos	0.337963	0.043314	7.802561	0.0000
Mpr_Pos(-1)	-0.159628	0.066895	-2.386244	0.0282
Mpr_Neg	-0.068581	0.064008	-1.071450	0.2981
Mpr_Neg(-1)	-0.061546	0.046929	-1.311464	0.2062
M2_Pos	0.887980	0.660542	1.344321	0.1955
M2_Neg	-87.90284	42.15233	-2.085361	0.0515
Tb_Pos	-0.075515	0.040070	-1.884570	0.0757
Tb_Neg	0.045930	0.055410	0.828909	0.4180
Nomex_Pos	-0.000594	0.001301	-0.456427	0.6535
Nomex_Neg	-0.094444	0.104002	-0.908099	0.3758
Nomex_Neg(-1)	0.224450	0.069991	3.206853	0.0049
Infl	-0.012548	0.008254	-1.520187	0.1458
Infl(-1)	0.025327	0.009366	2.704101	0.0145

C	9.981033	2.539119	3.930904	0.0010

R-squared	0.966520	Mean dependent var	12.46768
Adjusted R-squared	0.940481	S.D. dependent var	1.566810
S.E. of regression	0.382248	Akaike info criterion	1.217458
Sum squared resid	2.630037	Schwarz criterion	1.897689
Log likelihood	-5.088063	Hannan-Quinn criter.	1.446335
F-statistic	37.11728	Durbin-Watson stat	2.489045
Prob(F-statistic)	0.000000		

Source: Researchers' Computation using EViews 12.0

4.3 Model Diagnostic Tests

4.3.1 Test for Autocorrelation

From the results, the Durbin-Watson statistic value is reported as 2.48. This implies that there is no autocorrelation since d* is approximately equal to two. Therefore, the variables in the models are not autocorrelated and that the models are reliable for predictions.

4.3.2 Test for Heteroscedasticity

From the heteroscedasticity test, the decision rule is to accept the null hypothesis that there is homoscedasticity (i.e., no heteroscedasticity) in the residuals if the probability of the calculated F-test statistic (F) is greater than the 0.05 level of significance chosen in the study.

Table 4.8: Summary of Heteroscedasticity Tests

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.349354	Prob. F(14,18)	0.2713
Obs*R-squared	16.89849	Prob. Chi-Square(14)	0.2616
Scaled explained SS	11.61170	Prob. Chi-Square(14)	0.6375

Source: Researchers' Computation using EViews 12.0

That the calculated F-statistic is 1.3493, yielding a probability value (p-value) of 0.26.

The probability value being notably higher than the 0.05 significance level provides strong evidence to accept the null hypothesis of homoscedasticity. This suggests that the residuals in the model displays consistent variance across observations, supporting the assumption of homoscedasticity at the chosen significance level.

4.6 Discussion of Findings

From the results, this study showed that monetary economy was characterized by the monetary policy rate has significant impact on Nigerian stock exchange market proxy by the All-share index. This coincides with the submissions of Oji (2024) which showed that in February 2024 Monetary Policy Committee meeting, a 400 basis point increase in the MPR to 22.75%, caused the Nigerian Exchange Limited (NGX) to experience a substantial decline, with investors losing over N1.4 trillion in two trading sessions. Similarly, Chude and Chude (2013) reported a significant positive relationship between broad money supply and stock market returns, indicating that higher money supply boosts investor confidence and market activity. These findings are consistent with economic theories positing that increased money supply enhances liquidity, lowers interest rates, and encourages investment in equities, thereby positively influencing stock market indices. For the third objective, the result showed that nominal exchange rate and Treasury bill have no significant impact on the Nigerian stock exchange market. This finding aligns with studies such as Biala and Oladejo (2022), which showed a unidirectional causality running from stock prices to exchange rates in the long run, indicating that stock prices may influence exchange rates rather than the reverse. Similarly, Zubair (2013) reported no significant causal relationship between exchange rates and stock prices in Nigeria, suggesting that fluctuations in the nominal exchange rate may not directly affect stock market

performance. These findings imply that other factors, such as domestic economic policies and global market trends, might play a more substantial role in influencing the Nigerian stock market than nominal exchange rate variations. The coefficient of the error correction term (RESID_FI) is -0.72, suggesting that the speed of adjustment from the short run back to the long run if there is disequilibrium in the model is approximately 100%. The coefficient of determination (R^2) from the NARDL regression result indicated that the coefficient of determination (R^2) is given as 0.9665, which shows that the explanatory power of the variables is high. This implies that about 96.65% of the variations in all share index (ASINDEX) were accounted for or explained by variations in monetary policy rate, broad money supply, Treasury bills, nominal exchange rate, and inflation rate in Nigeria.

5 Conclusion and Policy Implication

5.1 Conclusion

The significant impact of the monetary policy rate (MPR) and broad money supply (M2/GDP) highlights the central role of monetary policy tools in shaping market dynamics. Policymakers must carefully adjust the monetary policy rate so as to boost transactions in the capital market and enhance investor's sentiment. It is to be noted that nominal exchange rate and Treasury bill have no significant impact on the Nigerian stock exchange market, indicating a degree of resilience in the market to currency volatility.

5.2 Policy Implications of Findings

i) Monetary policy rate (MPR) and the Nigerian stock exchange showed the importance of the market and monetary policy in the economy. The Central Bank of Nigeria must consider MPR adjustments to rein in inflation without deterring investment in equities. Maintaining a stable and predictable interest rate environment can help foster investor confidence and sentiment, as abrupt rate hikes may drive funds toward fixed-income securities, thereby reducing liquidity and trading volumes in the stock market in line with theoretical postulation and capital market trend.

ii) Broad money supply (M2/GDP) and inflation significantly impact the Nigerian stock exchange highlighting the importance of liquidity management in enhancing the market stability and growth. As such an expansionary monetary policy that increases M2/GDP can enhance investor activities in the equities market by boosting liquidity and reducing borrowing costs. However, policymakers must strike a balance to prevent excessive money supply, which could lead to inflationary pressures and undermine the economic stability necessary for sustained market growth.

iii) Nominal exchange rate and Treasury bill on the All-share index suggests that exchange rate volatility may not directly influence equity performance in Nigeria. This finding implies that policymakers should prioritize measures that stabilizes broader economic fundamentals, such as inflation control and fiscal discipline, over exchange rate interventions to support stock market performance. Nonetheless, creating a conducive environment for foreign investors by ensuring a stable exchange rate regime can indirectly benefit the stock market through enhanced capital inflows.

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