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DYNAMIC RELATIONSHIP BETWEEN CENTRAL BANK FINANCIAL POLICIES, CAPITAL MARKET VOLATILITY, AND MACROECONOMIC PERFORMANCE IN NIGERIA

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This study examined the dynamic relationship between central bank financial policies, capital market volatility, and macroeconomic performance in Nigeria from 1990 to 2023. Market capitalization is employed as a proxy for capital market dynamics, while Treasury bill rates capture the monetary policy stance of the central bank. Macroeconomic performance was assessed using annual GDP growth rates. Utilizing the Autoregressive Distributed Lag (ARDL) bounds testing framework, the analysis accommodates variables integrated at different levels and distinguishes between short-run and long-run effects. Unit root and co-integration tests confirm the existence of a stable long-run equilibrium relationship among the variables. The findings reveal that capital market fluctuations exert a destabilizing effect on macroeconomic performance in the short run but contribute positively to economic growth over the long term. Treasury bill rates demonstrate statistically significant short-term effects; however, their long-run impact is contingent upon the effectiveness of monetary policy transmission mechanisms. Additionally, exchange rate movements and consumer price stability emerge as key influencers of macroeconomic outcomes. The study underscores the necessity for coherent policy measures aimed at strengthening capital market infrastructure, attracting foreign investment, and enhancing investor confidence. Furthermore, reinforcing the credibility and consistency of monetary policy frameworks is essential for achieving long-term macroeconomic stability and sustainable growth in Nigeria.

Keywords: Central Bank Financial Policy, Capital Market Volatility, Macroeconomic Performance, Stock Market Fluctuations, Monetary Policy and Financial Stability

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INTRODUCTION

A lack of efficient, open, and comprehensive policymaking has caused the Nigerian capital market to struggle to sustain stock price stability in recent years. Wirick (2022) and Adamu & Zubairu (2022) both assert that capital market volatility is a typical aspect of investing and should be anticipated in a portfolio. The economic performance index, which displays the shocks and abnormalities of the economic systems, now includes capital market and monetary policy as a crucial component. The abnormal state of investment craning out price fluctuations to give no or little certainty and prediction in the price as it reflects inflationary pressures over the long run would make investing easy and make us all wealthy (Jessie & Osakwe 2019). Even though stock prices don't often fluctuate significantly, there are extended stretches of low enthusiasm interspersed with brief bursts of significant up or down movement. Average volatility is skewed higher by these events than it would be on most days. For most capital market volatility, an average of 15 to 30% seems ideal; nevertheless, if this is exceeded, an economic depression may result (Adewole *et al*., 2023).

Generally speaking, markets that are bullish (trending upward) have low volatility, while those that are bearish (trending downward) have erratic price swings, usually downward. If left unchecked, this kind of movement can be disastrous for the economy and lead to widespread investment panic (Motunrayo & Jonathan, 2021).

Over the span of time, there has been debate on how monetary policy affects the values of stocks and commodities. Changes in asset prices signal changes in macroeconomic outcomes and their implications, as well as changes in the cost of risk. A worsening policy climate or a central bank's incapacity to adequately manage business risk could be indicated by increased volatility. Before the 2007–2009 financial crisis, there was discussion on whether central banks should respond to shifts in stock prices. Motunrayo & Jonathan (2021) argue that a central bank can counteract excessive stock price rises, whereas Adamu & Zubairu (2022) argue that a central bank should "mop up" the negative macroeconomic effects after a bubble burst. The argument for inflationary targeting, which has come under fire for neglecting financial stability, is connected to the topic. This study provides a positive perspective on whether central banks consider asset price volatility in their policies and the consequences. The main goal of the paper is to look at how capital market volatility and central bank financial policies affect Nigeria's macroeconomic performance. This study will particularly aim to accomplish the following objectives in order to fulfil this overarching goal: i. Assess how capital market volatility affects macroeconomic results. ii. Determine how much monetary policy affects macroeconomic results. iii. Examine how the stock market and monetary policy interact to affect macroeconomic results.

The research work is a country-specific study concerning the Nigerian economy. This study uses 32-year data from 1990-2022 to analyze macroeconomic outcomes, economic policy, and security market volatility in Nigeria, focusing on available data.

LITERATURE REVIEW

Nigerian capital Market Growth and Challenges

The capital market is a vital component of an economy because it recycles investment and development resources and acts as a link between the surplus and deficit units (Falaye & Danladi, 2021). It is believed to activate domestic resources for successful endeavours and distribute financial wealth among economic entities. A nation's stock market output can provide insight into its economic growth and development, with steadily falling stock values indicating economic suffering and rising prices indicating potential economic prosperity (Adewole *et al*., 2023). Since its founding in 1960, the Nigerian Stock Market once known as the Lagos Stock Exchange has evolved into a second-tier securities market, the Securities and Exchange Commission, and an automated clearing and settlement system, making it one of Africa's largest capital markets (Falaye & Danladi, 2021).

The Nigerian stock market has grown significantly, reaching ₦5.12 trillion in 2006. However, the market capitalization to GDP ratio remains low, indicating limited market contribution to economic growth. Stock trading turnover ratios have improved, but declined to 16.7% in 2011. Despite increased equity listings, a significant portion remains inactive. Factors contributing to the market's slow growth include unstable macroeconomic conditions, inadequate regulatory frameworks, limited securities, an underdeveloped bond market, and declining investor confidence. (Adewale & Adewole, 2024).

Central Bank's Financial Policy and Monetary Regulation

Monetary policy is a crucial tool for regulating money and credit availability and distribution to achieve macroeconomic objectives (Adeyemo & Adewale, 2024). In Nigeria, the Central Bank of Nigeria (CBN) Act of 1958 established the apex monetary authority responsible for financial system stability and management. The CBN uses a rule-based approach, including selective credit regulations and interest rate adjustments, along with market-driven instruments like reserve requirements and OMO. Adjustments in monetary policy rates influence nominal and real interest rates and investment and consumption decisions (Takon & Ita, 2020). However, the effectiveness of these policies depends on market efficiency and market participants' commitment to national economic objectives (Magnus, 2018).

Elevated interest rates can discourage investment and stifle economic growth, potentially leading to financial sector instability. In some cases, financial intermediaries may fund high-risk projects with low economic value, increasing the likelihood of financial crises. Quantity-based monetary instruments, such as reserve money and monetary aggregates, influence the availability and cost of funds, shaping decision-making among economic agents. While central banks prioritize price stability to support sustainable growth, their actions significantly impact real sector activities. Beyond inflation control, central banks also play a developmental role and often face policy conflicts. Pursuing price stability as a primary objective indirectly affects economic growth and financial market efficiency (Adeyemo & Adewale, 2024).

Capital Market Volatility and Macroeconomic Performance in Nigeria

Capital markets are essential to economic development, providing liquidity and facilitating investment opportunities (Etale & Eze, 2019). Well-functioning equity markets reduce investment risks and enhance financial attractiveness by allowing investors to buy and sell assets efficiently at minimal costs (Jessie & Osakwe, 2019). Companies benefit from continuous access to capital through equity financing, ensuring long-term financial stability. The Nigerian capital market must evolve into a key driver of economic transformation, becoming the preferred investment destination for both domestic and international investors (Adewole *et al*., 2023).

The Nigerian Stock Exchange (NSE) is a key player in managing market activities, encompassing primary and secondary markets for new securities issuance and trading existing stocks. Regulatory bodies and financial institutions, such as the Securities and Exchange Commission (SEC), issuing houses, investment advisers, portfolio managers, investment tribunals, stockbrokers, and registrars, contribute to market depth and stability (Adewole *et al*., 2023). Since the 1980s, significant developments have shaped stock market growth, including the Second-Tier Securities Market (SSM), deregulation of interest rates, privatization of state-owned enterprises, market infrastructure improvements, and banking sector reforms (Jessie & Osakwe, 2019). A well-structured stock market enhances capital formation, mobilizes domestic savings, and accelerates economic growth. Equity markets offer diversified portfolio management and cost-effective investment capital (Adewale & Adewole, 2024). A liquid and efficient stock market also provides central banks with a mechanism to implement monetary policy through government securities transactions (Adewole *et al*., 2023).

Theoretical Review

Finance theory

The finance theory domiciled in business cycle, dow and multiplier acceleration theories. Stock market volatility is influenced by the business cycle, which is a cyclical process that occurs when the economy reaches full capacity. Keynes' macroeconomic ideas, such as the multiplier-acceleration theory, suggest that strong economic growth stimulates investment, which in turn accelerates output growth. This cyclical process continues until the economy reaches its lowest point, leading to an economic downturn. Mele (2008) argues that stock market volatility is counter-cyclical, intensifying during economic downturns and diminishing during periods of growth. Expected stock returns decline less during economic booms but rise significantly during recessions. This asymmetry occurs because investors' required return on investment is both counter-cyclical and unevenly influenced by business cycle movements.

Umstead (1977) asserts that stock prices are influenced by investor expectations, which can be derived from economic indicators. These expectations are systematically linked to leading economic indicators, causing stock prices to exhibit predictable responses to business cycle movements. Garry (1990) applies Dow Theory to argue that economic cycles occur in regular patterns, and understanding these cycles provides investors with a strategic advantage in predicting market movements and making informed investment decisions.

Empirical review

Ezekiel & James (2024) examined the impact of financial sector development on macroeconomic volatility in Nigeria. It uses autoregressive distributed lag and modified ordinary least square to examine the moderating effect of financial development on the link between external shocks and macroeconomic volatilities. Results show that domestic credit to the private sector reduces output and inflation, while market capitalisation promotes volatility. The study also reveals that external shocks stimulate macroeconomic volatility in Nigeria, but their effects are reduced when financial development is incorporated.

Adeyemo and Adewale (2024) also examined how the Central Bank of Nigeria (CBN) policy management impacted the stability of the Nigerian economy in 2000-2022. The paper concentrated on the impact of reserve requirement, exchange rate, and interest rate on the achievement of economic stability. In its ex post facto design, the study utilized the data obtained through the CBN Statistical Bulletin and Economic Development Integration Report to perform statistical tests to establish the relationships. The results indicated that the reserve requirements and the exchange rates positively affected the economic stability and the interest rates affected it negatively. This paper concluded that CBN policy management contributes greatly to stability in the economy of Nigeria. It suggested the monetary policy instruments should be constantly refined, especially in the tradeoff between inflation and growth targets, and that monetary tools, the interest rates and reserve requirements and the open market operations, should be frequently evaluated to produce sustainable stabilization.

Adewale and Adewole (2024) analyzed the effect of stock market indicators on economic growth in Nigeria through ex post facto design (ARDL model). The data were retrieved as Central Bank of Nigeria Statistical Bulletin. The analysis of the main indicators was based on equities, corporate bonds, all-share index and inflation as a relation to GDP. The results showed that the correlation coefficient between the indicators of the stock market and economic growth is 0.628, which is moderate and positive. The F-test (4.237) with the significance level of 0.009 proved that the overall model was statistically significant meaning that stock market indicators have a significant impact on GDP. The paper advised policymakers against using bonds alone as the growth engine but promote diversification of asset classes to reduce the impact of a volatile equity market. It also implied that regulators always look at the rules of the market so that they are efficient and can keep it growing.

Adewole, Omotayo, Adewale, and Kadiri (2023) examined the relationship between stock market capitalization and economic growth in Nigeria from 1991 to 2021. The paper particularly evaluated the impacts of corporate bonds, government security, and equities on gross domestic product (GDP) based on secondary data obtained via the Central Bank of Nigeria Statistical Bulletin. Minitab software used to analyse multiple regression was used. The results obtained showed that GDP has a negative relationship with the stock market indicators, but the general relationship is significant. The research suggested that the Nigerian Stock Exchange is advised to persuade investors to invest more on government securities in order to stimulate GDP. It also proposed that investors be sensitised on the advantages of corporate bonds and encouraged to invest more in equities to enhance the performance of the economy. This study is empirical because it concludes that, although stock market instruments have a mixed impact, they are essential in the economic growth path of Nigeria.

Usman, Aina-David & Yinus (2022). explored the link between capital market dynamics, bank credit, and Nigeria's economic growth. The data were analyzed using multiple regression analysis. It finds a significant positive effect of these variables on economic growth, indicating a granger causality relationship. The findings suggest increasing equities trading volume and value, expanding investment opportunities, and addressing terrorist activities and kidnappings to attract both Nigerian and foreign investors to the Nigerian capital market.

Henry & Behiye (2021) examined the effect of macroeconomic variables on stock return volatility in the Nigerian stock exchange market. Autoregressive Distributed Lag (ARDL) method of analysis was used. A study on Nigeria's stock market found that money supply and aggregate industrial production positively impact stock returns, while exchange and inflation rates negatively affect them. The study recommends the Central Bank of Nigeria to implement deflationary fiscal policy and the Adaptive Stabilization Method of Exchange Rate policy to reduce variance between actual and expected stock returns. This is the first study to incorporate money supply and aggregate industrial production in Nigerian stock market modeling.

Felicia, Oyakhilome & Abiola (2020) studied the analyzes the long-term impact of macroeconomic indicators on Nigeria's stock market performance using the VECM analysis. Results show that macroeconomic variables and stock market performance are cointegrated, with interest rate, inflation, and trade having a negative relationship. However, exchange rate, GDP growth rate, and foreign capital flows are positively related. If deviations occur, policies to improve Nigeria's macroeconomic environment are recommended, including lowering interest rates, increasing foreign capital flows, and improving trade terms.

Anuya Sunday & Raph (2024) analyzed the impact of macroeconomics on Nigeria's stock market volatility from 1986-2022, using secondary data from the CBN Statistical Bulletin and the ARDL tests was employed. It found that independent variables like Money Supply, Interest Rate, Exchange Rate, and Inflation Rate had insignificant negative or positive effects on the All Share Index (ASI). The study concluded that macroeconomics dynamics have no significant effect on stock market volatility in Nigeria and recommended regulatory authorities and policymakers to maintain stability in these areas.

Agunobi, Efionayi & Akustson (2024) examined the influence of macroeconomic variables on Nigeria's stock market performance. The study used Auto-regressive distributed lag model (ARDL) technique. It reveals that broad money supply, allshare index, financial deepening, and interest rate significantly impact the total market capitalization of the stock market. The all share index also has a significant effect, while financial deepening also has a significant effect. The interest rate did not significantly affect the total market capitalization. The study suggests that policymakers should monitor money supply fluctuations to ensure stability and growth in the Nigerian Exchange. Diversification strategies across sectors can mitigate risks and capitalize on opportunities.

Akinbola (2024) explored the relationship between capital adequacy and financial stability in Nigerian banks, within a volatile economic environment. The Ordinary Least Squares (OLS) method was employed to analyze variables such as return on assets (ROA), return on equity (ROE), non-performing loans (NPL), firm size, CAR, and loans and advances (LA). Results indicate that capital adequacy ratio and firm size positively impact bank stability, while non-performing loans and loans and advances negatively impact it. Improving capital adequacy and firm size enhances bank resilience, while tighter regulation of non-performing loans mitigates financial instability.

Emmanuel & Oluwaseyi (2022). examined the relationship between uncertainty, macroeconomic variables, and capital market performance in Nigeria. It found that uncertainty doesn't affect Nigeria's macroeconomic performance. However, crude oil prices significantly impact the economy, affecting the gross domestic product, all-share index, and money supply. External uncertainty from crude oil exports triggers domestic uncertainty, leading to macroeconomic instability. The study recommends developing a framework to reduce domestic shocks, as internal shocks are insignificant.

METHODOLOGY

The analysis looks at the association involving capital market volatility, central bank financial policy, and economic development using expost facto data relating to a model developed by Kolapo and Adaramola (2012).

$$GDP = f(MCAP, TNI, VLT, LEGS) \qquad (3.1)$$

A revised specification for this experiment has been produced by incorporating more financial indicators into the Kolapo and Adaramola models.

$$RGDP = f(MCAP, TB, EXR, CPS) \qquad (3.2)$$

To achieve a robust empirical assessment, the study utilizes the ARDL bound testing technique, initially developed by Pesaran and Shin (1999) and later extended by Pesaran et al. (2001). The extended framework is particularly useful for analyzing long-term interactions between capital market dynamics and economic growth, making it well-suited for this research. The ARDL bound testing model is mathematically expressed as follows:

Where Δ is the first difference operator, GDP is the gross domestic product, MCAP is the market capitalization, EXR is the Foreign Exchange Rate, while CPS is the credit to private sector. *P* is the lag length, α, φ, and β are the parameters to be estimated and ε_t, υ_t and μ_t are white noise error terms.

RESULTS AND FINDINGS

Table 1 presents the summary statistics for the five variables: Consumer Price Stability (CPS), Exchange Rate (EXR), Gross Domestic Product growth (GDP), Market Capitalization (MCAP), and Treasury Bills rate (TB). The mean values indicate moderate average levels across the period examined, with CPS at 12.76, EXR at 147.67, GDP at 4.13, MCAP at 12.66, and TB at 13.51. Notably, EXR exhibited the highest standard deviation (SD = 119.48), suggesting considerable exchange rate volatility over the sample period.

Table 1

Descriptive stats

	CPS	EXR	GDP	MCAP	TB
Mean	12.76118	147.6688	4.126951	12.66368	13.5121
Median	10.11138	129.22	4.23	11.63	13.34
Maximum	22.75484	458.8	15.33	30.8	26.9
Minimum	5.806165	8.04	-2.04	2.49	4.5
Std. Dev.	5.77052	119.4766	4.04535	5.527284	4.916692
Skewness	0.219689	0.930148	0.516897	1.363529	0.212411
Kurtosis	1.291355	3.215329	3.217947	5.565359	3.247427
Jarque-Bera	4.279716	4.822224	1.534818	19.27463	0.332328
Probability	0.117672	0.089715	0.464214	6.52E-05	0.846907
Sum	421.119	4873.07	136.1894	417.9013	445.8994
Sum Sq. Dev.	1065.565	456788.8	523.6754	977.628	773.5635
Observations	33	33	33	33	33

Source: Authors Compilation (2025)

Skewness and kurtosis values reflect largely acceptable distributional properties, with the exception of MCAP, which displayed positive skewness (1.36) and leptokurtic tendencies (5.57), suggesting the presence of outliers. Normality tests using the Jarque-Bera statistic showed that most variables were approximately normally distributed (p > .05), except for MCAP

Objective One: Examine the degree of Capital market volatility on macroeconomic outcomes

$$\Delta GDP_t = \alpha_0 + \textstyle\sum_{i=1}^{p} \alpha_1 \Delta GDP_{t-1} + \sum_{i-0}^{p} \alpha_2 \Delta TB_{t-1} + \sum_{i=0}^{p} \alpha_3\, EXR_{t-1} + \sum_{i=0}^{p} \alpha_4\, CPS_{t-1} + \alpha_5 InGDP_{t-1} + \alpha_6 InMCAP_{t-1} + \alpha_7 InEXR_{t-1} + \alpha_8 InCPS_{t-1} + \varepsilon_t \qquad (3.3)$$

Objective Two: Impact of Monetary Policies on Macroeconomic Outcomes

$$\Delta GDP_t = \alpha_0 + \textstyle\sum_{i=1}^{p} \alpha_1 \Delta GDP_{t-1} + \sum_{i-0}^{p} \alpha_2 \Delta MCAP_{t-1} + \sum_{i=0}^{p} \alpha_3\, EXR_{t-1} + \sum_{i=0}^{p} \alpha_4\, CPS_{t-1} + \alpha_5 InGDP_{t-1} + \alpha_6 InMCAP_{t-1} + \alpha_7 InEXR_{t-1} + \alpha_8 InCPS_{t-1} + \varepsilon_t \qquad (3.4)$$

Objective Three: Interaction of monetary policy and capital market on macroeconomic outcomes.

$$\Delta GDP_t = \alpha_0 + \sum_{i=1}^{p} \alpha_1 \Delta GDP_{t-1} + \sum_{i-0}^{p} \alpha_2 \Delta MCAP * TB_{t-1} + \sum_{i=0}^{p} \alpha_3\, EXR_{t-1} + \sum_{i=0}^{p} \alpha_4\, CPS_{t-1} + \alpha_5 InGDP_{t-1} + \alpha_6 InMCAP * TB_{t-1} + \alpha_7 InEXR_{t-1} + \alpha_8 InCPS_{t-1} + \varepsilon_t \qquad (3.5)$$

($p < .001$), indicating the need for careful interpretation in subsequent parametric analyses.

Correlation and Covariance Analysis

The covariance matrix (Table 2) indicates the highest positive covariation between CPS and EXR (cov = 481.10), suggesting potential co-movement. The correlation matrix (Table 3) further supports this, revealing a strong positive linear relationship between CPS and EXR ($r = .72$). However, the remaining correlations were weak or negative, such as between GDP and MCAP ($r = -.04$), implying limited contemporaneous associations.

Table 2

Covariance

	CPS	EXR	GDP	MCAP	TB
CPS	32.28984	481.0985	-3.40426	-5.84433	-5.07765
EXR	481.0985	13842.09	-112.672	-127.398	-142.851
GDP	-3.40426	-112.672	15.86895	-0.87109	-1.80286
MCAP	-5.84433	-127.398	-0.87109	29.62509	-7.50928
TB	-5.07765	-142.851	-1.80286	-7.50928	23.44132

Source: Authors Compilation (2025)

Table 3

Correlation

	CPS	EXR	GDP	MCAP	TB
CPS	1	0.719615	-0.15039	-0.18896	-0.18456
EXR	0.719615	1	-0.2404	-0.19894	-0.25078
GDP	-0.15039	-0.2404	1	-0.04018	-0.09348
MCAP	-0.18896	-0.19894	-0.04018	1	-0.28496
TB	-0.18456	-0.25078	-0.09348	-0.28496	1

Source: Authors Compilation (2025)

Granger Causality Tests

Pairwise Granger causality tests (Table 4) were employed to evaluate predictive relationships among the variables. Most null hypotheses could not be rejected, indicating no significant causality between CPS and other variables. However, a significant unidirectional causality was detected from MCAP to GDP ($F = 4.04$, $p = .030$), suggesting that fluctuations in financial market capitalization precede and potentially influence economic output.

Regression Analysis: ARDL Model Estimates

The Autoregressive Distributed Lag (ARDL) model was estimated to assess both short- and long-run relationships. The long-run estimates (Table 5) revealed that EXR has a statistically significant negative contemporaneous effect on the dependent variable ($\beta = -0.063$, $p = .015$), while its lagged value had a positive effect ($\beta = 0.075$, $p = .013$), indicating exchange rate dynamics are impactful over time. Similarly, MCAP at lag 1 ($\beta = 0.245$, $p = .023$) significantly influences the dependent variable positively. Treasury Bills (TB) at lag 1 also had a significant negative influence ($\beta = -0.303$, $p = .034$), consistent with the contractionary effect of rising interest rates on economic indicators. Interestingly, CPS coefficients showed alternating signs across lags, with both positive and negative significant values, suggesting price stability affects the dependent variable in a complex, nonlinear manner. The model demonstrated a high explanatory power ($R^2 = .87$; Adjusted $R^2 = .71$), and the F-statistic confirmed overall significance ($F = 5.48$, $p = .002$). The Durbin-Watson statistic ($DW = 1.99$) suggests no autocorrelation in the residuals.

Table 4

Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
EXR does not Granger Cause CPS	31	2.229709	0.127724
CPS does not Granger Cause EXR		0.628627	0.541235
GDP does not Granger Cause CPS	31	0.663516	0.523542
CPS does not Granger Cause GDP		0.908265	0.415638
MCAP does not Granger Cause CPS	31	1.989443	0.157055
CPS does not Granger Cause MCAP		0.992579	0.384231
TB does not Granger Cause CPS	31	0.839441	0.443325
CPS does not Granger Cause TB		1.189599	0.32037
GDP does not Granger Cause EXR	31	0.631494	0.539757
EXR does not Granger Cause GDP		0.27112	0.764654
MCAP does not Granger Cause EXR	31	0.180935	0.835531
EXR does not Granger Cause MCAP		0.617269	0.547134
TB does not Granger Cause EXR	31	0.105151	0.90057
EXR does not Granger Cause TB		0.711754	0.500097
MCAP does not Granger Cause GDP	31	4.041921	0.029616
GDP does not Granger Cause MCAP		0.266488	0.768132
TB does not Granger Cause GDP	31	1.715275	0.199652
GDP does not Granger Cause TB		0.057125	0.944595
TB does not Granger Cause MCAP	31	0.302602	0.74146
MCAP does not Granger Cause TB		0.467174	0.631931

Source: Authors Compilation (2025)

Short-run ARDL estimates (Table 5) yielded no statistically significant coefficients ($p > .05$), indicating that the relationships among the variables manifest more strongly in the long run. This outcome may reflect economic frictions and adjustment lags in macroeconomic systems, which delay the full transmission of shocks.

Table 5

Autoregressive Distributive Lag (Long and Short run Effects)

Long run ARDL

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GDP(-1)	0.395682	0.189385	2.089301	0.056906
GDP(-2)	0.332584	0.168422	1.974705	0.069932
EXR	-0.06269	0.022507	-2.78558	0.01545
EXR(-1)	0.074676	0.025907	2.882459	0.012833
MCAP	0.04734	0.093318	0.507299	0.620442
MCAP(-1)	0.244552	0.09507	2.572345	0.023191
MCAP(-2)	0.117878	0.102427	1.150846	0.270524
MCAP(-3)	0.192525	0.09808	1.962946	7.14E-02
TB	0.183296	0.130155	1.408294	0.182508
TB(-1)	-0.30299	0.128181	-2.3638	0.034331
TB(-2)	-0.01745	0.121573	-0.14357	0.888043
TB(-3)	0.205125	0.127573	1.607905	0.131861
CPS	-0.62337	0.231048	-2.69801	0.018263
CPS(-1)	0.867127	0.378614	2.290266	0.039363
CPS(-2)	-0.89666	0.384412	-2.33254	0.03639
CPS(-3)	0.546428	0.256688	2.128769	0.052968
C	-6.82589	4.741103	-1.43973	0.173589
R-squared	0.870969	Mean dependent var		3.980646
Adjusted R-squared	0.712162	S.D. dependent var		3.939286
S.E. of regression	2.113449	Akaike info criterion		4.631604
Sum squared resid	58.06665	Schwarz criterion		5.425616
Log likelihood	-52.4741	Hannan-Quinn criter.		4.885616
F-statistic	5.48444	Durbin-Watson stat		1.991213
Prob(F-statistic)	0.001781			

Source: Authors Compilation (2025)

Short run ARDL

Variable *	Coefficient	Std. Error	t-Statistic	Prob.
EXR(-1)	0.044093	0.037851	1.164915	0.255049
MCAP(-1)	2.216489	1.519382	1.45881	0.157068
TB(-1)	0.250148	0.707261	0.353685	0.72654
CPS(-1)	-0.39182	0.540418	-0.72503	0.475165
C	-25.1198	27.69829	-0.90691	0.373115
Note: * Coefficients derived from the CEC regression.				

Source: Authors Compilation (2025)

Diagnostic Test

The Breusch-Pagan-Godfrey test for heteroskedasticity (Table 6) indicates that the null hypothesis of homoscedasticity could not be rejected ($F = 1.58$, $p = .205$; $\chi^2 = 19.81$, $p = .229$). This supports the reliability of the standard errors in the regression estimates. Moreover, the Durbin-Watson statistic in the residual regression ($DW = 2.24$) confirms the absence of serial correlation.

Table 6

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.579395	Prob. F(16,13)		0.205472
Obs*R-squared	19.80934	Prob. Chi-Square(16)		0.228931
Scaled explained SS	2.072283	Prob. Chi-Square(16)		0.999987
Test Equation:				
Dependent Variable: RESID^2				
Method: Least Squares				
Date: 05/16/25 Time: 08:27				
Sample (adjusted): 4 33				
Included observations: 30 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.81962	4.057936	-0.69484	0.499387
GDP(-1)	-0.12056	0.162096	-0.74374	0.470265
GDP(-2)	0.21384	0.144153	1.48342	0.161798
EXR	0.016847	0.019264	0.874568	0.397679
EXR(-1)	-0.01578	0.022174	-0.71184	0.489141
MCAP	-0.03	0.079871	-0.37556	0.713303
MCAP(-1)	0.00568	0.081371	0.069808	0.945409
MCAP(-2)	0.0408	0.087668	0.465391	0.649352
MCAP(-3)	-0.13707	0.083947	-1.63276	0.126494
TB	0.292491	0.1114	2.625591	0.020962
TB(-1)	0.065325	0.109711	0.595427	0.561781
TB(-2)	-0.02004	0.104055	-0.19263	0.850225
TB(-3)	0.065001	0.10919	0.595301	0.561863
CPS	0.200715	0.197755	1.01497	0.328639
CPS(-1)	-0.12567	0.324058	-0.38781	0.704432
CPS(-2)	0.200399	0.32902	0.609079	0.552968
CPS(-3)	-0.27961	0.2197	-1.2727	0.225417
R-squared	0.660311	Mean dependent var		1.935555
Adjusted R-squared	0.242233	S.D. dependent var		2.078019
S.E. of regression	1.808912	Akaike info criterion		4.320414
Sum squared resid	42.53813	Schwarz criterion		5.114426
Log likelihood	-47.8062	Hannan-Quinn criter.		4.574425
F-statistic	1.579395	Durbin-Watson stat		2.2393
Prob(F-statistic)	0.205472			

Source: Authors Compilation (2025)

This dual-axis plot highlights a strong co-movement between the naira's exchange rate and the consumer price index. The upward trend in exchange rate depreciation is mirrored by increased price levels, underscoring the inflationary pressure of currency weakness. This is consistent with the correlation coefficient of 0.72 and the significant long-run coefficients found in the ARDL model. The visual narrative aligns with Agyapong et al. (2022), who observed a strong exchange rate-inflation pass-through in sub-Saharan African economies.

Graphically interpreted as follows:

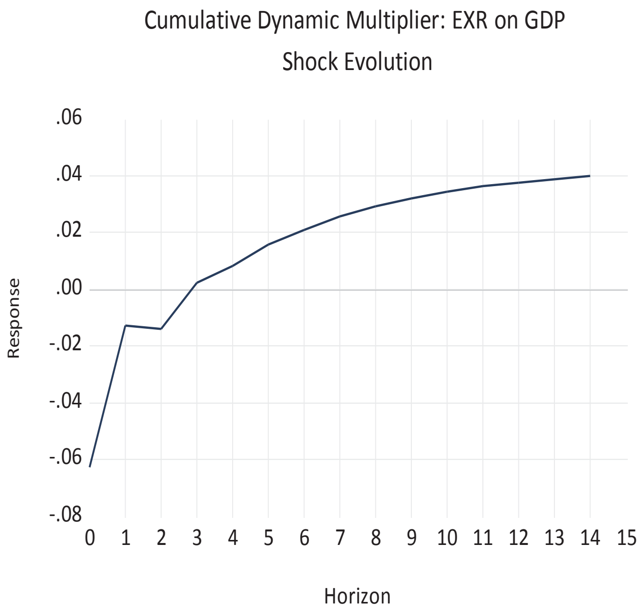

Figure 2. Exchange Rate and Consumer Price Stability Over Time

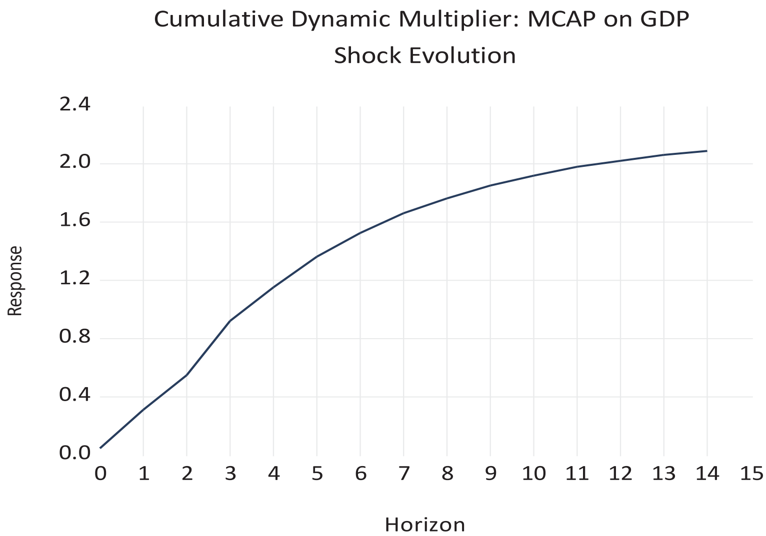

Figure 1. Trend Analysis of Market Capitalization and GDP Growth

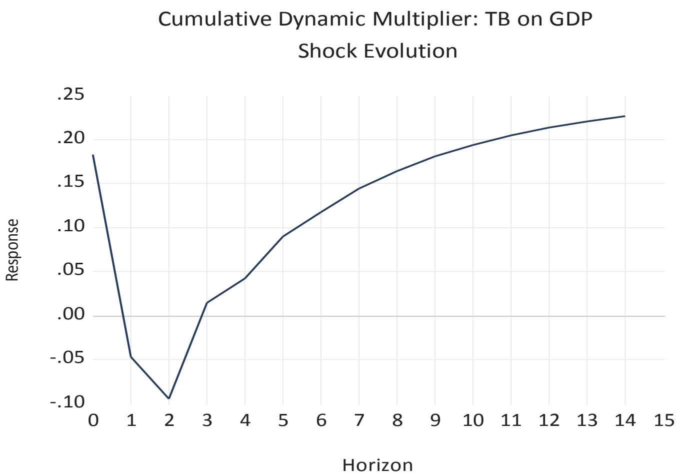

Figure 3. Treasury Bill Rates and GDP Growth

This time-series graph reveals a fluctuating yet increasingly correlated trajectory between market capitalization and GDP growth over the long term. While market capitalization exhibits greater volatility in the early 1990s and post-2008 financial crisis, its gradual stabilization aligns with improvements in GDP performance, especially after 2010. This visual evidence supports the ARDL findings which indicate that market capitalization positively influences GDP in the long run. The convergence pattern reinforces the finance-led growth hypothesis, as earlier confirmed by Oke and Oguntade (2021).

The graphical trend shows that spikes in Treasury bill (TB) rates often coincide with downturns in GDP growth, especially noticeable during monetary tightening episodes in the early 2000s and around 2016–2017. This inverse relationship, graphically illustrated, reflects the negative long-run coefficient of TB(-1) in the ARDL model, suggesting that high short-term interest rates may dampen economic performance. This aligns with Lawal and Uchenna (2021), who noted the contractionary effects of interest rate policies in Nigeria.

Discussion of Findings

The results revealed a strong positive correlation between exchange rate and consumer price stability ($r = .72$), and in the ARDL model, EXR showed a significant short-run and long-run influence on CPS. Specifically, the current value of EXR had a negative and significant effect ($\beta = -0.0627$, $p < .05$), while the lagged value had a positive effect ($\beta = 0.0747$, $p < .05$). This dynamic supports the argument that exchange rate fluctuations transmit to domestic prices with both immediate and lagged effects. This finding is consistent with the work of Ismaila (2021), who found that exchange rate depreciation contributes significantly to inflationary pressures in Nigeria. Similarly, Agyapong et al. (2022) emphasized the pass-through effect of exchange rate volatility to domestic inflation in sub-Saharan Africa. These results underscore the importance of stable exchange rate policies in mitigating inflation risks in emerging economies.

A key finding of the Granger causality test was the unidirectional causality from MCAP to GDP ($F = 4.04$, $p = .03$), suggesting that developments in the financial market precede economic growth. This aligns with the finance-growth hypothesis, which posits that financial sector development is a precursor to economic performance. For instance, Oke and Oguntade (2021) reported that stock market development in Nigeria significantly predicts real economic growth. Similarly, in a broader African context, Ezeaku et al. (2020) demonstrated that market capitalization positively influences GDP growth when supported by robust regulatory environments. The significant ARDL long-run coefficient of MCAP(-1) ($\beta = 0.245$, $p = .023$) further confirms this long-term relationship.

The ARDL model also revealed a significant negative impact of lagged treasury bill rates on the dependent variable ($\beta = -0.303$, $p = .034$), indicating that rising interest rates may crowd out investment or suppress aggregate demand. This is consistent with the classical monetary policy theory where higher short-term interest rates deter investment and consumption. Lawal & Uchenna (2021) found that high yields on Nigerian treasury instruments reduce real sector productivity. Likewise, Owusu & Antwi (2023) noted that treasury bill dynamics influence inflation and economic growth in West African economies.

Interestingly, CPS had a mixture of positive and negative effects across different lags in the ARDL model. CPS(-1) was significantly positive ($\beta = 0.867$, $p = .039$), while CPS(-2) was significantly negative ($\beta = -0.897$, $p = .036$), indicating a nonlinear and potentially oscillatory relationship. This is reflective of inflation inertia or delayed policy transmission effects, a phenomenon highlighted by Akpan & Udoh (2020) in their study on inflation persistence in Nigeria.

CONCLUSION AND RECOMMENDATION

The study confirm that capital market volatility is a significant economic concern, driven by frequent price movements and shifts in foreign portfolio investment flows. These fluctuations are primarily driven by economic and policy-related factors, such as changes in other financial markets, interest rate adjustments, and federal government monetary policies. Shares remain highly volatile due to their sensitivity to macroeconomic variables. Monetary policy instruments, particularly treasury bills, significantly influence macroeconomic outcomes, particularly real gross domestic product (RGDP). When monetary authorities implement contractionary policies, borrowing from banks becomes more restrictive, leading to reduced credit availability. The government may resort to domestic or external borrowing or print additional currency to cover fiscal deficits.

To address capital market volatility, proactive interventions are needed to foster economic stability and growth. Policy recommendations include enhancing market capitalization through foreign investments, leveraging advanced technology for market transparency, and strengthening credit access to the private sector. Governments and financial regulators should create policies that attract more foreign investors, prioritize the adoption of cutting-edge technology, and promote transparency and fair trading practices.

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ДИНАМІЧНИЙ ВЗАЄМОЗВ'ЯЗОК МІЖ ФІНАНСОВОЮ ПОЛІТИКОЮ ЦЕНТРАЛЬНОГО БАНКУ, ВОЛАТИЛЬНІСТЮ РИНКУ КАПІТАЛУ ТА МАКРОЕКОНОМІЧНИМИ ПОКАЗНИКАМИ В НІГЕРІЇ

У дослідженні проаналізовано динамічний взаємозв'язок між фінансовою політикою центрального банку, волатильністю ринку капіталу та макроекономічними показниками в Нігерії за період 1990–2023 рр. Ринкову капіталізацію використано як проксі-показник динаміки ринку капіталу, тоді як дохідність казначейських векселів слугує індикатором монетарної політики центрального банку. Макроекономічну результативність оцінено на основі річних темпів зростання валового внутрішнього продукту. Методологічною основою дослідження є підхід тестування меж у межах авторегресивної моделі з розподіленими лагами (Autoregressive Distributed Lag, ARDL), який дозволяє аналізувати змінні, інтегровані на різних рівнях, а також розмежовувати короткострокові та довгострокові ефекти. Тести на наявність одиничного кореня та коінтеграцію підтвердили існування стабільної довгострокової рівноважної залежності між досліджуваними змінними. Результати емпіричного аналізу свідчать, що коливання ринку капіталу в короткостроковому періоді чинять дестабілізуючий вплив на макроекономічні показники, однак у довгостроковій перспективі вони сприяють економічному зростанню. Дохідність казначейських векселів має статистично значущий вплив у короткостроковому періоді, тоді як її довгостроковий ефект залежить від ефективності механізмів трансмісії монетарної політики. Крім того, коливання валютного курсу та стабільність споживчих цін визначено як ключові чинники впливу на макроекономічну динаміку. У дослідженні наголошується на необхідності впровадження узгоджених політичних заходів, спрямованих на зміцнення інфраструктури ринку капіталу, залучення іноземних інвестицій та підвищення довіри інвесторів. Водночас посилення довіри до монетарної політики та забезпечення її послідовності є критично важливими умовами досягнення довгострокової макроекономічної стабільності та сталого економічного зростання в Нігерії.

Ключові слова: фінансова політика центрального банку; волатильність ринку капіталу; макроекономічна результативність; коливання фондового ринку; монетарна політика та фінансова стабільність.

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