

**FOREIGN EXCHANGE RATE DYNAMIC AND THE BANKING SECTOR STOCK
PERFORMANCE IN NIGERIA**

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Abstract

This study examines the impact of foreign exchange rate dynamics and the banking sector stock performance in Nigeria, utilizing the Granger Causality test and the Autoregressive Distributed Lag (ARDL) model. The research adopts an ex-post facto design and analyzes secondary data sourced from the Central Bank of Nigeria (CBN) and the Nigerian Stock Exchange. Findings reveal a unidirectional causality from exchange rate volatility to banking stock prices, consistent with the flow-oriented theory, indicating banks' vulnerability to forex fluctuations due to their exposure to foreign-denominated assets and transactions. The ARDL results show that while exchange rate volatility and broad money supply have no significant impact, external reserves, interest rate, and inflation significantly influence banking sector stock prices in both the short and long run. External reserves and interest rates exhibit negative effects, while inflation shows a positive relationship, suggesting that bank stocks may act as a hedge against inflation. These outcomes highlight the critical role of macroeconomic fundamentals in shaping equity market behavior in Nigeria's financial sector. The study recommends that policymakers prioritize economic diversification to strengthen foreign reserves, stabilize interest rates through prudent monetary policy, and enhance inflation-targeting frameworks to support banking sector stability and investor confidence.

Keywords: Banking Sector, Exchange Rate Volatility, Foreign Reserves, Inflation, Interest Rate.

1. Introduction

The financial sector plays a pivotal role in Nigeria's economic development, with the banking industry serving as its backbone through capital mobilization, credit intermediation, and support for monetary policy implementation (Bernard, 2022). Within this sector, the NGX group formerly known as the Nigerian Stock Exchange (NSE) acts as a crucial platform for raising capital and reflecting investor confidence. However, fluctuations in macroeconomic variables, particularly the foreign exchange (forex) rate, introduce volatility and uncertainty that may significantly affect stock price performance (Ayeni & Fanibuyan, 2022). The interplay between exchange rates and stock prices has gained considerable attention in financial literature, especially in emerging

economies where structural vulnerabilities often amplify the impact of external shocks (Umar et al., 2023).

In Nigeria, foreign exchange rate dynamics have become a major concern for policymakers and market participants, considering the recent currency devaluations, exchange rate misalignments, and persistent forex scarcity (CBN, 2020). The naira has undergone multiple exchange rate regimes, ranging from a fixed regime to the current managed float system (Oladipupo, 2023). These changes, largely influenced by fluctuations in global oil prices and capital flows, have had significant implications for the performance of listed firms, especially those in the banking sector (Adewuyi & Olowookere, 2021). Given that banks are highly sensitive to macroeconomic fluctuations due to their intermediary role in the economy, understanding the relationship between foreign exchange rates and banking stock prices is both timely and policy-relevant (Onafowokan & Akinlo, 2020).

Existing empirical studies on the relationship between exchange rates and stock prices have produced mixed findings. Some studies report unidirectional causality from exchange rates to stock prices, while others find bidirectional relationships or no significant link at all (Biala & Oladejo, 2022; Gbadebo, 2023). These variations are often attributed to differences in country-specific factors, market structures, and methodological approaches. In the context of Nigeria, limited research has focused specifically on the banking sector, despite its systemic importance and exposure to foreign currency risks through trade financing, foreign asset holdings, and foreign-denominated liabilities.

Against this backdrop, this study seeks to fill the research gap by analyzing the relationship vis a vis the impact of foreign exchange rate fluctuations and the banking sector stock prices in Nigeria. Specifically, the study examines the causal relationship between foreign exchange rates and the banking sector stock prices in Nigeria and investigates the effects of foreign exchange rate dynamics and other macroeconomic variables on the banking sector stock performance on the NGX group. The following are the set hypotheses for the study: H0₁: There is no significant relationship between foreign exchange rates and the banking sector stock prices of the NGX group and H0₂: Foreign exchange rate dynamics and other macroeconomic variables does not have significant effects of on the performance of banking sector stocks prices on the NGX group.

This study is delimited to the banking sector of the Nigerian Stock Exchange (NSE), focusing on listed deposit money banks due to their prominent role in Nigeria's financial system and their significant exposure to exchange rate movements (CBN, 2020; Adewuyi & Olowookere, 2021). Banks hold foreign currency assets, issue foreign-denominated loans, and engage in trade finance activities, making them highly sensitive to currency fluctuations (Onafowokan & Akinlo, 2020). Furthermore, given the NSE's evolving structure and the increasing integration of Nigeria's economy with global markets, understanding how exchange rate volatility influences stock performance in the banking sector provides crucial insights for investors, portfolio managers, regulators, and policymakers (Umar et al., 2023; Gbadebo, 2023).

2.1 Conceptual Review

Foreign Exchange Rate

Foreign exchange rate according to CBN (2016) is the price of a country's currency expressed in terms of another currency. It is the market price for which one local currency can be traded for another. Exchange rates play a critical role in international trade as it constitutes larger measure of the economy that affects importation, services and exportation. It is a national and economic indicator that responds swiftly to economic and political changes in the developed economies.

Foreign Exchange Rate Dynamics

Foreign exchange rate dynamics are the swings or movements in exchange rate over time due to changes in macroeconomic fundamentals, policies and system of exchange rate in place at a particular period. Exchange rate dynamics follow the form of volatility, misalignment, revaluation/devaluation and appreciation/depreciation of a country's currency owing to forces of demand and supply (Tule, 2018).

Volatility of Exchange Rate

Exchange rate volatility refers to the frequent and unpredictable changes in foreign exchange rates within short periods, particularly in a floating exchange rate system. Such fluctuations, often occurring daily or even hourly, create uncertainty and instability in the currency market. High volatility increases risks for investors and international traders, making it difficult to predict market outcomes and causing apprehension in both the foreign exchange and broader financial markets (Manohar, 2024; CBN, 2016).

Misalignment of Exchange Rate

Exchange rate misalignment occurs when the foreign exchange rate deviates from its equilibrium level, meaning it strays from the stable rate expected in a balanced economic situation. This deviation can result in either undervaluation or overvaluation of a currency, which in turn affects a country's external competitiveness and overall economic behavior (Adigun, 2018).

2.2 Theoretical Framework

This study is underpinned by two prominent financial theories: the Portfolio Balance Theory and the Arbitrage Pricing Theory (APT). These theories provide complementary perspectives for analyzing how exchange rate fluctuations affect stock price behavior, especially within Nigeria's banking sector.

The Portfolio Balance Theory, developed by Branson (1983), asserts that exchange rate movements are influenced by investors' allocation of wealth between domestic and foreign assets. When investors perceive domestic assets, such as stocks, as more attractive due to higher returns or lower risk, they increase their demand for the domestic currency, thereby appreciating its value. Conversely, when domestic asset performance weakens, capital outflows can occur, leading to currency depreciation. This theory implies a bidirectional relationship between stock market performance and exchange rates. In the context of Nigeria, the theory is particularly relevant due to the country's exposure to international capital flows and the high sensitivity of its stock market, especially banking equities, to foreign investor behavior (Salisu & Ndako, 2021; Okafor & Hassan, 2024). Therefore, fluctuations in exchange rates can either attract or deter foreign portfolio investments, ultimately influencing banking stock prices.

A key weakness of the Portfolio Balance Theory is its assumption that investors can freely and efficiently rebalance their portfolios in response to changes in asset returns. In reality, developing economies like Nigeria experience significant market frictions such as capital controls, liquidity constraints, policy uncertainty, and information asymmetry, which limit smooth capital mobility and weaken the theory's assumptions. Despite this limitation, the theory remains relevant to this study because Nigeria's stock market, particularly the banking sector is increasingly influenced by foreign portfolio flows. The theory provides a useful lens for understanding how exchange rate movements affect investor behaviour and, consequently, banking stock prices.

On the other hand, the Arbitrage Pricing Theory (APT), developed by Ross (1976), proposes that asset prices are driven by multiple macroeconomic factors rather than a single market index. The theory argues that stock returns are linearly related to various risk factors such as interest rates, inflation, money supply, foreign exchange rates, and GDP growth. Each factor contributes differently to the overall return, and investors can exploit price inefficiencies through arbitrage until prices adjust to reflect all available information. Applied to Nigeria's banking sector, APT suggests that exchange rate volatility, along with other macroeconomic indicators, significantly influences bank stock performance. For instance, banks holding foreign-denominated liabilities or assets are particularly vulnerable to currency swings, which can affect their earnings and, consequently, their stock valuations (Lawal & Adeoye, 2022; Umar et al., 2023). Thus, APT provides a robust framework for understanding how systematic economic risks, including forex instability, translate into movements in banking stock prices.

A major criticism of the Arbitrage Pricing Theory is its lack of clear specification regarding which macroeconomic factors should be included in the model. This ambiguity may lead to omitted variable bias, model instability, and inconsistent empirical results across studies, especially in volatile economies. Nevertheless, APT is still appropriate for this study because it accommodates the multi-factor nature of asset pricing and allows the incorporation of macroeconomic variables, such as interest rate, external reserves, inflation, and exchange rate volatility that significantly influence banking sector stock performance in Nigeria. Its flexibility provides a robust framework for examining how systematic economic risks transmit into stock price behaviour.

2.3 Empirical Studies

Olugbenga and Ogege (2021) investigated the relationship between exchange rate volatility and the performance of listed banks in Nigeria from 2010 to 2020. Utilizing a GARCH model to assess volatility, they found that high forex volatility increased the risk premium on banking stocks, thereby reducing investor confidence. The study concludes that effective foreign exchange risk management is essential and recommends the adoption of hedging strategies and diversification of forex exposure to enhance market stability. In addition, Adewuyi and Olowookere (2021) explored both the long-run and short-run effects of foreign exchange fluctuations on the profitability of Nigerian banks. Applying the ARDL bounds testing approach, they observed that long-term

depreciation of the naira significantly eroded banks' net interest margins. The study concludes that frequent forex policy shifts can disrupt banking operations and recommends the adoption of more consistent and stable foreign exchange frameworks to support bank profitability.

Onafowokan and Akinlo (2020) examined the transmission mechanism between exchange rate movements and banking stock prices in Nigeria using the Toda-Yamamoto causality approach. Analyzing data from 2006 to 2019, they found a unidirectional causality from exchange rate volatility to banking sector returns. The study concludes that Nigerian bank equities are highly susceptible to currency risks and advocates for more transparent forex policies and improved bank disclosures. However, Musa and Bassey (2022) conducted an ARDL analysis on the Nigerian financial sector to assess how foreign exchange rate fluctuations impact sectoral stock performance. The findings revealed that while short-run effects of forex volatility were minimal, long-run depreciation led to significant declines in banking and consumer goods stocks. The authors concluded that long-term forex instability undermines investor confidence and recommended policy coordination between the Central Bank and fiscal authorities.

Furthermore, Bello and Yakubu (2023) assessed causality between exchange rates and sectoral equity returns in Nigeria using the Augmented Granger Causality test. Their findings confirmed a one-way causality from exchange rate volatility to stock prices in the banking and oil sectors. The authors emphasized that exchange rate movements are leading indicators for sectoral stock performance and recommended the adoption of early warning signals for monetary policy adjustments. Ibrahim and Salami (2023) employed a dynamic ARDL simulation model to analyze the impact of foreign exchange rate volatility on Nigerian bank stock returns between 2015 and 2022. The results showed that shocks in exchange rates have both direct and lagged effects on stock prices, especially under floating rate regimes. The study concludes that foreign currency exposure should be closely monitored and recommends macro-prudential measures for shock absorption.

Adegbite and Kolawole (2022) examined foreign exchange volatility spillovers to the Nigerian stock market using a multivariate GARCH model. The study found significant volatility transmission from exchange rate markets to stock returns, with the banking sector showing the highest exposure. The study concludes that investor protection mechanisms should be enhanced

during forex-induced volatility periods. Okafor and Hassan (2024) explored the joint effects of interest rate and foreign exchange rate volatility on stock market performance in Nigeria. Using monthly data from 2015 to 2023 and applying ARDL and Granger causality techniques, they found that interest rate and exchange rate shocks jointly reduce banking stock returns, suggesting the need for synchronized monetary tools in stabilizing financial markets.

Lawal and Adeoye (2022) investigated the responsiveness of stock prices to macroeconomic uncertainty in Nigeria, focusing on exchange rate volatility. The study applied a time-varying parameter VAR model and found that banking stocks react more aggressively to exchange rate instability compared to other sectors. The authors recommend targeted forex policy interventions for financial sector stability. Yusuf and Danjuma (2023) analyzed the asymmetric effects of exchange rate changes on banking stock prices in Nigeria using the nonlinear ARDL (NARDL) approach. Their results showed that exchange rate depreciation has a stronger negative impact than appreciation has a positive effect. The study concludes that exchange rate asymmetry matters in predicting stock returns and calls for differentiated policy responses.

3. Methodology

The ex-post facto research design was employed in this study. Data used in the study were obtained from secondary sources, specifically the Central Bank of Nigeria (CBN) and the Nigerian Exchange Group (NGX). The data spanned a multi-year period from 2005 to 2023, depending on variable availability. The units of analysis in this study are the sectorial indices of the Nigerian stock market, namely the Banking as well as relevant macroeconomic variables including exchange rate, interest rate, inflation rate, foreign reserves, and money supply.

Model Specification

The study employed the ARDL model in the form of unrestricted error correction model (ECM) for flow-oriented models (i.e. stock price as the dependent variable). This study however adopted and modified the model of Umer *et al.* (2015) which is stated as:

$$\Delta SP_t = c_1 + \sum_{i=1}^n \mu_i \Delta SP_{t-1} + \sum_{i=1}^n \omega_i \Delta EX_{t-1} + \sum_{i=1}^n \beta_i \Delta FR_{t-1} + \sum_{i=1}^n \alpha_i \Delta IR_{t-1} + \gamma_5 SP_{t-1} + \gamma_6 EX_{t-1} + \gamma_7 FR_{t-1} + \gamma_8 IR_{t-1} + U_{SPt} \dots \dots \dots (3)$$

Macroeconomic variables such as money supply and inflation rate as control variables are included to give better understanding of exchange rate dynamics and stock price behavior in the market as a whole and on the banking sectors in Nigeria.

$$\Delta ASI_t = \alpha_{0t} + \sum_{i=0}^n \beta_i \Delta ASI_{t-i} + \sum_{i=0}^n \gamma_i \Delta EXRVOL_{t-i} + \sum_{i=0}^n \delta_i \Delta FR_{t-i} + \sum_{i=0}^n \theta_i \Delta INT_{t-i} + \sum_{i=0}^n \vartheta_i \Delta INF_{t-i} + \sum_{i=0}^n \tau_i \Delta MS_{t-i} + \phi_1 ASI_{t-1} + \phi_2 EXRVOL_{t-1} + \phi_3 FR_{t-1} + \phi_4 INT_{t-1} + \phi_5 INF_{t-1} + \phi_6 MS_{t-1} + \varepsilon_t \dots \dots \dots (4)$$

Where: FR = Foreign Reserve;
 Δ = the first difference operator; INT = Interest Rate;
 ect = error correction term; INF = Inflation Rate;
 ASI = All Share Index; MS = Money Supply; and
 EXRVOL = Foreign Exchange Rate Volatility; ε_t = Disturbance term

Model Estimation Techniques

This study employed the Augmented Granger Causality test and the Autoregressive Distributed Lag (ARDL) model to examine both the causal relationship and the short- and long-run effects of foreign exchange rate dynamics on stock price behavior in selected sectors of the Nigerian Stock Exchange. The Augmented Granger Causality test was used to determine the direction of causality between exchange rates and stock prices, while the ARDL model was applied to analyze dynamic relationships, accommodating variables with different levels of integration. Pre-estimation tests, including the ADF breakpoint unit root test and cointegration analysis, were conducted to ensure data stationarity and validate long-run relationships.

4. Data Presentation, Analysis and Discussion of Findings

Descriptive Result

Table 1 presents the descriptive analysis of each of the variables employed in the specified models. The descriptive statistics of the dependent and independent variables were calculated. This provides in-depth information on the behavior of these variables.

Table 1: Summary of Descriptive Statistics of Variables

Statistics	Mean	Max	Min	S/D	Skew	kurt	J/B	Prob
Banking	371.35	577.14	223.74	74.36	0.29	2.89	1.73	0.042
Exc. Rate	218.74	494.70	118.69	99.42	1.15	2.94	28.56	0.000
INF	11.91	18.72	7.71	3.05	0.39	2.16	7.03	0.030

FR	38704.7	62081.9	23689.9	9125.7	0.68	2.94	10.05	0.007
MS	15530436	25277071	6527673	5205988	0.25	1.90	7.81	0.020
INT	11.01	14.0	6.0	2.68	-0.74	2.29	14.58	0.000

(Source: Author's Computation, 2025).

The descriptive analysis presented in Table 1 reveals that the monthly average all-share index for Nigeria's banking sector was 371.35 with a relatively low standard deviation of 74.36, suggesting limited volatility. However, the Jarque-Bera test indicates non-normality of the distribution (JB = 1.73, p = 0.042). Foreign exchange rates showed substantial volatility, averaging ₦218.74 and ranging between ₦118.69 and ₦494.70, with a high standard deviation of 99.42. The data exhibited positive skewness and kurtosis, and the Jarque-Bera statistic (JB = 28.56, p = 0.000) confirms non-normal distribution. Inflation rates ranged from 7.71% to 18.72%, with a mean of 11.91%. The skewed nature and significant Jarque-Bera test (JB = 7.03, p = 0.030) further support deviation from normality.

Other macroeconomic indicators showed similar patterns. Monthly external reserves averaged \$38,704.7 million, with high variability (SD = \$9,125.7 million) and significant non-normality (JB = 10.05, p = 0.007). Broad money supply exhibited a mean of ₦15.53 trillion and a widespread, confirmed by a Jarque-Bera statistic of 7.81 (p = 0.020). The interest rate had an average of 11.01%, ranging between 6% and 14%, with significant negative skewness and non-normal distribution (JB = 14.58, p = 0.000). Overall, the statistical characteristics of all variables indicate substantial deviations from normality, necessitating the use of estimation techniques robust to non-normal distributions in further analysis.

Preliminary Estimation Techniques

Table 2: Pairwise Correlation Matrix

	Ex. Banking Rates	Ex. Inflation	Ext. Res.	M2	Int. Rate	
Banking	1.0					
Ex. Rates	-0.10	1.0				
Inflation	-0.18	0.64	1.0			
Ex. Res.	0.62	-0.39	-0.29	1.0		
M2	0.04	0.67	0.28	-0.31	1.0	
Int. Rate	-0.04	0.63	0.04	-0.19	0.62	1.0

(Source: Author's Computation, 2025).

Results presented in Table 2 showed that all the correlation coefficients are well below 0.8 which is an indication of absence of problematic multi-collinearity in the model (Kennedy 2009).

Table 3: Augmented Dickey-Fuller Breakpoint Unit Root Test

Variables	At level			At First Difference			Order of Integration
	T-Stat	Crit.Val	P-Val	T-Stat	Crit.Val	P-Val	
Banking	-4.12	-5.17	0.45	-10.04	-5.17	0.00	I(1)
Exch. Rate	-4.65	-5.17	0.17	-10.60	-5.17	0.00	I(1)
Inflation	-5.64	-5.17	0.01				I(0)
Ext. Reserve	-3.46	-5.17	0.83	-8.22	-5.17	0.00	I(1)
M2	-5.55	-5.17	0.02				I(0)
Interest Rate	-3.99	-5.17	0.53	-13.26	-5.17	0.00	I(1)

(Source: Author's Computation, 2025).

The results of the Augmented Dickey-Fuller (ADF) breakpoint unit root test presented in Table 3 indicates that at the 5% significance level, the inflation rate and broad money supply (M2) are stationary at level, as evidenced by their p-values below 0.05 and test statistics exceeding the critical values. These variables are therefore classified as integrated of order zero, I(0). Conversely, the banking sector all-share index, exchange rate, external reserves, and interest rate were non-stationary at level but became stationary after first differencing, indicating that they are integrated of order one, I(1). This distinction is critical for modeling purposes as it reflects different stochastic properties among the variables.

Given the mixture of I(0) and I(1) series, applying Ordinary Least Squares (OLS) directly would result in spurious regression unless a long-run equilibrium relationship exists among the variables. Consequently, the Autoregressive Distributed Lag (ARDL) bounds testing approach proposed by Pesaran et al. (2001) was employed to test for co-integration. This method is suitable for models with a mix of I(0) and I(1) variables and provides a robust framework for determining long-run relationships. The outcome of the bounds test, reported subsequently, guides the validity of further estimations within the ARDL framework. The result of the bounds test approach is presented in Table 4.

Table 4: ARDL Bounds Test Approach

Aggregate	Banking
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F-stat	K	F-stat	K
5.03	5	4.69	5
Critical Bounds			
I(0) Bound	I(1) Bound	I(0) Bound	I(1) Bound
3.12	4.25	3.12	4.25

(Source: Author's Computation, 2025).

If the F-statistic value is greater than I(1) bound, the null hypothesis should be rejected and accept null hypothesis if the value is less than I(0) bound. On the other hand, the test is inconclusive if the F-statistic value falls in between the bounds. The F-statistic values of the test is 4.69, for the banking sector, with five independent variables included in each model. The I(0) and I(1) bounds at 5% significance level for each of the models are 3.12 and 4.25 respectively. This shows that the F-statistic is greater than I(1) bound for each of the models. This indicates that the test is significant in all cases and suggests the rejection of null hypothesis. A conclusion can then be made that there exist long-run relationships among the stationary and non-stationary series of each of the models.

Augmented Granger Causality Test

This sub-section presents the panel result of Augmented Granger Causality test which show the causal relationship between foreign exchange rate and all share index of the banking sector. This approach computes statistics that asymptotically follow the chi-square (χ^2) distribution irrespective of the order of integration of the variables. This is presented in Table 5.

Table 5: Augmented Granger Causality Test – ASI of Banking Sector and Exchange Rate Volatilities

Banking Sector ASI and Exchange Rate Volatility (A)		
Variable	Chi-squared	Prob.
Banking to Exchange rate	3.600	0.731
Exchange rate to Banking	16.254	0.013

(Source: Author's Computation, 2025).

Table 5 presents the results of the Toda-Yamamoto augmented Granger causality test, which examines the causal relationship between exchange rate volatility and the banking sector's all-share index. The findings indicate a unidirectional causality from exchange rate volatility to banking sector stock prices at the 5% significance level, as evidenced by a chi-squared value of 16.25 and a p-value of 0.013. This result provides sufficient evidence to reject the null hypothesis of no causality, suggesting that fluctuations in the exchange rate significantly influence banking

stock performance in Nigeria. The causality may be attributed to banks' exposure to foreign exchange risks through cross-border transactions, forex trading, and foreign-denominated assets. This outcome aligns with the flow-oriented theory, which posits that exchange rate movements drive stock price behavior by affecting firm profitability and investor expectations.

Effect of Foreign Exchange Rate dynamics on the Banking Sector Stock Price Behaviour in Nigeria.

This sub-section presents the Auto-Regressive Distributive Lags (ARDL) results of the effects of foreign exchange rate on stock price behaviour of the banking sectors. This is presented in Table 6.

Table 6: ARDL Short Run Error Correction and Long Run Estimates – Banking Sector

Short Run Error Correction				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D (LOG BANKING (-1))	-0.119	0.101	-1.178	0.242
D(EXVOLA)	-0.245	22.013	-0.011	0.991
D(LOGEXRES)	-6.083	0.073	-83.853	0.000
D(LOGM2)	0.101	0.199	0.506	0.614
D(INTRATE)	-0.144	0.007	-21.713	0.000
D(INFLATION)	0.325	0.003	101.151	0.000
D (@ TREND)	-0.000	0.002	-0.186	0.852
CointEq (-1)	-0.676	0.067	-10.125	0.000
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXVOLA	-0.363	32.589	-0.011	0.991
LOGEXRES	-9.004	0.965	-9.327	0.000
LOGM2	0.149	0.298	0.500	0.618
INTRATE	-0.213	0.018	-11.502	0.000
INFLATION	0.482	0.049	9.793	0.000
C	-0.010	4.937	-0.002	0.998
@TREND	-0.001	0.003	-0.185	0.853
R-squared	0.848			
Adjusted R-squared	0.837			
F-statistic	74.001			
Prob(F-statistic)	0.000			
Durbin-Watson stat	1.952			

Source: Author's Computation, (2025).

The short-run estimates from the ARDL model, as presented in Table 6, reveal that external reserves, interest rates, and inflation rates are statistically significant determinants of banking sector stock prices in the short term. This is supported by their respective p-values, which fall

below conventional significance thresholds. In contrast, exchange rate volatility and broad money supply do not exert significant short-run effects on stock price behaviour within the banking sector. Among the significant variables, external reserves and interest rates exhibit negative relationships with banking stock prices, whereas inflation rate has a positive effect. The short-run model also includes an error correction term with a significant negative coefficient of -0.676, suggesting that approximately 67.5% of short-run disequilibrium is corrected within one month, indicating rapid adjustment toward long-run equilibrium.

In the long-run estimation, the same set of variables, external reserves, interest rates, and inflation rates, remain significant in explaining banking sector stock price movements. Exchange rate volatility and broad money supply continue to lack statistical significance, suggesting that their impact is not sustained over time. The long-run coefficients indicate that an increase in external reserves leads to a 9.0% decline in banking stock prices, while a percentage point rise in the interest rate results in a 0.21% decrease. Conversely, inflation exerts a positive long-term effect, where a one percentage point increase corresponds to a 0.48% rise in banking sector stock prices. These results reinforce the notion that monetary and macroeconomic fundamentals exert sustained influence on equity performance in the financial sector.

Model diagnostics confirm the robustness of the estimation. The R-squared value of 0.848 implies that approximately 84.8% of the variation in banking stock prices is explained by the model, while the F-statistic of 74.0 (p-value = 0.000) indicates overall statistical significance. Moreover, the Durbin-Watson statistic, approximating 2.0, suggests the absence of serial correlation in the residuals, affirming the reliability and stability of the model's predictive capacity.

Discussion of Findings

The findings reveal a nuanced causal relationship between foreign exchange rates and stock prices in the Nigerian stock market, varying across aggregate and sectoral levels. Table 5 shows a significant causality running from the aggregate market index to exchange rate volatility, indicating that movements in the Nigerian stock market index Granger-cause changes in exchange rates. This aligns with the portfolio balance theory, suggesting that improved market performance attracts foreign investment, thereby influencing currency demand and exchange rates, a view supported by Adewale et al. (2024) and Salisu and Ndako (2017). Conversely, sectoral analysis

highlights heterogeneity, with the banking sector being the only segment where stock prices are significantly influenced by exchange rate movements. This unidirectional causality from exchange rate to banking stock prices may stem from banks' heightened exposure to foreign exchange activities, including forex trading and offshore balances, especially following the closure of the official forex window (CBN, 2016). Thus, while the aggregate market supports the notion that stock prices influence exchange rates, the banking sector aligns with the flow-oriented theory, which posits that exchange rate fluctuations drive stock price behavior, a finding consistent with Salisu et al. (2021).

The ARDL short-run and long-run co-integration analysis reveals that external reserves, interest rate, and inflation significantly influence banking sector stock prices on the Nigerian Stock Market, while foreign exchange rates and broad money supply show no significant impact in either timeframe. The negative effect of external reserves may be linked to recurrent capital flight, often triggered by economic instability, poor oil revenue management, and geopolitical issues in oil-producing regions. As the banking sector accounts for over 60% of total market capitalization (Oyao & Ekienabor, 2022), it is particularly vulnerable to fluctuations in foreign investor confidence. Moreover, under the CBN Act (2007), foreign reserves include bank balances in foreign currencies, exposing banks to currency risk. When external reserves fall, it can signal declining investor trust and increase banks' exposure to exchange losses, which in turn lowers profitability and investor returns. This supports the Arbitrage Pricing Theory, which argues that changes in key macroeconomic fundamentals, rather than idiosyncratic risks, drive asset prices, as these variables systematically affect returns across the market.

Interest rates also exert a significant negative effect on banking stock prices, likely due to contractionary policies such as the Central Bank of Nigeria's 8% hike in the Monetary Policy Rate (MPR) aimed at inflation control and foreign reserve stabilization. Elevated interest rates increase borrowing costs, reduce liquidity, and dampen corporate profits, ultimately discouraging investment and depressing stock prices. Ngalawa et al. (2024) observed similar outcomes in Kenya, where rising interest rates constrained credit availability and reduced equity market returns. Ghumro et al. (2024), studying emerging Asian markets, also confirmed that higher interest rates negatively impact firm performance and investor sentiment. Conversely, inflation shows a

significant positive relationship with banking stock prices, suggesting that equities, particularly in Nigeria, may serve as a hedge against inflation. Charles and Richard (2018) supported this view by showing that investors in high-inflation economies shift toward stocks to preserve real wealth. These findings contrast with Omankhalen et al. (2016), who reported a negative link between inflation and stock prices in Nigeria, suggesting that sectoral dynamics may yield varying outcomes. The contrasting effects of interest rate and inflation highlight their inverse interaction and the complex influence of macroeconomic policy tools on banking sector performance.

5. Conclusion and Recommendations

The study concludes that external reserves, interest rate, and inflation rate significantly influence the stock price behavior of the banking sector in Nigeria, both in the short and long run. Specifically, external reserves and interest rates exhibit negative and statistically significant effects, indicating that declines in reserves and increases in borrowing costs reduce investor confidence and profitability, thereby depressing banking stock prices. In contrast, inflation has a positive and significant impact in both timeframes, suggesting that banking equities serve as a hedge against inflation in the Nigerian context. These findings align with the Arbitrage Pricing Theory, which posits that macroeconomic fundamentals systematically affect asset prices. Furthermore, the study finds that foreign exchange rates and broad money supply do not significantly affect banking sector stock prices, emphasizing the stronger influence of core monetary and external indicators. The causality analysis supports a unidirectional causality from exchange rate volatility to banking stock prices, validating the flow-oriented theory, while aggregate market movements were found to Granger-cause changes in exchange rates, consistent with the portfolio balance theory. Based on the findings, the following recommendations were provided:

- i. In view of the finding that the banking sector does not significantly respond to foreign exchange rate dynamics in Nigeria, it is recommended that the Securities and Exchange Commission (SEC) should expand its assessment of market performance beyond exchange rate risks. Specifically, attention should be given to other macroeconomic indicators such as interest rate, inflation, and foreign reserves, as these variables exert sector-specific influences on stock prices and overall market outcomes.

- ii. Given the study's evidence that the banking sector, being the backbone of Nigeria's capital market, responds negatively to fluctuations in external reserves in both the short and long run, it is recommended that the Nigerian government intensify its economic diversification efforts. Greater policy and investment focus should be directed toward the consumer goods sector. This will boost domestic production, attract foreign direct investment, increase exports, and ultimately generate multiple streams of foreign exchange earnings for the country.
- iii. Considering the negative impact of interest rates on the banking sector, it is recommended that the Central Bank of Nigeria (CBN) pursue monetary policy reforms aimed at stabilizing the Monetary Policy Rate (MPR) within a single-digit range. This will reduce the cost of borrowing, improve credit accessibility, and stimulate investor confidence in a more liquid and investment-friendly economy

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