



ECONOMIC SENTIMENT AND STOCK MARKET VOLATILITY: EVIDENCE FROM THE NIGERIAN EXCHANGE GROUP

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Abstract

This study examined the effects of direct investor sentiment, indirect investor sentiment, and selected macroeconomic variables on stock market volatility in the Nigerian Exchange Group using 120 monthly observations from January 2016 to December 2025 within a multiple regression framework. Direct sentiment was proxied by the Consumer Confidence Index and indirect sentiment by a composite index of trading volume and turnover ratio; macroeconomic controls included inflation, exchange rate, oil price, and stock market development. Direct investor sentiment had a negative and statistically significant effect on stock market volatility (Beta = -0.528, $p < 0.001$), with the model explaining 27.9 per cent of variance in volatility – a finding that departs from the conventional expectation that rising optimism fuels speculative excess and is interpreted through the Adaptive Market Hypothesis as a context-dependent sentiment effect in a persistently pessimistic frontier market. Indirect investor sentiment produced no significant effect on volatility in either the bivariate or full model, indicating that volume-based proxies capture liquidity dynamics rather than behavioural sentiment in the Nigerian market microstructure. In the full model, inflation was the only macroeconomic variable to reach significance, confirming that price instability is a direct transmitter of uncertainty into equity market risk; the combined model explained 34.4 per cent of variance (Adjusted $R^2 = 0.309$, $F = 9.864$, $p < 0.001$). Severe autocorrelation was present across all models, qualifying the reported significance levels and motivating re-estimation through GARCH or Newey-West HAC approaches. The findings contribute updated evidence on the sentiment-volatility relationship in a frontier market and recommend that regulators incorporate consumer confidence indicators into market surveillance frameworks and that future research adopt volatility-specific time-series estimation methods.

Keywords: Investor sentiment, Stock market volatility, Consumer Confidence Index, Nigerian Exchange Group, Adaptive Market Hypothesis, Behavioral finance.

1. Introduction

The assumption that financial markets respond primarily to information and that prices adjust rationally to changing economic conditions shaped decades of financial theory. Over time, however, behavioral research challenged this foundation by showing that market outcomes are often influenced by psychological factors that conventional rational models do not fully explain. Among these factors, investor sentiment has emerged as a particularly important one, reflecting the collective optimism or pessimism of market participants in ways that frequently depart from underlying fundamentals (Baker & Wurgler, 2007). In markets where structural weaknesses reduce the corrective role of arbitrage, such sentiment-driven distortions tend to be more pronounced and persistent (Wang, Su, & Duxbury, 2022).

One of the clearest consequences of sentiment-driven trading is excess volatility. When market prices are shaped by emotion rather than information, price swings often become larger and more frequent than fundamentals would justify. Existing research has shown that periods of

heightened sentiment activity are associated with elevated market instability, especially in emerging markets where retail investors dominate and corrective market mechanisms are weaker (Kumari & Mahakud, 2015; Naik & Padhi, 2020). The Nigerian stock market provides a compelling setting for examining this relationship. The Nigerian Exchange Group (NGX) operates within a macroeconomic environment characterized by exchange rate instability, persistent inflation, and strong exposure to oil price shocks. In such a setting, investor responses to policy signals and external events may translate rapidly into price instability. This suggests that stock market volatility in Nigeria may not be fully explained without accounting for the behavioral dimension of investor activity (Adeniyi et al., 2021; Nwosa, 2021).

Despite this relevance, empirical work on the relationship between investor sentiment and stock market volatility in Nigeria remains limited. Existing studies in the Nigerian context have focused more heavily on stock returns, leaving volatility as a distinct dimension of market behavior relatively underexplored. In addition, many available studies rely on single sentiment proxies or datasets that predate the structural adjustments of the post-COVID-19 period, thereby limiting their relevance to current market conditions (Adaramola & Obisesan, 2022; Ajakaiye et al., 2023). This study addressed these limitations by examining the effects of both direct and indirect investor sentiment on stock market volatility in Nigeria. Direct investor sentiment was proxied using the Consumer Confidence Index, while indirect sentiment was measured through a composite index derived from trading volume and turnover ratio. By incorporating both dimensions simultaneously, the study provided a broader assessment of sentiment dynamics and aligned with recent methodological advances in sentiment measurement (Baker & Wurgler, 2006; Wang et al., 2021). The analysis also incorporated key macroeconomic variables, namely inflation, exchange rate, oil prices, and stock market development, in order to account for broader structural influences on volatility. In a macroeconomically exposed market such as Nigeria, these variables may interact with investor sentiment in shaping volatility outcomes.

2. Literature Review

Stock Market Volatility

Stock market volatility refers to the degree to which asset prices fluctuate over a given period and is widely used as a measure of market uncertainty and risk. Unlike stock returns, which reflect the direction and magnitude of price movement, volatility captures the intensity and frequency of price swings. Periods of high volatility are typically associated with uncertainty, speculative activity, and information asymmetry, especially in markets where price discovery is weak (Schwert, 1989; Wang, Su, & Duxbury, 2022). These characteristics are often more pronounced in emerging markets. Limited market depth, weaker institutional participation, and uneven access to information create conditions in which prices are more susceptible to non-fundamental influences. In such environments, investor sentiment tends to leave a stronger and more persistent mark on price behavior than it would in deeper and more efficient markets.

Investor Sentiment and Volatility Dynamics

The relationship between investor sentiment and stock market volatility is largely transmitted through trading behavior. When market participants trade on emotion rather than information, reacting to collective optimism or pessimism instead of changes in intrinsic value, trading volume rises, price dispersion widens, and instability increases. Sentiment-induced overreaction and underreaction to information are well-established sources of volatility clustering and may sustain market fluctuations beyond what fundamentals justify (Baker & Wurgler, 2007). Empirical

evidence supports this mechanism across different market settings. Naik and Padhi (2020), using Indian stock market data, found that irrational investor sentiment significantly drives excess market volatility and that the effect is compounded by the asymmetric characteristics of inefficient markets. Kumari and Mahakud (2015) similarly reported that sentiment, particularly from retail investors, exerts an immediate and statistically significant influence on both stock returns and asset volatility in an emerging market environment.

Measurement of Sentiment in Volatility Studies

The measurement of investor sentiment remains a key methodological issue in this literature. Direct sentiment measures are typically survey-based and most commonly include the Consumer Confidence Index, which reflects the expectations and perceptions of economic agents. Indirect sentiment measures are inferred from observable market behavior such as trading volume, turnover ratio, and other activity-based signals (Dash & Mahakud, 2013; Kumari & Mahakud, 2015). A growing body of research argues that neither measure is sufficient on its own. Composite indices that combine multiple market-based indicators are better able to capture the multidimensional nature of sentiment and often improve explanatory power in empirical models (Baker & Wurgler, 2006; Wang et al., 2021). This is particularly relevant for volatility studies, where different behavioral signals may interact in complex ways that no single proxy can adequately reflect.

Investor Sentiment and Volatility in Emerging Markets

The sentiment-volatility relationship tends to be stronger in emerging and frontier markets than in developed markets. Weaker arbitrage mechanisms allow sentiment-driven mispricing to persist longer, while lower institutional participation reduces the stabilizing role of informed trading (Schmeling, 2009; Wang, Su, & Duxbury, 2022). As a result, behavioral factors may sustain volatility beyond what would ordinarily be explained by fundamentals. Evidence from African markets is consistent with this pattern. In the Nigerian context, Adeniyi et al. (2021) showed that macroeconomic instability and behavioral biases interact in ways that amplify market volatility. Nwosa (2021) further argued that the partial inefficiency of the Nigerian stock market creates room for investor sentiment to retain predictive power over market fluctuations. These findings are in line with the Adaptive Market Hypothesis (Lo, 2004), which suggests that market efficiency varies over time and that behavioral dynamics may dominate during certain periods.

Gaps in the Literature

Three gaps are particularly relevant to this study. First, research on the Nigerian stock market has focused largely on stock returns, leaving stock market volatility as an important but underexplored dimension of market behavior. This limits understanding of the behavioral drivers of market risk in Nigeria. Second, much of the existing Nigerian literature relies on single sentiment proxies. Given the multidimensional character of investor sentiment, such an approach may understate its influence and contribute to inconsistent findings across studies. Third, many earlier studies are based on datasets that predate recent structural shifts in the Nigerian economy, including post-COVID-19 monetary changes, exchange rate reforms, and the behavioral adjustments that followed. As a result, their findings may not fully reflect current market conditions.

In line with the foregoing discussion, the study tested the following null hypotheses:

H₀₁: Direct investor sentiment had no significant effect on stock market volatility in Nigeria.

H₀₂: Indirect investor sentiment had no significant effect on stock market volatility in Nigeria.

H₀₃: Macroeconomic variables had no significant influence on stock market volatility in Nigeria

3. Methodology

The study adopted an ex-post facto research design, which was suitable for financial research involving historical data where variables were observed in their natural state rather than subjected to experimental manipulation. This design allowed the study to examine relationships among variables as they occurred without influencing the processes through which the data were generated. All data used in the study were secondary. Stock price data were obtained from the Nigerian Exchange Group (NGX), while macroeconomic variables, including inflation and exchange rate, were sourced from publications of the Central Bank of Nigeria. Oil price data were obtained from international financial databases. The study covered a rolling ten-year period anchored to the most recent available data, thereby ensuring that the analysis reflected current market conditions rather than an outdated economic environment. The study population comprised all firms listed on the Nigerian Exchange Group. The sample was restricted to actively traded firms with complete and consistent observations across the study period. Firms with incomplete observations or irregular trading activity were excluded because such gaps could distort volatility estimates and reduce the reliability of the empirical analysis.

Model Specification

The functional relationship between investor sentiment and stock market volatility was expressed as:

$$\text{VOL} = f(\text{DSENT}, \text{ISENT}, \text{INF}, \text{EXR}, \text{OIL}, \text{SMD})$$

To align the empirical analysis with the study objectives, three regression models were specified. Model 1 examined the effect of direct investor sentiment on stock market volatility. Model 2 examined the effect of indirect investor sentiment on stock market volatility. Model 3 estimated the joint effects of direct investor sentiment, indirect investor sentiment, and the selected macroeconomic control variables on stock market volatility.

The models were specified as follows:

Model 1

$$\text{VOL}_t = \beta_0 + \beta_1 \text{DSENT}_t + \varepsilon_t$$

Model 2

$$\text{VOL}_t = \beta_0 + \beta_1 \text{ISENT}_t + \varepsilon_t$$

Model 3

$$\text{VOL}_t = \beta_0 + \beta_1 \text{DSENT}_t + \beta_2 \text{ISENT}_t + \beta_3 \text{INF}_t + \beta_4 \text{EXR}_t + \beta_5 \text{OIL}_t + \beta_6 \text{SMD}_t + \varepsilon_t$$

Where:

VOL = Stock Market Volatility

DSENT = Direct Investor Sentiment

ISENT = Indirect Investor Sentiment

INF = Inflation

EXR = Exchange Rate

OIL = Oil Price

SMD = Stock Market Development

ε = Error term

t = Time period

β_0 = Constant term

β_1 - β_6 = Coefficients of the explanatory variables

Measurement of Variables

The variables employed in the study, together with their notation and measurement approach, are presented in Table 1.

Table 1: Variable Definition and Measurement

Variable Type	Variable		Notation	Measurement
Dependent	Stock Market Volatility		VOL	Standard deviation of stock returns
Independent	Direct Investor Sentiment	Investor	DSENT	Consumer Confidence Index
Independent	Indirect Investor Sentiment	Investor	ISENT	Composite index of trading volume and turnover ratio
Control	Inflation		INF	Annual percentage change in CPI
Control	Exchange Rate		EXR	Official Naira/USD exchange rate
Control	Oil Price		OIL	Crude oil price (USD per barrel)
Control	Stock Market Development	Market	SMD	Market capitalization or turnover ratio

Source: Author's Computation (2026).

Stock market volatility was measured as the standard deviation of stock returns over the study period. This measure captured the extent to which stock prices deviated from their average movement and served as a proxy for market risk and uncertainty. Direct investor sentiment was proxied using the Consumer Confidence Index, which reflected the expectations of economic agents regarding prevailing and future economic conditions. Indirect investor sentiment was measured using a composite index derived from trading volume and turnover ratio. These market-based variables were standardized using z-scores and aggregated to form a composite sentiment index consistent with the multidimensional measurement approach adopted in the literature. Inflation, exchange rate, oil price, and stock market development were included as control variables in order to account for broader structural forces that independently influenced stock market volatility in Nigeria.

Estimation Technique

The models were estimated using multiple regression analysis in SPSS (Version 23). The estimation process involved data preparation, computation of stock returns, and derivation of stock market volatility using the standard deviation of returns. The composite sentiment index was constructed through z-score standardization and aggregation of the selected market-based variables.

Descriptive statistics and correlation analysis were conducted prior to regression estimation in order to summarize the data and examine preliminary relationships among variables. Diagnostic tests, including variance inflation factor analysis and residual examination, were also performed to verify that the estimated models satisfied the required statistical conditions for valid and reliable inference.

a-Priori Expectations

The expected directional relationships between the explanatory variables and stock market volatility are summarized in Table 2.

Table 2: A Priori Expectations

Variable	Expected Sign	Justification
DSENT	+	Rising optimism was expected to encourage speculative trading and increase price fluctuations
ISENT	+	Higher trading activity and turnover were expected to amplify market volatility
INF	+	Higher inflation was expected to increase uncertainty and market instability
EXR	±	Exchange rate movements were expected to have either stabilizing or destabilizing effects depending on the direction and intensity of the shock
OIL	+	Oil price fluctuations were expected to transmit external uncertainty into the Nigerian market
SMD	-	Greater market development was expected to improve liquidity and price discovery, thereby moderating volatility

Source: Author's Computation (2026).

4. Results and Discussion

Descriptive Statistics

Table 3 presents the descriptive statistics for all study variables over the 120-month sample period from January 2016 to December 2025.

Table 3: Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Stock Market Volatility (VOL)	120	.0539	.0784	.064813	.0039442
Direct Sentiment (DSENT)	120	-51.10	9.70	-10.2408	13.43452
Indirect Sentiment (ISENT)	120	-1.168	2.115	.00000	.702593
Inflation (INF)	120	9.62	34.80	18.5758	6.75438
Exchange Rate (EXR)	120	197.50	1652.11	615.4608	459.78428
Oil Price (OIL)	120	21.04	116.80	65.9716	17.97756
Stock Market Dev. (SMD)	120	8.54	99.18	30.6290	25.25928

Source: SPSS Output (2026)

Mean stock market volatility over the ten-year period was 0.0648 (6.48%), with a narrow range between 5.39% and 7.84% and a standard deviation of 0.0039. The compressed range reflects the smoothing effect of measuring volatility as the standard deviation of monthly returns over rolling windows rather than as a point-in-time realised measure; it does not imply genuine stability in the underlying market. Direct Sentiment (DSENT), proxied by the Consumer Confidence Index, recorded a mean of -10.24, indicating that investor and consumer outlook in Nigeria was predominantly pessimistic across the full sample period. The wide range from -51.10 to 9.70 and a standard deviation of 13.43 confirm substantial oscillation between extreme pessimism and

moderate optimism, providing the cross-period variation required for regression-based inference. Indirect Sentiment (ISENT) has a mean of zero and standard deviation of 0.703 by design, reflecting its standardised composite construction.

The macroeconomic control variables capture the structural pressures that characterised the Nigerian economy across the study window. Inflation averaged 18.58% with a peak of 34.80%, reflecting a persistently high and volatile inflationary environment. The exchange rate moved from ₦197.50/\$ to ₦1,652.11/\$, a range that captures the full effect of the managed float regime collapse and the subsequent exchange rate unification, the largest currency realignment in Nigeria's recent economic history. Oil price averaged \$65.97 per barrel, ranging from \$21.04 during the April 2020 pandemic shock to \$116.80 during the 2022 Russia-Ukraine supply disruption. Stock Market Development showed wide variation from 8.54 to 99.18, reflecting periods of market expansion and contraction over the decade.

Correlation Analysis

Table 4 presents the Pearson correlation matrix.

Table 4: Pearson Correlation Matrix

Variable	VOL	DSENT	ISENT	INF	EXR	OIL	SMD
VOL	1						
DSENT	-.528**	1					
ISENT	-.075	.239**	1				
INF	.260**	-.469**	-.194*	1			
EXR	.043	-.313**	-.213*	.747**	1		
OIL	-.112	.144	.094	.429**	.302**	1	
SMD	-.021	-.215*	-.222*	.792**	.898**	.418**	1

** Significant at 0.01 level (2-tailed). * Significant at 0.05 level (2-tailed). N = 120. Source: SPSS Output (2026)

The correlation between DSENT and VOL is negative, moderate, and statistically significant ($r = -0.528$, $p < 0.01$), indicating that higher consumer confidence is associated with lower stock market volatility, a direction contrary to the a priori expectation and one that requires careful theoretical treatment in the regression discussion. ISENT exhibits a weak and insignificant bivariate correlation with volatility ($r = -0.075$, $p = 0.419$), suggesting that market-based sentiment signals do not display a strong linear association with contemporaneous volatility at the unconditional level. Among the macroeconomic variables, INF shows a positive and significant correlation with VOL ($r = 0.260$, $p < 0.01$), consistent with the expectation that higher inflation increases market uncertainty. EXR ($r = 0.043$), OIL ($r = -0.112$), and SMD ($r = -0.021$) are all insignificant at the bivariate level, and OIL's negative sign contradicts the a priori expectation. The intercorrelations among macroeconomic predictors are notably high: EXR and SMD ($r = 0.898$), INF and SMD ($r = 0.792$), and INF and EXR ($r = 0.747$). These signal potential multicollinearity in Model 3 that is examined through VIF diagnostics in the regression analysis below.

Regression Results

Model 1: Effect of Direct Investor Sentiment on Stock Market Volatility

Table 5: Regression Results for Model 1 (VOL on DSENT)

Panel A: Model Summary

R	R Square	Adjusted R ²	Std. Error	Durbin-Watson
.528	.279	.272	.0033643	.531

Panel B: ANOVA

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	.001	1	.001	45.559	.000
Residual	.001	118	.000		
Total	.002	119			

Panel C: Coefficients

Variable	B	Std. Error	Beta	t	Sig.	VIF
Constant	.063	.000		163.474	.000	
DSENT	-1.55E-4	.000	-.528	-6.750	.000	1.000

Dependent Variable: VOL. Source: SPSS Output (2026)

Direct Investor Sentiment (DSENT) explained 27.9% of the variance in stock market volatility ($R^2 = .279$, Adjusted $R^2 = .272$). The ANOVA confirms overall model significance ($F = 45.559$, $p < 0.001$). The coefficient for DSENT is negative and statistically significant ($B = -1.55E-4$, $Beta = -0.528$, $t = -6.750$, $p < 0.001$), indicating that higher consumer confidence is associated with lower stock market volatility. **The null hypothesis H_{01} is rejected.** The Durbin-Watson statistic of 0.531 is well below the acceptable range of 1.5–2.5, indicating severe positive autocorrelation in the residuals. Standard errors in this model are likely underestimated; reported p-values should be treated as provisional and the coefficient interpreted with appropriate caution pending re-estimation with Newey-West HAC standard errors.

Model 2: Effect of Indirect Investor Sentiment on Stock Market Volatility

Table 6: Regression Results for Model 2 (VOL on ISENT)

Panel A: Model Summary

R	R Square	Adjusted R ²	Std. Error	Durbin-Watson
.075	.006	-.003	.0039499	.383

Panel B: ANOVA

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	.000	1	.000	.659	.419
Residual	.002	118	.000		
Total	.002	119			

Panel C: Coefficients

Variable	B	Std. Error	Beta	t	Sig.	VIF
Constant	.065	.000		179.751	.000	
ISENT	-4.20E-4	.001	-.075	-.812	.419	1.000

Dependent Variable: VOL. Source: SPSS Output (2026)

The model explains virtually none of the variance in volatility ($R^2 = .006$, Adjusted $R^2 = -.003$). The ISENT coefficient is near zero and statistically insignificant ($B = -4.20E-4$, $Beta = -0.075$, $t = -0.812$, $p = 0.419$). **The null hypothesis H_{02} cannot be rejected.** The Durbin-Watson of 0.383 indicates even more severe autocorrelation than Model 1.

Model 3: Combined Effects, Direct Sentiment, Indirect Sentiment, and Macroeconomic Variables

Table 7: Regression Results for Model 3 (Full Model)

Panel A: Model Summary

R	R Square	Adjusted R ²	Std. Error	Durbin-Watson
.586	.344	.309	.0032789	.469

Panel B: ANOVA

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	.001	6	.000	9.864	.000
Residual	.001	113	.000		
Total	.002	119			

Panel C: Coefficients

Variable	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
Constant	.062	.001		45.050	.000		
DSENT	-1.23E-4	.000	-.417	-4.100	.000	.562	1.780
ISENT	1.22E-4	.000	.022	.267	.790	.884	1.131
INF	2.51E-4	.000	.430	2.770	.007	.241	4.154
EXR	-3.83E-7	.000	-.045	-.246	.806	.176	5.682

OIL	-1.48E-5	.000	-.067	-.705	.482	.637	1.571
SMD	-5.91E-5	.000	-.378	-1.822	.071	.135	7.425

Panel D: Collinearity Diagnostics

Dimension	Eigenvalue	Condition Index
1	5.015	1.000
2	1.059	2.176
3	0.506	3.150
4	0.330	3.897
5	0.044	10.697
6	0.025	14.058
7	0.020	15.802

Dependent Variable: VOL. Source: SPSS Output (2026)

The full model explains 34.4% of variance in volatility (Adjusted $R^2 = 0.309$) and is statistically significant overall ($F = 9.864$, $p < 0.001$). The Durbin-Watson of 0.469 confirms persistent severe autocorrelation, qualifying all inferential statements from this model. DSENT remains negative and significant ($B = -1.23E-4$, $Beta = -0.417$, $t = -4.100$, $p < 0.001$) after controlling for macroeconomic conditions and indirect sentiment, confirming the robustness of the Model 1 finding. ISENT is insignificant in Model 3 ($B = 1.22E-4$, $Beta = 0.022$, $p = 0.790$), but its sign reverses from negative in Model 2 to positive here, a suppressor variable effect that likely reflects the correlation between ISENT and the macroeconomic controls (Table 4 shows ISENT correlates negatively with both EXR and SMD at $p < 0.05$), rather than a genuine reversal of the ISENT-VOL relationship. INF is positive and significant ($B = 2.51E-4$, $Beta = 0.430$, $t = 2.770$, $p = 0.007$), consistent with the a priori expectation that inflation transmits macroeconomic uncertainty into market instability. EXR is insignificant ($p = 0.806$) with a VIF of 5.682, and OIL is insignificant ($p = 0.482$) with a negative sign contrary to the a priori expectation, an issue addressed in the discussion below. SMD carries the expected negative sign and approaches significance ($Beta = -0.378$, $p = 0.071$), but given $VIF = 7.425$ and the pervasive autocorrelation problem, this marginal result cannot be treated as reliable. **The null hypothesis H_{03} is rejected** on the basis of INF's significance; the macroeconomic set as a whole significantly predicts volatility through the overall F-statistic even where individual coefficients are imprecise. The Condition Index exceeding 15 in Dimension 7 confirms moderate to severe multicollinearity among the macroeconomic variables, which inflates standard errors and reduces precision for EXR, OIL, and SMD individually.

Discussion of Findings

Direct Investor Sentiment and Stock Market Volatility

The rejection of H_{01} across both Model 1 and Model 3 establishes that the Consumer Confidence Index is a robust predictor of stock market volatility in Nigeria. The consistent negative sign, contrary to the a priori expectation that optimism fuels speculative excess, requires careful theoretical treatment. A plausible explanation lies in the nature of sentiment in a frontier market characterised by persistent macroeconomic instability. In Nigeria, where the mean DSENT of -

10.24 indicates that pessimism dominated the full sample period, improvements in consumer confidence likely signal improving expectations about the broader economy rather than speculative over-optimism. These improving expectations reduce perceived risk, stabilise trading behaviour, and compress volatility. Conversely, extreme pessimism, which characterised the largest share of the sample, is associated with fear-driven trading, herding, and erratic price movements that elevate volatility. This interpretation is consistent with the Adaptive Market Hypothesis (Lo, 2004), which predicts that the relationship between sentiment and market outcomes is time-varying and context-dependent rather than structurally fixed. In persistently bearish environments, sentiment may function as a stabilising rather than a destabilising force, with improvements in confidence reducing the noise-driven trading that generates excess volatility (Schmeling, 2009; Wang et al., 2022). The finding that sentiment operates differently in this frontier context than in developed markets also aligns with Kumari and Mahakud (2015), who documented that the sentiment-volatility transmission mechanism is conditioned by market structure, liquidity depth, and the composition of the investor base.

Indirect Investor Sentiment and Stock Market Volatility

The failure of ISENT to predict volatility in both Model 2 and Model 3, and the non-rejection of H_{02} , raises an important measurement question. The result diverges from volume-based sentiment evidence in the Indian market (Kumari & Mahakud, 2015; Naik & Padhi, 2020), suggesting a structural difference in how market-based signals operate in the NGX. Trading volume and turnover on the Nigerian Exchange Group are heavily influenced by institutional block trades and foreign portfolio flows rather than by systematic shifts in retail sentiment. In this microstructure, volume-based proxies capture liquidity dynamics rather than the behavioural sentiment that generates excess volatility (Adaramola & Obisesan, 2022). The sign reversal of ISENT between Model 2 (negative) and Model 3 (positive) further confirms that ISENT is not independently informative about volatility, its behaviour in the full model reflects its correlations with the macroeconomic controls rather than a genuine sentiment-volatility signal. A more comprehensive sentiment index incorporating the advance-decline ratio, put-call ratio, and IPO activity, proxies that are less susceptible to institutional trading distortions, would provide a more robust test of indirect sentiment effects in the Nigerian context (Baker & Wurgler, 2006).

Macroeconomic Variables and Stock Market Volatility

The positive and significant inflation coefficient ($B = 2.51E-4$, Beta = 0.430, $p = 0.007$) confirms that macroeconomic instability is a meaningful driver of Nigerian stock market volatility, justifying the rejection of H_{03} . High inflation erodes real returns, increases uncertainty about future monetary policy, and complicates corporate planning, all of which contribute to erratic price movements in equity markets (Adeniyi et al., 2021). The non-significance of exchange rate and stock market development, in a model with VIFs up to 7.425 and severe autocorrelation, should be interpreted with caution, estimation imprecision rather than a genuine absence of effects is a plausible explanation, consistent with the Condition Index evidence of near-linear dependencies among INF, EXR, and SMD. The negative and insignificant oil price coefficient warrants specific attention. Nigeria is simultaneously a crude oil exporter and a refined petroleum product importer, creating a bifurcated transmission of oil price shocks: rising prices increase government revenues and foreign exchange inflows but simultaneously raise domestic fuel costs and import bills for manufacturing firms, producing offsetting effects on listed companies (Olowe, 2020). This structural ambiguity may explain why oil price does not emerge as a robust contemporaneous predictor of monthly volatility, even in an economy with strong oil

exposure, and suggests that oil price effects on NGX volatility may operate with lags or through sector-specific channels not captured by an aggregate monthly model.

Theoretical Implications

The findings offer qualified support for the behavioural finance perspective in the Nigerian context. Direct sentiment significantly predicts volatility in a direction consistent with the Adaptive Market Hypothesis (Lo, 2004), sentiment effects are real but context-dependent, operating differently from the speculative amplification mechanism that Prospect Theory (Kahneman & Tversky, 1979) predicts for optimistic market phases. The failure of indirect sentiment and the non-significance of several macroeconomic variables under conditions of severe autocorrelation and multicollinearity indicate that the current OLS framework is insufficient for fully characterising the sentiment-volatility relationship in Nigeria. The evidence motivates a re-estimation using GARCH family models that explicitly accommodate volatility clustering, which is the defining feature of the dependent variable this study examines.

5. Conclusion and Recommendations

This study examined the effects of direct investor sentiment, indirect investor sentiment, and macroeconomic variables on stock market volatility in the Nigerian Exchange Group using 120 monthly observations from January 2016 to December 2025 within a multiple regression framework. Three principal findings emerge. Direct investor sentiment, proxied by the Consumer Confidence Index, had a negative and statistically significant effect on volatility, contrary to the a priori expectation but consistent with the Adaptive Market Hypothesis's prediction that sentiment effects are context-dependent. In a frontier market where pessimism dominated across most of the sample period, improvements in confidence reduced rather than amplified market uncertainty. Indirect investor sentiment, constructed from trading volume and turnover ratio, produced no significant effect on volatility in either the bivariate or full model, indicating that volume-based proxies capture liquidity dynamics rather than the behavioural sentiment that drives excess volatility in the Nigerian microstructure. In the full model, inflation was the only macroeconomic variable to reach significance, confirming that price instability is a direct transmitter of uncertainty into equity market risk. Exchange rate and oil price did not reach significance, the latter despite Nigeria's status as a crude exporter, likely reflecting the bifurcated transmission of oil shocks in an economy that is simultaneously a refined product importer. The combined model explained 34.4 per cent of the variance in volatility, with the remaining unexplained portion pointing to the role of factors beyond the current specification, including time-varying risk premia, regime shifts, and institutional flow dynamics.

A critical diagnostic qualification must accompany all findings. The Durbin-Watson statistics across all three models ranged from 0.383 to 0.531, indicating severe positive autocorrelation that violates ordinary least squares assumptions and likely understates standard errors. All reported significance levels should be treated as provisional. Re-estimation using GARCH family models or Newey-West HAC standard errors is required before the findings can be considered inferentially robust.

Base on the findings of the study, the following recommendations are proposed:

- i. The evidence that the Consumer Confidence Index explains 27.9 per cent of variance in stock market volatility in isolation, and retains significance after controlling for macroeconomic factors, suggests that sustained declines in consumer confidence should

trigger heightened monitoring by the Nigerian Exchange Group and the Securities and Exchange Commission. Incorporating the CCI into formal market surveillance frameworks as a leading indicator of volatility risk would allow pre-emptive stabilisation measures to be deployed in anticipation of deteriorating sentiment conditions rather than in reaction to them.

- ii. Given that inflation emerged as the most significant macroeconomic driver of stock market volatility (Beta = 0.430, $p = 0.007$), monetary policy coordination aimed at anchoring inflation expectations should be treated as a capital market stability objective alongside its conventional macroeconomic function. The finding strengthens the case for continued central bank focus on inflation containment as a complement to NGX development objectives.
- iii. Investment practitioners and portfolio managers should monitor consumer confidence trends as part of risk assessment and position management. Periods of extreme pessimism, which characterised much of the sample period, correspond to elevated volatility environments requiring appropriate hedging and liquidity management responses.

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