

Investor Sentiment and Stock Market Returns in Nigeria

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Abstract

The Nigerian bourse is characterized by continual volatility and unpredictability that traditional macroeconomic models have failed to sufficiently explain this phenomenon. It is against this backdrop that this study examines the impact of investor sentiment on stock market returns in Nigeria. To achieve this, the study built an investor sentiment index (IVSI) using a Principal Component Analysis (PCA). It relied on the ex post facto research design to collated 38 observations of annual time series data spanning 1986 to 2024. Econometric analysis was conducted using descriptive statistics, the Augmented Dickey-Fuller unit root test, and ARCH/GARCH models, with a significance level of 5%. The results indicated that investor sentiment significantly affected stock market returns. Nevertheless, the GARCH model showed positive and significant volatility persistence, implying that past volatility contributed to current market volatility. The study concludes that investor sentiment was not an important factor in stock returns but did play a role in volatility. The study recommends enhanced market transparency and implementing risk management strategies based on volatility. The study contributes to the body of knowledge by integrating behavioural finance with volatility modelling in the Nigerian context.

Keywords: *Investor sentiment, stock market return, ARCH, GARCH, volatility persistence, Nigeria*

Introduction

Investor sentiment has increasingly become a dominant focus in financial economics as a behavioral factor capable of explaining deviations in stock prices from their fundamental values. According to behavioral finance theory, investor sentiment reflects the collective expectations, optimism, pessimism, and other psychological biases of investors, which often lead trading behavior and asset pricing beyond what can be justified by underlying macroeconomic fundamentals (Baker & Wurgler, 2006). This is why the subject is of particular interest in explaining stock market dynamics in emerging markets that experience information asymmetry, speculative trading, and market imperfections, such as Nigeria. Thus, the application of an investor sentiment index is a holistic method to measure these behavioural tendencies by combining various indicators of sentiment into a single measure (John et al., 2022; Busari et al., 2025). Stock market performance, or the financial gain or loss on equity investments, is a key indicator of market performance and economic well-being. In Nigeria, stock returns are generally proxied by the Nigerian Exchange Group stock market capitalization and are influenced by both macroeconomic variables and investor behaviour.

Nevertheless, the volatility observed in the Nigerian stock market over time suggests that conventional determinants might not fully account for return movements. This volatility is commonly associated with variations in investor confidence, speculative activity, and responses to economic and policy uncertainties, further supporting the significance of behavioural variables such as investor sentiment in explaining stock market outcomes (Alajekwu, 2017; John et al., 2022). Previous studies on the subject are largely based on macroeconomic factors including inflation, interest rate, oil prices, exchange rate, and money supply (Omorose et al., 2022), with little consideration given to behavioural variables. This poses a theoretical gap, as traditional finance models may be unable to explain stock price changes in a market characterized by speculative trading and behavioural bias. The investor sentiment, though a highly significant aspect of behavioural finance literature, is still in its infancy in the Nigerian context, and it is yet to be further empirically proven (Baker and Wurgler, 2006; John et al., 2022). One of the weaknesses of the Nigerian literature is the lack of measurement of investor sentiment. Numerous studies have been based on individual proxies like trading volume or market turnover (Emmanuel & Ahmed, 2020; Kalu & Opara (2014); Ugwu et al., 2011; Anifowose & Suleiman, 2013), which are not entirely aimed at the complexity of investor behaviour. Although recent research has sought to develop composite indices of investor sentiment, these efforts have been limited, and the results have often been inconsistent. For example, Alajekwu (2017) stated that investor sentiment and stock returns were positively and significantly related, whereas Busari et al. (2025) reported mixed results, with some of the components of the sentiment index being significant and the overall index being insignificant in some of the models. The index of investor sentiment is the most significant in that it takes into consideration the multidimensional nature of investor psychology by incorporating variables such as trading volume, market turnover, volatility, and exchange rate movements (Lawal et al., 2025). The composite sentiment index provides a more robust gauge of investor mood and expectations than single proxies. Empirical studies in Nigeria have shown that investor sentiment significantly affects stock returns using this proxy, though the magnitude and direction of the relationship vary across studies and over time. For example, some studies indicate a positive and significant correlation between sentiment and stock returns, others suggest that the effect might be conditional or insignificant based on the model specification and the economic conditions (Alajekwu, 2017; Busari et al., 2025). Since financial markets are volatile in nature, it is important to use analytical techniques that adequately capture time-varying volatility and clustering effects inherent in stock returns. This paper will thus use Autoregressive Conditional Heteroskedasticity (ARCH) and Generalized Autoregressive Conditional Heteroskedasticity (GARCH) models to examine the relationship between investor sentiment and stock market returns in Nigeria. These models are especially appropriate because they account for volatility persistence and allow modeling of the conditional variance, which is often influenced by investor sentiment in financial markets. Therefore, the research study is based on the assumption that the investor sentiment index is a significant explanatory measure of stock market returns and their volatility dynamics in Nigeria (Engle, 1982; Bollerslev, 1986; Baker & Wurgler, 2006).

Review of Related Literature

Stock Market Return

Stock market return is the monetary profit or loss accrued to investors by holding securities over a certain period of time, normally stipulated as a percentage of original investment (Ayinuola & Adetiloye, 2023). It is a major measure of performance of the market and wealth creation of the investors through equities, both the appreciation of the capital and the dividends. In empirical finance, changes in broad market indices such as the Stock market capitalization,

or individual stock prices over time are often used as a proxy of stock market return. The returns are a key variable in financial analysis, portfolio management, and investment decision-making, especially in emerging markets such as Nigeria where capital markets are increasingly becoming a critical factor in economic development (Fama, 1970; Alajekwu, 2017).

Stock market returns may be classified into nominal and real returns with the nominal returns being the actual gains without any adjustment to the purchasing power, and real returns which are the changes in purchasing power. Moreover, it may be a simple or logarithmic returns, based on the analytical framework used in a study. A key characteristic is the volatility of stock returns, as the extent of uncertainty and risk in financial markets. Within the Nigerian context, the returns of the stock market have been subject to severe fluctuations due to the macroeconomic instability, the volatility of the exchange rates, the effect of inflation, and the changes in investor confidence, which makes the analysis of the returns particularly significant to both domestic and foreign investors (Bollerslev, 1986; John et al., 2022). Moreover, the returns of stock markets are determined not only by the fundamental characteristics of firms, including earnings, dividends, and growth prospects but also macroeconomic variables and behavioural factors. Recent publications have highlighted that investor sentiment, market expectations and psychological biases are significant determinants of dynamics of returns, particularly in less efficient markets. This poses a possibility that the returns of the stock markets may not be in line with the intrinsic values because of speculative activities and herding. This implies that to comprehend the returns in the stock market, the combination of both the traditional financial theories and the behavioural perspectives need to be taken into consideration (Baker & Wurgler, 2006; Busari, 2025).

Investor Sentiment

Investor sentiment is the general attitude, mood, or psychological disposition of an investor towards financial markets that can influence the investment decision of an investor notwithstanding basic information (Nwari & Olula, 2021). It deals with the level of optimism or pessimism which investors have with respect to the future performance of the market and is often influenced by behavioural biases like overconfidence, herding, noise trading, and emotional responses to market events. In behavioural finance, investor sentiment is identified as a major factor that can cause mispricing of securities as investors can base their decisions on perceptions instead of an objective analysis of economic fundamentals (Baker & Wurgler, 2006; Shiller, 2017). The empirical measurement of investor sentiment has developed greatly in the empirical literature and researcher have followed both direct and indirect methods. Direct measures consist of survey-based measures such as consumer confidence indices, whereas indirect measures are market-based proxy measures such as trading volume, turnover ratio, volatility and fund flows. In more rigorous studies create a composite index of investor sentiment combining multiple proxies using statistical methods including principal component analysis. Such a method will provide a more reliable measure of sentiment since it reflects the multidimensional aspects of sentiment. The creation of sentiment indices has become a topic of discussion in Nigeria, as it offers a more in-depth view of how behavioural factors impact the results of the stock market (John et al., 2022; Busari, 2025). Investor sentiment has a big role to play in the stock market dynamics, especially in the emerging markets where information asymmetry and lack of market efficiency prevail. Positive sentiment will tend to increase the demand of stocks and this will cause higher prices and returns as opposed to negative sentiment that may cause sell-offs and declines in the market. Empirical research has revealed that sentiment trading may result in a superfluous volatility and departure of fundamental values. Investor sentiment is also a key factor that can be used to explain the changes in returns of stock market in Nigeria (Alajekwu, 2017; Baker & Wurgler, 2006).

Theoretical Review

The connection between investor sentiment and stock market returns is based on a number of theoretical perspectives that combine the traditional finance and behavioural finance assumptions. The present study is specifically anchored on the Efficient Market Hypothesis, Behavioural Finance Theory, and Noise Trader Theory, which in combination offer an all-round explanation of how the sentiment of investors affects the performance of the stock market.

Efficient Market Hypothesis (EMH)

The efficient market hypothesis, created by Fama, is based on the premise that the financial markets are informationally efficient, i.e. assets prices reflect all the information available in the market at any one point of time. This theory holds that stock prices change quickly with new information and it is impossible to expect investors to continue to deliver abnormal returns by predicting or estimating future price movements. EMH has three forms, which are weak, semi-strong and strong forms each of which represents a varying degree of market efficiency. In the weak form, the prices indicate historical information; in the semi-strong form, the prices reflect all the publicly available information; and in the strong form, they mirror all the publicly available information as well as any privately held information (Fama, 1970). Nonetheless, the applicability of EMH in explaining stock returns in the Nigerian bourse has been a subject of intense discussion with empirical findings indicating that the market is inefficient due to structural constraints, information asymmetry, and behavioural biases (Alajekwu, 2017).

According to critics, investors are not necessarily rational, and psychological influences tend to affect their choices, causing them to make deviations on their intrinsic values. The constraints of EMH can be seen in the Nigerian context where market inefficiencies are even more pronounced, as investor sentiment and the influence of speculative activities are having a considerable impact on stock prices. Thus, although EMH offers a point of departure in understanding the behaviour of stock markets, it does not take into consideration the role of investor sentiment in influencing stock market returns (Shiller, 2017; Baker & Wurgler, 2006).

Behavioural Finance Theory

According to this theory, investors are not always rational and are often affected by cognitive biases like overconfidence, anchoring, representativeness, and herd behaviour. These biases may cause systematic errors in judgment, and lead to mispricing of securities. The behavioural finance stresses that the sentiment of the investors is the key driver in the market, especially when there is uncertainty or speculation (Shiller, 2017).

The empirical evidence on behavioural finance theory can be seen in the studies that revealed that the investor sentiment impact on stock returns, trading volume, and market volatility. Positive sentiment may cause overvaluation and market bubbles, but negative sentiment may cause undervaluation and market crashes. The behavioural factors are also of particular importance in Nigeria because of a relatively low level of market sophistication and the prevalence of retail investors who can be relying on heuristics, but not fundamental analysis. This renders the behavioural finance theory most relevant when it comes to explaining the relationship between investor sentiment and stock market returns in the Nigerian context (John et al., 2022; Busari, 2025).

Noise Trader Theory

Noise trader theory, which is the creation of Black (1986), further supplements the behavioural finance by explaining the way in which irrational traders, also known as noise traders, affect the financial markets. This theory argues that noise traders base their decision making on the

incomplete or incorrect information, which may often be based on sentiment and not on fundamentals. Their trading activities may provoke volatility and make the value of assets differ with their inherent value. Noise traders are opposed to rational traders in that they make their decisions based on rumours, speculation and emotional reactions thus leading to market inefficiencies (Black, 1986). Noise traders in the financial markets means that price does not necessarily represent true value since the noise traders can overtake rational decision-making. This is especially applicable in emerging markets such as Nigeria, where information dissemination may be disproportionate and speculative trading is the norm. The noise trader theory also suggests that rational traders cannot always correct any mispricing caused by the noise traders due to limits to arbitrage, thus allowing any price distortions caused by sentiment to persist over time. As a result, investor sentiment turns out to be a major factor in stock market returns and volatility (De Long et al., 1990).

Empirical Review

Extant studies indicate that investor sentiment poses a positive but statistically insignificant and sometimes significant influence on investors' returns in the Nigerian bourse. Lawal et al. (2025) found the nexus between the variables to be positive but insignificant (with money supply similarly non-significant). Conversely, Alajekwu et al. (2017) and Busari et al. (2025) found that investor sentiment is a significant determinant of market returns in Nigeria. Furthermore, Zubairu (2016) reported that the relationship is market conditions. It reported that in a bull market, the nexus is significant but loses significance during bear markets. This extant study shows that the influence of investors behaviour on returns is determined by market conditions, time scope of the date and how the models are specified and that the variable does not have a uniform effect due to these reasons. Extant studies also tested the effect of investor sentiment on price fluctuations. For instance, Muguto et al. (2022) and Naidoo et al. (2025) used ARCH/GARCH and GARCH-MIDAS techniques, respectively to found that sentiment magnifies volatility in the South African market. The studies further posited that prices become more volatile when investors' decisions are based on rumors and herd behaviour rather than earnings and growth prospects of the firm. These findings can be situated to the Nigerian bourse due to the communality of characteristics like macroeconomic instability and behaviour driven trading shared by the both markets. Most studies examined short-run or cyclical dynamics (Busari et al., 2025; John et al., 2022; Lawal et al., 2025; Ganiyu & Ibrahim, 2025; Naidoo et al., 2025; Zubairu, 2016), but Nwari and Olula (2021) deviated by cointegration technique and found that investor sentiment is long term in nature and that it is more behavioural and structural than temporal thing that can be assumed away. It is a force that explains stock returns howbeit independent of macroeconomic and monetary aggregates to behavioural factors.

Methodology

The study followed ex post facto research design, which was deemed to be appropriate in the research study since the variables of interest, which were investor sentiment index and stock market returns, were of a historical nature and could not be manipulated by the researcher. The ex post facto design provided the opportunity to investigate causal relationships based on time-series data that were already available in 1986 to 2024.

The research was based on secondary data which was gathered using valid and confirmable sources. In particular, the Nigerian Exchange Group statistical bulletins and the publications of the Central Bank of Nigeria were used to obtain the data on the stock market returns and the data on the trading volume and turnover ratio that were used to construct the investor sentiment index. The data covers 1986 to 2024 which gave a comprehensive time frame that captured structural changes, market cycles and behaviour dynamic in the Nigerian bourse. The data was

time-series in nature, which made it appropriate to be subjected to econometric analysis through the use of trend, stationarity and volatility modelling (Central Bank of Nigeria, 2023). The operationalization of variables was well defined to have empirical clarity. The logarithmic change in the Nigerian Exchange Stock market capitalization was used to measure the stock market return, which was the dependent variable. The independent variable was the investor sentiment index, which was constructed using Principal Component Analysis (PCA), which combined trading volume and turnover ratio into one composite index (Busari et al., 2025; Ayinuola and Adetiloye, 2023; Andleeb, 2024), stock market return was measured using the stock market capitalization of Nigeria. PCA was used to decrease dimensionality and extract the shared component behind the sentiment proxies and in doing so provide a more robust and reliable measure of investor sentiment. This has been a common method in behavioural finance research in an attempt to capture the multidimensionality of investor sentiment (Baker & Wurgler, 2006; Brown & Cliff, 2005).

The methods of data analysis consists of descriptive statistics, unit root tests, as well as volatility modelling based on Autoregressive Conditional Heteroskedasticity (ARCH) and Generalized Autoregressive Conditional Heteroskedasticity (GARCH) models. The basic characteristics of the data were summarized using descriptive statistics, including the measures of mean, standard deviation, skewness, and kurtosis, and so provided an insight into the distributional properties of the variables. To analyze the stationarity of the time-series data, The Augmented Dickey-Fuller unit root test was used to convert the variables into variables that could be readily further economic analysed. In order to capture the volatility clustering and time varying variance of the stock market returns, the study used the ARCH model developed by Robert F. Engle and its extension, the GARCH model developed by Tim Bollerslev. These models were especially appropriate to model financial time-series data that are heteroskedastic and have volatility persistence (Engle, 1982; Bollerslev, 1986).

Thus, the model for this study is stated as;

$$SMTR = f(IVSI, MKTT, TDV)$$

$$SMTR_t = \beta_0 + \beta_1 IVSI_t + \beta_2 MKTT_t + \beta_3 TDV_t + \delta_t$$

$$\beta_1 < 0$$

$$\beta_2 < 0$$

$$\beta_3 < 0$$

Where: SMTR = Stock market returns, IVSI = Investors sentiment index, MKTT = Market Turnover, TDV = Trade Volume, β_0 = Constant, β = Coefficient of the variables and δ_t = Error term of the estimate

Results and Discussion

Table 1: Descriptive Statistics of the Variables

	MKTT	SMTR	TDV	IVSI
Mean	1.501305	3.640363	6.033884	0.971378
Median	1.582655	3.678297	5.797245	0.591297
Maximum	3.549195	6.867923	8.797267	3.325877
Minimum	0.072023	0.274133	3.657233	0.033975
Std. Dev.	0.962165	1.223413	1.561637	0.923397
Skewness	0.150235	-0.073514	0.221253	1.112718
Kurtosis	2.104957	4.437223	1.501895	3.249826
Jarque-Bera	1.448501	3.391745	3.965210	8.149336
Probability	0.484688	0.183439	0.137710	0.016998
Sum	58.55088	141.9742	235.3215	37.88375

Sum Sq. Dev.	35.17896	56.87614	92.67094	32.40116
Observations	39	39	39	39

Source: Authors' computation, 2026

The descriptive statistics for stock market returns (SMTR) indicate that the variable has a fairly symmetric distribution. This is because SMTR has an average and median value of 3.64 and 3.68, respectively. This implies that the data is closely balanced and does not lean severely to either the left or right side of the data graph. The low, near-zero skewness score of -0.07 further confirms that the data is balanced. Furthermore, with a kurtosis of 4.44, which exceeds the threshold of 3, the data are heavy-tailed. This means that extreme events such as booms and market crashes occur more frequently, and on regular trading days, returns are clustered near the mean. The descriptive statistics for the investor sentiment index (IVSI) indicate that investors' expectations are variable. The mean of IVSI (0.971), which is higher than the median (0.591), portends that, on average, investors had moderate volatility expectations in the market. However, the maximum value of 3.326 suggests that, possibly due to macroeconomic instability, investors' decisions are occasionally influenced by extreme spikes in fear and uncertainty. This is further supported by a standard deviation of 0.923, indicating that IVSI is highly unstable and fluctuates around the mean. The skewness of 1.11 is high and positive. This implies that investor sentiment is right-skewed and, in most years, the sentiment is low, with a few years of unusually high sentiment. Further observation of the descriptive statistics indicates that IVSI is not normally distributed. This is because the JB statistic (8.15) is statistically significant, implying that the variable is inconsistent and unstable. This portends that investor sentiment can drive irrational asymmetric swings in market behaviour. The high variability and non-normality justify the use of ARCH and GARCH models.

Furthermore, the market turnover (MKTT) and trade volume (TDV) are normally distributed with no direct outliers. This is because the descriptive statistics indicate that the skewness for MKTT and TDV is 0.15 and 0.22, and the JB p-values are 0.48 and 0.14, respectively. However, the series for trade volume (TDV) is outlier-resistant and stable. This is because it has a lower kurtosis value of 1.50. Conversely, the investor sentiment index, which is a composite of MKTT and TDV are highly volatile and are prone spikes.

Table 2: Summary ADF Unit Root Statistic

Variables	ADF Statistic	5% critical value	Order of Integration
IVSI	-4.585087	-3.544284	1(1)
MKTT	-4.371271	-3.544284	1(1)
SMTR	-7.046654	-3.540328	1(1)
TDV	-7.216249	-3.536601	1(1)

Source: Authors' computation, 2026.

The results indicate that all variables are at their first differencing. This implies that the data are suitable for further econometric modelling, since non-stationary data could give spurious regression results otherwise (Gujarati & Porter, 2009).

The implication of these findings is that shocks to investor sentiment, market turnover, trade volume and stock market returns can have short-lived yet enduring effects, which fade over time. This is consistent with financial theory, which holds that stock market variables tend to follow stochastic trends due to macroeconomic shocks and behavioural effects. The combination of both variables at I(1) was also an additional reason why volatility models like ARCH and GARCH were applicable (Engle, 1982; Bollerslev, 1986).

Table 3: ARCH Result

Variable	Coefficients	Std. Error	z-Statistic	Prob.
MKTT	0.677524	0.199666	3.393291	0.0007
TDV	0.300504	0.058176	5.165464	0.0000
IVSI	0.520867	0.270197	1.927730	0.0539
C	0.355807	0.168098	2.116668	0.0343
RESID (-1) ²	-0.249726	0.083016	-3.008170	0.0026
R ²	0.557558			
Adj R ²	0.644089			
DW stat	1.074264			

Source: Authors' computation, 2026.

The ARCH results tested the relationship between the index of investor sentiment, market turnover, trade volume, and stock market return, and the existence of conditional heteroskedasticity in the data. The coefficients for MKTT, TDV, and IVSI were 0.677524, 0.300504, and 0.520867, with corresponding p-values of 0.0007, 0.0000, and 0.0539, respectively. This shows that aside from ISVI, which is marginally insignificant, the other variables have a positive but statistically significant influence on stock market returns. This means that, although stock returns responded to the investor sentiment index, the magnitude of influence was negligible. The finding indicates that market turnover and trade volume, do have stronger influence on the stock market returns in Nigeria.

The constant value was positive (0.355807) and statistically significant. This means that the level of the stock market returns was positive and statistically significant. This indicates that, on average, the Nigerian stock market gave positive returns regardless of investor sentiment. The coefficient of the lagged squared residual RESID(-1)² in the variance equation is -0.249726 with a probability of 0.0026, which means that the ARCH effect was significant, but negative. This implies that historical volatility in stock market returns played a significant but negative role in the current volatility. The fact that there was a substantial ARCH effect suggests that the volatility clustering was strong, though negative in the model, even though this does not rule out the possibility of more persistent volatility that is represented by higher-order models (Engle, 1982). The Adjusted R² value of 0.644089 implies that the model explains about 64.41% of the variation in stock market returns. The Durbin-Watson value of 1.074264 indicated no severe autocorrelation in the residuals. In general, the ARCH model has shown that investor sentiment was strong but negative, while market turnover and trade volume were both strongly and positively associated with the stock returns, and the volatility effect that the ARCH term captured was strong.

Table 4: GARCH Result

Variable	Coefficient	Std. Error	z-Statistic	Prob.
TDV	0.338299	0.059786	5.658508	0.0000
MKTT	0.412611	0.266704	1.547072	0.1218
IVSI	0.665389	0.081189	8.195569	0.0000
GARCH (-1)	1.416015	0.676463	2.093262	0.0363
R ²	0.599872			
Adj R ²	0.688754			
DW stat	1.037721			

Source: Authors' computations, 2026.

The GARCH equation shown in Table 4 was a continuation of the ARCH equation, with the addition of a lagged conditional variance term to capture volatility persistence. The coefficients for IVSI, TDV, and MKTT were 0.665389, 0.338299, and 0.412611, and the corresponding p-values were 0.0000, 0.0000, and 0.1218, indicating that investor sentiment, trade volume, and market turnover were positively related to stock market returns. However, TDV and IVSI were statistically significant, whereas MKTT had an insignificant effect on stock market returns. This finding differed from the ARCH model, which supported the conclusion that investor sentiment did not play a significant role in stock market returns in Nigeria during the study period. The GARCH result, however, confirmed the significance of investor sentiment but found market turnover to be statistically insignificant.

The constant term in the mean equation was positive and significant (0.355807, $p = 0.0343$), indicating that stock market returns were positively driven by factors other than investor sentiment, trade volume, and market turnover. The ARCH term ($\text{RESID}(-1)^2$) had a coefficient of -0.249726 and a probability value of 0.0026, indicating it was statistically significant and had a negative relationship. However, the GARCH term ($\text{GARCH}(-1)$) had a coefficient of 1.416015 and was statistically significant at the 5% level ($p = 0.0363$). This result showed that volatility was persistent in the Nigerian stock market, i.e., past volatility had a significant impact on present volatility. This is in line with financial market behaviour, where high-volatility periods are likely to be followed by high volatility, and low-volatility periods by low volatility (Bollerslev, 1986). The Adjusted R^2 of 0.688754 indicated that the model explained approximately 68.88% of the variation in stock market returns, and the DW stat of 1.037721 suggested no serious autocorrelation. The significant ARCH and GARCH terms supported the fact that volatility clustering did exist in the Nigerian stock market. Therefore, the GARCH results showed a positive and significant influence of investor sentiment and trade volume on stock market returns. On the other hand, market turnover, though, had a positive relationship but insignificant effects on stock market returns in Nigeria. The volatility clustering also persisted fairly and positively.

Discussion of Findings

The ARCH and GARCH findings revealed that the investor sentiment index influenced the returns in the Nigerian stock market positively and significantly, but the effect of market turnover was insignificant. This means that the sentiment of the investor and trade volume moved in the same direction as the returns in the stock market, but the relationship was high enough to statistically justify changes in returns over the period under consideration, though trade volume was insignificant. This finding is in agreement with Alajekwu et al (2017), who reported that investor sentiment had predictive power regarding future stock returns in Nigeria. It is, however, not the same as Lawal et al (2025), who detected that investor sentiment had a positive and, however, insignificant direct relationship with stock returns in Nigeria, indicating that sentiment might not always have a strong direct impact on market returns. This can be attributed to psychological biases common in most emerging markets as a result of information asymmetry, insider trading, and market depth.

The fact that a significant source of stock market returns is the sentiment of investors and trade volume opposes the Efficient Market Hypothesis, which argues that stock returns adjust to the available market information and no single behavioural indicator can be consistently used to predict returns (Fama, 1970). Nevertheless, the Nigerian stock market depth cannot be indicated as perfectly efficient since the GARCH output indicated volatility persistence. This implies that investor sentiment and trade volume did significantly explain the average returns; previous volatility also contributed to the current volatility. This observation confirms the GARCH argument of Bollerslev (1986) that the volatility of financial markets is, in many cases,

persistent and time-varying. The results also correlate very well with Behavioural Finance Theory and Noise Trader Theory. The reason is that, according to Behavioural Finance Theory, investors may be subject to emotions, overconfidence, fear, optimism, pessimism, and herd behaviour rather than being solely influenced by rational information (Shiller, 2017). Further elaboration is provided by the Noise Trader Theory, which explains that irrational traders can destabilize the market through speculative trading and responding to rumors or incomplete information (Black, 1986; De Long et al., 1990). Thus, both investor sentiment and trade volume were statistically significant in explaining stock returns; the significant GARCH terms also indicated that behavioural and speculative forces might still contribute to volatility persistence in the Nigerian stock market. The ARCH result indicated that the shock effect in the short run had a significant impact, and the GARCH result indicated that past volatility was a significant predictor of the current volatility. This means that volatility in the Nigerian stock market is persistent. The result is in line with Engle (1982) and Bollerslev (1986), who believed that financial returns tend to be conditional heteroskedastic and volatile clustering. In general, the research has concluded that investor sentiment and trade volume were significant determinants of stock market returns in Nigeria, and that volatility persistence remained a significant characteristic of the market.

Conclusion

To investigate the correlation between investor sentiment, market turnover, trade volume, and stock market returns in Nigeria, the study used ARCH and GARCH models. The results showed a positive and statistically significant influence of investor sentiment on stock market returns, indicating that investor sentiment, market turnover, and trade volume directly drove stock market performance during the period. The presence of a GARCH effect indicated that volatility persisted significantly in the Nigerian stock market, implying that past and present volatility had a significant impact on current volatility. This indicates the significance of risk dynamics in the context of market behaviour. The study also found that the variables were significant factors in explaining returns; they were directly impactful through volatility dynamics. This supports the relevance of behavioural and volatility-based methodologies in the analysis of financial markets.

Recommendations

Based on the findings, the study recommends as follows:

- i. The regulators, like the Nigerian Exchange Group and the Securities and Exchange Commission, should enhance the transparency of the markets.
- ii. Requirements of disclosure, investor education, and the timely publicity of the market should be enhanced. Because people continued to make rumors, speculative reactions, and information asymmetry due to poor, incomplete, or incorrect information.
- iii. Regulators should monitor, strengthen and enforce the laws on insider-trading, which in most cases is the source of rumors, speculative reactions and information asymmetry. This, in turn, leads to a herding mentality that can destabilize the market.
- iv. Investment analysts should use ARCH and GARCH-based volatility forecasting models in investment analysis. Because historical volatility significantly affects current volatility, investment decisions cannot be based solely on expected returns but should also incorporate time-varying risk and volatility persistence.

Limitations of the Study

There were a number of limitations of this study that had to be taken into account when interpreting its findings. To start with, the study used only secondary time-series data obtained

from the Nigerian Exchange Group and the Central Bank of Nigeria, which are subject to data accuracy issues, revisions, and inconsistencies in data reporting over time. These are inherent drawbacks in financial time series data that can affect the accuracy of empirical results (Gujarati & Porter, 2009). Second, the investor sentiment measure was limited to a composite index constructed from trading volume and the turnover ratio, derived via principal component analysis. This approach, though it captured important market-based sentiment indicators, did not incorporate survey-based or qualitative measures of investor psychology, which could have provided a more comprehensive representation of sentiment (Baker & Wurgler, 2006).

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